

Building Data Literacy in the State and Local Workforce

As public officials increasingly rely on data-driven and evidence-based decision-making, agencies are tapping into innovative resources and programs to improve employees' understanding of data.



INTRODUCTION

In data-driven government, everyone speaks the same language, efficiently communicating across policies and programs to improve service delivery.

Data's impact on state and local government operations cannot be understated. Agencies that can read, understand, analyze and communicate with data can make accurate and timely decisions that drive strategy and improve services for residents. Recipients of public benefits like Medicaid or emergency rental assistance, for instance, depend on agencies to accurately determine their eligibility and how much financial aid they're entitled to.

That's why state and local agencies are building a data-literate workforce. It's not just data analysts, architects or scientists that must derive insights from data. State and local employees from firefighters to human resources managers are increasingly working with data and need to know how to use it to streamline processes, make better decisions and save money.

As state and local governments grapple with rapid technology advances and a nationwide workforce shortage, they will also need data-based recruitment skills so they can attract younger, tech-savvy candidates essential to helping modernize and digitize operations.

In this e-book, *Route Fifty* shares how state and local governments are building a data-literate future for their communities.



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Data literacy 101

Failure to understand data is more dangerous to states and localities than ever, and there's a big gap between what public employees know about data and what they need to know. Here's how to start building data literacy in the state and local workforce.

BY SUSAN MILLER



When the Soviet Union launched the Sputnik satellite in 1957, it literally rocketed ahead of the U.S. in technological innovation. Fearful of Soviet dominance of space, the nation pivoted to an updated science curriculum and “new math,” an approach to mathematics that emphasized understanding the hows and whys of mathematical concepts, rather than rote memorization.

Fast forward 65 years, and we’re seeing a similar pivot. The emergence of artificial intelligence has educators, businesses and governments alike pushing the accelerator on efforts to make the workforce data literate. Today, everybody needs to be competent with data on some level, be it students, consumers, voters, employees. But the stakes are particularly high for the government. AI parses through vast amounts of data, and if that data is inaccurate, irrelevant or incomplete, it can lead to flawed decisions. This, in turn, can have real-world consequences for those in the criminal justice system or individuals

dependent on social services for food or housing. Unfortunately, even unintentional missteps can lead to more mistrust in government.

Enter data literacy. State and local governments are scrambling to ramp up training for current employees and hiring a future tech-savvy workforce. The challenge is multifaceted: States and localities will have to overhaul decades-old policies and procedures, and they’ll have to work with the tools at their disposal, which in many cases means outdated software. And while all government employees and consumers should have at least a passing understanding of how data can be used—and manipulated—not everyone needs to develop the same level of expertise.

As governments look to build a data literate workforce, let’s pause to revisit the basics.

What It Is

So, what is data literacy?

At its most basic, data literacy refers to



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the ability of staff to interpret, analyze and leverage data in their work as public servants. As data literacy moves up the organization and increases in complexity, the definition expands to cover data governance, data quality and data sharing, as well as data privacy, ethics and security. Data literacy is foundational to virtually all of government.

Why It’s Important

Government collects massive amounts of data that must be managed responsibly. Data literate staff are **less likely** to click



on malicious email links that introduce malware into government networks. They can evaluate the validity of survey data by checking the sample size, the date of the research, the funding source and the logic of the baselines. They understand the difference between correlation and causation. They can read, analyze, and create charts, visualizations, and maps from government data and use the information in their work. Because they understand how data is being gathered and analyzed, can

recognize the biases and have worked out what the data actually tells them, they can make data-informed recommendations.

As state and local governments increasingly move citizen services online, they'll need to collect and analyze user experience data so they can measure the effectiveness of their online programs. Federal funding programs, like the [Justice40 initiative](#), are requiring applications to submit more granular data in various categories to identify disadvantaged

communities. Agencies with a good handle on their data and processes can streamline workflows and improve efficiency. And because data literacy transcends mastery of individual software packages, staff will be better able to adapt to new environmental, public health or social challenges.

Perhaps most important is that a government's ability to make accurate and timely decisions that improve services and drive strategy depends on its ability to read, understand, analyze and communicate with data.

Who's Responsible

In data-forward jurisdictions, a city, county or state's data policies and practices are often the responsibility of a chief data officer—someone who manages and advances the application of data to derive the maximum benefit from it. CDOs handle data strategy, ensure data quality and security, provide access to data through analytics tools and platforms, and promote the ethical use of data for decision-making.



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A relatively new position, CDOs have been installed in more than 30 states and in many of the larger counties and cities. They offer strategic advice on technology procurements, consult on grants and budgets, and, perhaps most important in this moment, are responsible for data literacy training of government employees.

