FEDERAL NEWS NETWORK

# EXECUTIVE BRIEFING SERIES:
Data Analytics

PANEL OF EXPERTS

Jasmeen Bowmaster, Information Technology Data Management Analyst, Office of the Chief Data Officer, U.S. General Services Administration

David Charbonneau, Chief, Information Collection and Analysis Branch, Program Implementation and Information Division, Office of Resource Conservation and Recovery, Office of Land and Emergency Management, U.S. Environmental Protection Agency
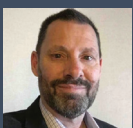
Robert Dolan Jr., Market Segment Director, Public Sector, Tableau

Mark E. Krzysko, Deputy Director, Acquisition Data, Office of the Under Secretary for Defense for Acquisition & Sustainment, Strategy, Data and Design, OUSD A&S/SD&D, Department of Defense

Laura Kurup, Chief Strategy and Innovation Officer (OIT), U.S. Securities and Exchange Commission

Renata Maziarz, Acting Director, Office of Data Transparency, USAspending.gov Product Owner, Bureau of the Fiscal Service

Dan Miller, Executive Vice President of Sales, Services & Support, Tableau

Ted Okada, Chief Technology Officer, Federal Emergency Management Agency

Howard Whyte, Chief Information Officer and Chief Privacy Officer, Federal Deposit Insurance Corporation

Three elements of data analytics success: strategy, culture, and analytics

BY TOM TEMIN

Federal agencies across the board are adopting data strategies to enhance their own operations, enhance the quality of decision making, and improving service. A data strategy results from the growth in data as a distinct element, separate from applications and other parts of the information technology chain.

The rise of data as a valuable commodity has caused a groundswell of interest in data analytics. In some sense, data analytics has been around ever since the first report was written and run during off-hours against a flat file, mainframe database. Thanks to numerous technology advances, the volume of data available and the powerful tools and platforms available to analyze and visualize it, have given data analytics a whole new meaning.

Perhaps one of the biggest recent shifts has been deployment of analytical platforms usable by not just the IT staff, but also the program, business and management people. With the right training and support, an organization can democratize analytics and put the power of data close to where it's needed.

Federal News Network and Tableau convened a roundtable of federal technology practitioners to take the pulse of data strategies, analytics platforms, and programs. We summarize the findings in this white paper. Data strategies vary as widely as mission. But we learned there's consensus around the notion that, regardless of specifics, for data and analytics strategies to succeed, an agency must have a culture or mindset that values analytics and the benefits it brings.

As Jasmeen Bowmaster, information technology data management analyst at the General Services Administration put it, "At the end of the day, it

+ableau
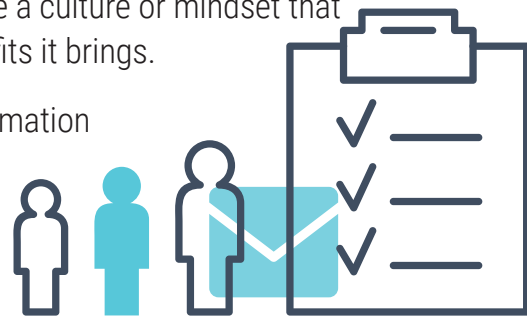
comes down to the people who will have to use the technology. If they don't know how to use it, don't know the foundation of it, [or] what the end goals are, they're not going to be successful with it." About GSA's training program in tools and analytics, she said, "We've ensured that folks across the organization are empowered to look at the data, to use the data, analyze it, and then report on it." She calls this moving from a transactional culture to an analytical culture.

Data strategies

Success in data analytics requires a fundamental data strategy. As noted, these vary widely from exclusive use within an agency to publishing data for anyone to use analytically.

In the case of the Federal Emergency Management Agency, Ted Okada, chief technology officer, says the agency is expanding its long-standing open data strategy, both for its own use and also for a large external set of constituencies.

