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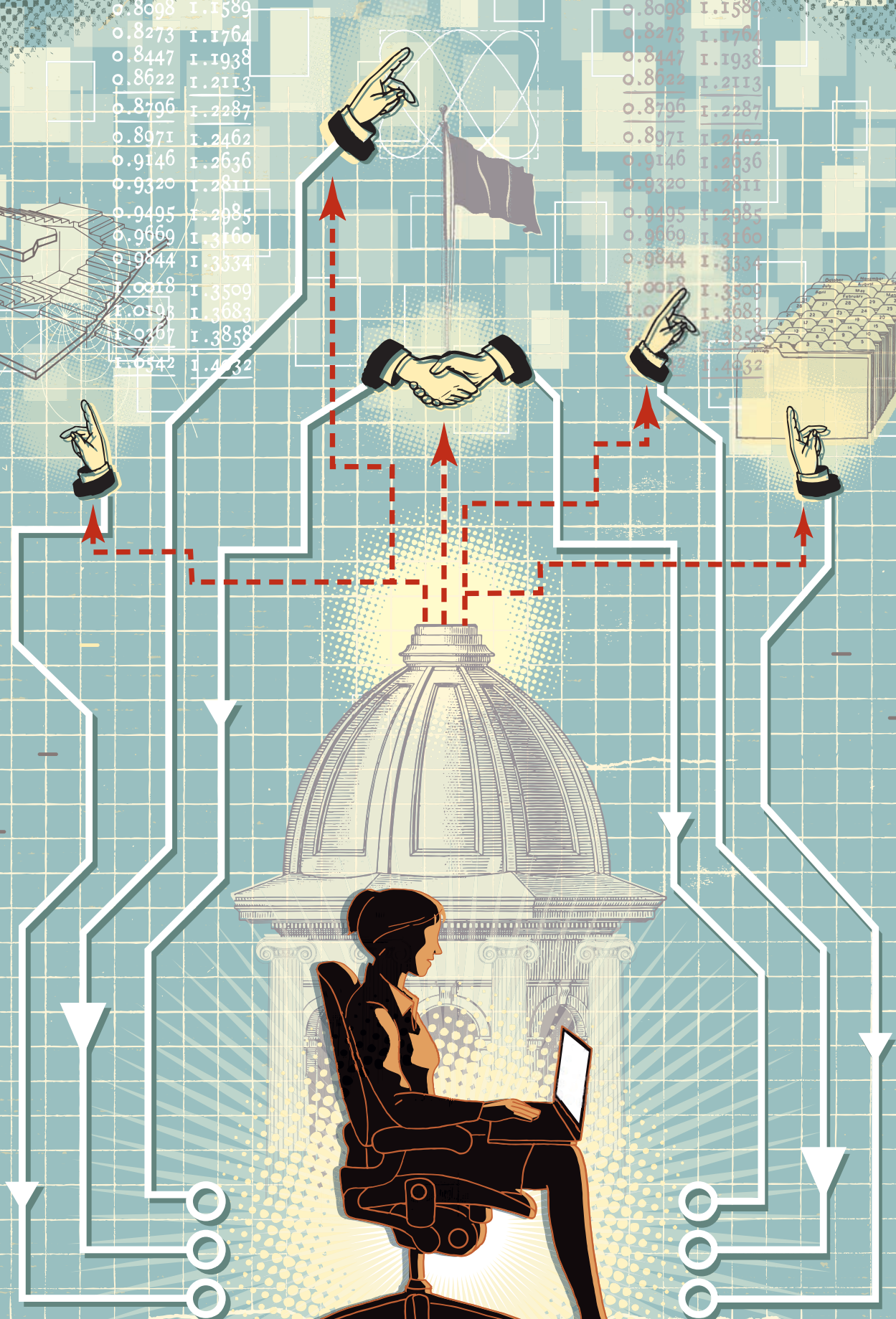
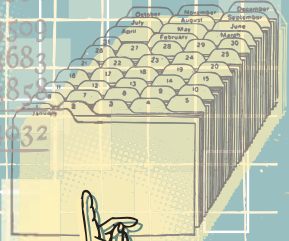
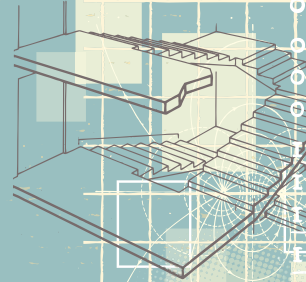
**MOBILE GAMING RACES AHEAD**  
**OUTSOURCING PMO COMPETENCIES**  
**KEYS TO MANAGING TOP TALENT**  
**RECOVER FROM PROJECT FAILURE**