How to Get There

Data literacy starts with reading comprehension, but it's not enough for employees just to know how to read a financial report or filter data in a spreadsheet. Staff in a data-driven organization must be able to creatively use data to solve their problems and communicate their insights to stakeholders. Of course, not everyone will have all the requisite skills, but all need some. In its [introductory course on data literacy](#), the Texas Department of Information Resources, or DIR, identifies two types of data users: information producers and information consumers. Information producers include employees such as IT

professionals and data analysts who collect raw data, clean and transform it, and then interpret the data through statistical analysis. Information consumers are business unit staff, program managers and leaders who take the data prepared by information producers and use it for business decisions.

DIR outlines six core competencies of data literacy, running from the most basic skills for information consumers to more complex expertise information producers need:

- 1. Understanding data.** All staff should know what is meant by data and how it impacts business decisions and outcomes.
- 2. Finding and obtaining data.** Employees should be aware of what data is available to them and which sources will best help them answer their questions.
- 3. Reading data.** Workers must be able to interpret data presented in multiple formats and know how to evaluate data and results critically.

4. Managing data. Information producers understand data management principles such as data quality, master data and metadata management, records management, and privacy and security.

5. Using data. IT professionals and data analysts should be able to prepare data for analysis, explore data with the appropriate tools, and understand and promote the ethical use of data.

6. Communicating with data. Staff who use data to support a larger narrative should tailor their analysis to their particular audience.

Data literacy is essential to the future of government. While it will make it easier to adapt to a changing economy, data-literate workers will drive the accelerated pace of innovation. The change won't be quick. As agencies build data literacy into the workforce, they should be prepared for a long, iterative process that involves continual learning and adaptation. 

CHAPTER

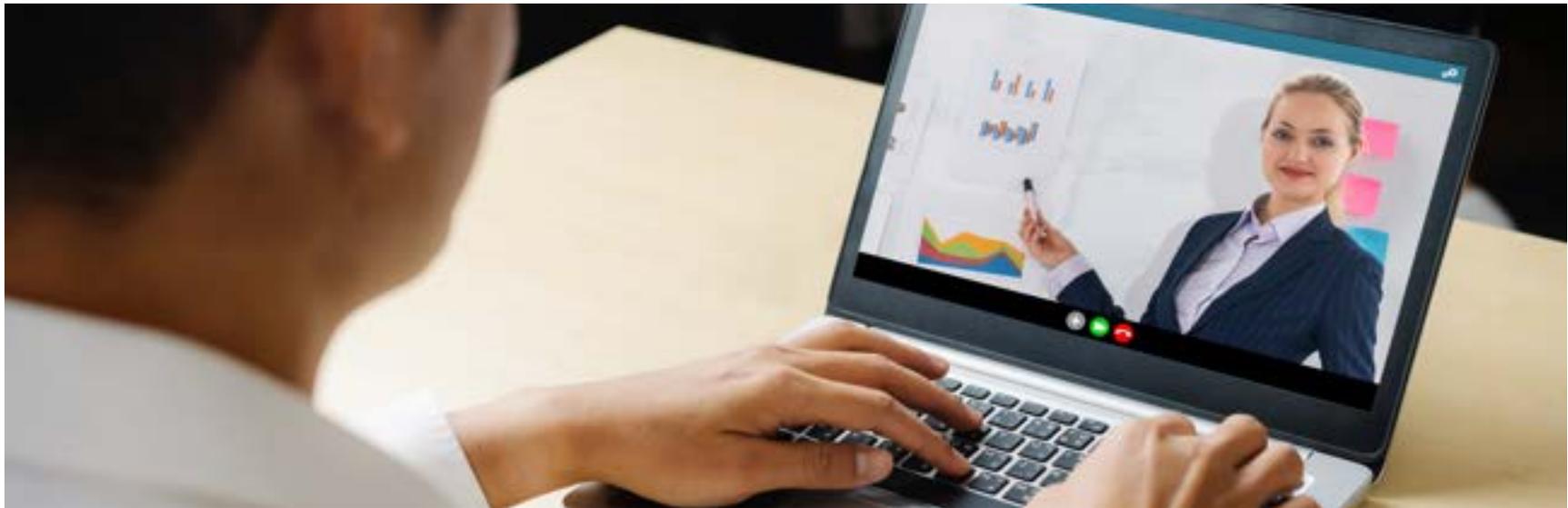
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Data literacy: The drive to educate the public sector workforce

As data-based decision-making becomes ever more important, data academies begin to blossom in local government.

