

# Transforming Government Data Management with Cloud Technology: A Path to 2030

Highlights from a Roundtable hosted by the Advanced Technology Academic Research Center (ATARC) in partnership with ICF, December 2023.

The Federal Government's approach to data management and cloud technology has undergone significant transformation in recent years. As the role of data changes with the rise of generative AI, agencies must prioritize efficient data management strategies.

This ATARC roundtable discussion, hosted in partnership with ICF, explores how federal agencies are harnessing the power of cloud technology to enhance data security, improve data management, and streamline operations. Panelists also discussed the future inroads of data in the wake of AI.

## The Importance of Data Management

Data modernization initiatives depend on proper data management. Agencies are rarely operating in silos. To serve the American public effectively, agencies must collaborate with one another to serve the American public effectively. This collaboration hinges on data sharing through different cloud instances and capabilities.

Data management in the cloud helps agencies operate remotely, even for agencies with a strong human component. The cloud enables agencies to access data and collaborate from across the world in real time. Data analytics tools with cloud capabilities allow agencies to analyze challenging, hard-to-find data and develop new insights and solutions. With data accessible in the cloud, new systems are created every day to help agencies streamline processes.

Panelists stressed the importance of data integrity and data matching, cautioning others on the ramifications of inaccurate data. Agencies that accept data from outside sources, such as state and local governments, should also consider the accuracy of data before accepting it, since the data will be subject to FOIA once in the hands of a Federal agency.

Some panelists contend that within the next year or two, data will eclipse code as the integral component for software development. With the rise of generative AI and its dependence on data to function, data will likely replace code to build IT infrastructure. As such, agencies should be prioritizing data management and developing robust data strategies.

## Data Strategies

**“The Federal data strategy is a zombie...AI is going to overwhelm us and drag us into managing our data, which we otherwise really can't.”**

Roundtable participants agree that in general, agencies are not managing their data. Arguably, agencies do not have the capacity to manage all of their data, as it's located on thumb drives, within multiple document management systems, and in the cloud of every application an agency has ever used. Despite the enormity of the task, panelists believe efficient data management is possible with AI.

Although some panelists find merit in the Federal Data Strategy, others consider it to be outdated and incongruent with the realities of AI development. As code languages advance and data becomes more valuable, panelists do not believe the government is ready to evolve quickly enough.

## Future Business Practices

Agencies are both curious and cautious of AI's potential. In one breath, agencies want to use AI, but are hesitant to be transparent and accountable with their data. Others are questioning how to transition software engineers to prompt engineers, among many other business processes that are to evolve in the coming months and years.

One panelist notes that this is, and will continue to be, a 'crawl, walk, run' approach. Agencies will begin to create custom GPTs from their own data firewalls, but also recognize the essential human component of using AI.

**“The pandemic pushed us into the cloud. AI is going to push us to take these frameworks and do something with it.”**

Discussion shifted to the organizational and leadership changes imminent in the coming months and years. In particular, panelists discussed the role of Chief Data Officers (CDOs). While many agencies do not have a CDO, the few CDOs that do exist tend to have amorphous roles and responsibilities.

According to a panelist, the role of the CDO is to evangelize, educate and understand the ethical concerns that come with using AI, but others argue the ethical and privacy considerations of data are lost among CDOs who report to CIOs due to their fixation on technology solutions.

A similar point was made regarding the location of newly created offices of artificial intelligence within agency org charts. The current OMB memo recommends AI offices to report to the CFO, which panelists consider a smart choice. The CFO maintains a government-wide perspective and is closest to sources of funding, which will benefit those working to modernize with AI.

## Challenges with Data Management

Panelists note that the official guidance surrounding data management is not current and does not reflect new ways of doing business. While practitioners may discuss changes that need to be made with data management, progress falls short at implementation. Panelists believe this can be solved if agencies had their own domains with defined data structures and security controls. Then, cross collaboration within domains could occur and data could be shared across agencies more freely.

Agencies may have frameworks for data governance, but lack the statutory authorizations to progress to an operational state of managing data. Once that occurs, panelists believe agencies could start treating data as a product.

agencies also face challenges with treating the cloud like a data center. Federal cloud strategies assume one agency will have one cloud, yet multiple programs within an agency have their own cloud organizations. If agencies move towards a data mesh architecture, then the focus is solely on data. At that point, data doesn't necessarily reside in storage, and agencies can access, analyze, and utilize the data for any mission purpose.

Panelists are also concerned by the lack of oversight and regulation of government data in the hands of cloud providers. Cloud service providers have ready access to government data, and there are few regulations in place to prevent serious risk. One panelist notes that some government agencies in Europe and Australia are pulling back from utilizing cloud storage, opting to return to on-premise storage for government data. The costs and risks involved with storing sensitive government data in third-party cloud storage is too high.

Once data is put in the cloud, it is extremely difficult to remove it. If someone accidentally puts sensitive data in the cloud and then deletes it, the data may be removed from the user's perspective, but is never truly deleted. For some agencies the inadvertent mismanagement of data can have serious, sometimes life threatening, consequences.

## GPT and Data

Panelists ended the roundtable by discussing the impact GPT will have on operations. Some believe GPT will become the cheat code to solve data problems by allowing agencies to have conversations with their data. Others can see GPT serving as a mentor to new employees, especially as remote work changes the nature of traditional mentorship.

Agencies are also hoping to automate and improve certain business processes with GPT, such as the paperwork involved with the Authority to Operate (ATO) process. Although some leaders are concerned that their role could be usurped by automating ATO, the business use cases for introducing AI into complex processes are compelling. However, panelists note that generative AI outputs are not the final product, rather a tool to help get them started.

Because GPT is such a powerful tool, government employees will find a way to use it regardless if guardrails exist. As such, agencies must work to develop frameworks for safe AI use and data management. While there is much to be concerned about, one panelist encourages agencies to also consider the innumerable positive impacts AI will have on the world.

**“If we stop worrying so much about the negative, then we can actually tap into the potential of human beings. Their creativity, innovative thoughts and ideas, and the fact that they can focus on human-to-human interactions.”**

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