30 GOVERNMENT INNOVATIONS THAT MATTERED IN 2015

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Innovation

noun | in·no·va·tion | \i-nə-ˈvā-shən\

: a new idea, device, or method

: the act or process of introducing new ideas, devices or methods

INTRODUCTION

Executive Summary

If you have the time or inclination to look up quotes about innovation, you might be in for a surprise. The word "innovation" often comes with a negative connotation. Most quotes go something along the lines of this one from Voltaire: "Our wretched species is so made that those who walk on the well-trodden path always throw stones at those who are showing a new road." Or this one by Author Richelle Mead: "Throughout history, people with new ideas — who think differently and try to change things — have always been called troublemakers."

However, the government needs innovators, especially ones who want to make a difference for the common good. There is no single path or silver bullet for innovation, but across the government, from the federal to the local levels, employees are thinking outside the box and daring to do things differently. And it's high time we honor that innovation.

Consider that a team of NASA researchers found flowing water on Mars after a five-year search. A Defense Advanced Research Projects Agency team designed an autonomous car that drove more than 3,400 miles across 15 states. And Minnesota connected 100,000 unemployed residents with job resources.

This is government and this is innovation.

In this annual end-of-year list issue, GovLoop analyzed the best public-sector innovations across 10 categories:

1. Customer Service Stars.
2. Map Masters.
3. Security Superheroes.
4. Process Powerhouses.
5. Digital Services Standouts.
6. Human Resources Rescuers.
7. Acquisition All-Stars.
8. Cloud Connectors.
9. Data Dominators.
10. Future Trends.

But we didn't stop there. We also talked with two leaders — one at the federal and one at the state level — to pick their brains about what was really innovative in 2015.

After all, as Author Robin Sharma wrote, "Dreamers are mocked as impractical," but "the truth is they are the most practical, as their innovations lead to progress and a better way of life for all us." So join us in viewing some of the ways government employees are innovating to improve our world.

A YEAR IN CONNECTED SECURITY

An interview with Ned Miller, Chief Technology Strategist for Public Sector, Intel

The largest cyber breach in the history of government saw the personally identifiable information of more than 22 million federal government employees, contractors, and their families compromised. Classified records, government security clearances, and even fingerprints were leaked after a simple phishing attack infiltrated the Office of Personnel Management's (OPM) network.

In order to better understand the breach, the government's reaction, and how future attacks can be prevented, GovLoop sat down with Ned Miller, Chief Technology Strategist for Public Sector at Intel.

"In the wake of the breach, the Office of Management and Budget and the Office of the Federal Chief Information Officer assembled a taskforce to operationalize an investigation into the breach," said Miller. " I think this was a great next step following the 30-day cybersecurity sprint."

The taskforce discovered that the OPM breach was specifically conducted through a phishing attack – or an email borne attack. A phishing attack typically involves a specific individual the hacker considers a high value asset. The attackers attempt to compromise their credentials in order to get to datasets.

"Once they capture their credentials, they use that information to do a privileged escalation," Miller said. "A privileged escalation gives the hacker the opportunity to laterally move across the network. So the hacker has the ability to compromise additional high value assets." The way they come into the system is typically through an endpoint or a consumer's device.

In order to help agencies find a path forward after the breach, the White House released a mandate that, according to Miller, takes a more comprehensive and prescriptive approach than the federal cybersecurity sprint. For example, the memo mandates that within 30 days all agencies must comply with the guidance directed towards authentication and credentials.

However, Miller concedes the new guidance will not be easy to implement. "There will be a number of challenges the government will face, in particular those of information sharing, skilled resources, and budget alignment."

IMPLEMENTATION CHALLENGES

Budget alignment

The fiscal year 2016 budgets were drafted months ago. Now the new guidance has come out, so agencies have to align their existing budget allocation to this new guidance. The memo dictates very specific deliverable dates that agencies need to meet. "With the current budgetary environment, those December and March deadlines are going to be very difficult to meet," Miller said.

Skilled workforce

"Right now the government doesn't have enough cybersecurity talent to implement some of these objectives laid out in the memo," he said. "If they don't recruit and hire the right people, they won't be able to fulfill the objectives in the memo."

Information sharing

The ability to share threat intelligence information in a more meaningful way is paramount to the success of security in government. "We need to share threat information in a way that reinforces our overall position around the threat defense lifecycle," according to Miller.

To help combat these challenges, Intel has rolled out a Security Threat Defense Lifecycle program. The solution takes a network's defense sensor grid, whether it's at the network level or at the endpoint, and creates an automated communication path for those sensors to take a proactive remediation position based on the threat intelligence data that they capture. "With the solution, agencies can remediate threats in a much more efficient manner with fewer resources," explained Miller.

The automated communication path created by the Security Threat Defense Lifecycle is just one part of Intel's approach to combating cyber breaches. "For the last 18 months we have been talking about the connected security story. The government has been operating as a series of siloed technologies that are all chasing the same outcome. The challenge was we didn't have an effective means to share information across those different classifications of sensors," said Miller. "Now we do."

Intel's connected security posture features antivirus, application control software, and a host of intrusion prevention software that make up these different classifications of sensors. Intel created a message fabric that allows points on the defensive sensor grid to actually communicate with one another and share the threat intelligences globally across that sensor grid. "We can react in an automated fashion in milliseconds to the latest threat," said Miller. Intel's connected security story is helping to make the government more secure and efficient.

CUSTOMER SERVICE STARS

As its name implies, good customer service is all about improving the relationship with the end user. But in the past few years, technology has changed citizen expectations of what good government service looks like. Now the public expects to receive government services digitally and around the clock. Agencies on the leading edge of customer service have put citizens in the driver's seat. Governments have reorganized to align services based on citizens, not internal government processes. Here are some examples.

CUSTOMER SERVICE

What Do You Have to Say?

FEEDBACK.GOV LAUNCHES

THE PROBLEM:

The imperative to improve customer service can be perplexing for some government employees. Because some government services are mandatory, what difference does it make if the process isn't perfect? But performance measurement is critical for government programs' success and the health of the public.

THE SOLUTION

Following a White House Executive Order to improve customer service in 2011, General Services Administration officials decided to start at the source. They decided to improve customer feedback surveys.

The idea was simple: GSA would get rid of the long, archaic and difficult-to-complete surveys and instead create portals where users could submit anonymous high-quality performance information.

More than a customer service tool, the Feedback USA customer experience pilot seeks to improve customers' experience where they use government services the most. In the words of Denise Roth, GSA's Administrator, the initiative is slated "to improve the information available to make data-driven, strategic decisions around customer experience through Feedback USA. Through GSA's Office of Citizen Services and Innovative Technology, an office focused on enhancing data, information and services to the American people, we will be supporting project management, [providing] data analytic support, [and] procuring kiosks and software to analyze and transmit the anonymous feedback around Feedback USA. Ultimately, through Feedback USA, we look forward to providing better value to the public."

"This is the first time we've had a real-time effort to measure customer service," said Victoria McFadden, Deputy Chief Customer Officer at GSA's Office of Customer Experience. "We want to see if there's something agencies will react to if it's real-time data."

Customers expect quick, reliable and convenient service, so the feedback system relies on smiley face buttons that can alert agents to their performance in real-time, rather than passively using web traffic data, satisfaction surveys after phone conversations and annual customer satisfaction surveys. Many agencies depend on those methods, but they're not always reliable and rarely happen in person.

Outwardly, GSA's system is simple — even if the technology isn't. Customers click on one of four emoji buttons: a happy face, a somewhat happy face, an angry face or a somewhat angry face. The data then streams in real time to the agency's customer service offices and is summarized every hour.

The State and Veterans Affairs departments and the Social Security Administration are all giving Feedback USA (Feedback.usa.gov) a try. And so far the real-time customer reactions have been positive. Since the kiosks in State's passport agencies went live, the agency has received more than 1,500 responses from customers who tapped the kiosk buttons.

Although it's still too early to identify meaningful trends, McFadden has noted that the results have been "surprisingly positive."

Eventually, GSA plans to roll out similar feedback programs for taxpayers interacting with other agencies both online and through call centers.

TAKEAWAY:

Without understanding customer satisfaction levels, front-facing agencies are left to blindly provide service that can fluctuate on the quality spectrum. Feedback.usa.gov provides a strong precedent for other agencies to follow.

CUSTOMER SERVICE

Lost No More

TEXAS FINDS RIGHTFUL HOMES FOR UNCLAIMED PROPERTY

THE PROBLEM

According to the National Association of Unclaimed Property Administrators, unclaimed property refers to "accounts in financial institutions and companies that have had no activity generated or contact with the owner for one year or a longer period." Texas alone is currently sitting on nearly $4 billion in unclaimed money and property.

THE SOLUTION

To reduce that number, officials in the Lone Star State decided to go on the offensive. The state comptroller's office has been proactive in returning more than $200 million within the past fiscal year by going digital.

The office is making it increasingly easy and citizen-friendly to submit claims for missing property by developing an easy-to-use web interface. In addition, the office is making three efforts to proactively find owners: mailing notices to owners reported with complete last-known addresses, providing a database search feature for property location and participating in a national unclaimed property database.

"While it does come in a little faster than we can get it out, our goal is to always return as much of that property as we can," Supervisor of Unclaimed Property Bryant Clayton said in an interview. "It is a fun job. We do get a lot of people who are…very excited that we are holding funds for them and are very excited when we can pay that money back to them."

Citizens can check their claim status via Texas' unclaimed property website and by directly contacting the agency — a step that goes further than simply sending an inquiry into the abyss.

TAKEAWAY

By streamlining the unclaimed property process, the state was able to improve service while reducing financial overhead.

CUSTOMER SERVICE

Transplanting Success

HHS HELPS ORGAN DELIVERY GO DIGITAL

THE PROBLEM

Currently, the process of labeling, packaging and transporting organs is completed entirely by hand, taking considerable amounts of time — time that people waiting for transplants don't have.

THE SOLUTION

As of today, more than 79,000 people are on a waitlist for lifesaving organ transplants, according to the Department of Health and Human Services. In order to greatly reduce the chances of transcription errors or mistakes as a result of illegible handwriting, HHS created a comprehensive, automated and electronic system called TransNet. TransNet is part of the Organ Procurement and Transplantation Network (OPTN), which uses barcode scanning technology to help label, package and track organs and biologic materials shipped nationally for transplantation.

Rather than rely on handwritten packaging and labeling — an archaic process sorely in need of an update — this is an opportunity for transporters to more efficiently and proactively deal with organs. "Despite advances in medicine and technology, and increased awareness of organ donation and transplantation, the gap between supply and demand continues to widen," according to OPTN. As a result, this service is needed more than ever before.

Created by the HHS Services Entrepreneurs-in-Residence Program, TransNet's first trial began in 2013 with five patients. With its success, more organ-related agencies are undertaking trainings to ensure that more efficient organ transportations can fill the need at hand. Members of the OPTN/United Network for Organ Sharing Operations and Safety Committee envision a day when transplant centers can simply scan barcodes when they receive organs to correctly identify recipients.

TAKEAWAY

Creative and innovative uses of technology can make even difficult processes like organ transplants more efficient and successful.

WHEN SECURITY & SPEED ARE ALIGNED

An interview with Vaughn Stewart, Vice President of Enterprise Architecture, Pure Storage

Security and speed are generally concepts that are incongruous for the public sector. Rarely do government agencies think they can be both fundamentally secure and still deploy new, innovative technologies and solutions at a fast rate – a rate on par with their private sector counterparts. However, that thought process is becoming outdated now that flash storage solutions are fundamentally changing the speed and efficiency of government applications.

In order to better understand how flash storage can help the public sector be both secure and innovative, GovLoop sat down with Vaughn Stewart, Vice President of Enterprise Architecture at Pure Storage.

At its most basic level, flash storage is a data repository or storage system that uses flash memory instead of traditional spinning disks. Like a record player, disk storage leverages rotating platters and heads to read data from a magnetic device; while flash storage leverages flash memory (the same flash that's in a modern smart phone), to vastly improve performance. With Pure Storage, customers don't have to sacrifice performance for security.

"Pure Storage is highly robust secure and simple. The FlashArray can accelerate data processing, allowing what used to take a year n spinning disk to complete in a month and with all of the data encrypted based on a NIST validated AS-256 encryption algorithm," said Stewart. "The beauty with Pure is the level of security and hardening in the FlashArray is all behind the seems and does not complicate the simplicity of our platform. You simply cannot find this with traditional disk based storage."

Pure Storage deploys its solutions with government-approved security features not only included (at no additional cost), but also on by default. "There's no way to step down or turn off this data security. Our solution prevents you from being exposed to a cyberattack due to human error," said Stewart.

Of course, security is more complex than just the protection of the data. Often, government organizations are running additional cybersecurity software to further protect networks. While agencies are conditioned to expect performance degradation with enhanced security, Pure has shown that by running those products on all-flash storage they can get the security they need, while maintaining superior performance levels.

Putting security first goes a long way to helping both government employees and the public feel more secure about the data the government is hosting. "Particularly in the wake of the OPM (Office of Personnel Management) breach where over 22 million personnel records were hacked, cybersecurity has become personal to government employees," said Stewart. "Pure storage aligns to the National Initiative for Cybersecurity Education (NICE) which was rolled out by the National Institute for Standards and Technology (NIST). The foundation of the NIC model is 'Provision Securely,' which means protect your agency from malicious insiders. By embedding security solutions at every layer and allowing organizations to maintain performance levels, we can help ease this tension while helping to make government more secure."

Stewart noted that flash storage allows government agencies to securely deploy solutions exponentially faster in three critical ways:

First, since flash is memory-based media, it's 10 times faster than disk. Whether it allows first responders use to get the information they need quickly, speeds up a report that used to take hours to run or allows citizens to check the status of a safety complaint, flash can accelerate an agency's most critical functions.

Second, flash storage requires no tuning. Not only can IT workers use their time better elsewhere, but government organizations can deploy new initiatives with confidence that their storage infrastructure can handle even the most demanding applications and the highest peaks in demand.

Third, flash can actually reduce the number of servers, software licensing and administrative overhead it takes to run datacenter operations. With a smaller footprint, coupled with lower power and cooling costs, storage has never been simpler to manage.