**BY KATHERINE BARRETT AND
RICHARD GREENE**





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There are certain positions in state and local government that everyone recognizes as essential to the successful use of data. They're the obvious ones: data analysts, data scientists and experts in privacy and ethics. Those roles are hard to fill, but even when they are, there's still a missing link. Michelle Littlefield, the chief data officer for the city and county of San Francisco, refers to this link as "upskilling the workforce."

Increasingly, the idea of data training for

all workers is beginning to take hold. "Data is everyone's job," said Melissa Schigoda, director of the Bloomberg Philanthropies City Data Alliance at the Bloomberg Center for Government Excellence. "It can't be an isolated centralized team that's doing the data and no one else. It really takes the whole organization."

Understanding the power of data is not just with your data analytics people. "Everybody has to understand, at some level, the importance of data," said Rita Reynolds,

chief information officer for the National Association of Counties.

Leaders in San Francisco have understood this reality for a while. The city runs a Data Academy that is available to all its staff. The initiative was temporarily put on hold during the pandemic when resources were diverted, but this year it was relaunched with 11 courses.

The most in demand courses include Intro to Power BI, a tool that guides users in



data visualization; Leveraging the City's Open Data; and courses about geographic information systems and coding for data analysis. Most of the coursework is offered live virtually, with office hours so that staff can follow up on what they don't understand.

"My long-term goal is to identify coursework and platforms that can help us push forward and become more data fluent as an organization," Littlefield said. "The bottom-line priority for me and for San Francisco is that we learn how to leverage the data that we have in the best way possible to make the best decisions."

The Baltimore Data Academy

Across the country on the other coast, Baltimore launched its own data academy in 2023. The idea grew out of its mayor's work with the City Data Alliance.

Since early 2022, the alliance has worked with more than 40 U.S and Latin American cities whose mayors are committed to building data capacity with a focus on governance, use, transparency and

increased staff data literacy.

One of those leaders is Baltimore Mayor Brandon Scott, who took office in December 2020 with a commitment to building the city's data capacity. With its long-standing and well-known CityStat system, Baltimore has often been cited as a leader in the use of data. But like all governments, it has struggled with data quality problems and a lack of staff buy-in.

Rudy de Leon Dinglas, now director of planning and operations at the Bloomberg Center for Government Excellence, recalls his own experience as the outcomes and evaluation manager at the Baltimore Fire Department between 2015 and 2019. The toughest part of the job, he said, was winning the trust of firefighters and paramedics who were out in the early morning hours responding to emergencies, with often limited understanding of why it was important for them to carefully record their activities.

"They were running calls left and right and they didn't realize that the data they had

to enter at 3 a.m. could lead to changes that would lighten their load and improve services to Baltimore residents," he said. "But if they didn't put good information in, I wasn't going to get good information out."

Fast forward to early 2023 and the establishment of the Baltimore Data Academy, which the city put together with the Baltimore-based center at Johns Hopkins University. In a July episode of the podcast "[Data Points](#)," Baltimore's Chief Data Officer Justin Elszasz explained that the academy was designed to reach employees at all levels. The goal has been to help employees see how data plays a role in their day-to-day work lives and "understand why data quality is important, why we track certain things the way we track them," he said.

The academy has plans to build on its initial offering, the Foundations of Data Literacy course. It has added a course targeted at individuals who work with spreadsheets to help them better understand how to tease out insights and use the information before them to drive decisions. And future



courses will be geared to managers and supervisors. The online, learn-at-your-own-pace curriculum was developed based on listening to employees to evaluate and hear what they needed to better work with data and understand where gaps in data knowledge occur.

As other cities begin to consider how to communicate data information through the workforce, a key component is an assessment of where employees are with regard to data and what kinds of instructions are most needed. It's important, said Schigoda, to think about "how you're assessing your data workforce, so you know where to focus your trainings. By constantly assessing how you're doing, you can really target your limited resources."

Barriers and Solutions

For all governments, one of the top challenges to developing greater data literacy is having the time and resources to focus employee and employer attention,

especially when organizations are short-staffed and training time must compete with service delivery.

One challenge to pushing data training across an organization is communicating to individuals why the training is needed in the first place. This is particularly problematic if they are leery of an expansion of job responsibilities and dubious about their own technological ability. "We who understand data have to bring it down to a lower level," said Reynolds.

Employees must see that this training pays off for them personally, which may not be immediately obvious. In Baltimore, Elszasz emphasizes the importance of making the Data Academy courses part of the city's learning management system, with employees who successfully complete a course getting credit for that in their personnel files—helping to signal to their supervisors or managers that they may be ready for a promotion or a raise.



