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WWW.GOVTECH.COM

Publisher: Alan Cox, alanc@erepublic.com

EDITORIAL GT Editor:

Managing Editor: Web Editor & Photographer: Chief Copy Editor: Copy Editor: Senior Editor: Assistant News Editor: Staff Writers:

Noelle Knell, nknell@govtech.com Lauren Harrison, Iharrison@govtech.com Eyragon Eidam, eeidam@govtech.com

Miriam Jones, mjones@govtech.com Kate Albrecht, kalbrecht@govtech.com Tod Newcombe, tnewcombe@govtech.com Ben Miller, bmiller@govtech.com Skip Descant, sdescant@govtech.com Theo Douglas, tdouglas@govtech.com Zack Quaintance, zquaintance@govtech.com Elizabeth Zima, ezima@govtech.com

Contributing Writer David Raths

Editorial Assistant: Erik Hopkins, ehopkins@govtech.com

Chief Design Officer: Graphic Designer Pubs: Senior Designer Custom Production Director: Production Manager:

 $\textbf{Kelly Martinelli,} \underline{kmartinelli@govtech.com}$ Kale Mendonca, kmendonca@govtech.com : Crystal Hopson, chopson@govtech.com Stephan Widmaier, swidm@govtech.com production@govtech.com

PUBLISHING

SENIOR VP OF STRATEGIC ACCOUNTS Stacy Ward-Probst, sward@govtech.com

Kim Frame, kframe@govtech.com

Arlene Boeger, aboeger@govtech.com Shelley Ballard, sballard@govtech.com

Melissa Sellers, msellers@govtech.com Tracy Meisler, tmeisler@govtech.com Karen Hardison, khardison@govtech.com Lara Roebbelen, Iroebbelen@govtech.com Carmen Besirevic, cbesirevic@govtech.com Lynn Gallagher, lgallagher@govtech.com Kelly Schieding, kschieding@govtech.com

Paul Dangberg, pauld@govtech.com Rebecca Regrut, regrut@govtech.com Kathryn Nichols, knichols@govtech.com Joelle Tell, jtell@govtech.com Lisa Blackie, Iblackie@govtech.com

Maggie Ransier, mransier@govtech.com Nick Pedersen, npedersen@govtech.com

Katrina Wheeler, kwheeler@govtech.com

Kelly Kashuba, kkashuba@govtech.com

Jane Mandel, jmandel@govtech.com Koy Saelee, ksaelee@govtech.com

Sr. Dir. of Sales Operations: Andrea Kleinbardt, akleinbardt@govtech.com

Content Studio Managing Editor: Dir. of Web Marketing: Web Advertising Mgr. Subscription Coord.:

Jeana Bigham, jbigham@govtech.com Zach Presnall, zpresnall@govtech.com Adam Fowler, afowler@govtech.com Eenie Yang, subscriptions@govtech.com

CORPORATE

VP Research

CEO: President: CAO: CFO: Executive VP: Chief Content Officer: Paul Taylor, ptaylor@govtech.com

Dennis McKenna, dmckenna@govtech.com Cathilea Robinett, crobinett@govtech.com Lisa Harney, lharney@govtech.com Paul Harney, pharney@govtech.com Alan Cox, alanc@govtech.com

Dep. Chief Content Ofc.: Steve Towns, stowns@govtech.com Joe Morris, jmorris@govtech.com Government Technology is published by e.Republic Inc. Copyright 2018

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What's in a Name?



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his issue marks the third iteration of the GovTech100 — a representative list of 100 technology companies whose solutions are aimed at state and local government, a market with estimated tech spending of more than \$100 billion last year. As we've gotten deeper into our coverage of the growing ecosystem of companies offering innovative tech solutions to solve real government problems, there are clear signs the market is maturing. New ideas continue to make their way onto the scene, and the deals and investments are growing, signaling the viability of a government-only (or government-first) business model.

A quick look through the companies that make up this year's GovTech100 reveals a number of themes. While it's not surprising that five companies have "gov" in their names, it does lay plain their focus on the public sector, eliminating any ambiguity as to their target audience. Four out of five companies with gov in their names were formed in this decade, most in the latter half. While unscientific, it stands to reason that, before then, most companies wouldn't brand themselves as governmentonly enterprises. The outlier, NEOGOV, was formed in 1999, and its HR software is used by more than 1,500 customers in state and local government and education.

The words "open" and "data" show up in a handful of company names on the list. OpenDataSoft checks both boxes, and in a win for truth in advertising, offers an open data hub serving both citizens and the pub-

lic sector. The widespread use of both words, and so many related terms, in company monikers is reflective of where government priorities lie in 2018. Good government is guided by open, transparent operations. And the most effectively run public organizations are supported by usable, timely data that can be harnessed by those inside and outside of government for the most possible good.

The most prominent words to show up in GT100 company names are "city" and "civic." This undeniable fact suggests that the civic tech movement we've been covering for several years has given rise to this new market category of gov tech, and that many solutions are borne out of tech- or just plain civic-minded citizens connecting in new ways with local governments and identifying areas where they can help. And more than help, they're finding ways to productively engage with their communities and create viable businesses that can scale to jurisdictions around their state and across the country.

It's not a homogeneous list, to be sure. But taken all together, it's a revealing look at what's trending and what's gaining ground in the emerging government-focused tech marketplace. Read our story *Raising the Profile*, p. 14, for insights and analysis on the year that was in the gov tech market. Also, see who made this year's list (starts on p. 19) and let us know what you think. The complete list and an interactive funding map are online at govtech.com/100.

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Updates from Government Technology's daily online news service.

Driverless Cars Hit the Road in Arizona

Twenty states now allow for some form of autonomous vehicle (AV) testing, and now two
Arizona cities have become go-to test beds for piloting the tech on city streets. Both
Tempe and Chandler have established mostly informal agreements with AV
companies to operate their cars in real-world scenarios. Uber has deployed
self-driving cars in Tempe, while Waymo has been testing its technology
in Chandler since 2016, and the cars have been driverless since mid-

October. "Because of Arizona's 'hands-off' approach to this field, we don't require any special permits or reporting requirements of the companies that come here to test," said Ryan Harding of the Arizona Department of Transportation. "Our goal is making sure companies developing the technology have a hurdle-free path while ensuring key areas like safety are addressed."



In a move to secure Floridians' data and personal information at the source, in his 2018-2019 budget, Gov. Rick Scott is proposing a recurring annual expense of \$220,000 to provide training to security managers across 35 state agencies. The move comes at the request of the Agency for State Technology, which previously received the funding on a year-to-year basis, but as agency spokesperson Erin Choy pointed out, it has a "statutory responsibility" to train state agency information security personnel.

Biz Beat

The **Govtech Fund**, a venture capital firm targeted specifically toward tech companies working with government, is in the midst of raising a second fund. The firm has raised \$20.75 million so far toward a possible \$25 million maximum for the fund, according to a filing with the U.S. Securities and Exchange Commission. Since it first launched in 2014 with \$23 million, the Govtech Fund has invested in at least 13 companies, including Neighborly, SeamlessDocs and Mark43. At the time of its launch, Ron Bouganim, fund manager and the firm's founder, said he anticipated putting about \$500,000 into each investment.

WHO SAYS?

"For the first time ever, technologists are now expected to talk to the public. My God, what have we done tactically to get to this point?"

Govtech.com/quoteJanuary2018

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Number of applications submitted for Bloomberg Philanthropies' Mayors Challenge competition, which offers \$5 million to the city leader with the best solution to an urgent problem facing local governments nationwide.



Funding raised in a Series A round by Optibus, whose Al-powered software optimizes transit in 200 cities globally.

2.9%

The drop in public transit ridership in the first half of 2017, which continues a downward trend after peaking in 2014.

\$35M

The amount Georgia Gov. Nathan Deal announced will be used to build a second building at the state's Cyber Innovation and Training Center currently under construction.



The public sector faces increasing cybersecurity threats. No agency plans to be a target of one of these attacks, but it must be prepared nonetheless. That's why leveraging the right backup and recovery solution is critical.

Government leaders must take three steps to build a resilient agency: prepare, respond and adapt. In this Q&A, we take a closer look at step three: adapt. **Veritas Senior Principal Systems Engineer Scott Warmbier** discusses how organizations can build an effective backup and recovery infrastructure so they can better adapt to today's evolving threat environment.

What backup and recovery methods are typically used in the public sector?

State and local agencies often have traditional backup and recovery methods in place, like snapshots or duplication, because they're heavily virtualized.

Some agencies also have a business continuance plan, but it's usually a manual process. They may be ahead of the curve in other areas, but they often operate large, on-premises legacy systems and haven't taken that next step toward automated business continuance. That's where Veritas can help them.

What makes the public sector a target for cyber attacks?

State and local agencies' backup infrastructure may be adequate for backup, but not for large-scale recoveries or to view these threats as a business continuance event. There is a gap between where they need to be with respect to ransomware and other cybersecurity threats and where they are now.

However, we have been able to support our state and local government customers in putting the necessary resources in place to recover in a more timely fashion.

How can agencies avoid potential disruptions to their IT operations, and thereby achieve IT resiliency?

Agencies first need to determine whether their backup and recovery infrastructure is adequate. Once they do this, they need to leverage automation tools to deliver business continuance and resiliency.

Even though public sector agencies may feel adequately protected, they need to have a solid plan to quickly retrieve their information in the event of a breach. Taking a comprehensive approach will make all the difference.

VERITAS carahsoft



Melissa Bridges

Performance and Innovation Coordinator, Little Rock, Ark.

Melissa Bridges has had three careers with Little Rock, Ark. She worked in the mayor's office in the late '90s while finishing a master's degree in public administration. Then, following a stint in the Peace Corps, she became network security manager in 2010, a role she held for six years. Most recently, the city named Bridges its performance and innovation coordinator, a new position she is excited to define. After participating in Bloomberg's What Works Cities program, Little Rock has a new open data policy, an open data portal, and momentum toward improving internal efficiency with data while also building public-facing tools for engagement and transparency. In fact, one of Bridges' early challenges has been to limit how much she tackles.

"All the other cities I've talked to doing similar work, the biggest lesson they've told me is 'don't bite off too much, because if you try to solve all the world's problems, you'll set yourself up for failure," Bridges said. "Just find one small thing to focus on and grow from there, and that's the approach we're taking."

Where is Little Rock with its open data efforts?

We launched an open data portal, and we've got a new website called Citizen Connect that allows the regular layperson to look at a map and understand better without being a heavy data person. We've tried to layer our 311 requests with police incident information and building permits, and we're also adding housing information, working to get our unsafe and vacant structure list up. It's an easy way for

people to see what's going on around their house, around their kid's school, and also for us to see areas the city needs to refocus resources on, to use data to push policy decisions.

How has the shift from head of network security to open data been?

My old position was heavily involved with information security and teaching end users why that's important. Now, I'm on the other side. I think about how to release info

to the public and how to bust down data silos between departments so they get a more complete vision. Our police chief has been a real champion of this work, which is kind of unique for cities. He knows he has one piece of the puzzle, but crime information without code enforcement or public works or community programs — he knows those are partners and he needs their pieces of the puzzle to say, "Hey, we've got a lot of commonality with problem areas, so let's band resources together and turn those areas around."

Has it been difficult to foster internal buy-in across departments?

It has been a long journey. I will not tell you all 13 departments are on board and completely understand, but another big champion we've had is our city manager. He led the charge and said, "Let's see if we can have access to these resources because it's a better way of doing business." He wanted to have deeper, richer conversations with his department directors about putting data puzzle pieces together. A lot of it has been internal education, showing other departments, look, here's what housing is doing with this. It's been little successes within departments as they've come on board, and it's been finding key people in departments already hungry to have the technology piece, which is the piece they were missing. They knew they had the information, they just didn't have a platform to do something with it.

What are the immediate goals for open data in Little Rock?

The city manager has stated that in 2018 he wants to have a public meeting focused around quality-of-life issues, including everything from public safety to parks to community programs, like a one-stop shop for citizens of Little Rock. Instead of running to a budget meeting, a planning meeting, a quarterly crime meeting, you can come to one meeting and have all these entities there with data leading the discussion, saying, here's what we're seeing, what potential trends are and why we need to refocus resources based on what we're seeing, but have that be a citizen-focused conversation around data.

- Zack Quaintance, Staff Writer

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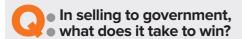


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What Does It Take to Win in Gov Tech?

Joe Morris, vice president of research for e.Republic, answers commonly asked questions from companies working in the government technology market.

By Ben Miller



Government's a tough business in that it's a large market. It's many different governments, many different programs, many different verticals all with very specific needs. But there are some principles that we think companies in this space or companies looking to get into this space should follow. They boil down to the fact that governments do business with companies they know and trust.