# BIG DATA:

**FUELING GOVERNMENT EFFICIENCY**

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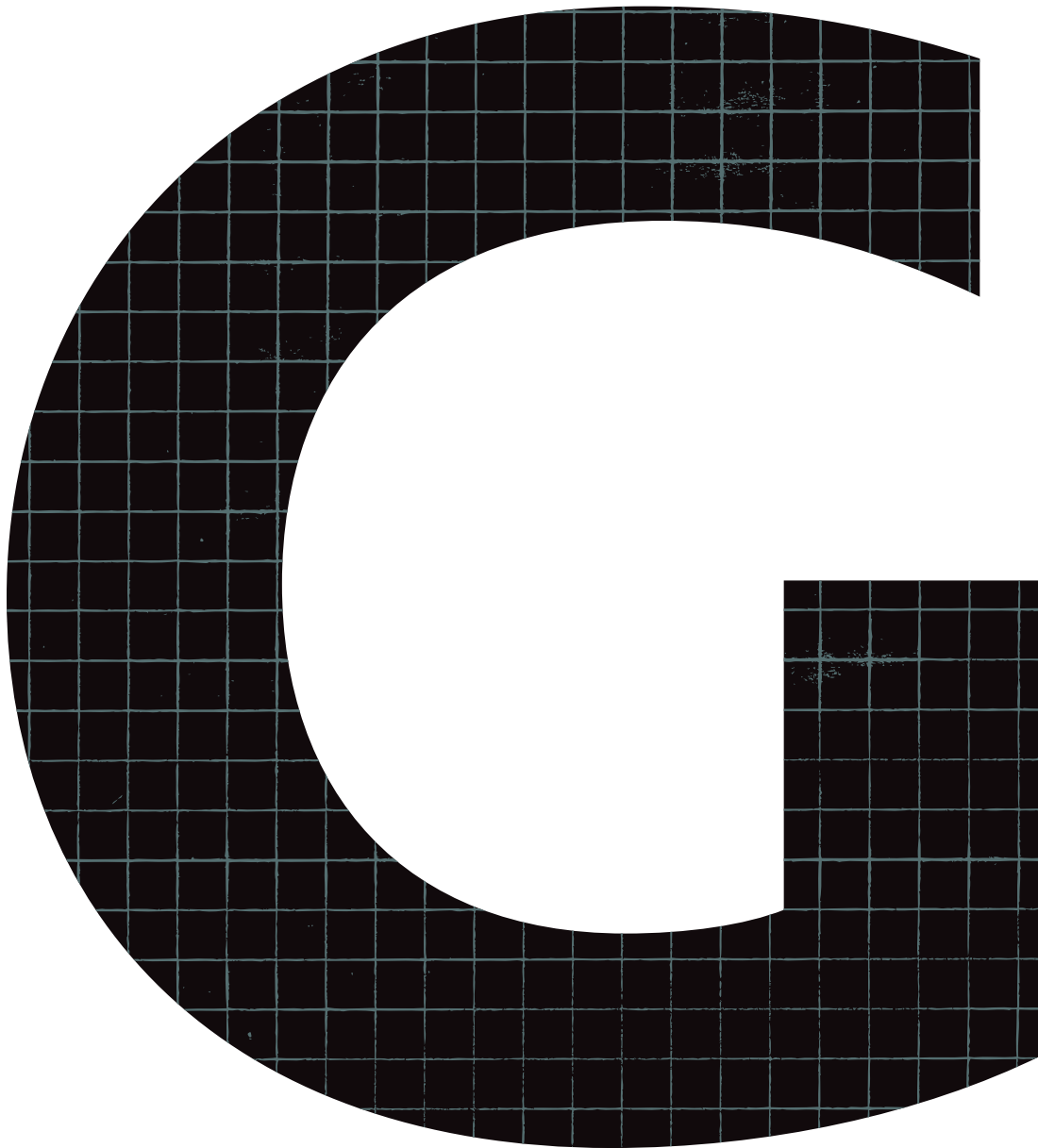


**SPECIAL  
REPORT**

# Doesn't Lie

Big data can help government agencies cut costs, slash bureaucratic layers and improve transparency—if they can get buy-in.