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Reynolds notes that data literacy training should be included when employees are onboarded. “New employees are coming in that never worked in government and have no idea,” said Reynolds. “You need to be literate on the regulations you have to follow.” The key, she said, “is emphasizing education about the importance of consistent and shareable data, data protection and knowing what data is needed.”

Also, while there are many training materials available, there are fewer targeted to frontline employees. “I think that’s where [the Center for Government Excellence] has a really unique role to play in translating data skills and making them applicable to what people are experiencing every day,” said Schigoda.

Perhaps most important of all is getting buy-in from a community’s leaders. When there isn’t support from the top, the resources necessary are unlikely to be available.

The Emergence of Generative AI

Reynolds believes that generative AI will likely introduce a whole set of new reasons to emphasize data training for all government employees.

Pilot projects are creating private generative AI chatbots that can sweep up and deliver information to staffers in a closed setting, whether it’s for a single agency or a larger organization or government, such as a county. That idea would potentially deliver a wide array of information to staffers, creating “a drastic change in who can have access to data,” said Reynolds.

And that, in turn, means that generative AI will increase the need for employees at all levels to know how to protect their own data, to fully understand privacy rules and to be able to distinguish credible information from misinformation. While this tool will greatly increase the ability for staffers to understand policies and pull out answers to research questions, they would also need

to know how to question the answers they get, and how to spot bias embedded in generative AI algorithms.

It’s clear that generative AI is just one more solid reason why data literacy is so important. As data becomes the language of government, “being technologically literate is just as important as being able to read and write,” Schigoda said. 🗨️



New employees are coming in that never worked in government and have no idea. You need to be literate on the regulations you have to follow.”

Rita Reynolds, chief information officer for the National Association of Counties

CHAPTER

3

No longer just nice to have: Data literacy essential to digital government

While more data-mature cities are seeing payoffs from upskilling staff, even small gains can make a big difference.

BY STEPHANIE KANOWITZ



At least a basic level of data literacy is becoming table stakes for digital transformation at public-sector organizations. To ensure workers have that, many agencies are developing their own data literacy programs.

While it's imperative that staff get up to speed, a goal of training every employee in every possible skill set is unreasonable, said Adita Karkera, chief data officer at Deloitte Government and Public Services and an author of "[Data Literacy for the Public Sector](#)," published in March 2022. Instead, agencies can take a big step forward by just getting started.

"If we can start off with a phased, well-thought-out approach on how we will bring change about in a phased manner, that is still a victory for that organization," Karkera said.

Consider the city of Syracuse, New York. As recently as five years ago, its Department of Public Works had no data to help prioritize which roads needed repaving. Now, it uses

a data-based model not only to make those predictions, but also address equity.

A gradual increase in data literacy enabled that digital transformation. First, the Syracuse Metropolitan Transit Transportation Council, a state-designated metropolitan planning commission, began scoring the [quality of the city's roads](#) each year on a scale of 1 to 10.

When the council shared those scores with the city, its Office of Analytics, Performance and Innovation developed a road pavement prioritization model by combining the ratings with additional data, such as information from field operations, spatial data and [SYRCityline](#), an app through which residents make requests for non-emergency services, including road repair.



SYRACUSE, NEW YORK

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After using the model for three years, the innovation team began looking at ways to ensure that neighborhoods with historically underserved populations weren't overlooked for paving projects. That meant finding and adding more data to the model. The innovation office partnered with the Department of Public Works to look at previous road reconstruction projects and match that information with demographic

data from the census. They checked how many residents living along road construction projects were people of color and living below the poverty line. They also factored in how many were over 65, had disabilities, were rent-burdened and had low educational attainment to see whether those factors affected or predicted which roads were resurfaced, said Jason Thomas, a data analyst with the innovation office. "Last year,

we included what we call an equity score in the model," he said.

"It's this iterative process where five years ago, we didn't have any data on it, then four years ago, we created this data-driven model and a year ago, we created this model that now includes equity," he added.

The result is real change: In April 2023, the city announced [a plan](#) to reconstruct almost 23 miles of roads in every quadrant of the city and seal and resurface another 40.

Although many public-sector leaders prioritize use of data—data management and analytics ranks sixth on the National Association of Chief Information Officers' State CIOs [Top 10 Priorities for 2024](#), for instance—they are at varying levels of data literacy promotion.

For example, Syracuse's innovation office serves primarily as a consultant for other departments. "We're focused on specific



**“
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makers or not.”**

Stephanie Deitrick, chief
data and analytics officer of
Tempe, Arizona

projects, not so much data literacy for the sake of it,” said Jason Scharf, data program manager there.