If you're sitting there going, "How do I develop trust when I'm a new player?" there are ways to do that. That's having a relevant point of view so you can gain traction, you're seen as a trusted adviser. But at the end of the day, government is still somewhat risk averse. They don't like to be the first to do much of anything most times, so they're looking to go with known quantities a lot of the time.

But how do you establish that? Government has a very defined procurement process with rules and regulations.

The great thing is they make all of that information available to you. And because they make it available to you, they expect you to know that you need to register as a vendor, that between this dollar amount and that dollar amount, this is the process. They expect you to speak their

language. If you're coming over from the commercial market, they don't want you to be talking about profit. They want you to be talking about what's relevant to them.

So how do you become relevant to win? I think that's doing your homework. Most governments produce a strategic IT plan. Review that strategic IT plan in that city, that county, that state. Look and see if there's alignment to what you're offering and their needs. Look at the organizational chart, understand where people sit, what their responsibilities are.

Read the publications that are in this space. Read the surveys that are produced. One of the pieces of advice I always give to clients is take our top 10 priorities that are produced by the [Center for Digital Government's*] Digital Cities, Counties and States surveys and line up your offerings to them.

How does a new entrant into the market deal with the fact that government sometimes leans toward the vendor who was already on the contract or that they've dealt with before in another capacity?

I think it's that they want people that are in this space to some degree, that are proven. I don't think it's any different from when you or I go out to get a plumber or a home contractor. Do you want it to be the first job that they've ever taken on? Or do you want to go onto Yelp or Angie's List or some equivalent and determine that this person has higher reviews?

How do you get there? How do you develop that? By creating case studies,

66 A lot of times, if you have a company that normally sells to commercial or private-sector entities, a lot of things are about profit. That's not a concept in government.

The following is excerpted from the Govtech.com series, Ask Joe. Check out the ongoing series at **govtech.com/askjoe**.



66 Ultimately I think that the companies that succeed work the hardest to develop a strong relationship with the market and/or their client.

thought leadership, positioning in the market so you're seen in this space. Does your website even say "government" on it? Have you done past government work? If so, you want to call that out on your website or in case studies, so if I'm a government procurement official or IT official and I'm doing my research and I stumble into your content, I want to see a bunch of city seals and state logos.

If you don't yet have that track record, I'm also interested in non-public-sector examples, but they still have to be relevant. You have to be talking that language, so create a point of view. Demonstrate your subject matter expertise.

I also say that now it's changing. You see ... new entrants winning business in many spaces. It's not like if you're not here you're never getting in. There are a lot of new companies that are coming into the gov tech space and the civic tech space that don't have what you would consider a pedigree of established wins. But what they have is a really competitive offering and they're speaking the right language.

That idea of subject matter expertise can play itself out in a variety of ways. That subject matter expertise could be that you have tremendous deep expertise in the area of health and human services and you're a leader in that space. It could be that you are a phenomenal case management solution; you

understand how it links up to government, but case management is what you have.

How would you say you bridge that gap, if you're a subject matter specialist who doesn't necessarily have a ton of government background?

It will vary, but I think you have to look at similar situations. Have you done a similar initiative, maybe not in government, but in size and scope in a different industry? If you're in health and human services, have you done it in health care? Can that experience in that other industry be leveraged, and can you identify the commonalities? For example, if you can handle Kaiser Permanente or Blue Shield or Blue Cross, you can probably handle the county hospital of XYZ.

Part of it is looking for those similarities and tying that up. But whenever you do that, you have to tell that story and it has to be told in the right language.

Ultimately I think that the companies that succeed work the hardest to develop a strong relationship with the market and/or their client. And they do that by being a trusted adviser, and that's by providing insight, by seeing around the corner and educating their prospect, that CIO, that IT

leader, about what's coming. And that could be because they've got vertical expertise. They're seeing the transportation vertical on a much higher level because they're not putting out fires, or they're leveraging their past experience. That could be about a program or that could be about a technology.

Look at something emerging, like we're starting to see editorial coverage bubble up around blockchain. There aren't a ton of public-sector implementations, but there are vendors out there educating on it.

What do you mean by speaking the right language?

Every industry has its own nomenclature. A lot of times, if you have a company that normally sells to commercial or private-sector entities, a lot of things are about profit.

That's not a concept in government. That's not the right term. You're not going to go into a K-12 school district and talk to them about profit. You're going to talk to them about educational outcomes and how you're going to improve their graduation rate. When you go to health and human services, it's not going to be about cutting costs to appease shareholders. It's going to be about how do we help people get onto these social services programs, work them through the system and improve their lives, improve their outcomes. How do we help you do that more efficiently, perhaps, to contain costs because budgets aren't limitless? It's just leveraging the right language.

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



Getting on the Same Page

To improve disaster response, government must learn to trust new tech tools.

uring the wave of hurricanes that tore through a number of coastal areas in September, crowdsourcing was a lifesaving tool, allowing residents in need of rescue to input their locations so that first responders could find them and giving relief workers better information to help them navigate the perilous landscape. Throughout those chaotic weeks, first responders used these volunteer-created maps to identify stranded residents and ensure that help could reach them safely. At the same time, governments used their own data on the status of flooding and locations of vulnerable residents to direct interventions. While collaboration between volunteers and governments improved throughout the storms, better coordinating interventions could make the next response much more effective.

Gaining the government's trust to use crowdsourced tools was a challenge, especially in the earlier storms. "The government was a bit hesitant to rely on volunteers," explained Matthew

Marchetti, creator of the CrowdSource Rescue site.

Not having the government and volunteers on the same page during Harvey was a disadvantage. The inability to share data on who needed to be rescued led to redundant efforts from volunteer and government responders. "You might have three rescuers calling someone at the same time," Marchetti explained.

However, throughout the storms, volunteer groups worked to improve coordination with governments. Ted Brassfield, project lead for CrowdRescue HQ (CRHQ) in Puerto Rico, said that during Harvey, CRHQ began reaching out to the Federal Emergency Management Agency (FEMA) to explore opportunities for coordination. During Irma, the group proposed models for collaboration, and began actively developing processes in conjunction with FEMA during Maria. The result was better communication with FEMA's responders, and therefore fewer redundant efforts. Going forward, government should seek to deepen this collaboration with volunteers, moving toward a master map on which both groups can input information on residents in need of rescue and those already safe.

Pooling government and volunteer resources can also increase the accuracy of future response efforts. Marchetti understood the value of this collaboration and reached out to government during the storms in Puerto Rico. While volunteers had access to publicly available data from the National Weather Service and Puerto Rico's Department of Transportation, government possessed other vital resources that were not readily available, like information on the location of elderly and low-income residents. Collaboration did improve throughout the storms — by

the time Maria struck, "government was actively coordinating with groups like CrowdRescue HQ," said Brassfield. In the days leading up to the next storm, government should build upon these advances, offering volunteers access to additional data and resources.

Governments' initial hesitance to work with volunteers was understandable, considering questions about the reliability of crowdsourced data, but volunteers went a long way toward earning trust during the recent storms. Chris Bellmyer, an environmental specialist at Maryland Environmental Service who volunteered with CrowdRescue HQ in Puerto Rico, explained that the organization put in place a quality assurance and control process to lend authority to its data. "During data mining and input, volunteers reached out and re-confirmed with original sources," he said. "We would try to reach out to people directly on social media to get clarification and more information about a particular situation, and some of our volunteers would ask their families that were in Puerto Rico whether or not they were experiencing or heard something similar."

The leaders of these crowdsourcing efforts also see the success of these initiatives as a building block for more trust and collaboration down the road. "This was a very good proof of concept that's changing conversations," said Bellmyer. "We showed that crowdsourced data can be verified and can be more accurate than what government receives from their sources on the ground."

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

Stephen Goldsmith

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



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Raising the Profile

Three years in, more signs emerge that upstart tech companies see government as a legitimate market.

BY BEN MILLER

merica knows about Internet-connected juice machines that squeeze bags with roughly the strength of a pair of human hands, and salt shakers that also play music, and smart door locks that may not open if a software update goes wrong. This is the world of big tech investment, where a company with a zany idea may flare up and fizzle out or it may hit the stock market at a billion-dollar value.

Is there room in that world for technology that helps city hall update its application forms?

It's beginning to look like the answer is yes. In the past several years, the ecosystem of government-serving technology companies has seen an undeniable rise in financing activity, and it's been taking many forms: bigger deals, more investors, more companies, new ideas.

There are many possible explanations for why. State and local governments have become more willing to try implementing new systems using agile methodologies that fit better with the modern tech world. They are striking up pilot projects and demonstration agreements that let them try out new ideas before taking the kind of big-dollar risks that government is not amenable to taking. The rise of cloud computing has created an environment where small companies are better able to build products that can work for public agencies big and small.

Regardless of why, things are changing in the gov tech space. That's why *Government Technology* has, for three years now, put out a list of 100 companies serving government in unique, innovative, effective ways. When the first GovTech 100 list came out in 2016, e.Republic Chief Innovation Officer Dustin Haisler — heavily involved in the list's creation — saw that many of the investors involved in the companies seemed like they were "experimenting around the edges." They would invest in one gov tech company to see how it would go.

Things look quite a bit different these days.

"It's no longer a test bed," Haisler said. "It's really starting to blossom into something that investors are more comfortable with." Gov tech, with its emphasis on speeding up administrative functions and digging into old data sets, might not hold the national fascination like the gadgets America just unboxed for Christmas. But it's growing.

Now, what will that mean for government?

BIG MOVES

If investors weren't interested in gov tech, one might expect the deal landscape to look sparse and inconsistent, limited to well-established companies and with low price tags.

Not so.

Especially in the past year, the gov tech market has experienced increasing interest from some big names and some high dollar-value deals to follow. Government Technology tracked six separate investment rounds that reached at least \$10 million this year — in **Remix**, **OpenGov**, Neighborly, Nextdoor, LiveStories and **Optibus**. Most of them were Series A rounds, implying that if those companies were to go on and raise more capital in a year or two, they would attract even more money. Another that leans toward government clients, the drone navigation company **AirMap**, brought in a \$26 million Series B in February 2017.

But there's been more activity further down the corporate growth road for gov tech companies too. Private equity firms, which tend to lean toward larger investments in more established companies and can end up buying out earlier investors, have been making waves in gov tech. In October 2016, **Warburg Pincus** made what was probably a minority-stake investment in **NEOGOV**, and in June 2017 **Serent Capital** made a similar investment in **Pondera** (see *Growing Up Gov Tech*, p. 26).

2018 GOVTECH 100 COMPANIES HAVE RAISED \$2,088,651,000 IN FUNDING Then there are the ownership deals. In 2016, **Vista Equity Partners** bought **Granicus** and **GovDelivery**, two of the largest strictly software-as-a-service vendors that work entirely with state and local government, and merged them together. In 2017, **Berkshire Partners** purchased **Accela** in what they credibly called the largest gov tech investment deal ever. Accela CEO Ed Daihl hinted that the investment was somewhere between \$500 million and \$1 billion.

Finally, gov tech saw one of its own go public this year. Though the initial public offering for **ShotSpotter** wasn't quite on the order of magnitude of consumer apps like **Snapchat**, the gunshot-tracking firm raised \$35.4 million — about \$4.6 million more than it had anticipated. In the first five months after the IPO, the company's stock price rose.

NEW ENTRANTS

But underneath the flashy, headlinemaking big deals lies a bubbling ecosystem of smaller-scale activity and a host of new people getting involved in gov tech financing.

There are a few people in this space who have been established for some time: **Urban.Us** has been around since 2013, the **Govtech Fund** launched in 2014 and the **Urban Innovation Fund** set up shop in 2016, though it is tied to the work of the older nonprofit **Tumml**.

Recently more people have been joining the market with capital pools dedicated either directly to gov tech or overlapping heavily with it. Toward the end of 2016, a former mayor of Philadelphia, former chief data officer of Chicago and New Jersey attorney general — among others — started a unique investment firm called **Ekistic Ventures**. And **Responder Ventures**, dedicated to funding public safety technology, is looking to set up its first official fund after a couple years of working with private money from the family of one of the founders.

A very conservative estimate — the bare minimum — would be that all these firms control some \$70 million between them (which includes nearly \$21 million raised by the Govtech Fund last November). They almost certainly manage much more than that.

That's not counting investors who are well-established but are only now beginning to look like more serious gov tech backers. Among these are **Salesforce**Ventures, which is that company's very active investing arm, and the private equity firm **Banneker Partners**.

Responder Ventures, one of the newer entrants to the space, said not all niches of the public-sector technology market are moving at the same pace. Public safety investing, the area Responder focuses on, seems like an awfully lonely place. Bryce Stirton, partner and managing director at the firm, said that when the team worked with Motorola Solutions to try to get an idea of what percentage of public safety company investment offerings get funded, the number was so low that the data didn't seem reliable.