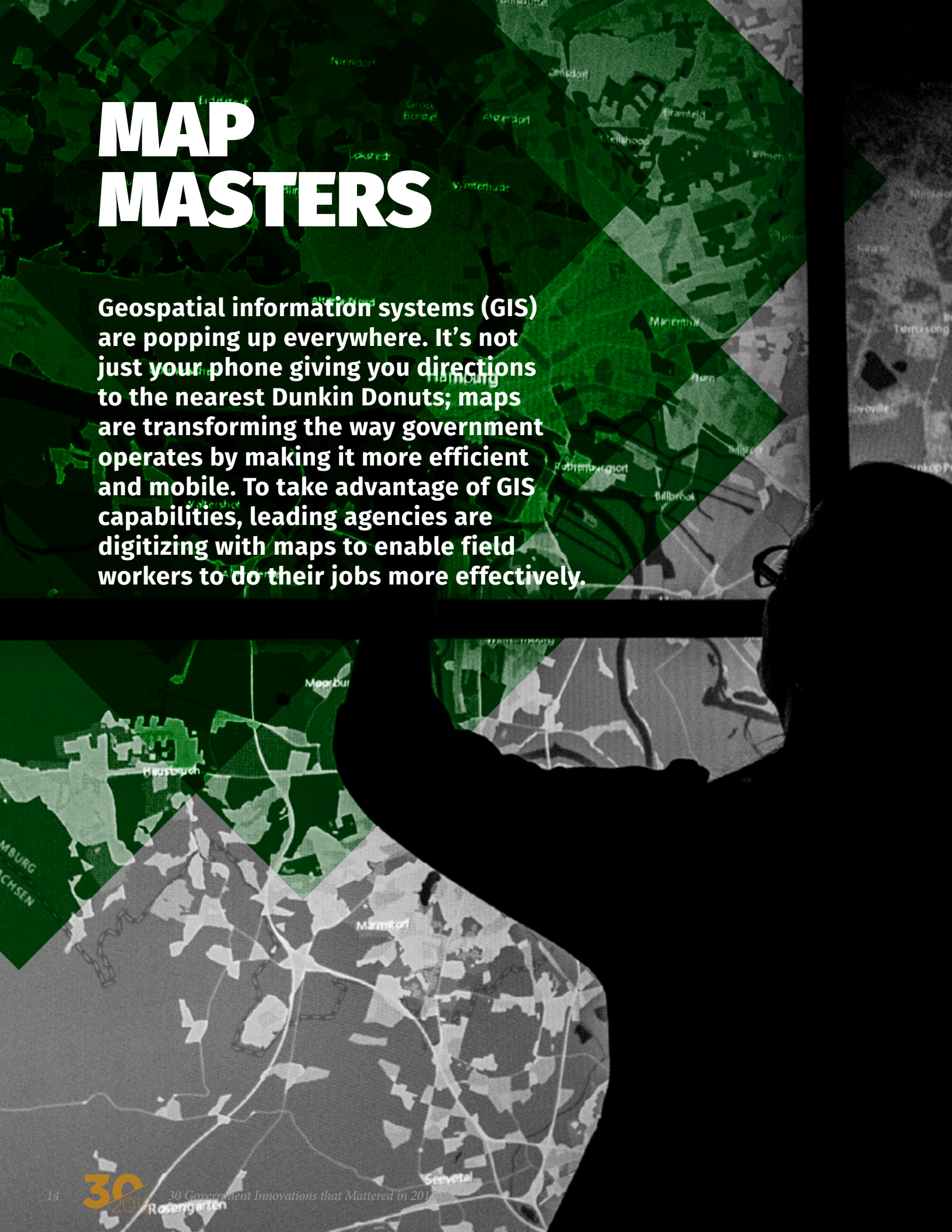
"All three of those have an acceleration element to it," explained Stewart. "Agencies can both deliver computation results faster and help their staff be more agile because they've eliminated a lot of the overhead, additional servers and software licenses that are required to operate."

For example, think about a police department's response to a potential terrorist incident, where fast access to information is crucial. Does their need for fast data mean they're willing to risk leaking information to the public, potentially causing widespread panic? Absolutely not. "If they are trying to react to an incident, or prevent an incident, the speed at which they send and receive information is critical. With flash, that happens at a much faster rate without compromising security," said Stewart.

Security, speed and innovation aren't always synonymous in government, but flash storage is making it a reality.

MAP MASTERS

Geospatial information systems (GIS) are popping up everywhere. It's not just your phone giving you directions to the nearest Dunkin Donuts; maps are transforming the way government operates by making it more efficient and mobile. To take advantage of GIS capabilities, leading agencies are digitizing with maps to enable field workers to do their jobs more effectively.



MAP MASTERS

Looming Lorax

HOW MAPS TRANSFORMED D.C.'S TREE INSPECTIONS

PROBLEM

Every year the District of Columbia is inundated with more than 7,000 tree inspection requests. However, because of this high demand, the

District Department of Transportation's Urban Forestry Administration (UFA) was unable to respond in a timely fashion.

SOLUTION

To better understand the situation and enable workers to file reports in the field, District officials looked to maps to streamline processes and build efficiencies.

A little background: UFA operates a 311 system for tree service requests. That means the department is mandated to respond to tree inspections requests within 72 hours. In 2010, it took, on average, 37 days to resolve a tree inspection.

To correct the problem, UFA used maps to discover where the most requests were coming from and assign staff accordingly. "Originally our team was spread out based on neighborhoods — not by an even distribution of trees," said Earl Eutsler, Director of the Urban Forestry Agency at a GovLoop and ESRI GIS meetup. "We were able to leverage data collection apps and dashboards to ensure service delivery and track work orders. Using maps, we have been able to greatly enhance how the agency delivers services to the D.C. citizens."

The team traded individual zones for a more collaborative tree collection process, in which the type of tree, request and date are all entered into a tablet-accessible map. "As you can imagine from their job description, the team at the urban forestry department is entirely field-focused. So I needed for them to have the information in their hands," Eutsler said.

The team can file reports, request more information and complete tree inspection paperwork using tablets. "The maps include a running dashboard of open cases and requests," he said. "By using this system, we have been able to reduce the number of days it takes us to respond from 37 down to two. It's incredible progress and it's something the people of D.C. really appreciate."

All of the dashboard data the maps collect is shared publicly. "It's been great to have our citizens be able to track their requests. They can see when there is a problem and they know who to reach out to. It's a great time-saver all around," Eutsler said.

Now that the workforce is dispatched more efficiently, it's able to handle requests faster, improve employee satisfaction and meet the 72-hour deadline.

TAKEAWAY

Using maps driven by real-time data can help government workers make faster and better decisions to better serve the end user.

MAP MASTERS

No More Water Damage

FEMA FLOOD MAPS

PROBLEM:

In October, more than 26 inches of rain fell in a 24-hour period in South Carolina — shattering the regional flood record, breaking dams and stranding thousands of residents. The region experienced more than $4 billion in damages. One of the reasons for the massive loss of property was a lack of updated flood maps for the region.

SOLUTION:

To help prevent such a financial hit, the Federal Emergency Management Agency (FEMA) created a flood hazard-mapping program called Risk Mapping, Assessment and Planning (Risk MAP).

With the help of detailed, interactive and responsive maps, FEMA workers can identify flood hazards, assess flood risks and partner with states and communities to provide accurate flood hazard and risk data to guide them to mitigation actions.

Risk MAP is an important part of the National Flood Insurance Program, as it is the basis of the program's regulations and flood insurance requirements. What that means is that insurance companies use the program to figure out how much compensation someone receives for water damage.

Additionally, with Risk MAP, residents are better able to understand the risks associated with their property. Risk MAP can pinpoint flood concerns down to a single point of interest such as a house or business via the address search. The address search also provides users with the ability to see if their residence is at risk, how large the flooding region is and which tools can help rectify the situation.

All of the flood data allows individuals and government officials to understand which areas are at the greatest risk for damage in the case of substantial rain. In South Carolina, residents are already using the portal to track insurance claims and prepare for the future. In addition, because the app updates in real time, residents can also track the current flood levels as the region dries out.

TAKEAWAY:

Natural disasters can strike at any moment, but communities and the government do not need to be caught off guard. Using predictive mapping, the government is better able to prepare communities before a flood.

MAP MASTERS

Food Gets Safer

FDA MAPS THE WAY TO HEALTHIER FOOD

THE PROBLEM

Field workers at the Food and Drug Administration must follow a 13-step process to complete a field inspection, but site inspectors were wasting hours going back to the office to file reports and digitize evidence they collected in the field.

SOLUTION

To give FDA's field inspectors more time to respond while away from the office, the agency teamed up with Esri and Mackson Consulting to create an app to automate field workers' reporting processes. The final product is called the Field Investigator's Tool with Mapping (FIT-MAPS).

But creating the maps was not easy. "The FDA wanted to optimize capabilities around field inspections," said Mary Biear, President and Chief Executive Officer of Mackson Consulting, at a GovLoop and ESRI meetup. "But the FDA also had some very specific requirements: The application had to be usable offline, and it had to be personal identification security (PIV)-secured." In order to meet Personal Identification Verification requirements, the map had to be completely encrypted both when connected and disconnected from the Internet.

The mobile maps and dashboards were so cutting-edge that FDA agreed to use a yet-to-be-publicly-released beta app to test digital field collections. The final product was able to automate 12 steps of the 13-step inspection process for FDA site inspectors.

"When they leave the facility, the FDA wants to make sure their inspectors have all the evidence they need — things like photographs, date-stamped and signed documents," Biear said. "With the app, they have all the evidence they need to secure a compliance action."

With FIT-MAP in place, FDA inspectors were able to log more hours in the field and file compliance actions at double the previous rate. The program was so successful that other agencies are looking to set up their field workers' tablets in a similar fashion.

The FIT-MAP took a little more than a year to complete and cost $1.1 million.

TAKEAWAY

Mapping can enable mobility now more than ever. Field workers make up more than a third of the government workforce. Maps allow these employees to stay engaged and connected while they're away from the office.

HOW TO UNLOCK THE VALUE OF DIGITIZATION

An interview with Gary Hall, Chief Technology Officer, Federal-Defense, Cisco

The ease of online services and digital resources are perks that citizens often associate with their favorite retailers — not government agencies.

Part of the reason is government has long been viewed as a heavily paper-based operation, despite efforts to adopt electronic records management and implement the Government Paperwork Elimination Act at the federal level. The law requires federal agencies to maintain records electronically and allow people to submit information or interact with agencies electronically, when feasible.

But the good news is the work hasn't stopped there. Government websites have become more interactive, and agencies are using crowdsourcing and apps to better communicate with tech-savvy citizens.

"Government agencies have had the desire to digitize processes for a very long time, but now the technology is catching up with that desire," said Gary Hall, Chief Technology Officer, Federal-Defense, at Cisco. "The big change over the last couple of years has been this rise of the Internet of Things (IoT) and the Internet of Everything (IoE). They have created a lot more data, and that's a catalyst for an increased emphasis on digitization."

IoE expands on the Internet of Things — which links smart objects to the Internet — to include people, process and data.

"Digitization represents a big shift," Hall said. "It allows governments to unlock the value of the Internet of Everything and change from manual to digital business processes that directly benefit agencies' lines of business."

Those benefits include reduced costs, increased productivity and better service delivery to citizens.

"Digitization focuses on leveraging data analytics and machines to drive real business and mission outcomes," Hall said. "Paper doesn't go to scale. Paper doesn't connect in real-time. We can't send mail couriers all over the planet in milliseconds like we can with digital information."

Agencies must realize there is no separation between their digital and business strategies because technology is key to the way government operates. But how do agencies unlock the value of digitization?

"For starters, it requires consensus," Hall said. He explained that building consensus is one of the biggest hurdles that governments at all levels will face in their journey to digitization.

"Digitization can't be successful as a solely top-down initiative from the CIO, but it also can't really bubble up from the program level," he explained. "It takes all of them working together. Successful digitization initiatives require buy-in and cooperation across all different elements of an agency. There's a complexity that requires a lot of consensus."

Going digital also requires funding, which is the last thing cash-strapped agencies can bear to hear. But there are ways to digitize operations without ripping and replacing existing IT systems. Instead, digitization requires agencies to be more creative with their limited funds. One option for agencies is to continue using existing resources throughout their lifecycle, while also using hybrid cloud services to broker new capabilities.

Remember, digitization starts with an understanding of business and mission objectives. Once those objectives are clear, agencies can begin rethinking their core business processes. Doing so can be easier said than done because this way of thinking requires agility and significant changes.

"It also means implementing agile IT and operational technology to embrace new security models, new types of hybrid cloud computing, more mobility, more social capabilities in their applications, and more analytics," Hall said. "To unlock the value of these technologies, agencies need to move beyond traditional IT to a different model. It's something we call Fast IT, which moves from managing IT in-house to hybrid cloud brokering, where you're going out and getting the best services that you can for your money."

As the need for increased digitization drives cloud adoption, agencies' requirements for cost-effective, resilient and secure cloud services are growing. Hall noted that security is the biggest potential impediment to cloud adoption. He advised agencies to take a fresh and holistic look at security and consider everything, including the network, endpoint and application security, as well as things that are outside the purview of information technology. This includes operational security and physical security.

Agencies' security strategies must account for broad and diverse cyber threats and identify and mitigate any risks associated with cloud adoption and digitization.

"It's unlikely that we'll ever completely eliminate cyber threats, so it's important to weigh the value of digitization and to apply the appropriate safeguards to protect before, during, and after an attack," Hall said. "But we also need to be careful not to be paralyzed into inaction because of the threat of security vulnerabilities and risks. Doing nothing may be a greater risk to meeting the mission objectives."

SECURITY SUPERHEROES

Superheroes come to our rescue whenever we need them. Now, in the Cyber Era, we face a different kind of enemy and again we need superheroes to save the day. These superheroes may not have capes, but they do have the solutions to help us combat our new nemeses in the cyber war.

SECURITY

Getting Secure

OMB SPRINTS AHEAD WITH CYBERSECURITY

THE PROBLEM

In a 2014 series of hacks, more than 20 million accounts of former and current government employees were stolen from the Office of Personnel Management. Those accounts included a vast amount of personal information. While alarming, this hack was also unsurprising; many agencies, not just OPM, were not up-to-date on necessary cybersecurity measures.