By contrast, data literacy is part of orientation for all new employees of Tempe, Arizona, government offices.

“Everyone should have basic data literacy,” said Stephanie Deitrick, Tempe’s chief data and analytics officer. “I think it’s just important for everybody to have that foundational understanding, whether they’re decision-makers or not.”

Still, not everyone needs the same type of data skills, which is why she offers a variety of educational opportunities. Information technology training includes classes on analyzing geographic information system data, for example.

The city’s first responders are among the most robust data users, Deitrick said. Some of them recently completed voluntary multiday GIS training designed to help them think about using data in planning for special events, such as concerts.

“I’ve had a couple of them already requesting access to be able to do some new things,” Deitrick said. “The nice part about things like that is even if they aren’t the ones that end up doing the work, if you understand what’s possible, it lets you think of new things that you ... might not have thought about otherwise because you don’t know what you don’t know.”

In Texas, Monica Smoot, data literacy program administrator at the Department of

Information Resources, is building a three-tiered program to help data management officers educate business leaders and stakeholders about data.

Although still a work in progress, the program launched in October 2022 with the “Introduction to Data Literacy” course. So far, Smoot’s team has completed seven of nine first-level courses. And as of December 2023, 37 state agencies and public institutions of higher education were participating in department-hosted courses. Sixty-seven people have enrolled in them so far.

“Originally, we planned to offer the data management officers our courses that we develop on the learning management platform hosted by the Texas Department of Information Resources,” Smoot said. “However, the demand for making those courses available to a wider audience from those data management officers and other data users prompted us to explore additional options.”



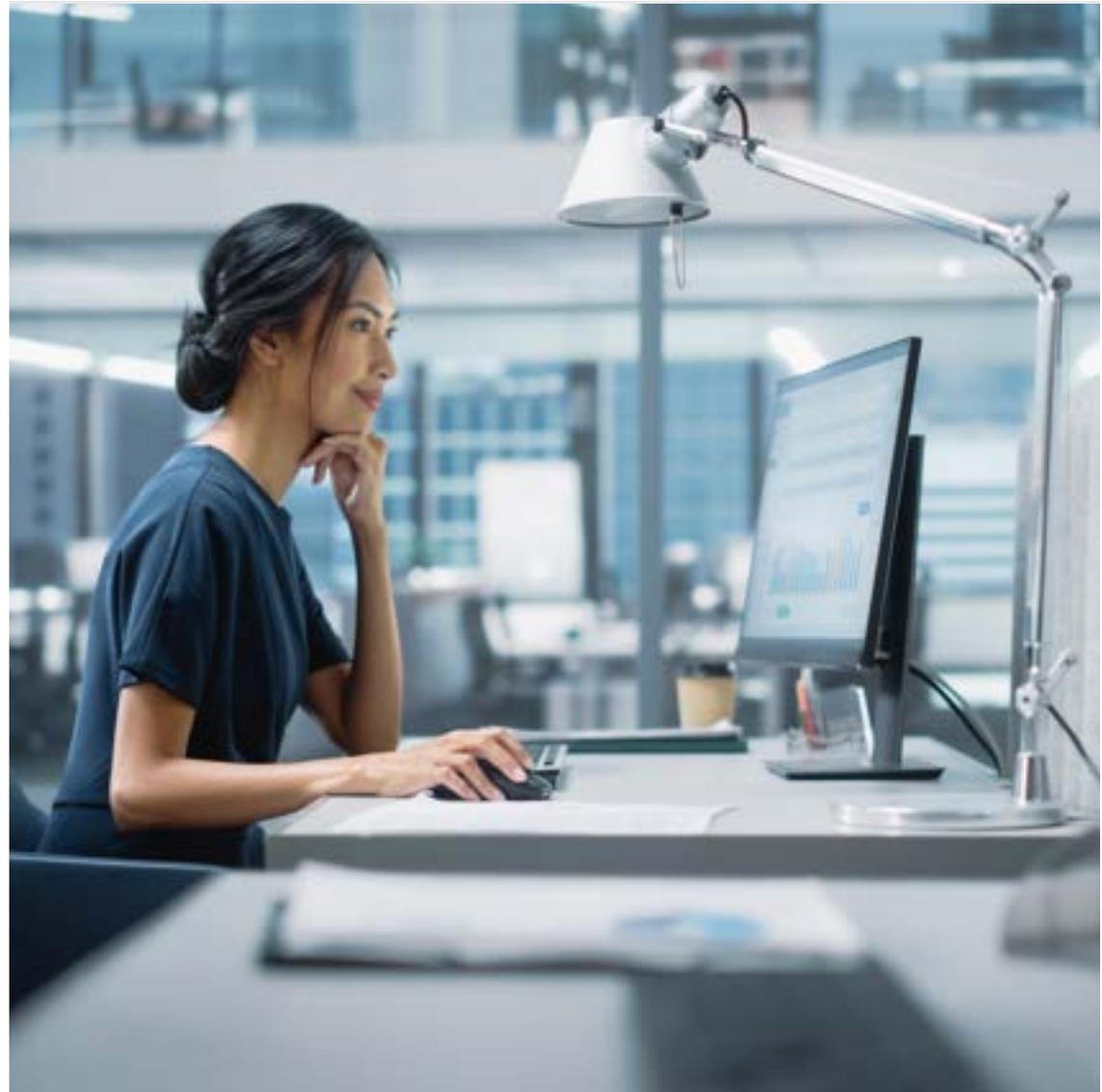
As a result, the courses are available on the department's [YouTube channel](#), and they're sharing course files with other agencies, so that they can host them on their own learning management platforms.