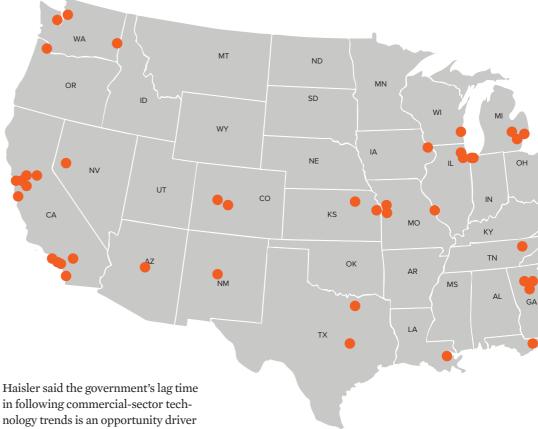
"We have yet to find another investor actively willing to go in at the state and local level and work on selling to smaller agencies, which is really what it takes in public safety investing," Stirton said.

Some of the most prominent startup accelerators in the space — those that work with very early stage companies and focus on business strategy as well as infusing a small amount of capital — have also started welcoming more gov tech entrepreneurs. These include the **Y Combinator**, **500 Startups** and **Techstars**. In the past year, **Urban.Us** has started working with the New York accelerator **URBAN-X**, which has backing from the automaker **MINI**, to offer more opportunities for startups focused on urban problems and local government.

Maury Blackman, who was at the helm of **Accela** for more than 15 years as it grew into maturity, is on the bleeding edge of people jumping into gov tech investing. After leaving the company in October 2016, Blackman has revealed to *Government Technology* that he's turned to the finance side of the business, signing on as a limited partner with the **Urban Innovation Fund** and independently co-investing on several fundraising rounds for companies in the space.

COOL IDEAS

It's not just that investors are paying more attention to gov tech, either — there's a lot of entrepreneurship coming in too.



in following commercial-sector technology trends is an opportunity driver here. That is, the app-store mentality that exists for smartphones and has powered a new industry filled with niche developers is just starting to flourish in government. As a result, software seems to be getting more sophisticated.

"We're starting to move into more mission-critical applications that do much more complex work and work with much more sensitive data," Haisler said.

Perhaps the best showcase of that increasing entrepreneurship is in the number of unique, innovative ideas that newer companies are bringing to market.

Artificial intelligence and machine learning algorithms are powering a lot of it. For example, **SADA Systems** launched an asset management platform in 2017 that uses machine learning to automatically

AVERAGE NUMBER OF FUNDING ROUNDS FOR A 2018 GOVTECH 100 COMPANY: 2 transform data into a usable format, and can also parse through photos of infrastructure to find signs of damage. **Waycare**, which is in the process of setting up pilot projects across the U.S., is using machine learning to predict when and where traffic congestion and accidents will happen. **CivicScape** (see *Growing Up Gov Tech*, p. 26), like many other predictive policing companies, uses the technology to come up with risk scores. Unlike other companies, CivicScape is emphasizing transparency by publishing its code online.

Other companies are finding ways to serve government by solving funding problems in specific areas. **Callyo** has offered law enforcement a way to stream video through their existing cellphones, giving smaller police departments a way to access the technology without expensive body camera contracts. **Integrated Roadways**, currently setting up real-world tests in the Midwest, thinks it has a way for public roads to pay for themselves by stuffing them full of data-collecting, broadband-carrying hardware.

ClearGov and **ProudCity** are two companies that aren't exactly brand new



but have nonetheless brought innovative services to the table using data. The former has launched data dashboards that allow users to easily compare the same information across large numbers of jurisdictions with an emphasis on per capita numbers and financials. The latter has been canvassing the Web to better understand how governments use their own websites, and is planning on putting it all together and offering API access to people who want to study local governments' Web presence.

AirMap is quickly establishing itself in the drone space, building software for airports as well as state and local government agencies to learn about drone flights and communicate with operators. **Binti** (see *Growing Up Gov Tech*, p. 26) has built software to dramatically speed up the process of approving foster-care families. **CityInsight** is bringing the municipal water bill to Amazon's Alexa.

The list goes on.

Moreover, the U.S. gov tech ecosystem is becoming more global. After its private equity acquisition, **Accela** announced plans to open offices in Europe. **Sidewalk**

Labs, a subsidiary of **Alphabet**, is working on plans to build a smart city from the ground up in the Toronto area.

There are also a lot of foreign companies establishing a presence in the U.S.; **Bang** the Table, Citymart, UrbanLogiq and OpenDataSoft have all set up shop here recently after getting their starts in other countries. Israel has become a burgeoning tech scene, and transportation-focused companies in particular have been coming to the U.S. from that country. Among them are Optibus, Waycare and Waze.

WHAT DOES IT ALL MEAN?

A growing infusion of investment money in the gov tech ecosystem might mean many things. But above all of it hangs one driving fact: Most investors want to see a return on their investment. And in the world of angels, venture capitalists and private equity firms, that means an exit.

In other words, if a company has taken private investment money, that usually means it is working toward someday being merged, acquired or going public.

So what does that mean for the governments those companies serve, and the citizens those governments serve?

Some people see it as a very good sign for government. Phil Bertolini, chief information officer of Oakland County, Mich., and founder of the G2G Marketplace that acts as a sort of beefed-up tech purchasing cooperative, said that solid financial backing is a sign of stability.

"The big fear of government is you buy a solution, you implement a solution and

then the company goes belly up," Bertolini said. "There's nothing worse than that."

After all, a company's failure might leave its government clients in the lurch when it comes to supporting users and maintaining the software. Government entities — especially the small and mid-sized ones that the G2G Marketplace primarily supports — typically look for software they can use for a long time. That might have something to do with the traditional way of procuring technology, but Bertolini thinks it's often done out of necessity.

"After the recession and everything we've gone through, we don't have endless pots of money," he said. "So when we buy something, we kind of marry it. We make it part of the family."

Investment money might also make a company faster at picking up new customers. For the small, nimble companies bringing innovative ideas to the table, that means more government customers trying out new ways of serving the public. Joe Iannello, CIO of Austin, Texas', transit agency Capital Metro, has seen that first-hand. For years now, Iannello has been working with startups to try out their technology via demonstration agreements.

Those agreements, only a few pages long and typically turned around in a couple of days or weeks, benefit both Capital Metro and the company involved. The agency gets to try something new before committing to it, while the startup gets on-the-ground experience and maybe even some street cred it can take to potential customers.

Through those agreements, Capital Metro tried out mobile ticketing and

WHO'S INVESTING?

Here are some of the investment groups working in the gov tech space. For our interactive funding network map, go to **govtech.com/100**.

Andreessen Horowitz	Responder Ventures
Berkshire Partners	Sequoia Capital (Remix)
Ekistic Ventures	Serent Capital
GovTech Fund	Urban Innovation Fund
Motorola Solutions	Urban.Us
Pamlico Capital	Vista Equity Partners

eventually adopted it. More recently it has launched a ride-share-style on-demand service using vans called **Pickup**, and is trying out smart kiosks as well.

"If you go back in time, while they were startup companies, the startup companies to a large extent were playing off of the larger companies, maybe providing services in support of the bigger players," Iannello said. "But for quite some time now, there [have been] startup companies that have their own solutions and they are focused on a particular solution, and many of them obviously have had great, great success ... even though larger companies may have ventured into the territory."

There's some evidence that increased private investment has followed a spike in gov tech entrepreneurship. For this article, **Urban Us** used a machine learning algorithm to come up with a U.S.-centric list of 374 companies with a government connection, and then analyzed their market activity. Overall, both company foundings and funding rounds have increased noticeably since about 2012.

But entrepreneurship came first — the two years with the most company foundings were 2012 and 2013, while the years with the most completed funding rounds were 2013, 2015 and 2016.

It's worth noting that the observation is correlational, and correlation does not necessarily mean causation.

For Blackman, increased investment is a good sign. It means a better chance for new companies with new ways of doing things to really achieve influence in the public sector.

"What I'm excited about now is that I see a lot of entrepreneurs building very disruptive applications that will keep these bigger players on their toes, and there's the capital out there right now to really get things off the ground," he said.

It might not be so cut-and-dry. Abhi
Nemani, who has served in data and innovation roles for Los Angeles and Sacramento,
Calif., and who works to help startup
founders better understand government, sees the possibility that investment
in new companies might create incentives that don't really help government.
In the fast-paced, high-expectation world

of tech investment, he said, many people want to see hockey-stick growth at a new company within its first few years.

"The risk I see with gov tech companies taking venture capital dollars is a natural one, which is a bias toward sales, a bias toward revenue," Nemani said. "Because there's a deep skepticism in the venture capital world in selling to government, I think startups make bold commitments to revenue, which they use the venture capital to invest in."

Another pitfall that might tempt founders, he said, is going after huge clients. Though those contracts might bring in a lot of money, they will take up a lot of a company's time without necessarily teaching it how to work with smaller governments.

2018 GOVTECH 100 COMPANIES THAT ARE PUBLICLY TRADED: 7

He thinks a smarter path is to grow a base of smaller local government customers. That strategy might not be so impressive to an investor working with a five-year horizon, he said, but it forms a solid foundation for growth and expertise.

"I would much more recommend a company in their first year go after 20 to 30 small contracts instead of two big ones," he said.

After all, if a tech solution is "part of the family" like Bertolini said, then a wellserved government customer is a loyal one.

Blackman thinks that that foundation actually makes gov tech attractive to an investor, provided a company already has clients when it comes to the table.

"People are still cautious about investing in startups that are government-focused, but once they get some critical mass underneath them, investors love that because they understand that the [customer base] underneath that is sticky," he said.

It's not going to be the same story for every kind of company, either. Jonathan

Sotsky, director of strategy and assessment for the nonprofit **Knight Foundation**, published a report in 2017 examining the phenomenon of generally slow growth among civic tech companies. When they took money, often from impact investors like the Knight Foundation, those startups didn't always put an emphasis on sales or defining a customer type for their products.

"Your civic duties and voting are supposed to be, essentially, safeguarded from profit motive," Sotsky said. "So when citizens or users of these sites are ... espousing a social good and are supposed to be a platform for achieving that, when there's a sense that they're commoditizing it, there can be a sense of danger in branding with users."

Some people also worry that investment in innovative new companies will actually backfire in the long run. That is, if investment money puts a company on a path toward acquisition, then will all the new ideas eventually get sucked into the gears of corporate giants who sold governments the very solutions they're now trying to improve upon?

The topic is very much open for debate. "This is one of the deep questions that we have to figure out, is what does an exit strategy look like for gov tech companies?" Nemani asked.

Blackman thinks the presence of more investment will work in favor of government in the long term.

"When you bring in capital, you're able to deploy resources that create user experiences that both citizens and government agencies get excited about," he said.

And there is most definitely room left for disruption. Sensors, drones, artificial intelligence, blockchain technology — all are emerging opportunities that government is trying to figure out how to use.

"Now that investors are believing that gov tech is a viable investment opportunity for them, we're only at the first few innings of an exciting nine-inning game," Blackman said.

Follow our continuing coverage of the gov tech market at govtech.com/biz.

Companies listed in **orange** are making their first appearance on the GovTech100.

ACCELA

Accela software helps government agencies automate transactions and service delivery in land management, asset management, licensing, and public health and safety.

Est. 1999 / accela.com

ACLARA TECHNOLOGIES

Aclara supplies automated meter and smart grid infrastructure to water, gas and electric utilities.

Est. 1972 / aclara.com

AMIGOCLOUD

AmigoCloud provides mobile GIS solutions to government.

Est. 2011 / amigocloud.com

APPCITYLIFE INC.

APPCityLife provides an end-to-end platform for developing city- and agency-specific mobile apps.

Est. 2009 / appcitylife.com

ARCHIVESOCIAL

ArchiveSocial provides cloud-based social media archiving for records management, regulatory compliance and e-discovery. (Disclosure: The parent company of *Government Technology* is an investor in ArchiveSocial through e.Republic Ventures.)

Est. 2011 / archivesocial.com

AXON

Axon provides electronic control devices to law enforcement and corrections agencies. Est. 1993 / axon.com

Fast Fact: Axon serves more than 17,000 law enforcement agencies across the globe.

BALANCING ACT

Balancing Act is a suite of tools to help government engage citizens on budget priorities and financial issues. Product of Engaged Public.

Est. 1998 / abalancingact.com

BANG THE TABLE

Bang the Table offers an online citizen engagement platform for local government.

Est. 2007 / bangthetable.com

BINTI

Binti's software streamlines the approval process for prospective foster parents.

Est. 2014 / binti.com

BLUELINE GRID

BlueLine Grid helps first responders find each other and collaborate in the field.