SOLUTION

Following the high-profile breaches, the White House took aggressive measures to protect the Office of Management and Budget's information in addition to other federal agencies' data by creating a cyber tiger team to address the hacks. The 30-day cybersecurity sprint that started in June 2015 was the cornerstone of this reactive initiative to buffer federal cybersecurity.

In July 2015, the administration announced that a team of more than 100 experts from across government and private industry would lead a review of the entire federal government's procedures and processes surrounding cybersecurity. Think of them as cyber avengers. The assessment found that multifactor authentication and other cyber best practices were not fully implemented. To effect cybersecurity changes, those results were used to inform a Cybersecurity Sprint Strategy and Implementation Plan.

The plan kicked off with the cybersecurity sprint, led by Federal Chief Information Officer Tony Scott. It mandated that all federal executive agencies:

- "Immediately deploy indicators provided by [the Homeland Security Department] regarding priority threat-actor techniques, tactics and procedures to scan systems and check logs. Agencies shall inform DHS immediately if indicators return evidence of malicious cyber activity.
- "Patch critical vulnerabilities without delay. The vast majority of cyber intrusions exploit well-known vulnerabilities that are easy to identify and correct. Agencies must take immediate action on the DHS Vulnerability Scan Reports they receive each week and report to OMB and DHS on progress and challenges within 30 days.
- "Tighten policies and practices for privileged users. To the greatest extent possible, agencies should: minimize the number of privileged users; limit functions that can be performed when using privileged accounts; limit the duration that privileged users can be logged in; limit the privileged functions that can be performed using remote access; and ensure that privileged user activities are logged and that such logs are reviewed regularly. Agencies must report to OMB and DHS on progress and challenges within 30 days.
- "Dramatically accelerate implementation of multifactor authentication, especially for privileged users. Intruders can easily steal or guess usernames/passwords and use them to gain access to Federal networks, systems, and data. Requiring the utilization of a... PIV card or alternative form of multifactor authentication can significantly reduce the risk of adversaries penetrating federal networks and systems. Agencies must report to OMB and DHS on progress and challenges within 30 days."

After the sprint, Scott reported significant accomplishments, including a 30 percent increase in federal agencies' use of strong authentication for privileged and unprivileged users. However, Scott impressed that more must be done and that agencies could expect a continual focus on cybersecurity moving forward. "But let me be clear: There are no one-shot silver bullets. Cyber threats cannot be eliminated entirely, but they can be managed much more effectively," he said.

TAKEAWAY

Although some agencies strive to implement first-class, innovative cybersecurity technologies, others are still challenged to implement baseline security. For these, cross-departmental and executive support is the next step.

SECURITY

It's Game Time

NAVY GOES GAMING FOR CYBER

THE PROBLEM

As agencies implement new technologies and expand their network endpoints, they amass more data. Although the benefits of using that data are exponential, expanded networks can create new targets for hackers, as the Navy discovered.

SOLUTION

The Department of the Navy (DON) collects more data each day than the total amount stored in the Library of Congress, yet it did not have an effective strategy to share this information internally or with the public. This prevented it from maximizing on recent open data and innovation trends.

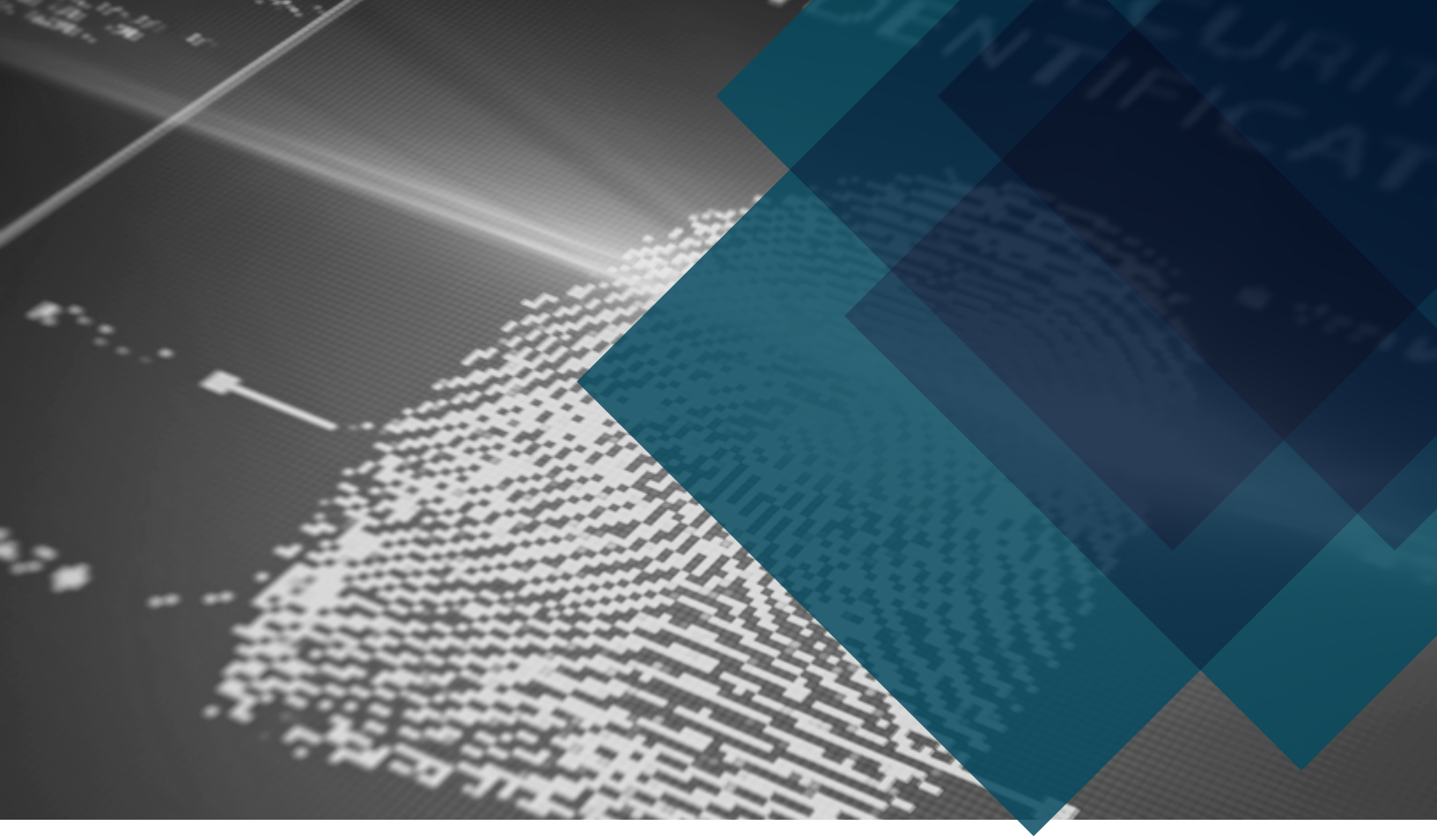
This year the DON CIO decided to find a solution to this problem, leveraging the increasingly popular gaming challenge model. In April 2015, DON hosted a Massive Multiplayer Online Wargame Leveraging the Internet (MMOWGLI) titled Data Dilemma (dd). DON hosted the game in hopes of finding a way to turn its culture from a "need-to-know" data mentality to a "need-to-share" one, the dd MMOWGLI team said.

One of the game's themes, Trusting Data through Data-Centric Security, prompted players to find ways in which DON can work on maintaining appropriate levels of data security, even as it is shared across an organization. The theme asked, "How does the Navy get beyond software barriers to reach the next level of capability: trust for shared data?" The game posed questions about potential risks associated with data sharing, interfacing and potentially reusing and adapting data.

On April 21, 2015, the MMOWGLI portal announced that 21 action plans were submitted, proposing new paths "to achieve a data-centric Navy" and 2,683 idea cards outlined a variety of issues and potential answers.

TAKEAWAY

When your agency begins to reach its data limit, it might be time for you to consider alternative data storage options. Subsequently, you can look outward for creative solutions.



SECURITY

Log In No More

COMMERCE DEPARTMENT KILLS PASSWORDS

THE PROBLEM

According to the U.S. Computer Emergency Readiness Team, secure passwords contain more than 15 characters and feature capital and lower case letters and at least one symbol. Passwords need to be updated every three months and should not in any way relate to the user's life. But no one can remember such complicated passwords, which means they often forget them, write them down or forgo the right level of security.

SOLUTION

To reduce and eventually eliminate the loopholes in password usage, the government has long looked for login alternatives for employees. The Commerce Department is no exception. The *United States Federal Employees' Password Management Behaviors — a Department of Commerce Case Study* found that department employees held nine accounts at work that required logins with a median of five frequently used passwords. These results outline a classic dilemma of repetition in which users create the same passwords for multiple accounts in order to remember them — a clear security issue.

This year Commerce awarded grants for three new pilots to help find alternatives for securing access to various electronic devices ranging from mobile phones to desktop computers. Each grant will focus on one of the following topics: state income tax returns, online health information and social networking. Each grant will also look into various techniques that continue to preserve privacy in their respective fields.

For example, HealthIDx officials in Virginia will use the funding to look into how effectively the "triple-blind" technology technique can protect via a third-party ID broker the privacy of users who use online health providers. A triple-blind study conceals from the people who organize and analyze the data of a study as well as the subject and investigators. Alternatively, MorphoTrust USA, a Massachusetts-based tech firm, will "demonstrate how biometrically verified online driver registration processes can be leveraged to protect state tax payers and prevent refund fraud," according to this report.

TAKEAWAY

Traditional security measures, such as passwords, can no longer adequately protect the ever-expanding government information technology infrastructure. New measures must be put in place, and government will likely require private-sector innovation and support to attain them.

SECURING WHILE INNOVATING

An interview with David Egts, Chief Technologist, North America Public Sector, Red Hat

Government innovation has truly taken off in the past few years. Every where you look, it seems like a new technology is popping up or taking place, from improvements in cloud computing, to drones, to cognitive governance, to the Internet of Things. There's a lot that's changing, to put it mildly.

But despite the myriad innovations that are happening and all the change that is taking place in government, one thing has remained a constant: the need for better security.

To understand how government can continue to innovate while staying secure, GovLoop sat down with David Egts, Chief Technologist, North America Public Sector, Red Hat.

"Red Hat sees security as incredibly important because you can't innovate properly without knowing that what you're doing is secure," he said.

Egts explained that security will never be a problem that can fully be solved or go away – but it is something that, when addressed properly, can have its risk minimized. One way to do this? Automated security.

As Egts explained, in the past, security was a very manual and labor-intensive process, where people would secure their systems by hand – something that worked relatively well at the time when government data centers consisted of a relatively small number of large systems.

"But nowadays you have a large number of very small systems, where you have blade computers, virtual machines, cloud virtual machines, and containers that are all over the place, that may not even be in your physical datacenter," Egts said. "How are you able to secure that?"

That's where automation of security comes in. In the past few years, Egts noted, there have been many innovations in the industry in terms of increasing the automation of security. NIST has come up with SCAP, the Security Content Automation Protocol, a method for using specific standards to enable automated vulnerability management, measurement, and policy compliance evaluation.

"Industry has stepped up," Egts said. "Red Hat is coming up with SCAP content to be able to lock down systems, and to be able to do that at scale. And that's really important, when you have a large number of very small workloads that are ephemeral and that need to be in production much faster."

While Egts stressed that Red Hat is not a security company, "We're all about building secure software by design, and providing government customers tools to get the certification and accreditation done as quickly as possible, and get those workloads securely into production as fast as possible. And that's why security automation is going to be big. It's going to go away from the manual checklists, to be much more automated."

Automation also enhances another innovation the government is starting to adopt: the hybrid cloud.

"People used to think, 'Oh, I put something in the cloud, it's out of my control and it's not secure,'" Egts mused. "But if I have a hybrid cloud management tool, I can manage everything from a single console, and add additional cloud providers. One would think that adding more cloud providers would increase complexity, but the level of effort actually lessens using hybrid cloud management tools. Instead of having to swivel from one vendor's cloud management console to another, I can use hybrid cloud management tools to define processes once and repeatably automate the them."

Security around the hybrid cloud is important because its use in government will only grow, Egts said.

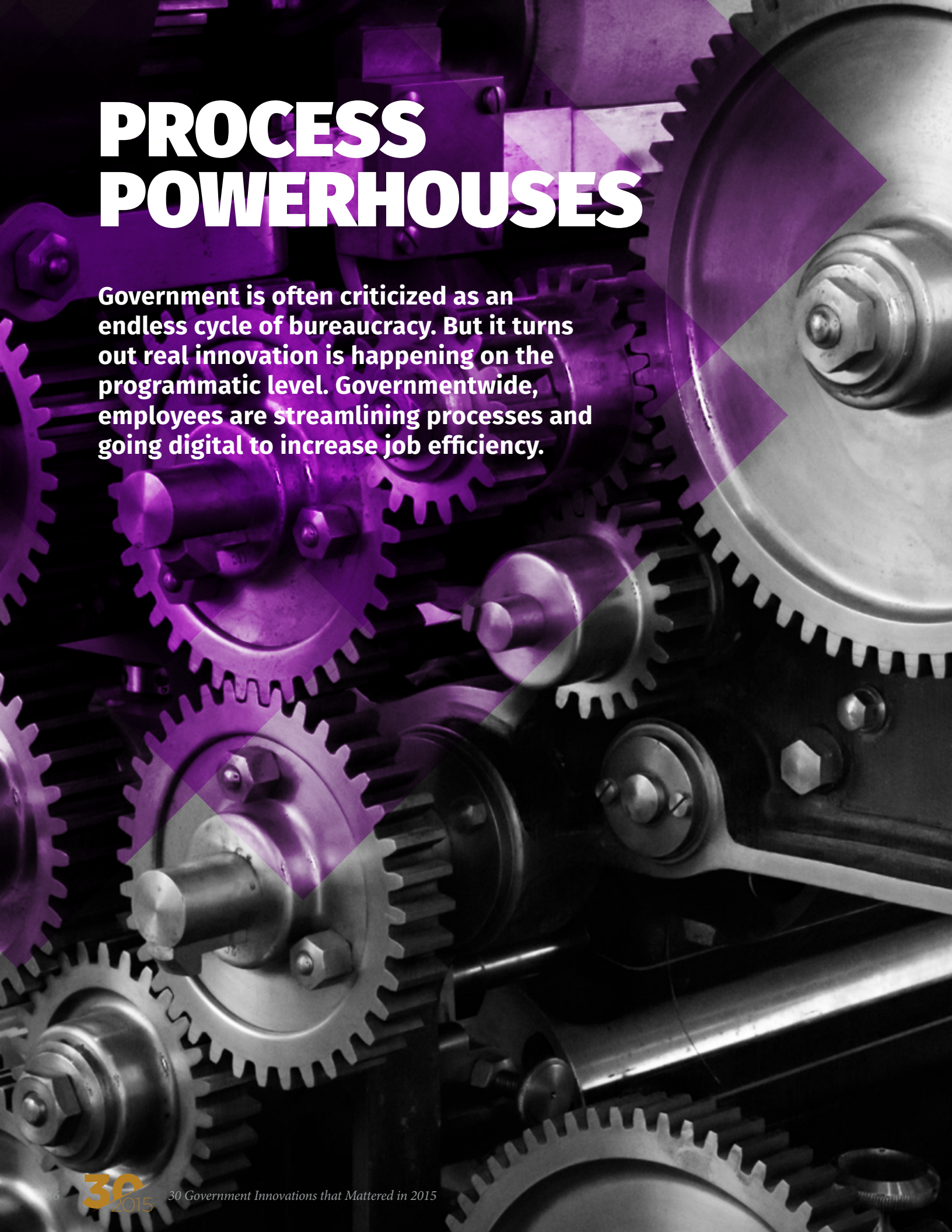
"Having a hybrid management tool is going to help with your security posture, because you can define it once and apply it everywhere," he explained. "That's whether it's physical, or it's in your datacenter or in a public cloud. Additionally, having more and more cloud providers, knowing whether they're going through the FedRAMP certification is important. And, and it's more than just having the government certifications, but also the software vendor certifications, too."

