

AN AI FUTURE RELIES ON THE STRENGTH OF ROBUST DATA MANAGEMENT

Federal and state agencies are partnering with industry to adopt data management frameworks that lay the groundwork for the advanced technologies of tomorrow

As government agencies continue to embrace complex and hybrid data architectures equipped with new and evolving software and cloud data platforms, data governance must remain at the core of these initiatives.

These advancements require a more holistic data strategy, where organizations follow consistent standards and policies to build a foundation for advanced technologies. [Six data experts](#) talked with FedInsider during a recent webinar to explore current and future data governance strategies and best practices for implementing modern data management programs.

The following are some of the most important aspects of those efforts.

Government Agencies Adopt Mission-Driven Data Strategies

Having a data strategy that aligns with an agency's mission and supports its most critical efforts is key, and government at all levels are adopting data strategies to build the foundation for future technologies.

Take the National Oceanic and Atmospheric Administration (NOAA), for instance, a primarily data-driven science agency with a high-performing computing infrastructure.

"What that means is that every single day NOAA as an Earth science organization is creating tens of terabytes of data," said Tony LaVoi, chief data officer of NOAA.

These data sets are specifically tied to crucial NOAA missions. The agency [released](#) its data strategy last year, which consists of five goals. The most important of the five goals, according to LaVoi, are the governance, open data and leveraging partnerships goals.

"NOAA is essentially an open by default agency when it comes to our data. There is very little mission data that is not publicly available," said LaVoi.

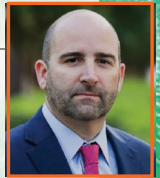
The U.S. Agency for International Development's (USAID) data strategy is also driven by the agency's mission and by the needs of its staff and partners around the world. For an agency in more than 80 countries, creating an environment with various data structures, collection methods, connectivity and standards is challenging.

Regardless, USAID needs to use the data collectively to advance the agency's missions. That's why USAID's data governance body, the USAID Data Board, established a mission advisory committee to ensure that agency priorities over the next 12 months are responsive to those frontline needs.

"We will soon be even piloting a mission support package aimed at providing a standard menu of data management support options to our mission staff around the world," said Brandon Pustejovsky, CDO for USAID.

FEATURING:

> **John Correllus**
State CIO & CDO,
North Carolina



> **Dr. Clark Cully**
Acting Deputy CDO,
Department of Defense



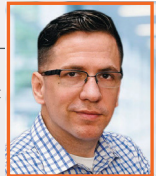
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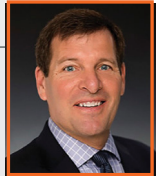
> **Tony LaVoi**
Chief Data Officer,
NOAA



> **Henry Sowell**
Chief Information Officer,
Cloudera Government Solutions Inc



> **Anthony Robbins**
VP of Public Sector,
NVIDIA



And from the Department of Defense's perspective, Deputy Defense Secretary Kathleen Hicks outlined data efforts in a May 5 memo under five "[DOD Data Decrees](#)."

According to Dr. Clark Cully, DOD deputy CDO, these decrees help provide guidance to the department on moving towards an open data standard architecture that will carry the DOD into the future.

"We seek to become a data-centric organization and to use data at speed and at scale both for operational advantage for the fighters in the field as well as increasing the efficiency and performance for our business processes," Cully said.

Private Sector Perspective and Best Practices

According to NVIDIA's Vice President of Public Sector Anthony Robbins, solving data governance challenges requires public-private partnerships and collaborating with middle managers, internally and with industry partners.

"Middle managers in the government are career civil servants. They care deeply, and they built the system in place today," Robbins said.

It's also important agencies have access to data scientists, universities and a network of startups to do the data work that is central to the progress of artificial intelligence — like implementing the right data infrastructure needed to support future technologies.

Once a data strategy is implemented, cloud and other technologies can be placed on top to support that strategy. But first, there are critical areas that need to be considered -- like where the data will be generated, what governance and security requirements are in place and what solutions are the right fit.

"Doing this out of order often is where we see a lot of challenges," said Henry Sowell, CIO of Cloudera Government Solutions, Inc.

For example, deploying a point solution to address a point-in-time mission issue isn't capable of meeting complex data governance and security requirements, or they require significant developments to integrate. Rather, Sowell recommended developing a solid strategy that allows organizations to consider these concerns upfront.

Identifying Data Needs and Maximizing Innovation

Before agencies can focus on end-product and analytics, they must first understand the data life cycle.

"You are not going to get the end product that you want if you don't engage in sound data management planning off the bat," Pustejovsky said.

This means planning for interoperability, establishing data standards, building meta-data catalogs and master reference data, and so on, to create best data collection practices. This will provide the optimal raw material for advanced analytics and machine learning down the road.

There's also a demand around predictive analytics, which requires breaking down internal data siloes and collecting data within outlined standards.

The DOD is already making these strides. Cully said quality analytics and metrics are displacing static and legacy approaches like PowerPoint slides and other outdated ways of funneling information. This is leading to a more rapid, transparent and objective basis for informing decisions.

"Leaders using data to make important decisions gets the whole organization focused on solving data management challenges and pulling things into a common platform," Cully said.

Data Management Lays the Foundation for Advanced Technologies

This is where effective data governance comes in, according to Sowell.

"You have to understand what data sets you have, whether it is data cataloging or some other mechanism, where they came from and what is the veracity?" Sowell said. "This all feeds into the data engineering which produces effective data sets that you can then do machine learning and AI."

With sound data strategies in place, agencies have begun to implement advanced technologies like AI and machine learning. For example, smart cities are relying on a data-centric infrastructure with standards that allow for incoming real time sensor data to ignite real time action and insights.

"This idea of real time intelligence is really where AI is going to fit in nicely," said John Correllus, North Carolina State chief information officer and CDO. Correllus is embedding data with business strategy to identify and solve statewide problems, leverage predictive analytics and measure outcomes.

Data, cloud and AI are also intertwined within the DOD. Cully said the Pentagon is focused on an enterprise cloud capable of AI, modernizing command-and-control systems like 5G capabilities and also cybersecurity. These are crucial to multi-domain missions and ensuring interoperability between DOD centers and command and control communications. All of that will be critical to ensuring the success of future operations.

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