Est. 2013 / bluelinegrid.com

BOUNDLESS

Boundless is a provider of open source product support, training and core development to meet geospatial requirements.

Est. 2012 / boundlessgeo.com

BUILDINGEYE

Buildingeye maps planning application data in cities, allowing planners, businesses and the public to see what is planned in their area.

Est. 2012 / buildingeye.com

CALLYO

Callyo's app for law enforcement lets officers capture and stream video via cellphone, offering an alternative to body-cam recordings.

Est. 2009 / callyo.com

CARTEGRAPH

Cartegraph offers mobile-enabled asset and operations management software to cities and counties.

Est. 1994 / cartegraph.com

CITYBASE

CityBase is a cloud platform that integrates data from multiple sources to develop citizen-facing portals and apps and optimize government operations.

Est. 2015 / thecitybase.com

CITYINSIGHT

Citylnsight creates apps to streamline municipal government operations and government-citizen interactions.

Est. 2014 / cityinsight.com

Fast Fact: Citylnsight was founded by a 21-year-old college student.

CITYMART

Citymart helps cities solve problems by connecting them with new ideas through open challenges that engage entrepreneurs and citizens.

Est. 2011 / citymart.com

CITYSOURCED

CitySourced helps cities and utilities manage their assets, ensure regulatory compliance, improve safety and respond to customer requests.

Est. 2006 / citysourced.com

CITYZEN

Cityzen works with government on targeted audience outreach.

Est. 2014 / publicinput.com

2018 GOVTECH100 COMPANIES HAVE 332 INVESTORS

CITYZENITH

Cityzenith allows cities to see, manage and use the disparate data they hold through its proprietary platform.

Est. 2009 / cityzenith.com

CIVICACTIONS

CivicActions uses open source tools and agile methodologies to help government develop digital platforms and large-scale software deployments.

Est. 2004 / civicactions.com

CIVICPLUS

CivicPlus builds custom websites for city and county governments.

Est. 1994 / civicplus.com

CIVICSCAPE

CivicScape offers a predictive policing platform that aims to eliminate bias through transparency.

Est. 2017 / civicscape.com

CIVICSMART

CivicSmart provides smart city parking systems around the world.

Est. 2015 / CivicSmart.com

Fast Fact: CivicSmart acquired a parking tech company founded in 1936, giving it more than 80 years total experience.

CIVIO SMARTSCAPES

CIVIQ Smartscapes designs and manufactures Wi-Fi-enabled smart city kiosks.

Est. 2015 / civiqsmartscapes.com

CLEAR BALLOT GROUP

Clear Ballot provides a suite of transparent voting system solutions.

Est. 2009 / clearballot.com

CLEARGOV

ClearGov aggregates city financial data to help citizens and local officials understand and visualize how tax dollars are being spent compared to other jurisdictions.

Est. 2015 / cleargov.com

COURBANIZE

coUrbanize provides an online marketplace for undervalued and abandoned urban real estate.

Est. 2013 / courbanize.com

COURT INNOVATIONS

Court Innovations' Matterhorn platform enables self-service for resolving disputes and minor criminal cases entirely online.

Est. 2013 / courtinnovations.com

CRIMEWATCH

CRIMEWATCH is data-sharing software that law enforcement agencies use to access cross-jurisdictional information as well as simplify citizen communication efforts.

Est. 2012 / crimewatchtech.com

CSDC SYSTEMS

CSDC Systems helps government automate citizen-facing services like building permits, licenses and Freedom of Information Act (FOIA) requests.

Est. 1989 / csdcsystems.com

EASYVOTE SOLUTIONS

EasyVote Solutions delivers a softwareas-a-service platform to city, county and state election offices to help manage the election process.

Est. 2013 / easyvotesolutions.com

Fast Fact: EasyVote works with more than 170 election offices across 12 states.

AVERAGE AGE OF COMPANIES ON THE 2018 GOVTECH 100: 13

ELUCD

Elucd builds technology that helps police track and respond to precinct-level community trust in law enforcement.

Est. 2016 / elucd.com

ENVISIO SOLUTIONS

Envisio offers tools to help governments be more transparent and accountable by simply aligning activities with strategic plan goals.

Est. 2012 / envisio.com

ESRI

Esri provides a geospatial platform and related tools for public agencies.

Est. 1969 / esri.com

GCR

GCR is a software and consulting firm whose major government clients include secretaries of state and airports.

Est. 1979 / gcrincorporated.com

GOVLIST

Govlist helps local governments make better procurement decisions using automation, analytics, management and collaboration tools.

Est. 2016 / govlist.us

GOVPILO7

GovPilot is a Web-based management platform developed exclusively for local government.

Est. 2014 / govpilot.com

GOVSENSE

GovSense is cloud-based permitting, licensing and financial software for state and local government.

Est. 2014 / govsense.com

For more information on the 2018 GovTech100, as well as our interactive funding network map, visit govtech.com/100.

GRANICUS

Granicus provides cloud-based technology solutions for creating, managing and distributing live and on-demand streaming media content.

Est. 1999 / granicus.com

GRIDSMART TECHNOLOGIES

GRIDSMART is a camera-based system that collects key traffic and safety data that helps change traffic lights in response to different traffic demands.

Est. 2006 / gridsmart.com

HAAS ALERT

HAAS uses mobile data to alert drivers (and cyclists) of approaching emergency vehicles through vehicle-to-vehicle notifications.

Est. 2015 / haasalert.com

IPS GROUP

IPS Group globally delivers smart city tech within an Internet of Things framework.

Est. 1995 / ipsgroupinc.com

ITRON

Itron offers technology and services focused on measuring and controlling energy and water use.

Est. 1977 / itron.com

LIVESTORIES

LiveStories provides an integrated civic data hub to discover, analyze and publish civic data.

Est. 2013 / livestories.com

Fast Fact: LiveStories offers clients access to 2,000-plus data indicators.

LOTADATA

LotaData uses an AI platform to locate mobile users, enhance customer profiles and study geo-behaviors to help improve citizen service offerings.

Est. 2015 / lotadata.com

MARK43

Mark43 software allows police to collect, manage, analyze and share information.

Est. 2012 / mark43.com

MAXIMUS

Maximus software and services help governments administer health, child, family and community development programs.

Est. 1975 / maximus.com

MEWE

MeWe provides workflow software for government inspectors.

Est. 2014 / mewe.org

MOTOROLA SOLUTIONS

Motorola Solutions provides equipment for data communications and telecommunications.

Est. 1928 / motorolasolutions.com

MUNETRIX

Munetrix provides tools for visualizing and using financial information from municipal governments.

Est. 2010 / munetrix.com

MUNICODE

Municode provides legal, editorial and publishing services for managing city codes.

Est. 1951 / municode.com

NEIGHBORLAND

Neighborland's platform enables residents to collaborate with local organizations and take action on issues in their area.

Est. 2011 / neighborland.com

NEIGHBORLY

Neighborly curates opportunities for direct individual investments in public projects and civic infrastructures.

Est. 2012 / neighborly.com

NEOGOV

NEOGOV provides on-demand human resources software to automate the hiring, onboarding and performance evaluation process.

Est. 1999 / neogov.com

Fast Fact: NEOGOV has more than 1,500 public-sector customers.

NEXTDOOR

Nextdoor is a neighborhood-specific social network.

Est. 2010 / nextdoor.com

NEXTREQUEST

NextRequest provides user-friendly FOIA and public records processing software for governments.

Est. 2015 / nextrequest.com

NIC

NIC develops and operates official government websites, mobile apps and secure payment processing for public-sector clients.

Est. 1991 / egov.com

ONE CONCERN

One Concern uses AI to complete risk assessments and damage and loss estimations.

Est. 2015 / oneconcern.com

AVERAGE ANNUAL WEBSITE PAGE VIEWS OF A 2018 GOVTECH 100 COMPANY: 811,000

OPENCOUNTER

OpenCounter helps new businesses obtain permits from city hall.

Est. 2012 / opencounter.com

OPENDATASOFT

OpenDataSoft is an open data hub for citizens and city departments, allowing self-service data preparation.

Est. 2011 / opendatasoft.com

OPENGOV

OpenGov software allows interested parties to access, explore and share finance and budget information held by government.

Est. 2012 / opengov.com

PALADIN DATA SYSTEMS

Paladin Data Systems delivers hosted solutions that help agencies streamline community development, project management and employee development.

Est. 1994 / smartgovcommunity.com

PASSPORT

Passport specializes in enterprise business applications and payments for parking and transportation.

Est. 2010 / passportinc.com

PAYIT

Paylt simplifies doing business with state, local and federal government through its mobile transaction and payment platform.

Est. 2013 / mobilgov.com

PERISCOPE HOLDINGS

Periscope provides procurement services to government.

Est. 2001 / periscopeholdings.com

PERMITZONE

PermitZone informs contractors if they need a permit and provides the ability to pull permits online from anywhere.

Est. 2016 / permitzone.com

PLUTO AI

Pluto Al is a predictive analytics platform for water utilities.

Est. 2016 / plutoai.com

Fast Fact: Pluto Al raised \$2.1 million in its seed round.

PONDERA SOLUTIONS

Pondera helps public agencies use analytics to identify and remediate fraud, waste and abuse in large government programs.

Est. 2011 / ponderasolutions.com

PREDPOL

PredPol identifies the highest-risk times and places for criminal activity in near real time.

Est. 2012 / predpol.com

PROUDCITY

ProudCity's software provides cities with websites and online government services.

Est. 2016 / proudcity.com

OUESTICA

Questica's software provides fully featured Webbased budgeting prep and performance data visualizations.

Est. 1998 / questica.com

RAPIDSOS

RapidSOS uses technology to rethink emergency communications and is working on a platform to predict emergencies before they occur.

Est. 2013 / rapidsos.com

REMIX

Remix allows city transit planners to see the cost, demographic and fiscal impact of proposed route changes.

Est. 2014 / remix.com

ROADBOTICS

RoadBotics uses Al to monitor the status of road conditions before emergency crews are needed for repairs.

Est. 2016 / roadbotics.com

SAFE FLEET HOLDINGS

Safe Fleet Holdings provides safety products for fleet vehicles.

Est. 2013 / safefleet.net

SCENEDOC

SceneDoc is a mobile software solution for public safety data collection and retrieval.

Est. 2011 / scenedoc.com

SEABOURNE

Seabourne provides data integration, consolidation and visualization tools for the public sector.

Est. 2013 / seabourneinc.com

SEAMLESSDOCS

SeamlessDocs converts PDFs and paper forms into fillable, e-signable, secure online digital forms.

Est. 2011 / seamlessdocs.com

SECURUS TECHNOLOGIES

Securus Technologies connects incarcerated people to friends and family through calling and video visitation.

Est. 1986 / securustech.net

Fast Fact: Securus' services cover more than 1.2 million inmates across the country.

For more information on the 2018 GovTech100, as well as our interactive funding network map, visit govtech.com/100.

SEECLICKFIX

SeeClickFix allows residents to report nonemergency neighborhood issues through its Web tool, which are then communicated to local governments.

Est. 2008 / seeclickfix.com

SIDEWALK LABS

Sidewalk Labs works with cities to build products that address urban problems.

Est. 2015 / sidewalkinc.com

SMARKING

Smarking lets clients own or manage a holistic view of their parking assets and data through a variety of technology systems.

Est. 2014 / smarking.net

SMARTPROCURE

SmartProcure aggregates the purchase histories of public agencies.

Est. 2011 / smartprocure.us

SOCRATA

Socrata provides data discovery services for government.

Est. 2007 / socrata.com

SPIDR TECH

SPIDR Tech offers a community engagement platform that helps police departments serve their communities.

Est. 2015 / spidrtech.com

Fast Fact: SPIDR projects \$320K in savings per 100-officer department.

SPOTCRIME

SpotCrime makes public crime data available through a public-facing crime map and alerting service.

Est. 2007 / spotcrime.com

AVERAGE NUMBER OF INVESTORS IN A 2018 GOVTECH 100 COMPANY: 3

SST

SST develops gunshot detection and location technology to help reduce gun violence in cities.

Est. 1996 / shotspotter.com

STREETLIGHT DATA

StreetLight Data delivers geospatial business intelligence to support critical decisions and improve return on investment.

Est. 2010 / streetlightdata.com

TRITECH SOFTWARE SYSTEMS

TriTech provides computer-assisted dispatch, records management and EMS billing.

Est. 1992 / tritech.com

TYLER TECHNOLOGIES

Tyler is a provider of end-to-end information management solutions and services for local governments.

Est. 1966 / tylertech.com

UTILIDATA

Utilidata works with utilities to save energy, increase reliability and better detect grid anomalies.

Est. 1983 / utilidata.com

VALOR WATER ANALYTICS

Valor Water Analytics develops customized financial data and dashboard tools for water utilities and businesses.