Overall, Egts emphasized that a community approach towards security in government is what will create the best environment for innovation.

"One of the things that we're proud to be a part of is the SCAP Security Guide community, where Red Hat and other vendors, as well as NIST, NSA, DISA, and other agencies are working together to do security policy in the open, using open source tools and the processes," he said. "So instead of people being very secretive and proprietary, doing security policy in the open makes everybody much more secure."

PROCESS POWERHOUSES

Government is often criticized as an endless cycle of bureaucracy. But it turns out real innovation is happening on the programmatic level. Governmentwide, employees are streamlining processes and going digital to increase job efficiency.



PROCESS

Websites Get Styled

18F LAUNCHES TEMPLATES

THE PROBLEM:

In the quest to go digital, many agencies are reinventing the wheel, repeatedly starting from scratch when it comes to the research, development and implementation of web services — and that is costing agencies millions of dollars and wasting valuable resources.

SOLUTION

Enter the U.S. Digital Services (USDS) team and GSA's innovation arm, 18F. The two teamed up to create web design templates for digital services. Think of the templates as how-to guides for website creation and implementation.

A little background: Until recently, government website development happened in silos, under unique brands and programs. As a result, agency officials spent considerable time recreating common patterns such as buttons, forms and search bars over and over again. The lack of coordination across departments created a poor user experience and wasted taxpayer dollars.

With the help of USDS and 18F, federal agencies can now use web patterns and user interface (UI) toolkits to build unity within their digital brands.

According to the 18F website the standards provide agencies:

- A visual style guide — typography and color recommendations that are 508-compliant, flexible and designed for readability and impact.
- Common UI components and patterns — a collection of foundational interface elements for government sites and the code that powers them.

In addition, the web design template team said it hopes to accomplish four specific goals:

1. "Make the best thing the easiest thing. We believe that making tools that align with the values and needs of digital workers in the federal government will drive adoption.
2. "Be accessible out of the box. We created tools that seamlessly meet the standards of 508 accessibility, from colors to code.
3. "Design for flexibility. We aim to give the American people a sense of familiarity when using government services, while allowing agencies to customize these tools to fit their unique needs.
4. "Reuse, reuse, reuse. We reviewed, tested, evaluated and repurposed existing patterns, code and designs from dozens of government and private-sector style guides to make use of tried-and-true best practices."

The templates are already making an impact governmentwide. For example, the Consumer Financial Protection Bureau, U.S. Patent and Trademark Office, and HealthCare.gov have all used the templates to create their websites.

USDS and 18F used a design thinking approach to craft the templates. Over four months the two teams met with various agencies to learn about their programs and needs, beta tested various templates, and incorporated Agile methodologies to ensure the templates success.

However, just because the templates have launched doesn't mean the process of innovation is over. According to the 18F website, the team "is working in the open to create a resource that everyone can own and contribute to. We've taken an iterative, user-centered approach to ensure we're addressing the needs of our users as well as government designers and developers. A cross-functional team of user-experience designers, front-end and visual designers each played a key role in this process."

TAKEAWAY

Sometimes the simplest idea is the best. In this case, sharing web templates not only saves time and money, but they also create a better user experience for the consumer. The toolkit creates simplicity and consistency across government services, not just within a given agency or program.

PROCESS

Changes Ahead

CALIFORNIA GOES AGILE FOR PROJECT MANAGEMENT

THE PROBLEM

The nature of government contracting and procurement practices means projects are often managed with a waterfall approach in which all of the requirements are set out before a project starts. But this leaves little flexibility and can be costly when a project goes off course.

SOLUTION

To break down large projects into more manageable chunks, many government agencies are taking an Agile approach to project management. But because the process by which programs are broken down into small "sprints" isn't easy for many agencies to comprehend, it can be intimidating.

To make the process easier, California rolled out an Agile project management training program. The free program is called the Project Academy Series and the goal is simple: The state prepares informational and educational seminars to help prepare its IT workforce to deliver successful projects.

"The objective of this series is to educate the project management workforce, project teams and stakeholders to better equip themselves to take on and successfully deliver CA IT projects," according to the course catalog.

The entire program is done virtually — students watch video files on the Project Academy Playlist of the state's YouTube channel. All slide decks and class handouts are also provided virtually.

In its first year, the program saved the state more than $1 million in educator costs and taught more than 2,000 employees Agile project management techniques.

Since January 2015, the academy has taught more than 2,400 students through 33 academy sessions. By educating the state's workforce and sharing experiences, California is effectively preparing the current workforce to administer successful IT projects in the future.

TAKEAWAY

There is no silver bullet to train the next generation of government workforce, but by allowing students to study at their own pace online, California was able to prepare and train more than 2,000 future managers with a click of the mouse.

PROCESS

Land Ho!

COAST GUARD LEADS EFFORTS TO UNIFY MARITIME LAW ENFORCEMENT

THE PROBLEM

The Coast Guard, Navy, FEMA, coastal states and many more government entities all have maritime law enforcement officials and emergency responders. However, they are all following different training manuals and procedures, which can cause confusion in times of crisis.

SOLUTION

To reduce confusion and streamline training procedures, the Coast Guard created the aptly named Boat Operations and Training (BOAT) program. According to the BOAT manifest, the program is comprised of vital maritime training and management components, including:

- System policy.
- The training and qualification process.
- Boat crew qualification tasks.
- Program manager roles and responsibilities.
- Boat crew currency maintenance.
- Documentation requirements.

And although those classes are clearly important for the training and development of future maritime personnel, the real key is that the training is universally recognized throughout all levels of government.

"BOAT is the national standard for the training, qualification, credentialing and typing of marine law enforcement and emergency first responders. Adoption and implementation of the program provides a true national standard for maritime interoperability at all government levels. Standardization ensures maritime agencies can interact together and will bolster their ability to act as force multipliers nationwide," according to a release on the program.

In its review of the program, FEMA found the BOAT course to be well organized in its explanation of maritime threats. FEMA said the course content is appropriate for this level of training and that all of the modules bring together information to support the course goal. "This is another milestone for our BOAT Program's Tactical Operators Course. Already recognized by the U.S. Coast Guard, this course provides high-quality training to the maritime law enforcement and emergency response communities and [FEMA's National Training and Education Division] approval further validates the value of this training."

TAKEAWAY

Universal standards and strategies are not just useful for collaboration purposes, they can be critically important in times of disaster. The imperative for everyone to speak the same language and follow the same training procedures is clear.

PRINTING – THE NEXT FRONTIER OF CYBERSECURITY

An interview with Shivaun Albright, Distinguished Technologist, HP

For more than 30 years laser and ink jet printers have populated the office supply room. These document-producing devices have withstood countless technological evolutions to become the multifaceted printers we have today. However, the biggest threat to the longevity of the printed word might come from an invisible foe – hackers.

Looking at a printer, you might not view it as a possible launch point for a hacker looking to breach your network. But you would be wrong. The truth is a printer just like any other device connected to the network is vulnerable. GovLoop sat down with Shivaun Albright, Distinguished Technologist, HP, to discuss how government can address this security need.

"Printers are essentially an endpoint on a network," Albright explained. "Customers invest in endpoint security for their PCs, and their routers, etc. But the printing side of it is often overlooked. We're trying to educate customers that every endpoint should be an equal citizen on the network."

However, HP has a long way to go to ensure all of the public sector is taking printer security seriously. A 2015 Ponemon Study asked how many IT managers realize their printers might be vulnerable to cybercrime. Only 53 percent of IT managers recognized that printers could be just as vulnerable to cybercrime as any other endpoint. But Albright isn't discouraged, "That number is actually a good sign, because it means that more than half of IT professionals are paying attention to printer security. Now we just need to convert the other half."

The printer security conversation couldn't come fast enough because cybercrime is evolving rapidly and the threats are increasing daily. "We don't want printers to be that weak link in the network," explained Albright. "In the past you could be assured that your network was secured by the perimeter with firewalls, but the reality has changed. We want to ensure that customers recognize that these printers need to be secured."

For example, an average printer has 100's of possible security setting s. And as with all manufacturers, whether it's PCs, desktops or printers, the device comes to a customer not configured and potentially vulnerable. So it's important that administrators set security policies to bring those devices into compliance with their organization's endpoint policies and make sure that their printers are locked down in a similar way to their PCs. "The public sector needs to understand that these printing and imaging devices are part of their computing ecosystem. There needs to be an increased awareness around data protection," explained Albright.

In the printer world, data security can come in different forms. The data is stored in a disk drive, is in motion over the network and is physically printed. "We've seen examples where confidential or sensitive information was exposed because someone printed a document that was just left in the output tray and prying eyes were able to see," said Albright. "The first step for organizations is to look for the potential weaknesses in the system. Then you can look for ways to secure your data end to end."

In order to help create that holistic view of security HP has committed to improving the printer security process. "We provide the tools, solutions and device hardening solutions to protect our customer's environment and their data. We have added layers of security onto our devices to provide this intense, in depth mechanism that recognizes which devices are at risk in the system," said Albright.

Customers can now also take the security advantage one step further. HP now offers a printing security advisory service. Albright explained how the service works, "We provide the customer with education on security threats and analysis of the current printing security posture," Albright explained. "We do an assessment of their devices using a tool called JetAdvantage Security Manager that assesses a customer's fleet of devices, and identifies where a printer has potential issues or vulnerabilities because they're not configured properly."

HP developed the JetAdvantage Security Manager tool with default/recommended printing security policies based on industry best practices and internal expertise. The service provided by HP features an assessment of the customer's fleet security posture. Once HP completes the fleet assessment, the security advisor helps the client build a comprehensive printing security policy that meets their business needs as well as their best practices.

The printer security evolution isn't stopping with the Security Manager tool. Albright previewed plans for 2016. "We'd like to see more awareness of the risks of printing and imaging devices, as well as an increased focus on device security. Looking forward, we'd like to see a better integration of print device security with cloud services. That area is growing significantly."

DIGITAL SERVICES STANDOUTS

Government is often perceived as being behind the digital innovation curve, taking longer to adopt web-based solutions than the private sector, and with less enthusiasm and less skill. But that's changing rapidly. Agencies at all levels are recruiting top tech talent, dedicating resources and adopting new development methods to engender the next generation of government services online.

DIGITAL SERVICES

Report for Jury Duty!

LUBBOCK COUNTY, TEXAS, GOES VIRTUAL

THE PROBLEM:

The juror selection process is costly for municipalities and time-consuming for citizens, yet few governments have moved beyond the traditional wait-and-see, in-person procedure.

SOLUTION

Whether you have been called yourself or had a friend serve jury duty, you're likely familiar with the tedious process: A prospective juror gets a date and time to appear at the local courthouse, where she may or may not be selected to participate in a trial. That selection decision can take hours, and the citizen must wait onsite, missing work and other obligations.

For most people, jury selection is a wearisome, even painful process. For the residents of Lubbock County, Texas, it's a thing of the past. Residents still have to fulfill their civic obligation, but they can now report for jury duty without leaving their homes.

Instead of driving to the courthouse, prospective jurors can log onto the Online Jury Access System using instructions included in their juror summons. Through the portal, citizens complete a series of questions similar to what they would answer in person in the traditional process. Then, prospects can go about their day. If they are selected, they receive notification via email, text message or a phone call. Only then do they have to appear in court.

The online program has been in place for about one year and residents may still appear in person to complete the selection process if they don't have access to email or a phone. However, District Clerk Barbara Sucsy said, the portal is already a success. She has witnessed both a higher rate of juror participation and greater satisfaction by system users, as compared to a year ago.

Additionally, the new digital service is not only a win for customer satisfaction, but it's also a cost-saver for the county. Jurors are traditionally paid $6 each for the first day of the selection process, but online users will not be compensated. "If we have 300 people that report online, we are saving $1,800 that week," Sucsy said. At the same time, residents don't have to miss productive hours at work for jury selection, which increases local businesses' bottom lines.

But even as the service saves money and time for users, Sucsy said there is room for improvement. For instance, the text, voicemail and email alerts are sent manually to selected jurors, which is a cumbersome task for employees. To reduce that workload, county officials are investigating adding an interactive voice response function to the call system. As any good digital service should be, the online system is open to revision based on experiences and feedback from citizen and government users.

TAKEAWAY

Digital services can transform an old process into a new, better experience for both users and government employees.

DIGITAL SERVICES

We Want You

VA GOES DIGITAL TO RECRUIT TOP TALENT

THE PROBLEM

After a patient scheduling scandal rocked VA last year, the agency struggled to maintain morale and technology leadership. One of the reasons for the scheduling backup was a lack of top talent to deal with the problem. The agency couldn't recruit, retain or hire the right employees.