"We put out data sets in some of the most commonly-used standards – XML, CSV, JSON (JavaScript Object Notation) – so they're easily consumable," Okada said. The emphasis on machine-readable data, which Okada noted dates from a 2013 Executive Order, has drawn data consumers from domains as diverse as academic researchers to insurance underwriters. A robust application programming interface (API) strategy, Okada said, boosts data usability both internally and externally.

At the Federal Deposit Insurance Corporation, Howard Whyte, chief information officer and chief privacy officer, said privacy and security are paramount. FDIC takes in large amounts of banking data which includes personally identifiable account-holder data pursuant to its mission of accessing banks. It publishes statistical summaries as research

products, but otherwise takes great care in protecting individual banks' (and banks' customers') data.

Similarly, the Securities and Exchange Commission takes a data analytic approach to publicly traded market structure, according to Laura Kurup, chief strategy and innovation officer. "We ingest, depending on the day, depending on the volume, up to 20 billion individual records per day," Kurup said. The more than 20,000 tips the SEC receives each year, she said, require connections to multiple data sets in order to investigate.

"Our data strategy is really focused on becoming more efficient at what we do ... by using data and analytics to be sure investigators' efforts are more focused and efficient, Kurup said. The strategy, she said, rests on three elements driving a data-using culture that, in reality, could define any agency's strategy:

- Knowledge management and ensuring that best practices and datasets are discoverable and shared across groups.
- Technology, including data analytics and cloud computing, in which analysts can "spin up" virtual machines as needed.
- Governance with a data management board and working group to guide policy and data usage.

Still another scenario prevails at the Environmental Protection Agency. David Charbonneau is chief of the information collection and analysis branch for the bureau that oversees transport and storage of hazardous waste. EPA both collects data from and disseminates data to the states. "We deal with 50 unique customers," he said. "California will have very different data standards than, say, a different state." He added, "Once we have that data, we're

+ableau
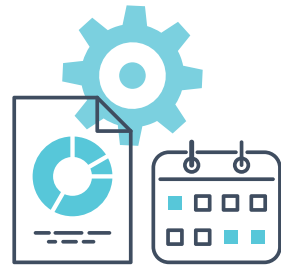
using analytics to help our internal regulators better understand the impact that the latest regulations are having on the industry and help the public understand what the Resource Recovery and Conservation Act has done for them."

Collecting and organizing data is a requisite for many agencies, none more than the Defense Department. Mark Krzysko is deputy director for acquisition data for a group known as Strategy, Data and Design within the office of the Defense under secretary for Acquisition and Sustainment. "We work extensively across the [armed] services and components to have a common semantic data model" to help people do their jobs better. Data covers cost, schedule, and performance. For example, its Data Acquisition Visibility Environment, Krzysko said, is used by the Army to better manage data for its major acquisition programs. Giving program managers better insight to find efficiencies is a key goal of his group, Krzysko said.

Culture matters

Looking across the federal landscape, Robert Dolan Jr., the market segment director for public sector at Tableau, said, "Culture is a big thing. How do you drive this data-driven culture within the federal government?" One impediment is the reluctance of data owners to share their datasets, worried analytics will be applied in a way that reveals too much. Another is simply the siloed nature of data, accompanied by owners' reluctance to share it.

Dolan added that elements in the President's Management Agenda and its cross-agency performance (CAP) goals are helping agencies push past those impediments.

The growth in data itself coupled with the drive to derive value from it might have

overwhelmed agencies earlier. But Dan Miller, executive vice president of sales, services and support at Tableau, said he's detected a change in attitude in agencies.

"People are going to do something about it," Miller said. He noted Tableau products are aimed at helping individual users and groups gain insight from data. Miller said many large organizations are "overwhelmed by data but underwhelmed by insight." He added, many leaders ask, "What does a culture of analytics look like … and how do I get there efficiently, intelligently and quickly?"

Kurup of the SEC named two ways way to establish that culture. One is to provide users with tools they need for a particular requirement. That could be anything from a spreadsheet to high-end tools like those of Tableau. "So it's not just this core set of analysts who get these tools but [rather] how can the entire organization get access to tools that can help them understand." Second is, beyond sharing data, "I think it's important to share your analysis."