Est. 2013 / valorwater.com

VAULTRMS

VaultRMS is a cloud-based technology platform for public safety agencies.

Est. 2013 / vaultexposuretracker.com

VIEWPOINT

ViewPoint provides online permitting, licensing, inspections and code enforcement for local governments.

Est. 1995 / viewpointcloud.com

VISION INTERNET

Vision Internet builds custom websites for city and county governments.

Est. 1995 / visioninternet.com

VIZALYTICS TECHNOLOGY

Vizalytics creates insights from open data to provide customized intelligence for municipalities and government agencies.

Est. 2012 / vizalytics.com

WAYCARE

Waycare helps cities manage their roads by harnessing municipal traffic data.

Est. 2016 / waycaretech.com

Fast Fact: Waycare's first U.S. pilot began in Las Vegas in September 2017.

WEBQA

WebQA's software replaces paper-based rulemaking processes in legislatures and government regulatory agencies.

Est. 2000 / webqa.com

XCENTIAL LEGISLATIVE TECHNOLOGIES

Xcential provides SaaS-based solutions to enable legislatures and regulatory bodies to more efficiently create/publish legislation and regulations.

Est. 2002 / xcential.com



Integrating Service and Project Management to Get the Job Done Smarter, Faster & Better

he total forecasted spend in state and local government for 2018 is \$3.25 trillion.¹ Since this massive sum largely comprises taxpayer dollars, state and local governments need to be prudent about delivering services and managing projects on time, on budget and to citizen expectations.

But with information and tools distributed across multiple platforms, organizations often lack the unified view needed to perform work efficiently, make well-informed decisions, and meet service and project goals. The challenge is magnified when multiple services and projects are underway concurrently. All of this can result in budget and time overruns.

To overcome this, organizations are looking at how service requests are made and routed to improve response times and outcomes. There is also an increased focus on project planning and management for better delivery and resource utilization. An integrated work management platform combines service management and project portfolio management into a centralized hub to help governments gain visibility; automate workflows; enhance efficiency; and ultimately provide better experiences to the public, businesses and employees.

A DIFFICULT BALANCING ACT

Besides budgeting, scheduling, allocating resources, prioritizing tasks and managing other risks, the following broader challenges affect government organizations as they manage services and projects.

HIGH EXPECTATIONS FOR CONSUMER-ORIENTED

SERVICES. Citizens, businesses and employees want government services to be as responsive, innovative and convenient as private sector services. To do this, government agencies must rapidly develop and deploy self-service web and mobile applications. Gartner predicts demand for mobile app development services will increase at least five times faster than IT organizations' capacity to deliver them by the end of 2017,² meaning organizations must

have visibility into time and resources at the project and service management level. Once a self-service application is deployed, it must deliver a seamless, end-to-end user experience, and connect data and workflows from multiple departments to meet customer needs at every step of service delivery.

RETIREMENTS AND KNOWLEDGE TRANSFER. Forty-five percent of state and local government jurisdictions responding to a recent survey noted an increase in retirements in 2016.³ As older workers retire, governments must gain insight into the workforce skills and experience they need to effectively provide services and manage projects. Retiring employees will need to transfer knowledge about projects and services quickly, efficiently and cost-effectively — ideally via self-service tools. The organizations that most effectively identify, capture, share and apply essential knowledge improve project outcomes by nearly 35 percent.⁴

TIGHT BUDGETS. Agencies are under pressure to stretch tight budgets and spend tax dollars responsibly. Given that personnel costs account for more than 40 percent of annual spending for state and local governments,⁵ organizations need to maximize employee time by streamlining workflows, reducing manual processes and ensuring each worker is in the right role. Organizations also need to ensure they successfully complete new projects and services. In one study, 52 percent of large government IT projects went over budget, were behind schedule or didn't meet expectations; 41.4 percent were abandoned or had to be restarted.⁶

DIGITAL EQUITY. As state and local governments progress in their digital transformations, they must ensure all constituents — regardless of their physical capabilities, economic status and geographic location — can access information and services. Public kiosks, mobile-friendly apps and other solutions that consolidate information and back-end workflows can help accomplish this.

INEFFICIENT, SILOED PROCESSES. Many organizations use paperbased templates and processes, as well as email, faxes, spreadsheets and office management suites to manage projects and services. These manual approaches are time consuming; lead to redundancies and outdated information; and inhibit transparency, reporting and collaboration. When governments use automated project management and service management tools, the systems are often siloed and redundant, making it difficult to get a comprehensive view.

── WORKING TOGETHER: SMARTER, FASTER, BETTER

Integrated work management solutions help address these challenges, and enable state and local governments to complete projects in ways that better serve citizens, employees and businesses. By consolidating service management and project portfolio management onto one platform with a single knowledge base, integrated work management solutions provide a complete picture. They allow organizations to automate workflows; increase efficiency; create sophisticated self-service portals; and track, analyze, prioritize and route small tasks and larger workflows.

In one study, 52 percent of large government IT projects went over budget, were behind schedule or didn't meet expectations; 41.4 percent were abandoned or had to be restarted.

Externally, citizens can use self-service portals to complete a variety of tasks. For example, they can look up recycling information, report a needed infrastructure repair, request a permit, reserve a camp site or check the status of a building project.

Internally, agencies experience the same advantages. Take onboarding a new employee as an example, which typically involves IT, human resources, security and facilities. A single onboarding request to an internal portal can assign the appropriate task to the various departments, such as requesting equipment from IT, clearance from security, badge processing from facilities and benefits onboarding from human resources. IT teams also benefit and can manage the rollout of new software and servers, automatically route tickets and enable employees to submit requests via self-service tools. The possibilities are endless and will become even more sophisticated as states and municipalities develop smart city projects, integrate with the Internet of Things (IoT) and implement innovative mobile services.

GETTING STARTED: BEST PRACTICES

The following best practices will help organizations manage work across the organization more efficiently, cost-effectively and successfully.

ESTABLISH A COMPREHENSIVE, USER-FRIENDLY KNOWLEDGE

BASE. A well-built knowledge base promotes self-service and allows people to easily access the information they need. Think about how you will present, index and categorize information so users can easily find and use it. Crowdsource knowledge (judiciously) from multiple departments to make the knowledge base as comprehensive as possible.

CONSOLIDATE PROJECT AND SERVICE MANAGEMENT. This allows organizations to obtain a unified, accurate view of what tasks need to be done and what projects are assigned to who. It also helps optimize resources, allocate workers' time appropriately and improve project performance.

CHOOSE THE RIGHT TOOL FOR THE JOB. Users can become frustrated when they are asked to follow methodologies that are unwieldy or unnecessary for a given task or project. To encourage broad adoption of a project management methodology, consider the scale and complexity of each project, and then choose the model that best serves the project.

MAKE PROJECT MANAGEMENT A DISCIPLINE. Create a project management office (PMO), appoint a certified project management professional to lead it, and establish policies and procedures to help standardize and enforce best practices. In a survey of U.S. government IT leaders, respondents reported that their PMO had contributed to a 23 percent drop in the number of failed projects, a 35 percent increase in the number of projects that were delivered under budget and a 20 percent improvement in productivity.7

INTEGRATED WORK MANAGEMENT **PAVES THE WAY FOR MODERNIZATION**

Project, program and service management are core functions in every government organization. Integrated work management platforms quickly connect citizens, employees and businesses with content and workflows so they can answer questions on their own and make well-informed decisions. In doing so, these solutions help ensure tasks, projects, events and services are initiated, supported, completed and reported efficiently and costeffectively. As state and local governments work to modernize and transform their organizations, they can adopt an integrated work management platform to help address some of their most pressing challenges.

This piece was developed and written by the Center for Digital Government Content Studio, with information and input from TeamDynamix.

Produced by: DIGITAL

The Center for Digital Government, a division of e.Republic, is a national research and advisory institute on information technology policies and best practices in state and local government. Through its diverse and dynamic programs and services, the Center provides public and private sector leaders with decision support, knowledge and opportunities to help them effectively incorporate new technologies in the 21st century. www.centerdigitalgov.com.

TeamDynamix

TeamDynamix cloud-based work management software gives organizations the ability to align, work together, and simplify their work management processes across their organization. Higher Education, K-12 districts, state and local governments, and nonprofits use the TeamDynamix project portfolio and service management platform to work together faster, better, smarter to fulfill service requests.

Endnotes:

- Based on data from the Center for Digital Government and NASBO's Fiscal Year 2018 Proposed and Enacted Budget
- www.gartner.com/newsroom/id/3076817
- http://slge.org/wp-content/uploads/2017/06/State-and-Local-Government-Workforce-2017-Trends.pdf
- $www.pmi.org/-/media/pmi/documents/public/pdf/learning/thought-leadership/pulse/capture-value-knowledge-transfer.pdf?sc_lang_temp=encorrections and the properties of the pro$
- www.cbpp.org/research/some-basic-facts-on-state-and-local-government-workers
- www.computerworld.com/article/2486426/healthcare-it/healthcare-gov-website--didn-t-have-a-chance-in-hell-.html
- $www.pmsolutions.com/articles/Government_PMO_Struggle_to_Prove_Value_JCB.pdf$

Growing Up GOV TEGIN

Three pioneers on getting started, gaining ground and going forward.

By David Raths



As more tech entrepreneurs are applying their skills and energy to tackling issues like housing, transportation and public safety challenges in their communities, state and local governments are working to create ecosystems to support those efforts. *GT* talked to three leading gov tech startups (and checked in with a fourth) about the problems they are trying to solve and the challenges of starting and growing a business in this young but maturing space.

Pondera

From 2006 to 2010, Jon Coss ran a Folsom, Calif.-based consulting firm that helped system integrators with large state government IT projects. During that time he saw gaps in those implementations that gave him ideas for his next business. "I worked on a massive California Medicaid contract," he recalled, "and I was shocked by the large number of requirements and yet how few were related to fraud, waste and abuse."

After Coss sold the consulting firm, he began looking around for new opportunities. A friend who worked at Google invited him to look at some of its analytical offerings running in the cloud. "Two things came together for me," he said. "One was that you now have these cloud-based analytic technologies you can rent, and the other is that that there was an opportunity to apply this new technology to this old problem of fraud, waste and abuse that had been underserved in terms of attention in the past. While driving home from Menlo Park to Sacramento, I decided to start the company, and I incorporated a week later."

In 2011, he launched Pondera Solutions, a Gold Hill, Calif.-based company that develops fraud detection, investigation and enforcement solutions for large government programs such as unemployment insurance, Medicaid and nutritional assistance. Its "fraud detection as a service" is a subscription-based, cloud solution that uses third-party data matching and prediction models to red-flag potential abuses for investigative follow-up.

Product development took some time and involved several iterations, admits Coss, a former Oracle Corp. executive. He wanted a product that would scale and be portable across states, and he wanted to hide all the complexity of the analytics and data sets and just deliver leads about potential fraud to clients. He hired a combination of predictive scientists, subject matter experts and technology specialists. "They don't all speak the same language," he says, "but they all have interesting things to bring to the table. Once they came up with good ideas, I thought they were original and not

66 The way fraud detection works, as we add data, it informs our prediction and detection models and makes us more effective. Then we hope more states will want to work with us.



something a traditional tech company might come up with."

Pondera spent 2011 and 2012 building the solution and developing new predictive algorithms. It beta-tested the platform with the Florida Agency for Health Care Administration. Its first unemployment insurance customer was the Iowa Workforce Development Agency in 2013. After that, customer growth took off. Pondera is now operating in 30 programs in Florida, Georgia, North Carolina, Pennsylvania, New York, Iowa, Nevada and California. Pondera recently won its first local government contract with the city of Los Angeles, which will use the platform for audit tax selection to go after businesses that may be under-reporting income.

In its sales approach, Pondera reaches out to the executives fighting fraud, such as the program integrity units. "Department directors and deputy directors are being told by their governors that they need to do something about Medicaid fraud, or they need to become more business-friendly by lowering unemployment insurance rates," Coss explained. "Those are the folks we

approach because our offering matches what they are trying to do."

To fuel its growth, in June 2017 Pondera received an investment from San Franciscobased Serent Capital, reportedly in the tens of millions of dollars. According to Coss, Pondera is currently contracting with states that allow it to analyze about 34 percent of the country's Medicaid beneficiaries. Looking ahead to 2018, he would like to expand on that. "The way fraud detection works, as we add data, it informs our prediction and detection models and makes us more effective. Then we hope more states will want to work with us."

CivicScape

CivicScape, a company that applies predictive analytics to policing, grew out of its founder's experience in the Chicago Police Department.

Brett Goldstein, who began his career as an early employee of OpenTable, joined the Chicago Police Department in 2006. After a year as a beat cop, he was asked to head up a new group that used advanced analytics to enhance police efforts. "Initially I was disappointed to find we were using data in a remarkably basic way," he said. "We were data-rich but information-poor. But I was given carte blanche to try to change things."

