

Driver One: Insight

Using data, evidence, and analytics to create insight that influences decision making, actions, and results

Policy makers, agency leaders, and frontline staff regularly find themselves having to make sense out of data and information, drawing out insights to inform decisions. The language around performance-related data in government decision making has evolved over the last quarter century. Today there are constant references to “evidence-based” decisions, “strategic analytics,” and “data-driven” reviews of progress. In addition, policy makers in recent years have promoted more use of “open data”—both within and outside government. At the same time, evolving technologies have reduced the cost of collecting and reporting such data. Yet the original challenge remains: how can government make sense of vast and growing amounts of data to develop new understandings that inform decisions?

Transforming Data into Actionable Insight

Decision makers’ use of data and analytics goes beyond just collecting and reporting evidence of program outcomes. New technologies, such as cognitive computing, are helping decision makers identify meaningful and actionable information that can transform data into insight leading to effective action.

“Insight” offers the power to gain understanding from data, people, or a situation not immediately evident on the surface. Insight enables leaders to uncover a solution and act based on keen and clear observation. Observation, however, does not lead immediately to insight. Government leaders must make interpretations shaped by context, knowledge, and the experience of decision makers—implicit knowledge, often built up after years of experience.

Increasingly, real-world experience in the public and private sectors shows the potential to open the “black box” of making decisions and choices based on a more sophisticated and nuanced approach for converting data to insight based on advanced analytics. For example, local police now use multiple historical data sets—past burglaries, weather, time of day—to predict future crime patterns, leading to strategic re-deployments of officers on a beat and sharp reductions in crime.

Today, new technologies allow for the collection and analysis of nearly real-time data, though this data is often in a format not useful for decision makers—thus, agencies face the challenge of making data relevant and meaningful to decision makers, not just to analysts.

Innovative leaders across government are taking up this challenge and driving progress in this area. For example, air traffic control centers use real-time data to redirect flight patterns to reduce delays; Social Security customer service call centers leverage data to



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manage call loads; passport offices assess customer satisfaction to redeploy staff; and transportation security offices can assess the quality of airport security operations. Moreover, real-time data increasingly informs complex operational decisions, such as determining disability benefits for injured workers or offering cancer diagnoses in a Veterans hospital. These more complex scenarios rely on sophisticated analytics and cognitive computing approaches that help augment and extend human intelligence.

Taking such examples to scale by integrating data and analytics into day-to-day operational decisions helps reinforce an evidence-based culture in government. It also contributes to savings. For example, the U.S. Postal Service's Inspector General noted in *Cover Workers' Compensation Compound Drug Costs. Management Advisory Report* that an analysis of the patterns of prescription drug costs under its health plan over a two-year period showed unusual spikes in selected areas. This led to investigations that uncovered fraudulent overbilling, and ended with convictions. This analytic effort resulted in an estimated long-term savings of more than \$1.2 billion.

Increasing the Availability of Data

The Government Performance and Results Act of 1993 (GPRA) and subsequent legislation have contributed over the past two decades to the development of a more robust supply of useful data and performance information that serve as the foundation for evidence-based insights and decisions. Examples of this trend follow:

- Government policy over the past few years has led to greater range of availability of open data, which has contributed to a growing supply of useful information. This has occurred via administrative and legal channels, including presidential Open Data commitments, the adoption of the Digital Accountability and Transparency Act, and an administrative commitment to making routine administrative data more widely available. For example, the federal one-stop website, data.gov, makes nearly 200,000 data sets available to other agencies, the public, and entrepreneurs.
- Technology innovations in recent years have made it possible to collect, organize, share, and interpret data on a much grander scale than ever before, with greater immediacy. For example, after the 2008 financial crisis, the public could track spending of the \$831 billion Recovery Act by ZIP Code. More government data will be available on the horizon with the growth of micro-data via the “internet of things” (IOT), such as real-time monitoring of pollutants in waterways.
- Agencies can access “big data” from multiple sources, from inside the government as well as external platforms including social media. This rich variety allows the compilation of information from existing sources, including administrative data sets, instead of developing unique and costly data sets as typically done by evaluators in the past. The recent creation of USAFacts.org, which provides a snapshot of key indicators of national progress based on data from more than 60 public and private sources, serves as a model of this approach. And recent recommendations from the Commission on Evidence-Based Policymaking, discussed below, could increase access to existing external data sets.
- Increased sharing of raw data is also on the upswing, in part because of the greater use of data standards and schema—especially at the state and local levels. Sharing Medicaid data across states, for example, has led to a reduction in fraudulent claims.

- Several of these data availability trends are possible not only because of technology but also because of a broad cultural move within government agencies from a “need to know” to a “need to share” basis. New leaders are facilitating this trend as a younger workforce has proven to be more open to sharing data, and public leaders see economic and public value in greater sharing.