**BY SARAH FISTER GALE  
ILLUSTRATION BY CARL WIENS**



**Governments live and die by data.** To truly serve a population, agencies must understand what people need—and how they behave. That information can reveal gaps and inefficiencies in otherwise opaque bureaucracies, helping government agencies save money, increase transparency and improve services. But all that information has to be gathered and analyzed in a timely manner. And many government players simply can't process the data deluge: *E-Commerce Times* estimates the volume of data stored by U.S. federal agencies alone will increase from 1.6 petabytes (or 1.6 quadrillion bytes) to 2.6 petabytes within two years.

As in the private sector, the potential for translating all those bits and bytes into a meaningful strategic direction has caused governments around the world to fixate on the notion of big data. A 2013 study by PMI Global Executive Council member Booz Allen Hamilton found that roughly two-thirds of U.S. federal government managers said big data could fundamentally transform their operations. Yet only 37 percent said their agencies have taken the right steps to use big data to improve agency operations. And just 18 percent claimed full proficiency in understanding large data sets. Respondents cited inadequate resources, technological barriers and misaligned budget priorities as obstacles.

Pushing ahead requires an evolution in how data is both mined and handled, says Chris Bartlett, principal at global consulting firm Booz and Co., Sydney, Australia.

That kind of shift won't happen overnight, so project leaders will probably have to scale back any grand visions of immediate transformation.

"They may have to start small and migrate solutions across agencies," he says. "But once you have some early success, you can start to affect the change for big data innovations to continue."

## SETTING THE CURVE

Several government agencies are already seeing real results from big data projects. Brazil's transparency portal project, for instance, lets anyone track spending, progress and completion rates of major infrastructure projects, including those for the 2016 Olympics. In New Haven, Connecticut, USA, the government introduced an app that lets people report a city problem, see how many other similar reports have been made and track how local leaders respond. And the U.K. government is funding private-sector projects that use public data to both serve the citizenry and create economic growth.

In the United States, federal agencies spent about US\$4.9 billion on big data resources in 2012, according to estimates from IT consultancy Deltek. By 2017, that number could hit US\$7.2 billion.

Even governments that have yet to implement such projects recognize the benefits big data could, in theory, provide. To close the gap between its promise and actual projects, government IT leaders must make the case for the role big data can play in meeting strategic goals, Mr. Bartlett says.

"That means identifying the projects that will deliver the most value to citizens, finding the right agency to sponsor these early initiatives and defining the metrics to measure success," he says.

It also means having the talent to carry out those projects. A 2013 survey by MeriTalk found that only 35 percent of U.S. government agency respondents

said they had the personnel they needed to successfully leverage big data. Realizing that's a tall order, many forward-thinking government agencies are partnering with the private sector on big data initiatives. "It's a way to get the most innovative use of the technology at the lowest cost," says Ben Berkowitz, owner of SeeClickFix, an app development firm based in New Haven that works with several government agencies in the United States.

However they're executed, big data initiatives require a fundamental change in the way government agencies communicate with each other and the public, Mr. Bartlett says.

"Culture change is the hardest part," he says. "But once you begin to see results, the change will come."

**Only 35 percent of U.S. government agency respondents said they had the personnel they needed to successfully leverage big data.**

*Source: MeriTalk, 2013*





## CASE STUDY:

# Partnering with the Private Sector

Looking to make the most of raw marketplace ingenuity, the U.K. government created an agency dedicated to working with the private sector on innovative projects. And one of its prime targets is big data. The Technology Strategy Board (TSB) identifies data collection and analysis issues in the digital area, and then works with the private sector to find solutions, explains Nick Appleyard, head of digital at TSB, Swindon, England.