One change he made was to include other city data streams such as neighborhood-based 911 and 311 calls. "We needed to look at disparate data sources to better understand what was happening, and we had to be better listeners to the data," he said. "We also needed to move beyond descriptive statistics to advanced statistics using machine learning and data science."

The system went live in 2010. Goldstein says that it helped lead to lower homicide rates. "There is something to be said for using your data intelligently, coupled with smart resource allocation. You can really make a difference."

After serving as the city of Chicago's chief data officer, Goldstein left government in 2013. With a grant from the Laura and John Arnold Foundation, he led a team at the University of Chicago refining the

predictive analytics platform. "We were able to introduce artificial intelligence and neural networks into the model," he says. "We found we could produce models that were exceptionally accurate and worked hour by hour for small spatial areas such as three square city blocks."

To make the system sustainable, in 2017 Goldstein arranged a technology transfer out of the University of Chicago

66 We have a GitHub page where we allow for algorithmic scrutiny, and that has been huge. It gives a level of transparency.

and launched CivicScape as a startup. "We spent six months building a smart user interface," he said. "We focused on making it mathematically as smart as possible but also useable for anyone. We have a SaaSbased product to help people be in the right place at the right time whatever their mission."

The cities of Camden and Linden, N.J., and Dearborn, Mich., were among the early users, and now Detroit is in the implementation phase, Goldstein says. It was important to him that the solution be viable for small and medium-sized cities. "One of the things that worries me in the technology space in public safety is that we design a lot of things for big departments that have technology resources and lots of money," he explained. "That doesn't mean that the small and mid-sized departments shouldn't have something that works just



as well and that is easy to operate. Instead of the common approach of looking at the top 25 departments in terms of size, I wanted to be able to implement in any size department."

The concept of predictive policing has received criticism from groups such as the American Civil Liberties Union, which expressed concern about racial profiling using analytics, but Goldstein argues that transparency about the system can help alleviate concerns. "We have a GitHub page where we allow for algorithmic scrutiny, and that has been huge," he said. "It gives a level of transparency so chiefs of police are able to talk about their initiatives in a transparent way. People can test our math. We don't have a secret sauce or a black box. Potential customers can check it out and use their data and make sure they feel good about it."

CivicScape is funded by Ekistic Ventures, of which Goldstein is a managing partner. Ekistic also incubates new government-related tech startups. "We spend a lot of time scouting out whether this is a problem we can solve and listening to pitches. I like to build things and want to have a positive impact," he said. "My first one was CivicScape, and I feel like the traction is good. That is exciting. Now I am starting to think about what the next idea is. I am testing a couple of things and I hope one of them has legs."

GovSense

The co-founders of Alpharetta, Ga.-based GovSense complement each other well. Gary McTall spent 10 years consulting state and local governments on IT projects; Paul Cammisa has more than 30 years of finance, technology and business operations experience. They brought that together to begin creating cloud-based permitting, licensing and finance software for state and local government. In September 2017, GovSense was a winner in the inaugural Government Experience Awards from the Center for Digital Government* for its economic development initiatives, using GIS data for non-traditional visualizations like planning and budgeting.



McTall said the idea for the company grew from things he saw as a consultant. "No matter the size or location, I saw an abundance of silos. A lot of it is the way government procures solutions, budgeting by department, but I also felt that vendors in the industry have created artificial barriers and built systems to capitalize on departmental budgets, and I got burned out on it. I thought there had to be a better way."

Having founded a company called InnoVergent in 2006, Cammisa had 10 years of experience with enterprise cloud applications in the private sector. "I came from the SAP world, so I understood large ERP applications," he said. "I bring the cloud and business acumen to the table, and Gary brings knowledge of the public sector.

Between the two of us, we are a great one-two punch."

Together they developed a software-as-a-service platform leveraging the Oracle Cloud and designed to break down those agency silos. "Our mission is to provide leaders with a 360-degree view of their organization," McTall said, "with one database and one unified system to achieve the goals of the organization rather than departmental systems." Their SaaS subscription business model is charged based on the number of users.

The two executives started building GovSense in 2014 to expand on the success they had working for private-sector and nonprofit clients. They launched it as a sister company to InnoVergent in 2016.

66 If I recruit a company and its 40 employees to my city, I want to track the tax incentives offered, the business licenses and permits.

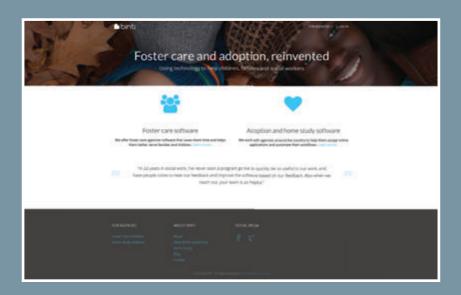
McTall says their software scales to work with jurisdictions of all different sizes. "We work with as small a community as Basalt, Colo., (population: less than 4,000) to an entity as large as the state of Colorado. Being able to scale to those sizes and everywhere in between helped us really grow faster than the traditional startup would in this sector," he added. Other customers include the state of Texas and the city of Evanston, Ill.

The GovSense sales pitch to cities and counties is that they can replace ERP systems that are expensive to support and upgrade with a less costly service where upgrades are painless.

Cammisa used government economic development agencies as an example of groups that gain from the 360-degree view of constituents they describe. "If I recruit a company and its 40 employees to my city, I want to track the tax incentives offered, the business licenses and permits," he said. "What are the sales taxes and property taxes? I don't need to go into six different applications or send out an email and wait six weeks to get that information. I can log in and get at all of that — from the beginning of the economic development life cycle right through to gross receipts. That is a real differentiator."

Always trying to stay on the leading edge of technology, GovSense is about to announce it will have blockchain capability built right into the platform, McTall said. "We are agile. We can do that within our platform without relying on third-party services."

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



Gaining Momentum

One of the most promising graduates of the Startup in Residence (STiR) program's inaugural 2014 class was Binti, which develops software to help speed up the process of approving applicants to become foster parents. Binti automated many steps that the city-county of San Francisco's Human Services Agency used to complete manually, and established a system that foster care workers say saves time.

When Government Technology profiled the company in June 2017 it had signed up 21 of California's 58 counties as customers. As of November, Binti had added four more counties in California, one in Colorado and a foster care agency in North Carolina. "We have expanded to private foster care agencies and are talking to a lot of agencies at the state level, but we don't have our first state-level customer yet," said co-founder and CEO Felicia Curcuru.

Binti had raised money a few years ago for an earlier business model to help families navigate adoption. It still had money from that, and grew its revenue from working with California counties. But it also took a \$500,000 investment from the GovTech Fund. "We didn't need it, per se, but Ron Bouganim, the managing partner, became a mentor to me because I was new to government," Curcuru explains. "He was excited about our progress and offered to invest."

The company has grown from five full-time staffers and several part-timers to 12 employees. "We sublease space in the basement of Code for America's offices," she said, "but we just made an offer on our own space in Oakland, and it has windows."

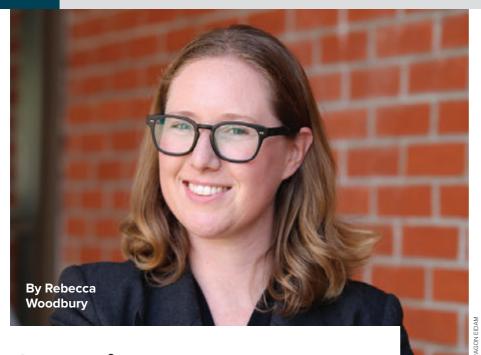
Looking ahead, Curcuru says Binti wants to expand its impact. "I think we are on the brink of having customers in a lot of other states, so that will be exciting," she said. The company also has a road map of different products related to foster care it plans to roll out.

"We also want to measure our impact more," Curcuru said. "We benchmarked our impact with San Francisco and we have increased the number of foster families applying by over 300 percent. There are other benchmarks we want to measure. In addition to the number applying, we want to increase the number that actually get approved and make the process faster."





gov tech market from their unique vantage points.



Shaping the Future of Digital Services

How startups can empower the modern government workforce.

espite the critical work that public servants do for their communities, many lack the tech tools they need to do their jobs. I should know; I've worked in local government for almost a decade.

Fortunately governments are starting to get the attention they deserve from technology companies, and startups are emerging that promise to replace our outdated, archaic systems. Despite this, some of my peers either worry about partnering with startups or don't give them the time of day because they aren't "tried and true."

Our experience, however, is that the benefits outweigh the risks. At the city of San Rafael, we didn't set out to work with startups. We set out to find new tools to help our agency provide timely and important information, be more responsive to community needs, and work in a more data-driven fashion.

By taking a more merit-based, forward-thinking and flexible approach to procurement, we ended up working with several startups. They rose to the top because they have simple and intuitive interfaces, don't require costly implementation fees or longterm contracts, embody the spirit of continuous improvement, and have their eyes keenly on the future.

Work with technology partners, not just vendors.

It's far more important that you focus on selecting a partner with values that align with yours, rather than using less meaningful criteria like the number of years a company has existed or the number of clients they have.

Our partnership with ProudCity has proven to be so much more than just a website. We've now worked with them to streamline processes using online forms and payments; create tools for localized resident information like trash pickups and real-time traffic conditions; and help City Hall visitors find what they're looking for.

Shape and influence product design and offering.

Startups are nimble, responsive and passionate about what they do. By working with a startup, your feedback and needs are directly reflected in their product.

Working with Seneca Systems, we implemented our first Constituent Services Platform across the organization to centralize communications, manage service requests, and gather constituent and organizational data into a single hub. Listening to the needs of 12 departments who each provide very different services is a big undertaking, and I almost cried when I saw how much our feedback informed the next iteration of their product. They not only listened; they also turned our feedback into product enhancements we could never have envisioned.

Expect nothing less than modern technology and interfaces.

Many of our current systems are old, tired and have steep learning curves so few employees know how to use them. Your workforce deserves easy-to-use tools to do their jobs. It's 2018.

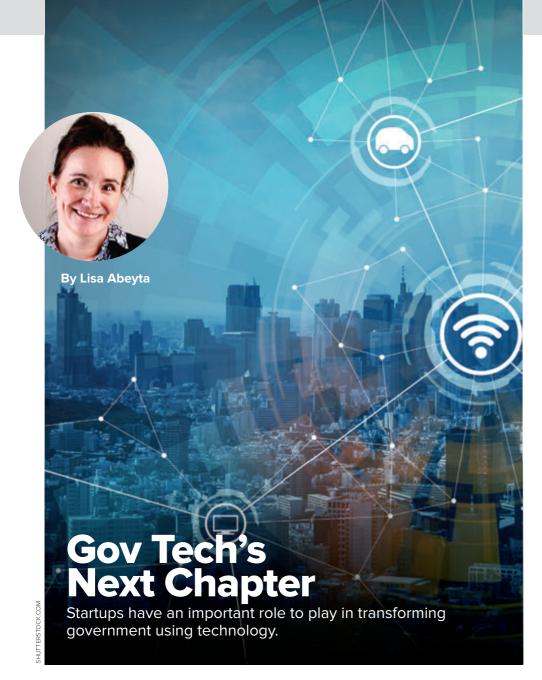
We are working with OpenGov to visualize not just our budget, but also non-financial data on topics such as homelessness, open space fires and permit activity. Not only is the platform easy and intuitive to use, but also the visualizations are easy to understand. By making data more accessible, meaningful and timely, governments can make more informed, data-driven decisions.

Find low-risk ways to test and experiment and avoid long-term contracts.

Government needs to get better at taking risks, but that doesn't mean failures need to be costly. Safeguard yourself by avoiding multiyear contracts. And don't just take a vendor's word for it. "Try before you buy" approaches and sandbox environments allow you to see for yourself how easy something is to use.

Public servants do incredible work over a wide range of issues: We connect chronically homeless with much-needed mental health services; help entrepreneurs achieve their dreams; make sure buildings, streets and parks are safe; and ensure government services are accessible to everyone. It's time we get the tools we need so we can do our best work.

Rebecca Woodbury is a senior management analyst in San Rafael, Calif., and a 2017 Government Technology Top 25 Doer, Dreamer and Driver.



hen we launched APPCityLife in 2009, the terms "gov tech," "civic tech" and "smart cities" were yet to be in wide use, and the idea that governments would sign up in droves to freely share their internal data with the public? That was next to inconceivable.

Today it is hard to imagine that it has actually been around a decade since the launch of smartphones and open data initiatives, as well as the genesis of what we now call the gov tech industry. Along with those early technologies of mobile apps and open data, today cities are embracing machine learning, artificial intelligence and other new technologies to continue the transformation

of the way we all interact with government agencies and our community.