Even given this increase in data availability, governments must continue to address data quality and reliability—especially with data from multiple sources, where users lack a deep view of how data were collected or interpreted. In addition, statutory barriers impede the collection and sharing of certain kinds of data, such as limits imposed by the Paperwork Reduction Act.

Pursuing Evidence-Based Policy Initiatives

Governments are now working to improve analytical capacities to develop evidence-based insights that can inform decision making. Building on the foundation of data and evidence developed during the early 2000s and the analytic capacity developed in federal agencies, the federal government undertook a series of initiatives beginning in 2009 to use these data and capabilities to improve government policy and funding decisions. A host of external foundations and nonprofits championed these efforts, including Results for America, the Pew Charitable Trusts, and the Arnold Foundation.

New policy tools that rely on evidence to inform resource allocation include social impact bonds and tiered evidence grants. Additionally, new laws require some agencies to set aside funding to conduct program evaluations or to earmark a portion of grants for programs that could demonstrate effectiveness. Many of these initiatives have benefited from bipartisan support. For example, a statute creating an Evidence-Based Policymaking Commission—co-sponsored by Speaker Paul Ryan and Senator Patty Murray—has identified ways to lower barriers to collecting and sharing data and to better use evidence in government decision making.

Furthermore, several of the fiscal year 2018 appropriation bills contain language advocating the use of evidence in decision making. One bill directs the Office of Management and Budget (OMB) to “develop strategies to accelerate learning about what works through rigorous evaluations and to create connections between researchers and policy makers that ensure the best evidence is brought to bear in decision making.” In addition, OMB budget-preparation guidance to agencies for fiscal year 2019 states, “The Administration is committed to building evidence and better integrating evidence into policy, planning, budget, operational, and management decision making,” and encourages agencies to propose investments that would strengthen their capacity to use evidence in their decision-making processes.

Building Analytic Capacity to Act on Evidence

Federal agencies’ capacity to act on the data they collect and the analyses they conduct based on data has grown steadily in the past decade. Multiple factors influence this growth:

- the availability of timely data, based on technology that makes data easier to collect, analyze, and display, and the growth of cognitive tools to help interpret data;

- an evolving organizational infrastructure that supports the use of evidence—several agencies have designated chief data officers and a number of agencies have created positions to drive the use of program evaluation and real-time analytics;
- Congress has provided funding to support analyses, leading to increased experience in the design and conduct of evaluations;
- agencies have begun to conduct regular reviews of the progress of their key priorities, which in turn rely on data and evaluations; and
- policies that have increased the availability of administrative data, leading to the creation of “What Works Clearinghouses” through which researchers and governments increasingly share completed program evaluations and studies.

Finally, the availability of new technical capabilities—such as sentiment analysis of real-time social media data, tools that speed social network analyses, and the increased application of behavioral science insights—have all contributed to more sophisticated capacities that bolster government decision makers’ confidence in relying on comprehensive and robust evidence when making tradeoffs.

Continuing the Shift to Insight

Even with this wide range of progress in recent years, significant opportunities remain to move from “creating a supply of data” to “creating a demand for insight” that informs decision making.

- Agency leaders need to ensure the usefulness of program-level data and analytics and make them readily available to front-line employees and managers who are then incentivized to use the data and confirm its quality. For example, the U.S. Office of Personnel Management (OPM) has granted federal managers access to a website with annual survey data on employee engagement with their work so they can develop strategies to improve.
- According to University of Maryland professor Donald Kettl, analytics tools are developing faster than the strategy (and theory) about how to use them. This is, in part, a cultural divide between “data people” who understand the “how to collect and analyze data” and leaders who are only beginning to figure out “why should I use data versus instinct.”
- Multidisciplinary approaches—such as the use of strategic foresight, risk management, and creating institutional resilience—can increase the use of data analytic tools. For example, developing strategic foresight frequently relies on analyses of macro-trends in economic, environmental, demographic, and social data.
- New models and institutional mechanisms can foster actionable insight in organizational units below the departmental level, cascading down to frontline offices—as evidenced by the Federal PerformanceStat initiative, and state and local examples such as Virginia Performs and the Mayor’s Operational Reports in New York City.

Conclusion

Multiple opportunities exist to address issues of turning data into actionable insight over the next few years. Agencies can embed these approaches in their upcoming Agency Reform Plans and their budget requests. The Commission on Evidence-Based

Policymaking final report, *The Promise of Evidence-based Policymaking* provides additional direction and impetus. Encouragement from nonprofits, such as Results for America's nine-point legislative agenda advocating the integration of evidence into decision making, also helps create momentum in Congress.

To achieve the goal of a government that uses data to extract insights for better decisions, researchers can help public leaders and stakeholders better understand and adopt promising practices. Such studies can drive data and analyses that help support policy or program decisions that measurably improve government operations and results.

Resources

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