Turning Data Into Insight

Cloud-based tools and enterprise strategies help agencies get smarter faster.

In late March, as cases of COVID-19 climbed steadily in the United States, the city of Boston's data team moved quickly to keep citizens informed.

Using cloud-based geospatial mapping software, the team launched two new online data dashboards in about a day that use continually updated information from the Centers for Disease Control and Prevention (CDC) and the Massachusetts Department of Public Health to track the spread of the virus. One resource shows total COVID-19 cases throughout the state by county. The other compares case numbers at the city, state and national level.

At about the same time Boston was launching its dashboards, Colorado's Eagle County was using cloud-based collaboration and analytics applications to quickly deploy an online symptom reporting and tracking service. Home to the Vail Ski Resort, Eagle County had become a virus hotspot. The new site lets citizens self-report symptoms, which are tracked and analyzed by public health officials to understand the spread of the illness and follow up with residents who may need care. Eagle County's effort already has been copied by a handful of other Colorado counties.

The COVID-19 crisis underscores the growing importance of data analytics to state and local governments as they tackle complex challenges. It also shows how technological improvements are making data-driven insights easier to achieve and share. One lesson learned during the early days of the virus response is that cloud services and user-friendly data tools enable governments to roll out new data and analytic services fast and scale them quickly.

"Given the rapidly evolving situation with the COVID-19 pandemic, we took it upon ourselves to leverage publicly available tools and data to begin establishing a consolidated view of what was happening in Boston, the commonwealth of Massachusetts and the United States as a whole," Boston Chief Data Officer Stefanie Costa Leabo told *Government Technology*.

The Rise of the CDO

Although the COVID-19 response kicked public sector data analytics efforts into high gear, states and localities have been steadily working to become more data-driven over the past several years. Twenty-eight states now have a chief data officer (CDO), and similar positions have been established in Boston, Denver, San Francisco, Philadelphia and other municipalities. The rise of the CDO is just one indication of the push among states and localities to use data to improve internal operations, strengthen citizen services, improve safety, and boost transparency and engagement.

Today's challenge is breaking data out of system-specific silos.

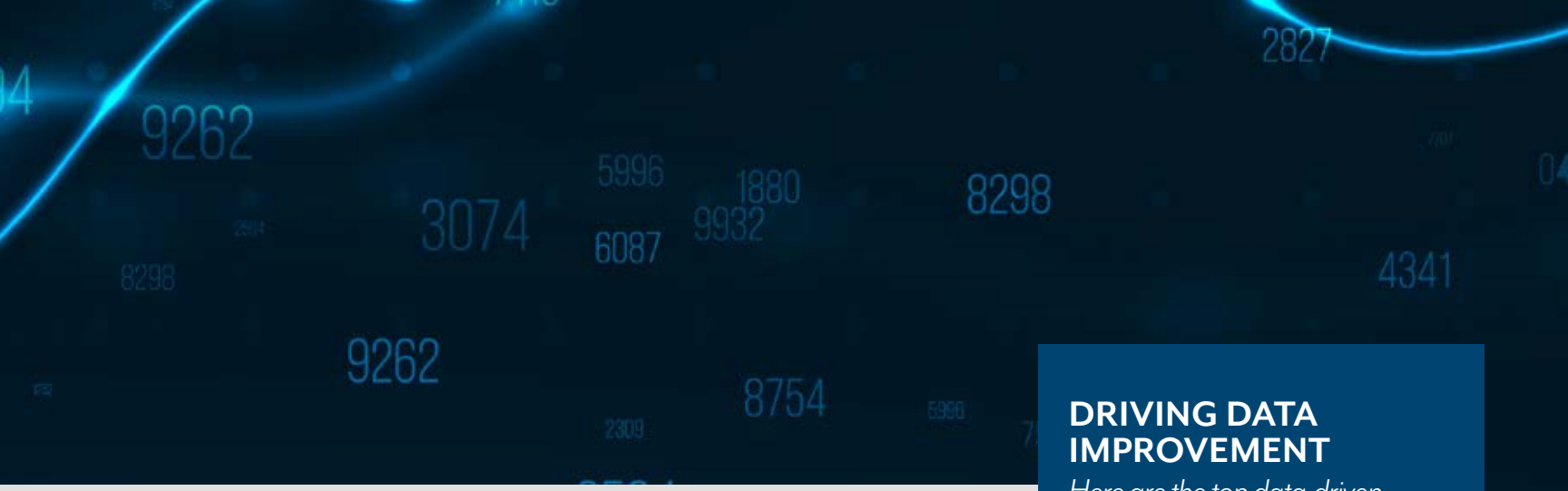
One overarching goal for these CDOs is squeezing more value from public sector data resources. Governments collect mountains of data, but this information typically has been gathered and used for a specific purpose. Today's challenge is breaking data out of system-specific silos so it can be shared, analyzed, visualized and ultimately put to work to drive better efficiency and program outcomes, as well as provide more personalized citizen experiences.