SOLUTION

Rather than taking a solely reactive stance to the problem, VA is using it as an impetus to create new, better services for veterans. Following the model of USDS, the agency launched an in-house team in late 2014 called the Digital Service at VA.

The service began active hiring in 2015, recruiting technologists at the GS-15 level for two-year appointments. According to the agency's chief technology officer, VA officials plans to hire well more than 50 digital service experts to fill out the team and meet their goal "to transform the way technology works for veterans and their families."

The team hopes to rapidly develop and deploy user solutions similar to the GI Bill Benefits Comparison Tool that helps veterans understand and apply their university benefits. The data used in this online portal was previously accessed only via disparate agency websites and presented in multiple formats. Now, veterans have a one-stop-shop to find the answers to their GI Bill questions.

In fact, integration will be the driving force behind many of the team's first projects. Some of the solutions will fall under the broad MyVA Initiative, which will realign the organization to better serve veterans in a more holistic way. The digital services team has already created a demo of a single, unified website to support that program. It is also working on integrating the disability appeals process into a streamlined, online platform.

Agency CIO Stephen Warren said this mission of integration also applies to the team itself. "We need to embed them and make them a part of our other work that's taking place and make sure the knowledge that they're bringing to the table is shared," he said. "I tried very, very hard to make sure it's not an 'us and them.' They are part of the team. We look at them as a resource."

TAKEAWAY

Digital services are not only a solution to problems, but also a way to recruit top tech talent and transform agencies into change agents.

DIGITAL SERVICES

Going Green

EPA E-ENTERPRISE FOR THE ENVIRONMENT PORTAL

THE PROBLEM

Most companies are required to report on their environmental regulatory compliance, but navigating the tribal, state and federal regulatory bodies is a complex and often unclear process. This is made only more challenging when these separate agencies maintain separate standards and request divergent information.

SOLUTION

Instead of leaving it to individual organizations to figure out which environmental reports need to be filed with which agencies, the Environmental Protection Agency created an online portal that makes connections for the users.

The platform, called E-Enterprise for the Environment, is the product of collaboration between EPA's Office of Solid Waste and Emergency Response, GSA's 18F team, and the EPA's own digital services team. It serves three goals: improving program performance, enhancing services to stakeholders and agency partners, and creating a model for joint governance among partners.

To achieve these goals, E-Enterprise offers information and functionality that spans all levels of environmental government. For instance, it offers an Amazon.com-like feature by which additional regulatory forms and agencies are recommended to a company after it submits one environmental report.

Now, the pilot program is also soliciting public comment on additional features it could include. As they move forward, program officials are intent on creating a portal that not only serves EPA users, but also creates a more unified reporting standard and process at EPA and across state, local and tribal bodies.

TAKEAWAY

Digital services can bridge the divide, not only between agencies and citizen users but also between different levels of government.

GOING DIGITAL IN GOVERNMENT

An interview with Dan Katz, Public Sector Solutions, Acquia

In the public sector, mission is everything. The mission drives agencies to deliver better services to citizens at a lower cost—whether it's supporting the warfighter overseas, a teacher seeking classroom resources or a family figuring out how to pay for a child's college education. It pushes every level of government to look for new solutions and, more often than not, those are solutions are digital.

In May of 2012, the President unveiled his Digital Government Strategy aimed at creating a digital-first government with websites focused on serving citizens. But calling for a new government strategy and actually implementing one are two very different things. In the past three years, many agencies have worked hard to become true digital organizations providing easy, accessible web experiences and delivering relevant information and services to citizens anywhere, anytime, on any device.

One company that is working to help agencies implement solutions to make improved digital experiences in government a reality is Acquia, a provider of digital platform and software solutions. GovLoop sat down with Dan Katz, Acquia's Public Sector Technical Director, to learn how their customers are delivering improved digital experiences to citizens.

Katz said the basis of every digital engagement strategy should boil down to the citizen. "Instead of making your users find and figure out answers for themselves, you can instead use simple contextual or behavioral information to tailor the experience and make the entire endeavor easier."

In a new eBook, The 5 "Musts" of the New Digital Experience Government, Katz shared the five key components every government organization should implement to enable and sustain a successful digital experience.

1. Digital Cloud. Organizations need cloud platforms and services optimized for enabling secure, reliable digital experiences.

2. Open Technology. Open source software and open interfaces enable rapid innovation and response to change.

3. Personalization. Citizen experiences can be optimized through testing, targeting and defining user segments. Organizations can use those segments to deliver the right content at the right time, directly to users.

4. Omnichannel. Structure content "atomically," manage it centrally, and publish it across multiple channels like mobile, web and email.

5. Cultural Support. Successful digital transformation efforts require shared goals and collaboration across IT, executive leadership, external affairs, procurement and project management teams.

Katz noted, "There is no magic here. These are pragmatic, actionable components of a sustainable digital strategy. Starting with one of these is a huge step in the right direction."

One of the leading agencies that implemented the 5 "Musts" is the state of New York. Two years ago the state's website was a customer experience nightmare. The site featured rambling menus, redundant links and was unable to quickly or efficiently direct visitors to the state's many agencies or services. In essence, if you were one of the 3.7 million monthly page views to NY.gov, you were in for a rough experience.

However, all of that changed when Governor Andrew Cuomo dedicated a team of more than 100 people and 10 months to overhaul the site with the customer experience at the heart of the re-design. The team, lead by New York Deputy Secretary for Technology Rachel Haot, reviewed site analytics to determine future demand, opened doors for user testing and sought stakeholder input.

In an interview with Government Technology, Hoat noted, "We discovered there was a clear need for a responsive design, one to accommodate mobile devices; shaving excessive information for quick access to services; engagement outlets through social media and personalization."

By streamlining and simplifying the website, New York was able to increase visits to the website and change the citizen experience for the better.

"We really identified that the primary goals of the website were first to serve and perform all of those functions, and then secondly, to inform and explain government," Haot said to Government Technology.

Katz agreed that in order for digital services to truly work in government the citizen has to be the central figure. "You have to make your customers your champions. Harness the people already engaged with you. Ultimately, it doesn't cost money to talk and listen. Customer service is really about human interaction – and culture."

In order to meet the demand for an enhanced citizen experience with information and services delivered anywhere, anytime, on any device, government agencies must prioritize projects; utilize the cloud, open technologies, and shared solutions; and work together with industry partners to maximize internal resources. Digital engagement has the power to positively transform the way the public views and interacts with government. And with Katz' five tips to get the digital engagement ball rolling, your organization can see a huge change.

To learn more watch the "Five Musts" webinar featuring digital success insights from former government leaders.

MEET THE INNOVATORS

Kelly Samson-Rickert is the Director of Workforce Development for the State of Maine, Office of Information Technology (OIT), where she oversees and develops the strategic planning for the OIT workforce needs.

MEET THE INNOVATORS

Putting Innovation Back into Hiring

A STATE PERSPECTIVE

The government workforce across all levels is in trouble and the reason is simple: Baby boomers are leaving government. In fact, an estimated 10,000 baby boomers are leaving the workforce daily.

In Maine's Office of IT, 24 percent of the workforce will be eligible to retire by 2017. That's one in four. But those numbers don't keep Maine's Director of Workforce Kelly Samson-Rickert up at night. The reason? Millennials. "We have some really talented folks that are coming up the pipeline," she said. The challenge for Samson-Rickert is recruiting them to state government.

To ensure that Maine is recruiting, hiring and retaining top performers, Samson-Rickert has taken an innovative approach to hiring and training her workforce.

The first step she noted was getting the most out of the talent she already had roaming the halls. "We need to retain talented baby boomers long enough to transfer critical knowledge and close the critical skills gap," she said. To do that, Samson-Rickert emphasized skills sharing and partnerships between agencies and individuals.

In Maine, employers are reaching out to be partners and to collaborate. "We already have an agile workforce," Samson-Rickert said. "We already have a workforce that's 24/7, and connected all the time. So collaboration and skill sharing is not about technology, it's about forming those partnerships within your own organization and not just throwing the baby boomers out. It's about capturing the institutional knowledge. It's how do we partner with them to make it a win-win?"

However, Samson-Rickert isn't just focused on retaining baby boomers. She is actively recruiting the next generation of government workers — and that doesn't mean only millennials.

"We are very focused on employing the underserved population group. So we have two segments of our internship: One is the traditional kind of student that you think about — the junior or senior in college — the other one is reaching out to adult learners and veterans," Samson-Rickert said.

Once the interns are in place, they are not fetching coffee. "We give our interns real work. For example, we gave four of our interns a challenge. We said, 'We know recruitment and finding our jobs is difficult. We want you to tell us what we can do better.'"

The interns went to Maine's website and applied for jobs. They had to not only report their findings, but make real suggestions. "They did a thorough analysis of research with other companies and other states. They then presented their findings to the governor. They showed him how many clicks it took to get to a job. It was painful, but now we can make some changes. And those interns got to work on something where they reported directly to the governor. That's how we get people interested in working for government. We empower them and give them the tools. In government we have access to so many avenues that [the] private sector doesn't."

All of Maine's interns are paid and many are offered jobs upon graduation.

But Samson-Rickert cautions that innovation isn't for the faint of heart. "To me innovation means leading and transforming the future needs for the workforce. I think innovation is about being bold. I think it's about being cutting-edge and trying things different, and when you screw up, say, 'Whoops, that didn't work. Let's try something else.'"

MEET THE INNOVATORS

Zvika Krieger is a Senior Advisor at the U.S. Department of State, where he leads the Strategy Office and Pol-Mil Strategy Lab in the Bureau of Political and Military Affairs.

Putting the Human Back into Innovation

A FEDERAL PERSPECTIVE

When it comes to innovation, the latest buzzword vibrating around agency walls is human-centered design (HCD), also known as design thinking. HCD takes tools from the world of design and applies them to complex challenges to come up with innovative solutions.

Although this may make design thinking seem like an intangible idea, Zvika Krieger, Director of the Strategy Lab at State, said that's not the case. Krieger is an HCD expert and instructor. "It's a concrete, linear, replicable way to drive innovation," he said.

There are various methodologies for executing design thinking, but there are five components or steps that are integral to every model. They are:

EMPHATHIZE

Determine whose needs you are trying to meet. Then, connect with those users on a qualitative level to understand what they want and need from your project.

FRAME

Based on the input of your users, define the problem you want to solve. In many cases, this won't be the problem your agency leader identified when he or she handed the project to you. However, the user-driven problem is the one you must tackle for project success.

IDEATE

More commonly known as brainstorming, this step involves collaborating with diversey groups and integrating new perspectives to come up with creative potential solutions to your problems.

PROTOTYPE

In HCD, you don't wait until everything is perfect, which is what government normally does. Instead, you move fast to create a minimum viable product. Then you release that product into the hands of your users.

TEST

As soon as your first iteration is released, start the loop of testing the product, asking for feedback and creating new prototypes.

HCD might seem like a new fad, but Krieger is convinced it's here to stay. "We might look back on this year as the breakout year for human-centered design in government," he said. "I wouldn't say design thinking is mainstream in government yet, but it is definitely out of the shadows and it's starting to make a major impact. We are using it at the State Department every day to solve real challenges."

For Krieger the need for HCD is apparent. "The threats that we're encountering are more complex than ever. We are dealing with actors and technology that we're not used to dealing with," he said. "We are at an intersection of hard issues and soft issues — issues that cut across silos. In order to solve them we need to generate more creativity. What design thinking offers is a very concrete toolkit. It's something that can be taught, it's something that can be applied in lots of different contexts. It's not just like fairy dust, it's a specific set of tools."

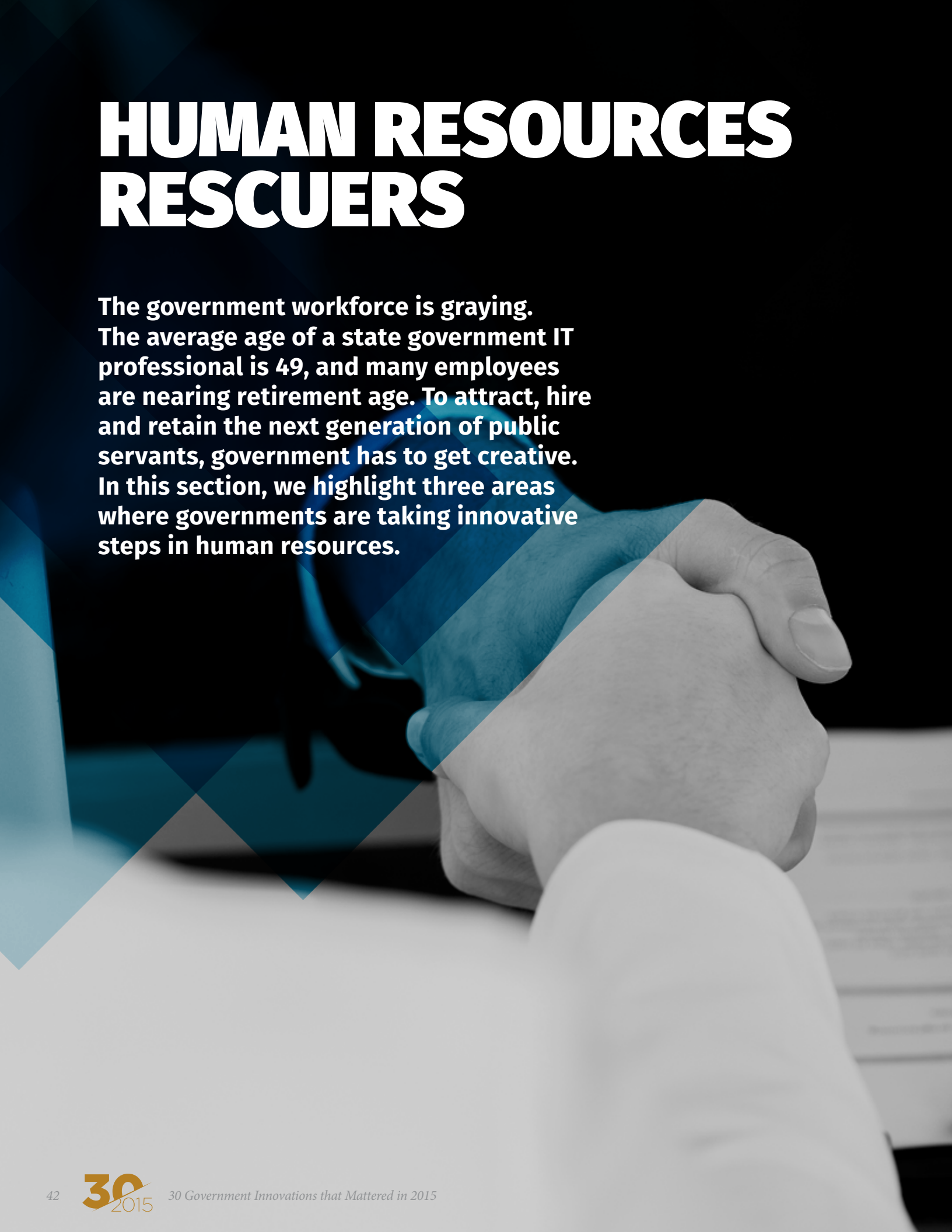
To effectively bring HCD to your agency, Krieger identified four helpful resources:

- **Time:** "You need time and space — you can't be churning out the daily tasks and still be asked to innovate outside your normal parameters. It doesn't work that way."
- **A skilled workforce:** "Innovation is not magic fairy dust that appears out of nowhere. There are tools and methodologies that you can be trained in [in] order to generate innovative ideas. You need people with a set of skills."
- **Leadership buy-in:** "A lot of the ideas are just out of the box. You need someone to say, 'If you want to use sticky notes and come with crazy, off-the-wall ideas, that's not just great, it's mandatory.'"
- **Diversity:** "Government can be really insular, but that limits the amount that we can innovate. The ability to bring in people from the other sectors, people from other government agencies — you need people that wouldn't normally be in the innovation discussion."