Our own team was incredibly fortunate to forge strong partnerships with early industry leaders like Accela (we're now training their Australia team to develop apps on our platform) as well as our own local government in Albuquerque, N.M. These early relationships helped us understand the pain points and goals from a government perspective as well as those of our fellow gov tech partners.

In those early days of working together, there were no road maps for cities or for startups on how to develop, deploy or maintain new technologies that often had to integrate with legacy systems and unique workflows. And while we still need to figure it out together with our government clients as we try things that have never been done before, today's companies — even the newest startups — are expected to immediately address security, data ownership, privacy and accessibility requirements that weren't initially part of the equation.

While more decision-makers within government agencies are better versed in these issues today — and online information and training makes it possible for anyone to learn — expertise on these issues is often delivered by startups. We are often called upon to guide our clients through industry best practices as well as very complex requirements. It makes it more important than ever that the companies serving governments do so with the highest levels of integrity and care toward the protection of the privacy and security of both the agencies they serve and the communities who will interact with their products.

Today's gov tech projects run the gamut of the one-off app created by a local group to address one specific issue to multifaceted concepts for building smart cities from the ground up, requiring collaboration between multiple agencies as well as private companies. But all of these initiatives, from the small pilot project to the grandest of visions, can benefit greatly when there is access to industry expertise and platforms built to support the complex integrations of myriad types of data and input coming from multiple sources. It's more important than ever that the accessibility, security and intelligence of gov tech projects be baked into the road map.

On a personal level, one of the most exciting developments within the industry is the potential for these new technologies to make our cities friendlier and more accessible to those who are often left out of the early adoption curve. When chatbots can remove visual and mobility barriers and artificial intelligence natural language processing can remove literacy and language barriers, we can make gov tech a vehicle for more inclusive governments and communities — something that we shouldn't lose sight of in all of our excitement to build an even smarter city.

Lisa Abeyta is founder and CEO of APPCityLife and co-founder of Hautepreneurs.

Pairing Cities with Startups

What cities and startups should be thinking about as they strive to work together.

By Stonly Baptiste



Nonetheless, this shouldn't correlate with how and where solutions can be distributed. Here are a few ideas for correcting this problem, which is ultimately an inefficiency in matching the best solutions to needs.

Local officials are often the first to admit that the RFP process in most cities is weak, not only because it's complicated and takes a long time, but also because typically, the people who should know about startup solutions are not even finding out about them. Startups offer a fairly cheap and low-risk way to explore new ways of doing things, but most cities have no guidelines or framework in place on how to work with startups, how to evaluate their viability, etc. As a result, few city leaders — and importantly other staff — get exposed to startups or know how to handle them.

One solution that's helping is to change the wording of RFPs. As my partner Shaun Abrahamson puts it, "There is a difference between asking for mobility solutions versus buying buses."



For many cities, trying out new technology is a top priority. But there's a better way to think about relationships with startups.

The National League of Cities surveys the priorities of mayors annually, and economic growth consistently gets the No. 1 spot. It's not that other priorities like affordable housing, mobility, crime and pollution don't matter; they're high on the list too. But when measuring startup activity or seeking startup engagement, most policy stops at that first "economic" priority. But there's more that cities should consider.

"Cities need to understand that involving startups is not just about economic development, but a fairly cheap and low-risk way to explore new ways of doing things," said Sascha Haselmayer, founder and CEO of Citymart, who added that most cities don't have processes in place to evaluate and work with startup companies. "As a result, things get stuck on the economic development side, because they feel a certain degree of ownership."

Government is slow-moving for a reason. Its resources are limited, and it needs to make sure taxpayer money is spent responsibly. So, government isn't always jumping to try new things.

Perhaps if they aimed to try solutions early, but not first, they could move forward more effectively.

"I honestly think that being first is not what cities are after, and never will be," Haselmayer said. "Our goal should be a world where cities have the realistic ambition to be third adopters: Buy something that is proven elsewhere, but don't let 40-plus years go past before you get it."

This approach would result in communities seeing the quality of services and effectiveness grow much

faster. It would also dramatically affect the vendor ecosystem and stimulate perhaps trillions of dollars' worth of private investment and competition.

There are problems in the way startups think about their relationships with cities too.

Startups, young and resource-strapped, can't be everywhere and must be very deliberate about their early growth strategies. This includes picking their first customers. In other words, cities must compete for opportunities to work with startups too.

Our 2017 Business-to-Government SaaS Global Survey found that more startups are selling to medium-sized cities (populations of 100,000 to 1 million) than large cities (populations greater than 1 million). Of the respondents working with large cities, more than half indicated they are also interested in working with small cities. Less than 30 percent are solely focused on large cities.

"Depending on the business model, the lifetime value of a customer (small versus large city) varies massively," Haselmayer said. "For example, if your business model is to onboard users in government across departments, New York City would have at least 20 times the value of Syracuse, N.Y."

But there's value in smaller customers

"We also pay attention to the reputation of the customer as a reference. As an ambassador, how can they contribute to our brand? That has worked well for us, since it meets an aspirational need in smaller cities, for example, to deploy tools validated in well-run cities," he added.

In the end, startups have something to gain from working with a blend of small and larger jurisdictions, despite the challenges presented by city RFP processes. It can be easier to build relationships with smaller cities as they often don't have as many stakeholders involved. Second, the aggregate speed of acquiring new customers can help a startup signal growth, making it easier to raise money. Finally, larger cities have the advantage of room for meaningful growth within the same organization.

Stonly Baptiste is a partner in investment firm Urban Us.

ust a decade ago, gov tech was an industry dominated by large, legacy vendors. Many of the "solutions" at that time were still being delivered by CD through the mail and downloaded onto a local machine. The cloud and software as a service were foreign concepts. Most important, the very best talent had little

to no interest in working in an

industry that was seen
as boring, slow and
unwilling to evolve.
Times have changed.
Today, dare I say
it, gov tech is kind
of sexy. It's become
both admirable and
cool to build products
that improve government
operations, increase civic
awareness, and attempt to



By Nick Bowden

solve some of society's biggest problems. The last decade has produced a number of great SaaS companies, significant investment, federal support (United States Digital Service, 18F), and an ever-growing volunteer/hacking community. Government has officially joined the 21st century.

All of this progress has been great and should be recognized. There's much more work to be done. In fact, the most tantalizing prospect in this industry lies mostly untouched: an UrbanOS.

The core responsibility of any city is to facilitate diverse and rewarding interactions between people and the physical environment. When we think about the places we love — the places we want to live and visit – we never cite the formal governing body as a primary reason. I surely wouldn't say, "Wow, I really want to live in New York because the city and its wonderful workers are so great." It's more likely I would say, "SoHo is such a great neighborhood, the shops and architecture and people are amazing." Of course we know that the city and its wonderful workers do in fact play a key role in delivering a great experience. Cities are the mechanisms by which we deliver memorable experiences through stimulating physical and social environments.



HUTTERSTOCK

The memorable experiences we have in cities are a manifestation of every city operation working well together. The efficient movement of people and goods, thoughtful public spaces, the right scale and density, quality urban design, and a sustaining economic environment are all contributing factors. Done well, these attract and retain diverse people, who further enhance and improve the physical environment. This positively reinforcing flywheel propels more growth, thus leading to more and better experiences.

The formal governing body ("The City") is the operating system through which all of this is possible. It determines, through laws and regulations, what is permitted in any given place. In the pre-digital era, the efficiency of the operating system was highly dependent on a number of people being in constant collaboration. Government is no longer in the pre-digital era. The explosion of new apps and products to service the specific needs of the system will continue to be important; however, at this

moment, these technologies operate independently at best and in conflict at worst. Each of these products might be improving an isolated workflow, but the sum of the disconnected parts is likely making the whole operate much less efficiently.

It's time for an UrbanOS. A modern, digital version of the human operating system that enables a sum greater than the parts. The goal for this industry shouldn't be simply to build technology for government and its citizens. The goal should be to use technology to facilitate more memorable moments. To make the interactions between the physical and social worlds even better. To enable and empower a citizen experience that is modern and equitable. In order for this to occur, someone, some organization must thoughtfully pursue the idea that these technologies can and should work together to make the places we live the best they can possibly be.

Nick Bowden founded mySidewalk in 2010 under the name MindMixer. In 2016 he founded Better Planning. [1]

ciocentral

Read full reports and breaking news about career changes across tech-driven roles in government at govtech.com/people.

New Orleans' Data Leader Leaves for Socrata

Oliver Wise, director of the New Orleans Office of Performance and Accountability, left the city for a position with open data company Socrata as digital government principal. A *Government Technology* Top 25 Doer, Dreamer and Driver in 2015, Wise started in New Orleans in 2010, a time when no U.S. city had a chief data officer, which was essentially his role. As such, he helped pioneer early efforts in using data to drive positive change. Among his more notable projects are the BlightSTAT program, a data-driven approach to help the city more efficiently deal with blighted properties, and a predictive fire risk tool that matched at-risk properties with smoke alarms. Wise said he looks forward to working with Socrata because it will allow him to build on his experience using data to drive policy.



Baltimore's New CIO Is Veteran Intel Executive

In October, Frank Johnson, a fixture at Intel for more than 25 years, went to work for Baltimore as the city's new CIO and chief data officer. He was most recently vice president and general manager for the Intel Americas Industry Sales Group in the Washington, D.C., metropolitan area, a post he held for more than eight years. Baltimore has been without a dedicated CIO since February, and comptroller Joan M. Pratt praised the hiring, "because the mayor is looking for someone with fresh ideas and someone who can bring best practices and state-of-the-art business practices in IT."



Washington State Fills Key Tech Position Longtime state

technology official **Sue Langen** was appointed acting director of the Office of the Chief Information Officer in November following CIO Michael Cockrill's departure for a nonprofit research group. Langen is a 25-year state employee who rose to CIO of the state's Department of Social and Health Services before joining the OCIO in February 2015 as senior policy and enterprise system advisor. "I hope we will continue to build on the progress the OCIO has made in recent years," Langen said in a press release. "I look forward to working with our partners around the state."

ILLINOIS CTO STEPS DOWN

Mike Wons, Illinois' chief technology officer and a key architect of its ongoing tech modernization, resigned his position in December. He left the state to join global risk, compliance and cyber company SAI Global as its chief technology and product officer, but he indicated he intends to remain involved in government IT.

MARICOPA COUNTY, ARIZ., NAMES NEW CIO

Less than a month after CIO David Stevens left the position for the private sector, Maricopa County, Ariz., named **Ed Winfield** as its new IT leader. Winfield, who was named one of *Government Technology's* Top 25 Doers, Dreamers and Drivers in 2016, previously spent four years as CIO of Wayne County, Mich., where he led a move to upgrade from legacy systems to the cloud and to cut costs in the economically challenged area. Maricopa is the fourth-largest county in the U.S. and was the fastest-growing in the country from 2016-17. "The opportunity of getting to be CIO for a county of that stature is very appealing," Winfield said.



Washington, D.C., CTO Announces Departure

After two years with the city,
Washington, D.C., CTO Archana
Vemulapalli announced
she would depart her post in
early January 2018. Some of
Vemulapalli's achievements during
her time in the capital include
leading the Council of Global City
CIOs with New York City CIO
Miguel Gamiño, as well as helping
the city become one of the first on
the East Coast to participate in the
Startup in Residence program.

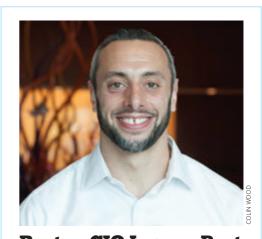
Kentucky's New CIO Brings Federal-Level Experience

In December, Kentucky announced that Charles Grindle, a recently retired U.S. Army veteran with federal-level IT experience, will serve as the state's new CIO. Grindle takes over from acting CIO and Deputy Commissioner Jim Barnhart, who replaced Jim Fowler after Fowler resigned following the election of Gov. Matt Bevin in 2015.



2017 Digital Cities Awards

The 2017 Digital Cities Survey awards were presented on Nov. 16 in Charlotte, N.C., during the National League of Cities' annual conference. Pictured here are the winners from Lynchburg, Va., which took first place in the 75,000 to 124,999 population category. From left to right: Alan Cox, executive vice president of e.Republic; and elected officials and staff from Lynchburg, MaryJane Dolan, Sterling Wilder, Treney Tweedy, Edgar J. T. Perrow, Michael Goetz, Allison Johnson and Terry Hutchens.



Boston CIO Leaves Post
At press time, Jascha Franklin-Hodge
announced he would be resigning his
position as CIO of Boston. Visit

govtech.com/people for our full story.