Despite the recognition that a lack of data literacy is an obstacle to transformation, progress is slow. One reason is that reskilling efforts are often focused on final decision-makers and don't trickle down to people using data for operational decisions, Tempe's Deitrick said.

"There's this assumption that if you tell people to use data to make decisions, somehow magically everybody knows what that means," she said.

"And if they don't, I think people are afraid to ask because nobody wants to feel stupid or like they don't know what they're doing," she said.

"It's exciting to see people really digging into the basics," Deitrick said. People are helping lift each other up "so that everybody is starting from a common understanding. 



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CHAPTER

4

How digital natives can help governments attract tech workers

State and local governments are in need of young employees with digital skills to replace an aging workforce. Improving agencies' job marketing could be key to attracting and retaining a younger generation.

BY KAITLYN LEVINSON



In the war for talent, the public sector is often at a disadvantage. It struggles to compete with the private sector's high salaries, promises of rapid career advancement and established brands. Government is especially burdened when it comes to recruiting candidates from Generation Z, or those born between 1997 and 2012. The generation of so-called **digital natives** has little motivation to work in government, particularly government tech.

“The government workforce is facing a major transition in the next five years,” said Emily Bolton, vice president of the Volcker Alliance, a nonprofit dedicated to improving the public sector workforce. And as government services increasingly go digital, “there's this real need to attract a new generation of digital natives into government for [it] to deliver on the services promised to the American people.”

Attracting and retaining young tech talent is still possible for the public sector, but not

without a marketing makeover, according to a new **study** from the Volcker Alliance. It is based on results from a marketing contest hosted by the nonprofit, in which Gen Zers created job ads that would encourage their peers to apply to federal tech positions.

Results indicated that ads targeting Gen Z should include emotive messaging focused on social impact, engaging visual content and be promoted on appropriate social media platforms—insights Bolton said are helpful for all government recruiters.

The winning submission told candidates applying for tech jobs with the U.S. Department of Transportation that their work could help prevent human trafficking. Set against a dark background, the names of five young trafficking victims remind viewers that “a victim could be anywhere. Be anyone.” It then prompts tech workers like engineers, software developers and cybersecurity specialists to be part of the solution.

The ad was effective, Bolton said, because



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it “spoke to a wide variety of ways an individual can have an impact in government that a lot of people don’t think of when they hear the name of an agency.”

To emphasize the do-good nature of state and local government jobs, agencies should incorporate visual content like video segments of employees in action to “bring the impacts ... to life,” Bolton said. The second winning submission, an ad for the U.S. Energy Department, features imagery of pollution, wildfires and drought to bring attention to “some big problems” the country is facing. A transition to depictions of young people working on clean energy solutions like solar panels, however, asks applicants for their help. The study’s findings say that a visual representation of public sector work and showing how applicants can be involved in their communities is key to appealing to Gen Z, according to Bolton.

Social media also plays a big role in hiring managers’ ability to attract and retain Gen Zers, according to the study. But agencies should be aware that while Gen Z is active

“**There's this real need to attract a new generation of digital natives into government for [it] to deliver on the services promised to the American people.”**

Emily Bolton, vice president of the Volcker Alliance

on a wide range of social media platforms, they expect different types of content on each platform. The study stated that 63% of participants said they would likely click on a job ad posted to LinkedIn, but only 28% said they would like to see ads on the site. Agencies could, for instance, share the actual application on LinkedIn but use another platform like TikTok to “tease” the role and responsibilities of a job position, Bolton said.

Another way to attract and retain younger workers is by streamlining job descriptions, Bolton said. “Modern day job descriptions seem byzantine to Gen Z,” she said, adding that complex descriptions and corporate jargon can discourage potential hires from

even applying for a position.