For Krieger and other proponents of design thinking, HCD is not just innovation for innovation's sake, HCD is innovation to improve the future of government.

HUMAN RESOURCES RESCUERS

The government workforce is graying. The average age of a state government IT professional is 49, and many employees are nearing retirement age. To attract, hire and retain the next generation of public servants, government has to get creative. In this section, we highlight three areas where governments are taking innovative steps in human resources.



HUMAN RESOURCES

Leveling Up

BOSTON WORKS TO CLOSE THE GENDER WAGE GAP

THE PROBLEM:

Women in the city of Boston make up more than half — 52 percent — of the city's population, but they only make an average of 83 cents for every dollar that men earn.

SOLUTION

Many people say they support equal pay for equal work — at least in theory. But the path to closing the gender wage gap requires more than a nod of support. Instead, there must be substantive actions that will help put men and women on equal footing in the workplace.

In Boston, one of those actions has come in the form of free workshops aimed at equipping women with the skills they need to negotiate higher salaries and better benefits. The sessions are part of a multipronged approach to close the gender wage gap in the city.

In September 2015, Mayor Martin Walsh launched a five-year partnership with the American Association of University Women (AAUW) to offer free salary negotiation workshops to every woman in the city. Called AAUW Work Smart in Boston, the goal of these workshops is to train 85,000 individuals, or half of Boston's working women, in the next five years.

"The AAUW workshops are the next step in giving women the tools they need to compete in today's economy," Walsh said on __. "When women succeed, our businesses, our communities and our city succeed."

Workshops will be provided in every neighborhood of the city. Expert facilitators lead the interactive sessions, which include small-group activities and role-playing exercises. During the two-hour workshops, attendees learn practical and concrete skills to use at the negotiation table. They include information about:

- The gender wage gap, including its personal consequences.
- How to quantify the market value of their education, skills and experience.
- How to conduct objective market research and determine a fair target salary.
- How to create a strategic pitch and respond to salary offers.

Following these sessions, attendees are invited to participate in several networking events to form professional partnerships and develop pipelines for leadership.

The Mayor's Office of Women's Advancement is helping manage the day-to-day operations of the city's partnership with AAUW. According to its website, the office promotes women's equal participation, economic equity, and health and safety. It has three priorities:

1. Researching, analyzing and reporting on the status of women and girls in Boston.
2. Closing the gender-based wage gap and increasing economic stability and prosperity to achieve economic equity.
3. Eradicating violence against women in the form of human trafficking, domestic abuse and sexual assault to ensure women's health and safety.

"We are so excited to provide the working women of Boston these one-of-a-kind workshops," said Megan Costello, Executive Director of the office. "We know that the gender wage gap still exists, so it's important to work with both employers and individuals to shift the culture and ensure women are given equal opportunities."

TAKEAWAY

The gender wage gap isn't an issue the public sector can tackle alone, but through outside partnerships, the government can expand its resources and have a greater impact.

HUMAN RESOURCES

I've Got Skills, They're Multiplying

SSA CREATES SKILLS SWAP

THE PROBLEM

Employees often felt they had no time to explore other SSA initiatives that sparked their interest, and managers didn't always have the right talent or enough talent to move projects forward.

SOLUTION

SSA launched a skills-sharing pilot in fiscal 2015 that encourages managers to solicit the help of employees who want to complete projects outside their normal job duties.

Participating employees can use up to 20 percent of their workweek, pending supervisory approval, to work on designated projects.

Called Skills Connect, the pilot launched with 125 projects in need of employee expertise. Of the 700 people who applied, 263 were chosen to participate. The youngest was 24, and the oldest was 88. SSA tracks the demographics of its applicants and whether they are bargaining unit members to measure interest in the pilot and involvement across the workforce.

The agencywide pilot was launched in SSA's smallest region, Boston; its largest, Atlanta; and at headquarters. "It's really project-driven, and it allowed employees who might be on the other side of the country to get involved with the initiative," Deputy Commissioner for Human Resources at the SSA, Reggie Wells said. "It's really a skills-sharing model," and supervisors are encouraged to be generous in sharing their talent with other parts of SSA.

SSA Commissioner Carolyn Colvin wanted a program that would let employees get varied and cross-component experiences without having to physically move. For employees with disabilities, moving around the country for new opportunities may not be feasible, so being able to work virtually has been a huge benefit for them.

Wells shared the story of a claims representative in Greenville, Miss., who worked with SSA's Baltimore office to test new automation capabilities in the field. The employee needed that kind of technology and was able to test it before it went into production on a larger scale.

"All of these [Skills Connect] projects are geared toward better service to the public or support of the workforce that is delivering service to the public," Wells said.

TAKEAWAY

Skills sharing enables agencies to better use employees' talents across the workforce, while also boosting employee engagement.

HUMAN RESOURCES

Together We Hire

ONE USDA OPENS FOR ALL OF AGRICULTURE

THE PROBLEM

The U.S. Department of Agriculture has more than 30 offices and agencies. Combined, they used more than 200 HR-related IT systems. The lack of a universal HR system means the department has to spend money to maintain 200 systems and the unique personnel to run each program.

SOLUTION

Under its One USDA initiative, the department is consolidating, streamlining and standardizing HR enterprise systems. That process is currently underway, and the goal is to reduce the number of systems to "bring them down to a manageable number, from 200 to maybe 20 [or] five, hopefully," said Indu Garg, Director of Enterprise Systems at USDA.

Similar to other government agencies, the challenge at USDA is that different agencies have different missions, and officials at each think their unique needs require separate processes and guidelines, Garg said. But that doesn't have to be the case.

Instead of creating new policy guidance for all USDA agencies to follow, the department used OPM's business reference model for doing different HR processes, including hiring, retirement, benefits and payroll. USDA standardized its guidance and policy based on OPM's guidance and policy.

"The solution we put forth is transferable [and] scalable," Garg said. If another department wants to adopt it, it can.

All workforce data should be reportable and available. By centralizing data, it gives agencies greater power to understand their workforce and make necessary changes. At the department, it's now possible to pinpoint where hires are made within USDA agencies and locations based on an employee's job level, job type or series, in addition to other factors.

Part of the challenge was convincing people that they weren't giving up anything through streamlining and standardizing but actually getting a lot back in return. Technology is a key enabler, but it won't make a poor process better. That's where change management comes in. Having a few good sponsors at your agency to champion change is critical, especially if you want those changes to continue even under new leadership.

"You've got to sell your idea" to decision-makers, Garg said. "You've got to [present] it like it has become their idea. Collaborate with them. It's not mine, it's not yours, it's ours."

TAKEAWAY

Setting the right policies and processes is a key first step to tackling massive IT consolidation efforts.

ACQUISITION ALL-STARS

Drawn-out requests for proposals, billions of dollars and years — those are the ingredients for most government procurements. But as the rate of technology evolution accelerates, the need for a new type of acquisition model is necessary.

ACQUISITION

What's the Play, Coach?

TECHFAR'S PLAYBOOK SCOOPED

THE PROBLEM:

Digital services projects in government often contain unused or unusable features because of outdated development practices and overly narrow interpretations of what acquisition regulations allow.

SOLUTION

OMB is developing tools to upgrade the capabilities of government digital services. Such tools include TechFAR, which highlights flexibilities in the Federal Acquisition Regulation (FAR) to help agencies implement swifter acquisition processes. This resource enables agencies to execute the 13 "plays" of the Digital Services Playbook, which identifies best practices from the private sector to help agencies successfully deliver digital services.

TechFAR, aligned with the Digital Services Playbook, offers guidance to use contractors to support iterative development processes, particularly Agile software development. What exactly is Agile software development and how does it help government acquisition processes?

Agile software development uses iterative development processes with design services based on real user needs. It's agile because the development consists of constant feedback from the user, which is then used for iterative software improvement. This may be more difficult for the government acquisition community because Agile software development starts with a broad product vision for the user, rather than specifying exact system features before development.

Although this may seem impossible for government agencies and not worth the costs or risks, Agile development is the preferred methodology for software development contracts that contribute to the creation and maintenance of digital services (i.e., websites and mobile apps). This process actually improves investment manageability, lowers risk of project failure and allows agencies to better adapt to the changing needs and demands of their users. Agile development is geared toward projects that need significant design and development, such as digital services (e.g., HealthCare.gov or Recreation.gov) and internal digital services and business systems.

Most government acquisition communities, however, may struggle with Agile development because of a lack of understanding of federal guidelines. TechFAR is designed to facilitate a common understanding among stakeholders, such as program, IT and acquisition officials, and agency legal counsel, of the best ways to use acquisition authorities while maximizing success for digital services. TechFAR consists of a handbook that guides agencies with relevant FAR authorities and includes practice tips, sample language and a compilation of FAR provisions that are relevant to Agile software development.

For each stage of the acquisition lifecycle, this document highlights key regulatory provisions and explains how Agile approaches can be effectively and successfully implemented while honoring the core principles of public procurement. Such principles include impartiality, accountability for results and providing the best value to taxpayers. TechFAR includes practice tips and sample language from other agencies that have successfully used Agile development tools to support mission needs.

TAKEAWAY

TechFAR provides guidelines, tips and strategies for government acquisition communities to enable them to better use innovative digital service processes such as Agile software development.

ACQUISITION

Where is the $$$?

GSA IS CONTRACTING THE AGILE WAY

THE PROBLEM

Government agencies increasingly rely on outside vendors for digital services but lacked a streamlined process for vendors to compete for software acquisition contracts.

SOLUTION

GSA's 18F Consulting helps federal agencies adopt modern approaches to managing and delivering digital services. In January, the group announced a new process for vendors to compete for software acquisition contracts. The Agile Blanket Purchase Agreement (BPA) requires vendors to submit a working prototype based on a public dataset and then show their work in a public git repository. A git is a free and open source distributed version control system.

What led GSA to use this agreement was the exploding demand for 18F to build products for agencies. To meet this demand, GSA officials realized they needed help from vendors that work in a similar fashion, using techniques such as Agile development cycles and user-centered design processes. There was also a clear need for a contract vehicle through which agencies could gain access to a pool of vendors, rather than having to approve and reapprove individual vendors one by one.

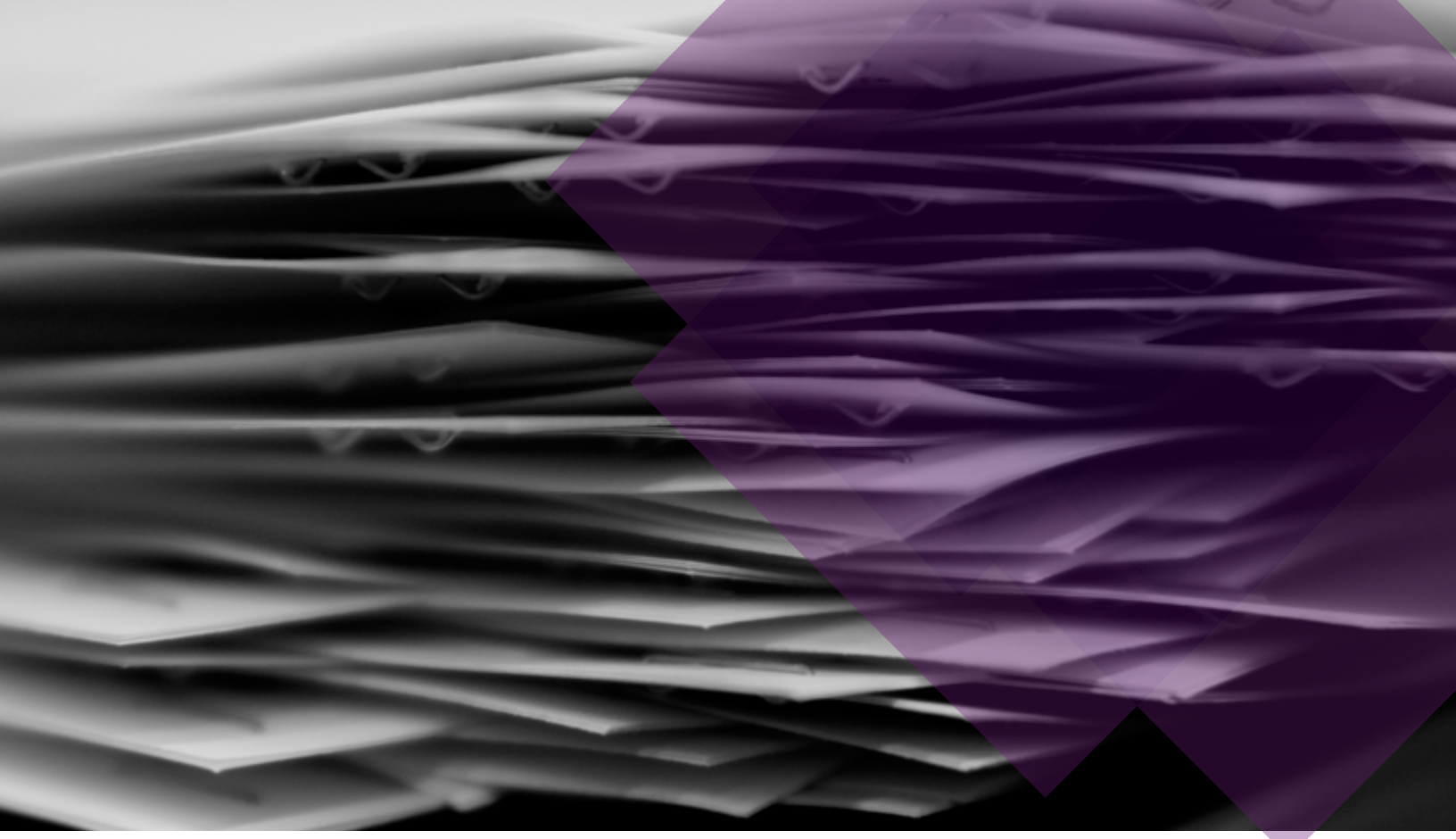
GSA partnered with the Federal Acquisition Service to execute the contracting work through the award phase. The Assisted Acquisition Services office will handle post-award task orders and management. With the help of 18F, GSA was able to automate some elements of the acquisition review process that enabled a faster, more efficient and more accurate review process for everyone involved.

