Advancing Evidence-Based Decision-Making in Government

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Introduction

Enabling agencies to manage data as a strategic asset is a primary goal of IT modernization. Federal agencies are moving toward evidence-based decision-making that uses data to shape policies.

In that spirit, federal agencies are seeking to extract rich seams of actionable information embedded in mountains of data – whether streaming in real time or lurking in repositories trapped in data warehouses. The goal is to get at the information's underlying value. Until recently, government leaders lacked the tools to easily access and consolidate data – or extract value in ways that are useful, timely and secure.

That is changing. Data-management inefficiencies are incompatible with modern IT. Making sound decisions in a complex world depends on data that is accurate, relevant and current. Far too often, a scarcity of the right information renders government's leaders powerless to make evidence-based decisions.

There is reason for optimism. Powered by artificial intelligence and machine learning, evidence-based decision-making is closer than ever to becoming a standard practice in government. Propelled by new technology, congressional mandates and encouragement from federal leaders, evidence-based decision-making and data-driven governance is poised to take the guesswork out of governing.

In 2016, the GSA developed the Data to Decisions (D2D) platform to manage Big Data in government. In 2018, the U.S. Commission on Evidence-Based Policymaking, created by Congress, issued its final report: "Policymakers must have good information on which to base their decisions about improving the viability and effectiveness of government programs and policies...Today, too little evidence is produced to meet this need."

To learn more about how agencies can move toward evidence-based decision-making, GovLoop developed this report in collaboration with Acuity Systems, a software and services company with expertise in decision support management that developed D2D for GSA. We look at nimble data solutions that use open-source technology, including AI and machine learning, to better inform decision-makers at every level of government.

By the Numbers

12 billion

Hours the American public spent in 2017 responding to more than <u>100 billion requests</u> for information from the federal government

9 in 10

The ratio of datasets examined from <u>115 countries</u> that are not open to the public

27 and 10

Number of states and countries that have joined the Pew-MacArthur Results First Initiative promoting <u>evidence-based approaches</u> to inform policy and budget processes

77

Federal agencies that have designated a <u>Chief Data Officer</u> (CDO)

26

Agencies that have published a <u>Data Governance Body Charter</u>

2016

GSA develops the <u>Data to Decisions platform</u> to manage Big Data in government

2018

Passage of the <u>Foundations for Evidence-Based Policymaking Act</u>

Building Confidence in Evidence-Based Decision-Making

The Challenge: **Trusting the Data**

Government agencies don't lack for data. Like the crew of [Coleridge's ill-fated ship](), adrift on the ocean and dying of thirst, federal agencies are drowning in a sea of information, yet little of it is fit for consumption. Often, the data isn't trusted.

"Even though we have a lot of data around us, it sometimes creates more problems than solutions," said Konstantin Girkhovskiy, Chief Technology Officer at Acuity System.

Consider the analogy of a daily commuter who regularly uses public transportation. An electronic bulletin board displays information about bus arrivals and train departures. Over time, the commuter realizes that the information is unreliable. He doesn't trust the data, and he stops checking the board.

That's essentially the state of evidence-based decision-making in much of the federal government. Agency leaders receive information that "isn't real time data, so they actually have no idea what's going on right now," said Paul Shulman, President of Acuity. "The data tends to be lagging, not leading."

Now consider another commuter, an air traveler who arrives at a major airport and checks the arrivals/departures board. Based on that information, the traveler either makes a beeline for his gate or stops off at an airport restaurant. "That board is evidentiary. It has efficacy," Shulman said. "That board has never been wrong for me."

If the incoming flight catches a tailwind and arrives ahead of schedule, the gate agent who has access to the same arrivals/departures information as passengers will know that some people on the manifest aren't boarding because they acted on information they received when they arrived at the airport. Trusting the data, she'll wait for late passengers to board.

Meanwhile, air traffic controllers are diverting aircraft, delaying flights and rerouting planes, their actions determined in part on the decisions of passengers and gate agents who had access to the same data. In this scenario, multiple parties in the air-travel system – passengers, gate agents and controllers – confidently make evidence-based decisions. They trust the data.

"Evidence-based decision-making is only good as long as everybody agrees on the evidence," Girkhovskiy said.

The Solution: **Decision-Making Intelligence Platforms**

Human decision intelligence platforms support government workers by helping them make smarter decisions.

In theory, these platforms combine the best features of human and machine intelligence, making it possible for government workers to choose and act in ways that are timely, strategic, evidence-based and more likely to attain mission objectives. For that to happen, agencies must manage massive amounts of information, delivering the right data to the right decision-maker at the right time.

"Government has a lot of data but it hasn't been treated the way Amazon treats its data. It may look good on paper, but leaders know when the data's not up to date. They know when it's not what they really need," Shulman said.

The best route to evidence-based decision-making doesn't involve a massive, top-down solution. In the current environment, agencies are advised to consider approaches based on a framework of loosely coupled tools and capabilities, one that doesn't require leaders to have high-level quantitative skills or computer programming abilities.

Some agencies will have to overcome cultural inertia along the path to evidence-based decision-making. Decision platforms help by facilitating interactions between and among government workers, promoting collaboration and consensus among colleagues. Communities of practice can bring together technical experts and subject-matter experts to enable data-driven decisions.

"You have to find stakeholders who are willing to collaborate with data practitioners," Shulman said.