“Part of the issue is too many requirements in the job description,” she said, which can be “intimidating and off putting” for applicants. In fact, the study found that while 63% of respondents said a federal technology job would be interesting, 52% of them indicated they did not believe they had the right skills. Agencies should clearly articulate which skills are mandatory for the job, and which ones are desired but not required, the report stated. Otherwise, a daunting list of requirements and experience could cause applicants to weed themselves out of the process.

Any flexible work arrangements, like a



remote or hybrid schedule, should be highlighted, Bolton said. Study respondents said that the ability to work from home was important to them, but they did not think government jobs offered flexible work options. Remote and hybrid environments are “really an expectation of a generation of workers who entered the workforce during the pandemic,” she said.

Governments should also play up the benefits they offer to attract young workers, added Brian Wallace, director of strategic initiatives for the Georgia Municipal Association, or GMA, a nonprofit that assists municipal governments in the state.

Like many areas in the country, local agencies in Georgia are grappling with how to address the workforce shortage. This year, Georgia City Solutions, a 501(c)(3) created by GMA, conducted a pilot program in two Georgia cities, Brunswick and Douglas, to improve their workforce recruitment, Wallace said. The GCS pilot, funded by a \$40,000 grant from the Volcker Alliance’s Talent Connection Grant

Project, supported a needs assessment to identify gaps in the current workforce. The cities, for instance, held workshops that included representatives from various city departments to determine how recruitment and retention efforts could be improved.

Once the cities completed their needs assessment, they worked with the marketing firm Mopdog Creative Strategy to leverage GMA’s “Starts with Me!” marketing toolkit that includes guidance on how to design print or web advertisements, among other communications and branding tips. Similar to the Volcker study, the toolkit recommends stressing recruitment campaign themes such as community, impact, and job satisfaction. The tool suggests powerful, accessible photos of city employees at work, coupled with text that emphasizes the impact of the job.

The City of Cedartown, Georgia, has used the “[Starts With Me!](#)” resources and has found success with it. One ad the city has used, for example, depicts the city’s Wastewater Department chief operator

working with lab equipment and beckons readers to “discover how a career with your city provides valuable service to our community.” Another ad for a law enforcement position features a police officer on a motorcycle and asks, “You live here, your kids play here. You’ve built a home and family in our city. What an honor it would be to help keep those you love protected. The city of Cedartown is looking for a qualified candidate who is motivated and passionate about keeping our city safe. Ready to take on the challenge?”

“Cities have to think differently about how they recruit and the language they use to recruit,” Wallace said. 

CHAPTER

5

Employees need drastic reskilling to deal with generative AI's data needs

Data analysts are just one part of the picture. Governments will also need data architects and business analysts, as well as ethicists to help with its responsible use.

BY CHRIS TEALE



A leading state technology official recently **warned** that without good data state and local governments risk making artificial intelligence tools “stupid,” merely a conduit for “garbage in, garbage out.”

But to have good quality data, the public workforce needs good data literacy skills. As governments continue to churn out policies, guidelines and best practices for AI’s use in government, training and upskilling the workforce will be just as crucial.

In its May 2023 **Future of Jobs Report**, the World Economic Forum found that companies rank AI and big data as a top training priority from now until 2027, especially for those companies with more than 50,000 employees.

“Among technology skills, the ability to efficiently use AI tools now exceeds computer programming by humans,



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networks and cybersecurity skills, general technological literacy skills, and design and user experience by some margin,” the report said.

The forum, in particular, found that the public sector lags far behind other sectors of the economy, both in its plans to adopt AI technologies and to prioritize training in AI and big data.

One reason governments may be slow

to adopt AI and prioritize training is fear. New Jersey Chief Innovation Officer Beth Noveck **warned** in October of the challenge that states and localities face as they try to promote data skills among their employees.

“We all understand from a policy perspective, the importance of data and evidence, you know, basing decisions on data, but it doesn't mean any of us learned how to work with data,” she said at October’s Google Public Sector Forum.



One way to overcome these fears, Noveck said, is to make AI accessible. Successful AI training must include “examples and references that will make sense” to staff in their daily work. She even suggested that the best way for employees to learn about AI is to experiment with it themselves, especially by using publicly available generative AI tools like ChatGPT at home.

Getting employees more confident in using AI tools is important because “the lines between IT and business continue to blur,” said Orla Daly, chief information officer at Skillsoft, an online training company.