GSA officials hope to enable companies to do what they do best: deliver working solutions to government customers that showcase the ability of Agile processes to transform the way the government buys and builds digital services. GSA also expects to maintain an ongoing dialogue with companies about what works and what doesn't on a project-by-project basis. The vendor community is seen as a community of "users" of the Agile BPA, and GSA plans to use its feedback, knowledge and insight to continue to find ways to innovate and improve the acquisition process.

Finally, with the innovation and flexibility of the Agile BPA, GSA expects to continue to experiment with ways to improve the procurement process. The end goal is to reduce inefficiencies associated with doing business with the government, allowing delivery teams to focus more on the end user and provide better, cost-efficient solutions.

TAKEAWAY

The Agile BPA allows agencies such as GSA to start the acquisition process with several vendors at once and to approve contracts efficiently and with a better focus on users.



ACQUISITION

Contract Managed

FITARA MAKES ITS DEBUT

THE PROBLEM

Many government agencies lack a basic understanding of the Federal IT Acquisition Reform Act (FITARA) guidelines and are in need of better IT integration tactics.

SOLUTION

In June 2015, OMB finalized the guidance documents outlining how agencies should implement FITARA, which is considered the most far-reaching IT reform legislation in almost two decades.

"This guidance takes major steps toward ensuring agency CIOs have significant involvement in procurement, workforce and technology-related budget matters while continuing a partnership with other senior leaders," Federal CIO Scott said.

Congress enacted FITARA in 2014. It provides stronger guidelines for the management of IT within the federal government. The act specifically requires the heads of several federal agencies to ensure that their CIOs have a significant role in IT decisions, including annual and multiyear planning, programming, budgeting, execution, reporting, management, governance and oversight functions.

"My past experience has taught me that without a strong foundation, it is difficult for new initiatives to fully take root," Scott said. "This critical foundation does not exist consistently throughout the federal government. One of my top priorities going forward will be to build this new foundation for effective management of technology through full implementation of FITARA in a way that is workable, collaborative, effective and consistent."

For the five-year period after FITARA's enactment, OMB is required to implement a process for agencies to review their IT investment portfolios to reduce duplication and waste, consolidate acquisition and management functions, and increase cost savings. These roles are defined in the Common Baseline, a basic set of requirements all agencies must meet by Dec. 31, 2015. Agencies had to submit self-assessments and implementation plans to OMB in August 2015.

"Our guidance not only fulfills the new law's requirements, but also empowers federal executives with the means and information necessary to help federal IT become an effective strategic partner to mission programs," Scott added.

Similar to the goals of the TechFAR Handbook and Digital Services Playbook, FITARA is designed to provide federal agencies with tactical strategies and guidelines for swifter acquisition and procurement processes with the assurance that agencies are following federal laws.

TAKEAWAY

FITARA enables agencies to become acquisition all-stars by empowering IT officials to lead their agencies to better IT services with defined acquisition and procurement standards.

CLOUD CONNECTORS

If you've been following government IT news the past few years, you have probably heard that cloud computing could save government a lot of money. But what you might not know is that cost is only one of the many reasons agencies are flocking to cloud services. Security, workforce, agility and performance also make cloud an attractive alternative to data centers.

CLOUD

Not So Alone in the Lone Star State

TEXAS BUYS SMARTER WITH CLOUD

THE PROBLEM:

In Texas every single agency purchase must come from pre-existing statewide contracts housed in TxSmartBuy, its business-to-business procurement marketplace However, the ordering system used two very customized software tools that were hard to integrate and not easily accessible, making the system difficult to navigate.

SOLUTION

To replace the old system, officials at the Texas State Comptroller's Texas Procurement and Support Services and the Innovation and Technology divisions turned to the cloud.

The updated TxSmartBuy portal uses a cloud-based Software-as-a-Service (SaaS) solution to provide user-friendly search, e-commerce and order management functions, which are consistent with what the private sector uses.

Originally, TxSmartBuy was to be an online ordering system for state agencies, universities and all levels of local government to use to order all of their items at one time. For example, they could buy pencils and asphalt at once. How convenient.

However, the old system was slow. But now, according to the TxSmartBuy release, searches average less than one second each, and the system offers an easy-to-use shopping cart experience like that of Amazon. With the capabilities provided by the cloud users of TxSmartBuy, agencies can buy the pencils and asphalt at the same time with one purchase order. The single purchase creates efficiencies for the purchaser and streamlines processes.

For example, with the shopping cart feature, order processing time has been dramatically reduced. In early editions of TxSmartBuy, orders would take up to 30 minutes to complete. Now the purchase-to-order issuance takes less than five minutes.

In terms of pure cloud product, the updated TxSmartBuy is built on the "NetSuite cloud platform, which seamlessly connects e-commerce, order management, administration and customer service in a single system."

The cloud-based, configurable SaaS system resulted in shorter timelines and cost savings compared to custom code and hardware. But what really set the new system apart is scalability. According to a release, "the configurability of the system, combined with built-in administrative search functions and a case management system, has allowed us to reduce administrative overhead and focus on system improvements." In essence, the system allows TxSmartBuy to flex its power depending on how much data is needed at any given time.

In addition, the updated system requires far less help-desk support. The original system required 10 staff members and part-time contributors to be on-call around the clock. With the new system, that number has been reduced to eight.

The old system cost the state more than $11.5 million annually. The new one cuts the price down by 71 percent to $3.3 million.

TAKEAWAY

Cloud computing gives Texas the ability to adjust the amount of software its needs at any given time. Matching demand to services not only saves the state money, but it makes it much more agile and efficient.

CLOUD

Mourning Made Easier

CLOUD HELPS MAP MICHIGAN CEMETERIES

THE PROBLEM

Cemeteries are often difficult to navigate for mourners. Locating the right tombstone in a large cemetery like the one in Marquette, Mich., is next to impossible.

SOLUTION

To help cemetery visitors locate their loved ones quicker, Marquette entered Amazon Web Services' City on a Cloud Innovation Challenge.

AWS recognizes local and regional governments and developers that are innovating for the benefit of citizens using the cloud by giving the finalist $25,000.

Marquette's cloud-enabled app CemeteryHost would provide cemetery patrons the ability to quickly and easily locate graves in Marquette's historic Park Cemetery. Users can access the app by PC or smartphone, search by name and easily find a given grave.

What's more, once the grave is found, users may save further details on Marquette County's LocalWiki webpage and improve the database of locations for future users of the site. The app never stops evolving and improving.

Marquette isn't the only government entity looking to improve the cemetery-going process. In 2012 Arlington National Cemetery used similar technology to create the ANC Explorer app, which allows visitors to locate individual graves.

Patrons to the famed cemetery called the app "a testament to the good work government can do to improve the lives of Americans." Although Marquette's cemetery is much smaller than Arlington, city officials hope for similar results.

TAKEAWAY

Cloud solutions don't just help with the obvious government challenges such as email or data center consolidation. They can enable a whole host of innovations.

CLOUD

Finding the Perfect Fit

CLOUD.GOV GOES LIVE

THE PROBLEM

More than 100 corporations provide cloud services to the government. Figuring out which solution is the perfect fit for your agency can be incredibly difficult. Agencies must wade through the options to try to unearth the best one.

SOLUTION

To help agencies better understand the different cloud options and operating systems, 18F created Cloud.gov. Launched on Oct. 9, 2015, the website aims to provide agencies with a ready-to-go Platform-as-a-Service (PaaS) cloud for building, testing and managing web applications.

Think of it as a testing lab for cloud offerings or a try-before-you-buy concept. But it doesn't stop there. The new site also provides expertise on how each cloud program can and should be implemented. Think of it as the Genius Bar at your local Apple shop.

"Cloud.gov allows 18F to reduce the need for highly skilled infrastructure resources to be on every team, enabling people with broad and shallow development expertise to accomplish things that would normally require specialized experts," according to a GSA press release

"By providing a cloud platform along with 18F's knowledge and expertise, agencies can easily access a full PaaS solution rather than building out or maintaining a new environment in order to support the development of new applications," reported FierceGovernment.

Cloud.gov allows agencies to increase production time for cloud projects because 18F cloud experts have already tested and vetted the services. The site will also provide templates for agencies to craft their system security plans.

TAKEAWAY

Cloud service providers can offer many options and add-ons. What Cloud.gov does is give you the consumer guide for government cloud.

DATA DOMINATORS

Big data, open data, data analytics, predictive analytics — 2015 could go down as the year of data in the public sector. Today, government officials have stopped talking about data practices and are actually using them to better the lives of citizens.

DATA

Health Made Simpler

HHS RE-LAUNCHES HEALTHDATA.GOV

THE PROBLEM:

HealthData.gov was known as a reliable catalog of health, social services and research data that the public could access for reuse to improve the nation's health and well-being. But the site had been around for five years, and its technology wasn't as robust or efficient as it needed to be in 2015.

SOLUTION

Earlier this spring, HHS re-launched HealthData.gov, revamping the tools and dashboards it used to encourage better understanding and more efficient use of the health data it offered to the public.

Damon Davis, Director of HHS' Health Data Initiative, oversaw the re-launch of HealthData.gov. In a blog post, he wrote:

"Since the IDEA Lab is working to support a more modern and effective government, it's time to deliver an effective modernization of HealthData.gov. This site is widely known as a reliable catalog of health, social services, and research data that are accessible by the public for reuse in all kinds of innovative work to improve the nation's health and well-being. HealthData.gov has been in service for five years, so now it's time for a refresh. A goal of the re-launch of the site is to update the platform's underlying technology for more efficient performance. Upon that foundation we'll aim to build out a more robust set of tools and dashboards that our community of data users can rely on while supporting one another in understanding and more efficiently using the data resources that are available."

The process to build the new site began with the migration of existing data to DKAN, a Drupal-based, open source, open data platform. The team is also working to make sure the site will include improved search and sort tools, charts and maps, links to other relative datasets, and eventually a system for requesting and discussing data.

As GCN.com noted, "Recent improvements include [a] new mobile-first design, making it accessible on a multitude of devices and networks. Along with smart search and tools for easier engagement and content sharing, HHS purged of 154,000 obsolete files to make search faster and more relevant. The information has been filtered and organized by topic so users can quickly find exactly what they need."

And according to HealthData.gov, "Our goal is to unleash the power of private-sector innovators and entrepreneurs to utilize HHS data to create applications, products, services and features that help improve health and health care — while also helping to create jobs of the future at the same time. By opening up our data, the idea is to help catalyze the emergence of a decentralized, self-propelled 'ecosystem' of innovators across America who leverage HHS data to help consumers, care providers, employers, journalists, local policymakers and others in ways that no one organization could possibly even imagine — let alone build, deploy and scale."

TAKEAWAY

Data is only as valuable as the technology it's running on. And although it's important to make data accessible to the public, government officials need to consider ease of use, tools and dashboards to make it easily usable as well.

DATA

Back to Stats Class

HOUSTON INDEPENDENT SCHOOL DISTRICT ANALYTICS PLATFORM

THE PROBLEM

Paper-based systems within the school network had a history of being slow, inaccessible and sometimes difficult to interpret. Such a reality meant that it took school officials days, if not weeks, to view standardized test scores. Officials relied on anecdotes and intuition that were often inaccurate and incomplete to make decisions about education, student futures and schools.

SOLUTION

For the Houston Independent School District, that inefficiency will no longer be an issue. In 2011, officials undertook a three-year project to build an enterprise data warehouse powering Analytics for Education dashboards that would empower officials to rely on data-driven decision-making, rather than guessing.

HISD's innovation was recognized by the Best of Texas Awards in 2015, a program that recognizes public-sector individuals and local agencies for dedications and contributions through IT to public service in state. In the past, each school received paper documents with basic test results, but now the data-driven dashboard allows data sorting and filtering by metrics such as gender, ethnicity, language proficiency, poverty markers and others.

HISD's Senior IT Manager of Data Governance Patrick Porter told *Government Technology* that the system replaces paper-based systems, and now administrators are not only able to see test results, but they can understand and implement the results.

"The more that principals were going to the dashboard, the more they were exposed to the student data, and the more they were able to try and identify intervention opportunities for these populations and for these students," Porter said.

Moving forward, there is hope that such a data-driven innovation will push other school districts into the 21st century. Here lies a potential for data dissemination that will in turn positively influence decisions about students, earning high marks for everyone.

TAKEAWAY

Easy-to-consume data can improve students' lives. Administrators won't just see what the test results are in Houston. They'll understand them and use them to address problems.

DATA

Welcome to Pleasantville

A DATA-DRIVEN CITY CENTER

THE PROBLEM

Many revitalization efforts face pressing needs, from planning for the effects of climate change to alleviating an increasingly diverse poverty demographic. But cities are often in crisis mode, which hinders officials' ability to make informed decisions on how to move forward to solve these problems.