Making sure business and program owners are in close communication with IT is also important to the data culture, said Renata Maziarz, acting director of the Office of Data Transparency at the Bureau of the Fiscal Service. "The business person has the insight and the ability to understand what data they're looking at. So you might show a data analyst a column and a header, and they might interpret it the wrong way. You have to partner." She added it's important that even people who enter or originate data know the ultimate

+‡+ +ableau
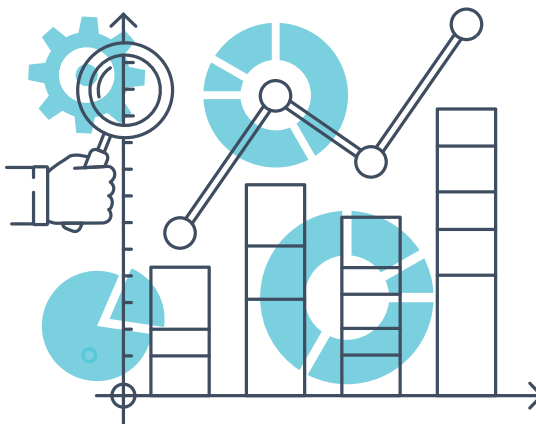
purpose for which it will be used. Often they can spot problems at the ground level.

Maziarz said it's also important to make the results of data analysis real to people, and not just a technical exercise. "It's the skill of being able to tell a story with the data," she said. "You've taken data in a format that is not really accessible, and you're bringing insight to it so that people can relate to it, make decisions, or ask the right questions."

Tableau's Dolan said, "It makes people pay attention." Data analytics output, expressed in real life terms, "brings people together to solve problems. Analytics is really a journey to insight."

Tools: Cast a wide net

Eventually, after having established the importance of data and data analytics, and developing a strategy for collecting and disseminating data and APIs, agencies do need a powerful platform to do analytics. Our panelists agreed that – consistent with the need for individual mission owners or lines of business each having its own analytics requirements – no single tool or analytics platform is right for every situation.

DoD's Krzysko said it would be a mistake for data stewards to attempt to think otherwise.

"No one is going to have the entire organizational intellectual capital in one place," he said. To a given bureau, he said, "If I can provide them the key, and they can do their job better, I've met my mission by becoming a collaborator, rather than a monolithic platform."

He added data management is a discipline unto itself, with its own spectrum of policies, regulations and laws. "Analytics has its own spectrum. People are going to have their own tools." To help them, Krzysko described how his office, working with

the DoD chief information officer, established an "analytics layer" with tools like R, Python and Tableau. "The data scientists, the data engineers, the data analysts are going to decide which tools are the best for them."

That sentiment was echoed by the Bureau of the Fiscal Service's Maziarz. "Let the data analysts, the data scientists choose what tools are right for the problem."

SEC's Kurup said that when choosing tools, IT staffs should think about data comprehensively. "When you take an approach to look at security, to look at privacy, you want to think about the entire data lifecycle," she said. "All the way from initial ingestion to transformation, where you are storing it, how you are sharing it."

She said the analytics field is moving so fast, it's a challenge keeping up to date. "Staff wants to go out and grab the latest Python package, or use the latest version of Jupiter Notebooks," she said, referring to popular open source tools.

Kurup said security standards in tools are particularly important because development projects, such as updating an analytics dashboard, often require use of "live," as opposed to "dummy," data.

Ultimately, the selection of an analytics platform must derive from specific, desired outcomes. Tableau's Dolan put it this way: "How is that tying to a mission goal? How is that measuring performance? When you have all this data, and you want to get that insight, you have to have this robust platform that allows you to do this deep analysis. That democratizes the ability to access the information generated from that data."

Tom Temin is a freelance writer with 40 years in business-to-business journalism. E-mail him at **tom@tomtemin.com**

+ + +
+ +**+ +ableau**
+ + +