Governments don’t just need to hire data analysts, but to train employees to work as business analysts and data architects. Public sector employees at large will need to have the skill to map the relevant data to the business functions they serve in government, to work out what information is consumed and then how it’s delivered back to agencies and the public that uses it, said Dean Johnson, a senior executive

government advisor at Ensono, an IT service management company.

Data mapping in such a way can feel like “threading the needle,” Johnson said.

The best way to get employees mapping how the data fits with agencies’ needs is through hands-on training, Daly said. She cited Skillsoft’s 18th annual [IT Skills and Salary Report](#), which found that across industries, only 15% of IT professionals said management did not see a tangible benefit from training, as opposed to 45% the previous year. Upskilling and reskilling—not just hiring data analysts—is key, she said, in getting employees comfortable using data for generative AI.

“This isn’t something you can necessarily buy your way out of,” Daly said.

In addition to training, reskilling and upskilling employees to handle the vast amounts of data at their disposal, governments will also need more workers to help comply with the myriad data protection



You need to have people that understand how to read, write and argue data.”

Josh Martin, chief data officer of Maryland

and [state-level](#) privacy laws, as well as federal laws like the Health Insurance Portability and Accountability Act.

And ensuring AI is used ethically, with potential biases kept front-of-mind, will be key as well. Daly said governance to provide guardrails for some of these problems will be a “continued focus,” and will need people to become adept in the ethical use of AI.

The potential for generative AI-driven misinformation and disinformation is troubling for government leaders, especially as they reckon with how the technology can experience so-called “hallucinations” and



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systems and the employees that leverage them will be crucial in helping reduce instances of bad information to almost zero.

“Eighty percent or 90% [success], that might be good for basketball shooting and baseball hitting and those kinds of things,” said Dekalb County, GA CIO John Matelski during a 2023 webinar hosted by the National Association of Counties. “But when we’re talking about services and constituents and those kinds of things, that 10-20% that might not be accurate can be really devastating and embarrassing.” 🛡️

CHAPTER

6

Don't call it data literacy, it's data proficiency

States can get employees successfully working with data by making the training process more approachable, data experts said.

BY CHRIS TEALE



Start talking about statistics or data literacy to many government workers, and they will be scared and intimidated, said Nick Hart, president and CEO of the Data Foundation think tank.

But states that are successful in educating their employees about data do so by framing it as data “proficiency” rather than “literacy.” That helps break down some of the barriers that may dissuade workers from learning more, he said during a panel discussion at the National Association of State Chief Information Officers’ Mid-Year Meeting in National Harbor, Maryland.

Indiana is one state that has embraced free education to help its employees improve their data literacy, and its approach is paying off, according to the state’s Chief Data Officer Josh Martin. Around 1,800 state employees have participated in at least one of the state’s [training programs](#), which initially were advertised by Indiana’s central



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human resources department through its monthly newsletters.

During the panel discussion, Martin said the courses, which have been curated from content already available online, feature video introductions to various data management concepts, with supplemental reading available. He said the state found the “most approachable content that we could.” After an employee completes five lessons, they take a quiz and can earn state-

issued badges to show their proficiency level.

From the top of the organization on down, Martin said an understanding of data is vital for employees.

“We need to have good documents, we need to have a literate, proficient workforce,” he said. “You need to have people that understand how to read, write and argue data.”



Initially, Martin said the most popular area for employees looking to analyze data was the state’s transparency portal, as it includes information about individuals’ salaries, bonuses and other compensation. But the portal has since become a good training tool, as staff use it to check their specific departments for contract awards or other data that could be helpful to their jobs.

Other tech leaders both inside and outside the state have already looked to use Indiana’s playbook. Martin said Pennsylvania officials have approached him about replicating his initiative for their state employees, and there is also interest in having local government workers take at least some of these training sessions.

Across the public sector, Hart said that if governments are to help their employees become more proficient in their use of data, they must focus on “taking down the intimidation and making this a participatory

process.” Too often, people “put up walls” when faced with statistics or other data, he said.

That reluctance to embrace data caused problems during the worst of the COVID-19 pandemic, Hart said. The nation needed to “rapidly build assets that can be used and are translatable for governors or the American public,” he said, but too often it was philanthropic organizations that stepped in to build out those datasets and dashboards.

In a [2022 report](#), the Data Foundation said agencies can take steps to improve their employees’ data proficiency, including talking about data in a common, shared language that is relatable for everyone and ensuring that the push to better data governance aligns with improved data literacy. The report also urged governments to encourage the use of data in decision-making.

Senior state officials, whether they be elected leaders like the governor or appointees like the chief information officer or chief data officer, must push their employees toward data proficiency, and governments should allocate more resources, the report said. Martin described those people as “data champions,” and said they are crucial to any program’s success. 



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