SOLUTION

Data infrastructures transform the way city governments operate. With that in mind, the Center for Government Excellence at Johns Hopkins University was developed with a grant from Bloomberg Philanthropies to assist more than 100 U.S. cities in transforming government through data-driven infrastructure decisions.

"Our focus is on resilient cities both here and around the world," said Kathryn Edin, Director of the 21st Century Cities initiative, which the center is part of. "We want to study 21st-century possibilities and challenges and to adopt 21st-century solutions. Imagine a city whose infrastructure is crumbling. The 20th-century solution is to dig up pipes, repair them and put them back in the ground. In the 21st century, we'd want to think bigger than that."

The initiative hopes to help build capacity for decision-making rooted in hard evidence, transparent accountability and citizen engagement.

For three-term New York City Mayor Michael Bloomberg, a former chairman of the board of Johns Hopkins trustees, this data-driven solution makes perfect sense. "While cities are working to meet new challenges with limited resources, they have access to more data than ever — and they are increasingly using it to improve people's lives. We'll help them build on their progress and help even more cities take steps to put data to work. What works? That's a question that every city leader should ask — and we want to help them find answers."

For now, the center is starting with midsize U.S. cities — those with populations between 100,000 and 1 million — to begin developing assessments.

In the future, cities looking to develop better data infrastructure will have the option to govern using a system that has been proven and tested by the Johns Hopkins' initiative. By using state-of-the-art data methods to understand the impact of policy structures and funding, the center has the potential to transform how city governments operate.

TAKEAWAY

Using open data can help cities increase transparency, improve decision-making and deliver results.

THE FUTURE OF FLASH STORAGE IN GOVERNMENT

An interview with Jennifer Welch, Chief Technologist, HP Enterprise

The public sector is finally getting up to speed in the IT arena. More and more agencies are focusing on trends like IT-as-a-Service, data analytics, and cloud computing. Meanwhile, citizens are expecting more from the government, including high performance, always-on availability, and assurance that their data is always safe.

These new trends and expectations mean that more than ever, government needs scalable, flexible solutions that are reliable, efficient, and easy to manage. And that's where the growing adoption of flash storage comes in.

Flash storage is a type of data repository or storage system that uses flash memory – and its use in the public sector has been exploding. GovLoop sat down with Jennifer Welch, Chief Technologist at HP Enterprise, to unpack and understand some of the benefits of flash storage for the public sector.

Welch noted that these days, the technology challenges government faces are more varied and complex than ever before. They include the need for big data analytics to drive mission performance, transparency to build public confidence, mobility to better equip employees and their constituents, and cybersecurity to protect critical infrastructure and services.

To manage initiatives like these, an agency's IT infrastructure must be highly scalable, rapidly accessible to multiple applications, and flexible. At the same time, agencies must acquire these capabilities without exponentially expanding their operations budget.

"Flash has fundamentally changed the way IT can operate in the public sector," Welch said. Flash storage is compelling because it's generally simpler than conventional storage. Instead of using a spinning disk and roving reading arm to store data, flash uses electricity to store data in addressable locations on a fixed, thin layer of oxide. Data is retained even when the power is off. There are no moving parts.

What this means, Welch explained, is that flash storage regularly consumes as little as 20 percent of the power of a traditional spinning hard drive, yet reads as much as 100 times faster.

Price points can be an issue with flash, but used in combination with conventional storage, and it can actually reduce overall costs for agencies.

"Flash has definitely come down in price," Welch said. "If you have the budget to spend, it's a good investment for the public sector since we know IT is heading in that direction anyway."

Welch added that using HP Enterprise's flash storage solutions are in fact an excellent investment, simply for the reason they don't lock you into a drive size or type.

"From a total cost of ownership, what we can offer any customer is the ability of a performance guarantee," Welch said. "You may not know right now if you need all flash, or a little bit of flash. But with HP Enterprise, you can mix and match. We can tell you, well right now you can get a little bit a flash and grow it. But we're not going to make you do a specific drive. You can have 480 gig drives next to 1.92 terabyte drives, next to 3.84 terabyte drives. And you can then grow at your own pace."

Welch explained that many other vendors in the flash storage arena tend to get more of a drive lock in – meaning if you start with a certain drive type, you have to fill out an entire disk array enclosure with just that drive type. Or worse yet, you start with one drive type, and the entire array has to be the same drive type until you know the end of that array.

"We're not making you pick and choose in terms of having to buy an all flash to get all flash performance, and then you have to buy a different array or deal with something different if you want spinning media," Welch said. "It's the same architecture, it's the same benefits, it's the same kind of performance that you would get one versus the other. And the best thing I think for anybody who's looking at drives and doesn't have a Magic 8 ball that sees into the future, in terms of what you might need six months from now, or what you'll need two years from now, is we're not making you choose."

As government continues embrace flash to accelerate more applications across their data centers, this flexibility will be key. Flash storage can help the public sector create great solutions to power their public, private, or hybrid clouds with uncompromising adaptability from a single architecture – serving the needs of agency IT departments and the end users.

FUTURE TRENDS

The essence of innovation is looking to the future, so this guide would be incomplete without a glimpse into next year. These are GovLoop's predictions of what innovations will be the buzziest in 2016.

FUTURE TRENDS

Don't Go Chasing Waterfalls

DEVOPS DEVELOPS IN GOV

THE PROBLEM:

As government designs new software and products for better customer service, developers have embraced Agile methodologies to ensure users' needs are met. However, if teams focus solely on user needs and neglect technical viability and sustainability considerations, projects still run the risk of failure.

THE SOLUTION

In the past couple years, we've witnessed the rise of Agile product development within government. That's a design method borne of the private tech sector, whereby designers rapidly create a barebones prototype — the minimum viable product — and release it to at least a subset of the public for feedback. Then that feedback is quickly integrated into the product and a new version is released for further testing. This cycle repeats until a truly stellar end product results.

Although Agile presents a lot of promise to design methods, there is one problem with its implementation. In many cases, developers work in a vacuum without input from the operations or quality assurance teams that will actually deploy and leverage the new product or service. Users get to test a product, but the people who have to make that product run day after day do not. As a result, finished products may be user-friendly but difficult or costly to manage internally.

Now, organizations are looking to the private sector for another development method that tackles this disparity between development and operations. Called DevOps, this approach retains the incremental approach of Agile but encourages even greater communication and collaboration among internal teams.

Both the term and the approach are relatively new — even in the private sector — and therefore lack strict definition. However, the core tenet of DevOps is that developers work side-by-side with operations staff, specifically IT operations and quality assurance staff, across the lifecycle of a product's ideation, design and deployment, rather than handing a finished product to operations.

This approach doesn't diminish the importance of user preferences and feedback. Instead, it expands the number of stakeholders who work on a project, ensuring that products are both externally and internally tenable before they are fully developed.

Some organizations, such as the Defense Information Systems Agency, NASA and U.S. Citizen and Immigration Services, are already restructuring to embrace this flexible, cross-departmental development method. However, as more agencies dive into digital services, you can expect this approach to become standard operating procedure across departments and levels of government.

TAKEAWAY

As government focuses on improving customer service and embracing design thinking, agency leaders cannot forget about the workers who will deploy new solutions.

FUTURE TRENDS

Star Trek is Here!

WEARING WEARABLES FOR GOV

THE PROBLEM

Government employees and citizen users are becoming increasingly mobile. Yet many public-sector technologies remain bulky and immobile.

THE SOLUTION

In August 2015, the Defense Department announced the creation of a Manufacturing Innovation Institute for Flexible Hybrid Electronics consisting of more than 160 companies, universities and nonprofits. The U.S. Air Force Research Laboratory will manage the institute, which will receive more than $171 million from DoD and private entities to create more flexible electronics and sensor packages.

Why all the interest in making technology more versatile? According to many, wearables are the future.

In the private sector, products such as the Apple Watch, Google Glass and Fitbit already let citizens wear their technology. As those users become accustomed to technology that can keep up with and adapt to their lifestyle, citizens and employees alike increasingly expect their interactions with the public sector to be equally as flexible.

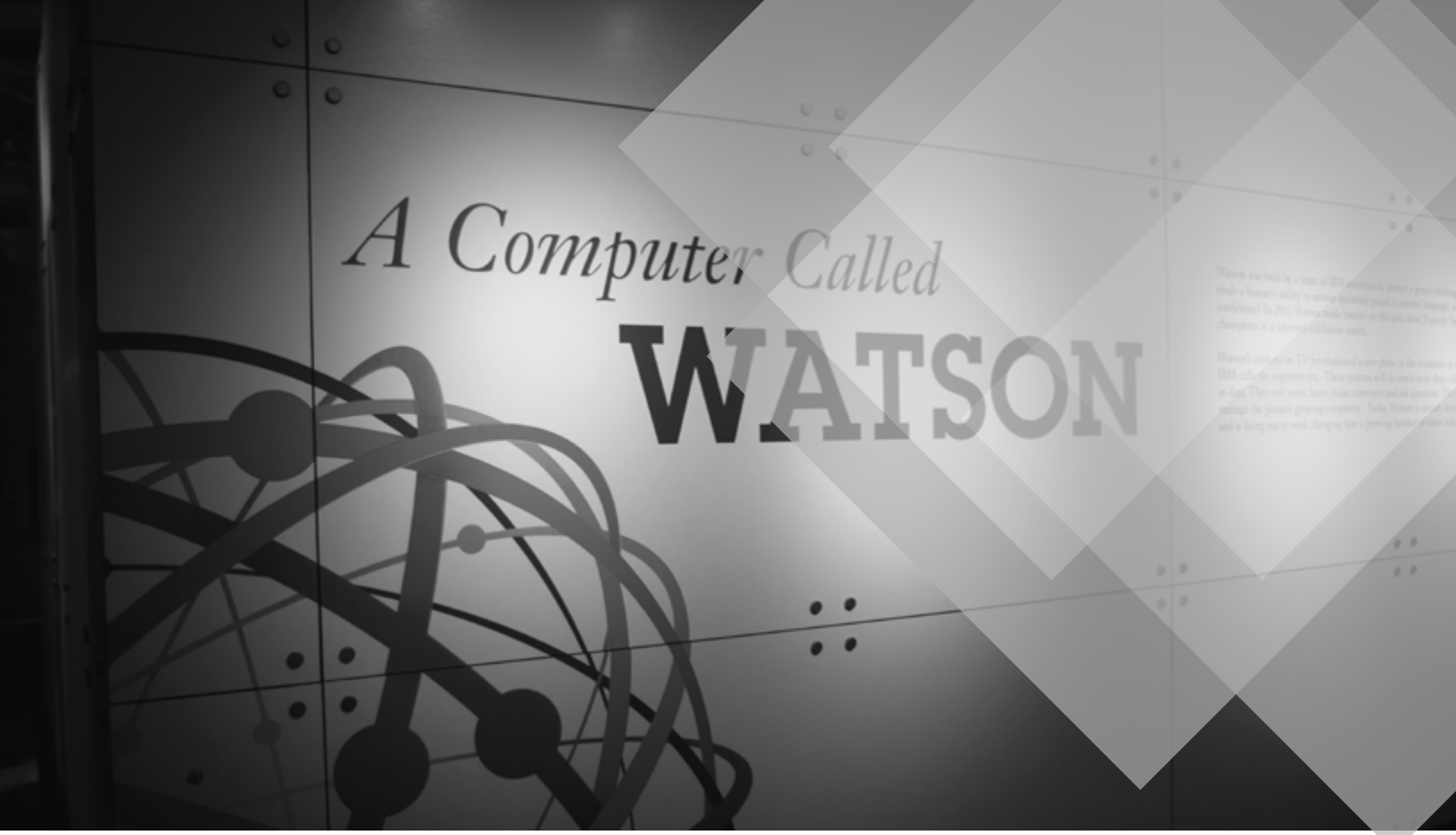
For DoD, wearables have a clear potential value. Soldiers in the field could use wearable technology to stay in contact with one another, headquarters and multiple other data sources without having to juggle several devices or put down their weapons.

But there is also a great potential for non-defense government users, too. “Imagine public safety applications…routing an officer on a 911 call, taking video and photos at a crime scene, capturing data for archiving purposes. A fire person could capture real-time intell as they arrive on a scene,” said Phil Bertolini, CIO of Oakland County, Mich.

Although many public-sector organizations are already increasing their real-time visibility through the Internet of Things, wearables can expand what and, more importantly, whom these sensors can be attached to. That means more data that government officials can use to make better decisions. It also increases the connection points between agencies and their citizen users.

TAKEAWAY

As citizens and public servants become more mobile, government technology must adapt to be as equally flexible and accessible.



FUTURE TRENDS

Do You Have a Robot?

COGNITIVE TECHNOLOGY TUNES IN

THE PROBLEM

The way government delivers its services and what citizens expect from those services are changing rapidly. As technology evolves, the computer is often faster and more efficient when it comes to solving problems. But many agencies are slow to accept the help.

THE SOLUTION

Although you shouldn't expect a government-issued robot to start filling out your tax forms for you, it might be time to prepare for artificial intelligence in government. As agencies attempt to keep up with new user expectations and private-sector technologies, they increasingly find themselves short on resources, time or know-how to get the job effectively done.

To fill this gap, organizations may start turning to cognitive technologies, which use data analytics, machine learning, natural language processing, speech recognition and other functionality to automatically adapt to new needs, preferences and scenarios.

According to Deloitte University Press, these technologies allow organizations to avoid the tradeoff in speed, quality and cost that normally accompanies adaption to changing industry or user dynamics. Here's how: When an agency determines that a service must be created or revamped, it can develop and deploy a solution that fits current user needs and expectations. With cognitive technologies already included in the product or service, that solution will then evolve without hands-on support from the product team. As a result, the organization doesn't have to worry about its solution becoming outdated or exhausting its resources on constant updates.

For citizens, these technologies could make government services more personal by allowing online applications to progressively and automatically adapt to the likes, dislikes and patterns of interaction with an individual user.

TAKEAWAY

As the pace of technological and citizen demands accelerates, government agencies must find automated ways to stay up-to-date without exhausting resources or failing expectations.

About GovLoop

GovLoop's mission is to "connect government to improve government." We aim to inspire public sector professionals by serving as the knowledge network for government. GovLoop connects more than 200,000 members, fostering cross-government collaboration, solving common problems and advancing government careers. GovLoop is headquartered in Washington, D.C., with a team of dedicated professionals who share a commitment to connect and improve government.

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