Best Practices in Evidence-Based Decision-Making

Be Nimble

Avoid the trap of massive, top-down technologies, especially solutions that require intensive training to implement and lock clients into long contracts, making it difficult to change direction. For some agencies, a better option could be a decision management desktop (DMD) that integrates compatible open-source technologies (machine learning, artificial intelligence, natural language processing, data science) to make it easier for user communities to share the right data.

Make it Easy to Use

Major decisions are typically comprised of a multitude of smaller decisions from across an agency. A powerful and flexible solution supports all data users, from experienced data scientists to business analysts. Cumulatively, their actions have a massive impact. That's why a decision management platform should be accessible by workers throughout an agency. You want a "tool that is designed around your average user," Shulman said.

Make it Flexible

A robust tool accommodates the data needs of disparate user groups. People without special skills who want to review data before making decisions should be able to easily access the data they need. Other users will want to use their data and expertise to do complex analysis. A flexible, modular platform will accommodate the needs of both groups.

Support Data-Sharing

An advanced data tool will have the capacity to strengthen the community of data analysts and data scientists within agencies and across government. Instead of siloing artifacts and analytical methods, the right platform will make it easier to share them. Taken together, the collation of shared assets creates what Acuity calls a data intelligence pipeline. As such, a well-designed decision management tool is a catalyst for growing and nurturing the federal government's data-centric culture.

Ensure Compliance

It's critical that a decision-making intelligence platform is compliant with applicable laws and regulations, including statutes covering records management, data management and AI ethics. At the same time, management of assets should be distributed. Otherwise, centralized control can result in bottlenecks for stakeholders pursuing the work of advancing their agencies' missions.

Empower Users

An effective tool enables the maximum number of people to employ a "self-service" approach to leveraging data in decision-making. Optimally, agency employees should be able to use a data platform "on their own, without training and without interference," Shulman said.

Case Study: GSA Bets Big on Data

A few years ago, the government's General Services Administration (GSA) recognized it had a growing data management challenge. Much of the agency's information was languishing in silos, and there was no centralized capacity for publishing dashboards and datasets. Accessing and utilizing data required use of a specific, limited toolset. A wholesale shift to another data-management solution risked losing knowledge accrued over many years.

To meet the data challenge, Acuity Systems developed the Data to Decisions analytical service platform, which provides easy access to information through a centralized portal. The system supports distributed publishing and sharing through the D2D portal. D2D is one of the first analytics-as-a-service platform. The system was designed "to collect, manage and analyze complex data from multiple sources, providing faster and more accurate data analysis," GSA said.

The platform gives GSA the ability to support various government data initiatives, including the goal of promoting open data, transparency and data accessibility.

D2D integrates and manages disparate data silos, providing a framework for moving data through a decision-management pipeline. D2D is architected based on logical data warehouse (LDW) principles comprising interoperable, open-source and COTS components.

D2D's next-generation evidence-based decision management framework enables data-driven decisions. Scalable across government, D2D makes it possible for agencies to make smarter decisions.

HOW ACUITY HELPS

Acuity Systems, a leading software and services provider, has leveraged our data management framework approach and years of experience to create nAbleIT, a Software-as-a-Service (SaaS) solution. The data analytics and AI/ML platform offers best-in-class open source and COTS software. nAbleIT delivers data analytics solutions that allow organizations to improve decision-making, operations management and goal attainment.

nAbleIT's flexible, modular architecture makes the platform user-friendly and easy to reconfigure. The platform helps customers harness the full power of information, including use of actionable data to inform critical decisions. And nAbleIT's decision management desktop (DMD) allows users to access

any data for the purpose of developing reports, artificial intelligence models and Dashbooks.

Armed with insights derived from data, decision-makers can act on important matters with confidence.

"Leadership's data no longer represents the operational truth, they will make a decision that no longer reflects the best option," Shulman said. "We're experts in making sure that at every stage of the process, the person who's making decisions on behalf of the government has the correct data."

To learn more visit: **www.acuitys.com/**

Conclusion

Transforming data into a strategic asset enabling decision-making in the federal government is a longstanding goal and an enduring challenge. Hindering progress toward evidence-based decision-making is the massive volume of data held by federal agencies and, until recently, a lack of good IT solutions for overcoming impediments.

The emergence of robust data management solutions, including Analytics-as-a-Service platforms, is a game-changer that allows federal agencies to harness the power of data to make data-driven decision-making a reality.

ABOUT ACUITY

Acuity Systems, is an Advanced Consulting Partner in the Amazon Web Services (AWS) Partner Network (APN). The designation underscores the company's ability to rapidly migrate digital applications from static hosting environments to a fully managed cloud infrastructure in AWS. It also recognizes Acuity's expertise in DevSecOps automation, and the company's focus on providing availability, scalability, performance, and security in cloud based platforms.

Acuity is especially proud of having been selected by AWS to be in their AI and ML Rapid Adoption Program. AWS created the program to help government agencies to accelerate solutions using AI, machine learning and deep learning. Just as artificial intelligence can transform the way businesses operate, it can also improve public sector services and processes. AI/ML and related technologies have the power to transform government, providing new tools to improve daily operations, deliver more effective citizen services and tackle the most challenging problems facing the nation.

ABOUT GOVLOOP

GovLoop's mission is to "connect government to improve government." We aim to inspire public-sector professionals by serving as the knowledge network for government. GovLoop connects more than 300,000 members, fostering cross-government collaboration, solving common problems and advancing government careers. GovLoop is headquartered in Washington, D.C., with a team of dedicated professionals who share a commitment to connect and improve government.

For more information about this report, please reach out to info@govloop.com.