For example, TSB invested in CarbonBuzz, a project that aims to use crowd-sourced data to close the gap between designed and actual energy use. Sponsored by a consortium of architecture and building design organizations, the project encourages users to anonymously upload usage data. The idea is that planners will use that information to understand the difference between how much a building's actual energy use var-

**The government benefits from solid solutions for public-service needs, while easing the burden on small companies.**

—Nick Appleyard, Technology Strategy Board, Swindon, England

ies from the original estimates. The project also makes it easy to convert different types of energy inputs into carbon outputs so architects and designers can clearly determine which techniques most effectively reduce emissions.

When a private company comes up with a compelling data project like CarbonBuzz, TSB offers a range of support mechanisms, such as an infusion of cash along with training and project planning support. Project timelines range from three months to several years, and TSB provides from £10,000 to £10 million in matching funds. The government benefits from solid solutions for public-service needs, while easing the burden on small companies to generate quick results for their investments, Mr. Appleyard says. "Going halves on cost takes a lot of the business risk away," he says.

Another example is RoadSaver, a two-year,



To realize their intended benefits, big data collaborations need project leaders with strong communication and stakeholder-management skills—on both sides of the partnership.

—Nick Appleyard

£213,767 initiative launched in 2011 that aims to extract greater value from the vast amount of data gathered by local highway authorities. The project team is developing new ways to interpret raw survey measurements that will allow it to identify deteriorating parts of the network. From there, it will create new data analysis, visualization and presentation tools to facilitate strategic decision-making. Ultimately, this data project will result in a smoother ride for more U.K. residents.

But to realize their intended benefits, big data collaborations need project leaders with strong communication and stakeholder-management skills—on both sides of the partnership, Mr. Appleyard says.

“The larger projects usually require several organizations to work together, share their knowledge and perhaps build new supply-chain relationships,” he explains. “The challenges faced by the projects are therefore as much about communication and sustaining collaboration as they are about purely technical barriers.”

PHOTO COURTESY OF SECLICKFIX, INC.



The founders of SeeClickFix, including Ben Berkowitz (second from left)

## CASE STUDY

# Wisdom of the Crowd

Government agencies aren't exactly known for their agility and cutting-edge innovation. In many cases, their digital user experience lags significantly behind the times. Ben Berkowitz, for example, grew frustrated after trying repeatedly to report incidents, such as vandalism or potholes, in his neighborhood in New Haven, Connecticut, USA.

“There was no way to create an account or to see if other citizens had similar concerns,” he says.

So he built an app to do just that.

The cloud-based SeeClickFix tool lets citizens report non-emergency issues, such as potholes, graffiti or noise complaints, directly to the city government.

The company has launched implementation projects with dozens of local governments across the United States, including New Haven, Connecticut; Chicago, Illinois; Minneapolis, Minnesota; and Houston, Texas.

The site and the mobile app feature simple reporting tools, such as Google maps to pinpoint the location of a problem and image-uploading options so users can send pictures to back up their claims. They can also track complaints in their neighborhoods and check the status of reported issues.

Mr. Berkowitz found the most significant challenges in building big data options were related to the business model rather than the technology. “Using these kinds of tools in government is a strategic change-management issue,” he says.

Government agencies are unaccustomed to tracking and responding to electronic complaints, and have little precedent for funding cloud-based solutions. To build buy-in, project teams may have to roll out prototypes that demonstrate the benefits of a connected community.

Clearly outlining the benefits is one way to build support. With SeeClickFix, for instance, the biggest savings come through automation. When citizens are able to post problems through the app, it cuts the time



**"In [the municipal government] environment, technology**

**solutions aren't a choice, they are the only way forward."**

—Ben Berkowitz, SeeClickFix, New Haven, Connecticut, USA

and costs associated with fielding phone calls. The tool also allows field crews to track, locate and close out requests in real time, which means they spend less time managing administrative tasks or working on problems that have already been addressed, Mr. Berkowitz says.

"In municipal governments, costs are high, revenues are low and citizens are demanding improved responsiveness," he says. "In this environment, technology solutions aren't a choice, they are the only way forward."