Taking the (Cyber)Show on the Road

Five ways to initiate communication about cybersecurity.

hile I was chief security officer (CSO) in Michigan, the most impactful way our centralized security team communicated with executives was with regular security roadshows with client agencies. Important information was exchanged during these annual sessions in front of top business leaders, including physical- and cyberthreat briefings, key project status updates, discussions on security capabilities, conversations on staff awareness training programs, and ongoing incident status reports.

While we packed a lot of topics into an hour, our format encouraged an open dialog with everyone involved to build face-toface transparency, accountability and trust. But before we traveled around to meet with government leaders in each department such as state police, transportation, treasury and more, we started each governmentwide cybertour with the governor.

These meetings were important because they brought our security

project scorecard to life with statewide metrics and Daniel J. Lohrmann agency-specific actions. They enabled ongoing conversations regarding cybersecurity risks and outlined the steps that were being taken or could be taken to mitigate threats. Our stated goal was "to balance security and ease of use to maximize value and enable the business." CSO, CTO and CISO.

So how can you begin this security conversation with business areas in your government? Here are five communication tips to consider:

Do Your Homework. Decide who should be involved, what topics and materials will be covered, when to put these meetings on busy calendars, where you will meet, and how you will run the meetings. As CSO, I let the business areas select their executive participants, and some groups kept it small, while others invited up to 30 agency leaders. Also, if scheduling the time isn't working, you likely have a larger business priority issue regarding cybersecurity.

Select Good Metrics and Keep Reporting.

Just as businesses maintain key metrics of success, offer measurements that are understandable and repeatable as part of the ongoing security conversation.

Adapt to the Audience. While a consistent, updated enterprise presentation was offered every year on our roadshow, we also adjusted our messages to each audience. Flexibility is especially needed when meeting with new agency leaders who need to bone up on security concepts.

Don't Limit Communication Options.

Security roadshows should be a part of a wider set of ways you communicate with business groups. Channels can range from newsletters to emails to tabletop exercises to emergency call lists for incidents. We

also invited our government partners to our cybersummits and scheduled one-on-one lunches. Nevertheless, ongoing security roadshows were a vital component of our overall cyberstrategy.

Leverage Existing Governance Mechanisms. One chief information security officer I know uses technology and security advisory boards to help provide briefings to key business executive staff, while also keeping the governor's office and cabinet officials informed. He also uses the same briefings for cabinet meetings, legislative committees and updating other government entities that have an ongoing role. For low-hanging fruit: Start small with key business areas.

Having a strong endorsement from top elected officials is great, but (sadly) is not always the case. If you can't get your top leader to vocally support cybersecurity, try to find business-side champions to help shape your message. Most organizations have leaders, followers and laggards on tech, so start with a "coalition of the willing" who support your efforts to get some needed momentum.

Remember, the top complaint in most public- and private-sector organizations is a lack of good communication on key issues, including cybersecurity. Security roadshows will improve your team's effectiveness by offering meaningful dialog with business executives on cybersecurity risk.

is the chief security officer and chief strategist at Security Mentor. He is an internationally recog nized cybersecurity leader, technologist and author. From 2002 to 2014. Lohrmann led Michigan's awardwinning technology and cybersecurity programs, serving as

Dection More research, more science, more technology.



Merit Badge for Coding

A 2012 study from the Girl Scout Research Institute found that 74 percent of teen girls are interested in science, technology, engineering and math (STEM) fields, but the perceived gender barriers to study in those areas make it difficult for girls to find paths to those traditionally male-dominated jobs.

In response, the Girls Scouts, in partnership with defense contractor Raytheon, are launching a computer science program for girls grades six through 12, educating them in cybersecurity, artificial intelligence and more. The hope is that giving girls more exposure to tech fields early on will make them more likely to stick with it as they grow up. The program will pilot in several cities in early 2018, with plans to expand nationwide in the fall. And in 2019, the Girl Scouts and Raytheon will pilot a Cyber Challenge, in which students from the program will put their coding skills to the test.

SOURCE: ENGADGET.COM

According to a report from the **Union of Concerned Scientists** (UCS), Going from Pump to Plug 2017, U.S. electric vehicle (EV) drivers can save \$440 to \$1,070 annually over driving a conventional vehicle. UCS looked at the costs of filling a conventional car with gas versus charging an EV in 50 big cities across the country, and compared those numbers with average fuel efficiencies for EVs and new gas-powered cars. Taking into account variations like electricity provider, rate plans and the cost of gas, EVs were found to save a significant amount of money for their drivers. In addition to fuel cost savings, EVs also cost less to maintain, as owners can forgo repairs like oil changes and replacement of spark plugs.

SOURCE: TREEHUGGER.COM





INKED UP

While tattoos are usually no more than permanent, wearable art, engineers at MIT have developed a temporary version that could be much more. The tattoo is 3-D printed with "living ink," composed of bacterial cells programmed with sensitivities around various compounds, and the cells are then blended with nutrients and other ingredients. The ink is printed onto a patch that then transfers the tattoo to the wearer's skin, and the idea is that various parts of the tattoo will light up when they're in the presence of certain compounds, for example if the wearer is in a location with toxic air quality. The tattoo's creators also hope the concept can be used therapeutically, such as to slowly release medicine into the body over time. SOURCE: GIZMODO.COM



Fixing Up Home-Buying

How government can use technology to make it cheaper to buy and sell your home.



uying a home is one of the most significant financial decisions of a person's life. As such, policymakers have created many laws and regulations designed to protect consumers, such as the Fair Housing Act, the Truth in Lending Act and others. And while some policymakers are working to make housing more affordable, such as through targeted tax credits and lending programs, few have focused on how to use technology to drive down the transaction costs involved in buying and selling a home. Yet given that the fees involved in real-estate transactions can easily run into the tens of thousands, more should be done to create more efficiency through technology.

First, states should strive to make the legal process of buying and selling homes fully digital. One way to do this is to ensure states fully support e-closings, where buyers and sellers can complete a sale remotely using e-notary services. E-notary services not only provide an electronic notarization of digital documents, but they also allow individuals to complete transactions without being in the physical presence of a notary. Unfortunately this practice is not

yet common. As of early 2017, only two states — Virginia and Montana — allowed remote electronic notarization, and Montana restricts signers to state residents.

Second, states should fully digitize governmentmaintained real-estate records, such as titles and liens, so that they can be

searched electronically. Congress passed the ESIGN Act in 2000, a federal law that recognizes the legality of electronic signatures when all parties consent to using it. But this law does not require local government agencies, which must record real-estate transactions, to accept electronic documents or signatures. The Uniform Real Property Electronic Recording Act (URPERA), a state law that requires all local recording offices to accept and process electronic documents and signatures for real estate records, addresses this problem. As of early 2017, 30 states had adopted URPERA. Not only does processing these documents electronically increase the productivity of county clerk-recorder offices, but it also lets them make this information available to the public to streamline title searches used to identify issues that may affect potential buyers. If counties digitized all property records and made them available online via APIs, the cost of title searches and title insurance — an expense that ranges from \$1,000 to \$4,000 for many buyers — could fall dramatically.

Third, policymakers should eliminate nondisclosure rules that prevent the public from accessing sale prices for residential properties. There are some states, such as Texas, Missouri, Utah and Wyoming, that strictly limit access to real-estate property data, so that nobody other than the homeowner can see it. These restrictions make it difficult for sites like Zillow to estimate the value of a home, a tool many buyers and sellers rely on to make sound financial decisions. For example, Zillow

notes that it can't calculate accurate estimates in major metro areas like San Antonio and Houston because of its limited access to property value data in these cities.

Finally, state lawmakers should ensure consumers can use low-cost brokers who take advantage of technology to make the home-buying and selling process more efficient, such as by allowing buyers to spend more time looking at properties online, rather than in-person with an agent. But some states have erected barriers that limit consumers from realizing these benefits. For example, 10 states prohibit brokers from refunding a portion of their commission to consumers, which can save buyers thousands of dollars. And eight states have minimum-service laws that require brokers to provide certain services, even if consumers do not want them, which keeps limited-service brokers from providing lower-cost alternatives. Moreover, tech companies trying to bring innovative services to the realestate sector often find that they cannot access property listings because brokers have limited their access to this data. To address this problem, policymakers should require licensed brokers to provide open access to their real-estate listings.

Compared to many other sectors, the real-estate industry has a long way to go to make better use of technology to reduce costs for consumers. However, by reforming laws, adopting new technology, and making more data publicly available, policymakers can improve the home-buying and -selling experience and make it more affordable for millions of Americans.

Daniel Castro is

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

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Enduring Laptop

The ASUS NovaGo is a Qualcomm Snapdragon-powered Gigabit LTE laptop featuring up to 22 hours of battery life. The display is 13.3-inch full high-definition (1,920 x 1,080) resolution with capacitive multitouch. The NovaGo features 8 GB of RAM memory with storage options of 64 GB, 128 GB or 256 GB Universal Flash Storage 2.0. NovaGo has a durable 360-degree multi-gear hinge and its 10-point multitouch display features ASUS Pen support; ASUS Pen has a 1024-level pressure-sensitive tip. The laptop weighs 1.39 kg with a thin 14.9 mm profile. The Snapdragon X16 LTE modem produces download speeds of up to 1 Gbps. **www.asus.com**

Sturdy Notebook

Getac's second-generation S410 semi-rugged notebook uses Intel 8th Generation Core i5/i7 processors. The 14-inch full HD LumiBond 2.0 screen provides a responsive 10-point touch experience, even while wearing gloves, with up to 800 nits (optional 1,000-nit HD screen available) of brightness for glare-free reading, even in direct sunlight. It is MIL-STD-810G and IP52-certified to survive drops up to 3 feet, spills, moisture, vibrations, shock and extreme temperatures, from -5.8°F to 140°F (operating temperature) and -60°F to 160°F (storage temperature). Protected I/O ports and an island-style, splash-proof keyboard protect system components from dust and water, while the rubber corners and an ergonomic rubber handle provide additional protection. The 4 GB DDR4 memory is expandable to 32 GB, while storage starts at 500 GB. **us.getac.com**



Comfort Keyboard A

The new Trade Agreements Act (TAA) Compliant Ergonomic USB Keyboard from SMK-Link Electronics is designed to reduce wrist strain while typing. The keyboard features 105 tactile-response keys, with hotkeys for Internet (e.g., home and search), multimedia (e.g., play/pause/stop) and computer control (e.g., sleep/wake, calculator and email). The ergonomic split design encourages natural hand, wrist and arm positioning. www.smklink.com



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The Case for the Social Media Coordinator

It's 2018. When are you finally going to create that full-time social media position?

hen government agencies began experimenting with social media profiles a decade ago, there was a chance that their citizens would view their efforts with discontent. Why waste time and resources on a public resources machine?

Times sure have changed. These days, the general public is more likely to notice when government agencies don't have a decent social media presence.

So why do some agencies still not have a dedicated social media coordinator? There are a couple common arguments against it.

1. Can't our communications person do social media?

Your communications coordinator likely has the aptitude and is qualified to handle social media for your agency. In fact, they're probably already doing it now. But have you ever heard the phrase "jack of all trades, master of none"?

To make it easier to tackle, any agencies bundle social media responsibilities into an existing position such as a communications specialist or public information officer.

Heck, my own title was "E-PIO" in my first role that involved managing government social media. No one wants to call it what it is.

Here's why I hate "bundling": Your comms person, and anyone else you might assign social media to, already does the job of a small team. They may be the media liaison, publisher of print communications, newsletter writer, spokesperson, speechwriter, public relations guru, website content writer, plus a host of other things. To do social media well takes work and no small amount of time.

The No. 1 complaint I hear from people who manage social media is not having enough time to do everything well. If you think managing social media just involves writing a few quick Tweets and Facebook posts every day — think again.

2. Is there really enough social media work to turn it into a full-time position?

You bet! Besides "simply" writing content, the social media coordinator needs to manage citizen comments and complaints, analyze data, evaluate ads, train employees on the right way to use social media, create reports, work with video and graphics, and more. This person should also be involved in writing social media policy, as well as strategic planning to

facilitate agency goals via social platforms. He or she needs to understand social media archival, as well as First Amendment issues and sunshine laws as they apply to social media. This is not a simple undertaking.

Keep in mind that your agency won't be a trailblazer for having a social media coordinator. It's becoming more and more common to see this role in government.

Agencies such as Mecklenburg County,

N.C., and the Ohio Department of Public Safety are just a couple of entities that have staff in a dedicated social media role.

Government increasingly recognizes the value in social media. In many cases, the only interaction your citizens and constituents will ever have with their government is via social media. (How many people actually show up to your public meetings?) I encourage someone in your agency to spearhead the effort to hire a social media coordinator.

Will you be that champion?



Kristy is known as "GovGirl"

in the government technology industry. A former city government Web manager with a passion for socia media, technology and the lighter side of government life, Kristy is the CEO of Government



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