Digital Transformation: Revolutionizing Federal Government with Innovative Systems

Highlights from a Roundtable hosted by the Advanced Technology Academic Research Center (ATARC) in partnership with AWS, May 2024

In a recent roundtable discussion, Federal IT experts shared various approaches to digital transformation in today's fast moving environment. Discussion centered on the importance of leveraging emerging technologies while balancing the need to maintain and modernize legacy systems.

Digital Transformation in Federal Agencies

"The starting point should always be about the mission."

One agency on the panel faced challenges with declining customer service quality due to the large volume of calls to the agency's 800 number. With few resources available, the agency used a data-driven approach to analyze the issue. By analyzing call transcripts using generative AI and sentiment analysis, the team uncovered the root causes of customer calls and determined a simple solution without needing to invest in technology.

Another agency at the roundtable whose mission requires significant private-public partnership aimed to enhance its customer experience through technology and digitization. The agency consolidated its disparate systems and programs into a unified platform, which simplified communication with stakeholders and improved efficiency, while ensuring the security of sensitive information.

Although some agencies are finding success in their digital transformation journey, others are still working to maximize the benefits of the cloud, with cloud transformation remaining a key priority due to its scalability and resilience compared with data centers.

Concurrent to legacy modernization efforts, agencies are also making time to explore the potential for generative AI and large language models to enhance specific business and mission areas. However, the security and sharing of data within AI applications is a concern. Many agencies are mitigating risk by leveraging off-network labs to experiment with new and emerging technology, such as AI, LLMs, and blockchain.

Experimentation as a Pathway to Innovation

Several panelists have found success by experimenting in safe environments to test emerging technology. In these sandboxes, agencies can experiment with generative AI on various use cases without threat to security or cost.

Panelists remark that the most successful use cases are small, administrative processes rather than large, innovative projects. Several participants shared success stories with ChatGPT aiding in tasks such as drafting pre-decisional papers. GPT's shortcomings underscore the importance of human involvement in generative AI, as well as ensuring data integrity. One panelist tested generative AI outputs using clean data compared to archived data pulled from legacy systems, and noted the responses using clean data were much better.

Another panelist remarked on the value experimentation has not only on technology, but the mission. Experimenting with emerging technology allows agencies to demonstrate the value of new technology on the mission before making an investment.

> **"We can prove that the tech works, but often can't translate that back to the actual mission value. It works, but why was it successful?"**

Bringing Value to the Mission

Throughout the roundtable discussion, panelists repeatedly underscored the importance of thinking through how technology might bring value to the mission. Adopting new technology or upgrading systems may not be additive to the mission or truly meet the needs of customers.

Panelists also noted that digital transformation is not solely about adopting new technologies. It's equally important to optimize existing technology stacks to enhance mission value. Agencies should be thinking about digital transformation in terms of achieving mission efficiency, not just modernizing with new technology.

In addition to technology, achieving mission efficiency also requires agencies to align stakeholder values and needs. Agencies with a strong shared organizational vision typically get the most value out of digital transformation efforts.

The value of digital transformation efforts should be measured in direct relation to an agency's mission. Agencies should identify specific mission goals and establish key metrics to demonstrate the impact of technology on those goals. Panelists also suggest conducting a cost benefit analysis on the risks and benefits of new technology on the mission. A

Balancing Digital Transformation and Legacy Systems

PModernizing legacy systems while managing operational risks, budget constraints, and workforce limitations presents a significant challenge to federal agencies. Panelists shared ways they are balancing digital transformation with maintaining legacy systems.

Some agencies are still working to modernize legacy systems due to challenges associated with scale, security, budget, mission, and operations. Progress is slow and incremental, but agencies are finding success with robotic process automation (RPA) to help streamline workflows, ease the burden on technicians, and bridge the gap between old and new systems.

Agencies are also finding success by extracting business rules from legacy code and translating them into plain English. This is particularly helpful for newer analysts not trained in legacy code languages. Agencies are also hopeful that AI-powered tools will be able to convert legacy code into modern languages so new analysts can update and maintain legacy systems without deep legacy experience.

Agencies with legacy systems are prioritizing conversions and updates based on potential mission value. Thorough testing and validation are essential to ensure the functionality and accuracy of modernized legacy systems. Agencies could also approach transforming legacy systems with a robust API strategy.

Final Thoughts

> **"The business value should drive the technology, not the other way around."**

Roundtable participants stressed the importance of avoiding technology for technology's sake. Successful digital transformation hinges on prioritizing solutions that directly address mission needs and deliver tangible value to customers. While AI and ML have immense potential, agencies still have an opportunity to extract value out of legacy systems by focusing on the mission.

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