## CASE STUDY

# Farm-Fresh Data

Before joining the European Union (EU) in July, the Croatian government launched a major tech upgrade. The list of projects includes a rollout of the Information System for Agricultural Market Management and Monitoring (ISAMM). EU member states rely on it to share information about crop production, agricultural prices, supply and demand issues, regulatory changes and other issues that impact the agricultural community in these countries.

"It's an umbrella system that connects EU members to communicate common market notifications across the region," explains Darko Lugonja, national ISAMM coordinator and a senior expert adviser in the Ministry of Agriculture, Zagreb, Croatia.

With a July deadline looming, time was a significant concern. "We have the budget, but we have limited capacity on our team," he says.

Because Croatia's IT talent pool is limited, the administration wasn't sure how it would find enough people with the expertise to support the project. But networking with IT experts in other EU nations that have already completed the process helped see Mr. Lugonja's team through the execution phase. The EU provided Croatia with significant technical assistance, including training and IT systems implementation, he says.

**The team has learned the importance of implementing a systematic contingency approach, as well as meeting common standards and criteria.**

—Darko Lugonja, Ministry of Agriculture, Zagreb, Croatia

Data projects streamlined agriculture production as Croatia joined the European Union.



"There is good cooperation between nations, and we are learning lessons from projects in Germany, Slovenia, Denmark, the Netherlands, Poland and Hungary," he says. For example, the team learned the importance of implementing a systematic contingency approach, as well as meeting common standards and criteria, Mr. Lugonja says.

While each ISAMM rollout must be tailored to the needs of the country, seeing how others have completed their implementation projects has helped Mr. Lugonja streamline his project plan and manage his risks. "We made comparisons to other projects, then tailored those solutions to meet the needs of our stakeholders," he says. "Hopefully we can help the next state, Bosnia and Herzegovina or Macedonia, when they begin this process."

## CASE STUDY

# Open to the Public

Back in 2004, Brazil's federal government launched a cutting-edge project to share public data. While the Brazil transparency portal remains a model for integrated public information-sharing, nine years is a long time for a piece of technology to remain relevant. So a team of Brazilian engineers launched a project reboot, aiming to make it even easier for citizens to gather information about government projects, public personnel and how their tax revenue is being spent.

"It's our most ambitious web-based project since the foundation of the portal," says Otavio Castro Neves, general coordinator for innovation in open government in the Office of the Comptroller General (CGU), Brasília, Brazil.

His team is rebuilding the site architecture and user interface to make it more intuitive, more interactive and faster. The project is part of Brazil's Open Government Partnership Action Plan to strengthen transparency around government activities while combating corruption and fostering citizen collaboration.

The original project relied on just two data sets that reported all government spending. But over time, the site expanded. New data sets were added



"The big challenge we face now is providing information the government is producing in ways that citizens can find easily and understand."

—Otavio Castro Neves, Office of the Comptroller General, Brasília, Brazil

The Brazil transparency portal includes information about ongoing projects, such as the Rio 2016 Olympic Park, currently under construction.



PHOTO COURTESY OF BEYOND SILENCE

PHOTO COURTESY OF RENATO SETTE CAMARA, EOM

to track revenue performance, social programs and government personnel. And more recently, the team added links to track World Cup and Olympics projects.

All of that makes the site far more complex to manage, Mr. Castro Neves says. “The big challenge we face now is providing information the government is producing in ways that citizens can find easily and understand.”

One point of confusion involves the media’s pet names for big government projects that the general public then adopts. For example, the Transfer of Revenues to Families in Conditions of Poverty or Extreme Poverty program is widely known as the Family Grant Program.

“When people want to find information, they search for the Family Grant Program,” Mr. Castro Neves says. So his team has to make sure that name—and all other program nicknames—are searchable in the database.

The team has also struggled with the data streams themselves, which often include a combination of data types that need to be distributed to separate sections of the site. This has been especially challenging for reporting around World Cup and Olympics projects, because project data is mixed in with other unrelated infrastructure initiatives.

The redesign should help streamline these issues, Mr. Castro Neves says. And the updates are already

## CASE STUDY

# Ferreting Out Fraudsters

In February 2013, Erkes Antwon Green was charged with filing or attempting to file more than 100 bogus U.S. income-tax returns using stolen personal information. It’s a prime example of how information overload can expose government agencies to fraud.