Fortunately, technological advances are giving agencies tools to move forward.

"There's no question that technology is making it easier to gather, clean, analyze and visualize data," says Patrick Moore, a Center for Digital Government senior fellow who formerly served as Georgia's state CIO. "From data lakes to artificial intelligence, the end-to-end solutions absolutely exist."

But better technology is just part of the answer. As governments implement these tools, they also must confront the deeper challenge of aligning data and analytics activities to policy and business priorities.

"The technology is going to be as



good as you let it be, so you need to ask the right questions to get the outputs you require," Moore says.

David Partsch, named Pennsylvania's first CDO in summer 2019, is tackling that issue in his state. Part of his mandate is to help establish a statewide data management and governance strategy that will drive better efficiency and customer experience. Among other things, the strategy will support development of a "single online location and login for Pennsylvanians to access all commonwealth services," Partsch recently told *Government Technology*.

Ultimately the state will use its enterprise data strategy to change mindsets about when and how data will be sharedacross agencies and departments.

"The most important part is making sure there is buy-in across the key stakeholders in the commonwealth to make sure all the business units are continually engaged in this data governance program," Partsch said.

Putting Analytics to Work

As data tools and strategies mature, governments across the nation are using analytics to address specific community concerns. For instance, Fairfax County, Va., and George Mason University are creating an analytics model to identify risk factors that impact the mental and physical health of children. And the Bay Area Air Quality Management District in San Francisco recently launched an effort to gather and map air pollution data from every corner of the 5,000-square-mile metro area using sensor-equipped vehicles.

It's also likely that artificial intelligence and other data-driven technologies will help public agencies handle what's expected to be overwhelming demand for safety net services in the wake of the COVID-19 crisis.

This trend already may be taking shape. The Texas Workforce Commission (TWC) recently launched an online virtual assistant to clear a growing backlog of unemployment claims. The TWC is experiencing record call volumes from Texans who have lost their jobs due to the virus. The TWC hopes its new AI-enabled chatbot can answer most questions claimants may be calling the hotline about, relieving pressure on call centers.

Understanding the Market

As agencies seek to strengthen their data and analytics capabilities, Moore expects cloud services to become an increasingly common way for governments to access sophisticated resources for data storage, management, security and analysis.

"The leap that governments will be able to make using the as-a-service model will far outpace their ability to modernize their legacy tools and applications," he says.

But agencies also must do their homework to understand both their own needs and the rapidly evolving landscape of data analytics technologies.

"It's important to become acquainted with the marketplace and recognize what these offerings can do and how they can help," Moore says. "If you are committed to using data to make decisions and you're willing to make the investment, the tools are there."

DRIVING DATA IMPROVEMENT

Here are the top data-driven technologies local government leaders plan to implement or upgrade in 2020.

City

Big data infrastructure — 50%

Online performance dashboards — 42%

Predictive analytics — 41%

AI for cybersecurity — 37%

AI for infrastructure inspection — 36%

Natural language processing — 35%

County

Online budget dashboards — 44%

Big data infrastructure — 41%

AI/machine learning — 36%

Predictive analytics — 33%

Natural language processing — 33%

AI for cybersecurity — 26%

Source: 2019 Digital Cities and Counties Surveys