“Tax refund fraud is the fastest-growing problem the Internal Revenue Service (IRS) faces,” says Andy Bucholz, senior director of government fraud solutions at LexisNexis, an information software company in Washington, D.C., USA. Last year alone the agency estimates criminals like Mr. Green cheated the government out of US\$4 billion to US\$5 billion, a number that has grown 650 percent in the last three years.

The IRS is not alone. The ability to register for services online and receive automated government payments has opened a back door for identity thieves to steal from federal, state and local government agencies. That has led to a surge in the theft of food stamps, tax refunds,

The U.S. Internal Revenue Service works with LexisNexis to reduce tax refund fraud.



INTERNAL  
REVENUE  
SERVICE

Fraud related to government documents or benefits was the most commonly reported type of identity theft in 2012, comprising **46 percent** of all identify-theft complaints in the United States.

Source: Consumer Sentinel Network Data Book, Federal Trade Commission, 2013

and social security and unemployment benefits. Fraud related to government documents or benefits was the most commonly reported type of identity theft in 2012, comprising 46 percent of all identify-theft complaints in the United States, according to the Federal Trade Commission. The agency reports complaints rose 27 percent between 2010 and 2012.

Mr. Bucholz is trying to put a stop to these crimes with a blast of big data processing. His team

underway. The project began in early 2013, and by April the team was building user interface prototypes and preparing to share concepts with end users.

Their feedback will be especially valuable in helping the team monitor how users seek information and where they run into roadblocks. The team currently has data about where users go, but it doesn't explain user behavior, he says. "We don't know if the 10 pages they visit all had information they wanted or if they had to go through 10 pages to find what they were looking for."

As part of its concept testing, the team will pro-

The team is working closely with other ministries to determine how to manage the format and flow of information.

vide information on index cards and ask users to sort them by relevance. "That will help us understand how users organize and prioritize information, which will help us design the best interface," Mr. Castro Neves says.

The team is also working closely with other ministries to determine how to manage the format and flow of information. The end goal is to build a portal environment that will give the project team the flexibility to add data streams in the future.

"We realized that it will keep getting bigger, so we need to design it in a way that lets us continue to add new information without causing it to collapse," Mr. Castro Neves says.

partners with government agencies on projects to implement data review tools that flag applications with suspicious information, such as prisoners applying for income tax refunds or dead people requesting social security benefits.

Still, it's a delicate balance to prevent fraud without adding a lot of time or cost to the refund process for legitimate claims, he says. "We don't want to flag thousands of people who then have to come down to a government agency to prove themselves."

Instead, Mr. Bucholz's team reviews each agency's process and then creates a detour step within the processing system to review flagged applications. "Every government process is different, so we have to find where we fit into that process," he says.

The state of Georgia, for example, has a fraud filter that flags obviously fraudulent applications, such as people who file multiple times or requests that exceed a certain amount. But the state's ability to weed out identity fraud is limited, given that the person could have moved or could be a first-time filer with the state. For instance, if a person who lives in another state applies for an income tax refund, the state might just view him or her as a first-time filer and not flag the application, Mr. Bucholz says.

LexisNexis helped the state hone its criteria so

"Every government process is different, so we have to find where we fit into that process."

—Andy Bucholz,  
LexisNexis, Washington,  
D.C., USA

flagged applications are routed out of the refund-processing system and sent to Mr. Bucholz's team for closer review.

When applications appear suspect, LexisNexis asks applicants to complete a short, automated quiz on the Georgia Department of Revenue site. The quiz uses information generated from their public record footprint, which fraudsters wouldn't be able to answer, Mr. Bucholz explains. For example, it would ask questions like, "What country have you lived in previously?" or "Which of these people is related to you?" in a multiple-choice format.

If applicants pass, their refund is processed immediately. If they don't complete the quiz successfully within 90 days, the application is considered fraudulent. "If the thieves try to take the quiz, they fail," he says.

By incorporating this technology detour into its refund process, the Georgia government prevented more than US\$24 million in fraud last year alone. It's another example of the power of public-private partnerships on big data projects, Mr. Bucholz says. "Georgia acknowledged that it had a problem with fraud, and through this partnership, we are working together to solve it." **PM**