Governments adapting to change

Top tips for shifting to an enterprise analytics strategy

Contents

Calls for social justice and racial reform, a changing workforce, economic crises and the aftereffects of a pandemic – such rapidly changing dynamics require shifts in how governments worldwide must respond to citizens' needs. At the same time, digital transformation and other radical changes in technology offer new ways of using data to inform decisions.

It's no longer sufficient for governments to rely solely on their siloed and inconsistent historical data. To effectively drive policy, make sound operational decisions, respond quickly to changeable situations and measure outcomes, governments need to modernize for the digital age. Timely information backed by an enterprise analytics strategy is the best way to achieve these goals.

How does it work? The shift to enterprise analytics starts with a systematic approach to data management and deployment of business-focused analytics. By using advanced analytics responsibly – including AI and machine learning – governments can understand how to optimize performance and automate business processes. Automating multiple business processes – including getting data in the correct format for further analysis – can free up an already strained workforce, help identify issues before they become problems and support real-time or near-real-time decision making processes.

Common goals

Under the diverse umbrella of government programs, teams across all departments, agencies or ministries want to strengthen decisions, embrace and advance innovation, promote data privacy and transparency, and inspire social transformation. Whatever the primary mission, the common goals are to make the best use of taxpayer money while delivering optimal results and increasing trust.

The goals are complex, and the most pressing challenges are not one-dimensional. Instead, they are influenced by changing circumstances, varied data sources and integrated interactions across many government policy areas. For example:

- **Health outcomes.** Supporting good health outcomes entails knowing more than just clinical diagnoses and corresponding treatments. Social determinants of health, for example, are also relevant – including factors like demographics, geography, employment and financial status.
- **Student progress and performance.** In addition to being influenced by the school they attend and the teacher they have, other determining factors from a child's personal life include the family's financial stability, health-related concerns and involvement in the criminal justice system.
- **Criminal justice decisions.** To make the right decisions about sentencing, supervision, treatments and release, it's important to know the person's criminal history as well as contributing health and socioeconomic factors.

THE MULTIFACETED MISSIONS OF GOVERNMENT ENTITIES

Financial

Responsibly manage oversight and use of financial resources provided by taxpayers' money.

Well-Being

Ensure the safety and well-being of communities and individuals through education, health care, social and criminal justice services.

Transparency

Streamline interactions with citizens and build public trust through transparency.

Performance

Improve performance of services and create operational efficiencies.

Fairness

Develop and administer policies, rules and regulations in a fair and equitable manner.

Enterprise approach

Governments often operate within policy areas designed to meet specific business purposes. But when it comes to solving pressing challenges, this traditional, isolated approach of operating inhibits access to key data, results in strategies and decisions based on incomplete understanding, and duplicates efforts. The results are higher costs and lower efficiency.

While many government teams recognize the value of investing in data and analytics to improve their services and interactions, they could make more significant gains by focusing their efforts across the enterprise. Collaboratively investing in data and analytics can directly or indirectly support – and improve – government activities.

To advance an enterprise approach, government leaders must collaborate and develop data management and governance practices across policy areas. Doing so promotes responsible data sharing while providing a means to measure the collective impact of services.

The foundation for this transformation is analytics. Analytics turns data into insight, hindsight into foresight and foresight into prescriptive action. Investments in enterprise analytic programs can pay for themselves by improving lives, avoiding unnecessary future costs, enhancing operational efficiency and enabling compliance. The practical applications span the gamut of government programs.

ANALYTICS IN GOVERNMENT PROGRAMS

These examples span all organizational missions

Health care and public health

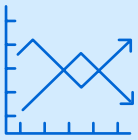
Control costs and support healthier communities with collaborative access to unified health care data.

Justice, law enforcement and public safety

Integrate data across law enforcement agencies and other critical service areas to keep citizens safe.

Social services

Identify the programs that benefit individuals or populations the most.



Economy

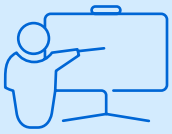
Improve economic resilience and growth by understanding emerging economic and workforce trends.

Defense and national security

Modernize and accelerate data-driven decisions to enhance situational awareness and operational readiness.

Environment

Meet environmental goals and support cleaner communities by analyzing important metrics.



Education

Give students and educators the best possible chance to succeed.

Infrastructure

Analyze and invest in critical transportation infrastructure.

How to get it right with an enterprise analytics strategy

Five steps to success in implementing an enterprise analytics strategy.

1. **Start with a clear and achievable objective**
2. **Govern and protect the data**
3. **Prepare the data for analytics**
4. **Embrace multiple analytics techniques**
5. **Operationalize analytics and establish a data culture**

1. Start with a clear and achievable objective

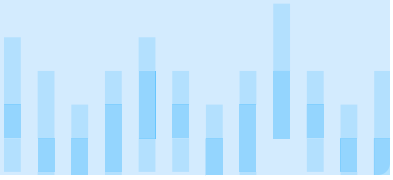
Start by deciding what problem you're trying to solve and then determine what information is needed to address the issue. With a clear vision everyone understands, it's easier to get commitment from all stakeholders – especially those expected to contribute data. A collaborative "what are we trying to solve" approach encourages data sharing. And consolidated data gathered from diverse sources is much more informative than information pulled from a single source.

Make this exercise a top priority – and ensure the project has support from an engaged, executive-level sponsor.

It's most important to show success, even if small, to build interest and to be the catalyst for more expansive analytic efforts. Through success, you can build momentum, demonstrate value and plan for broader enterprise efforts.

Along the way, stay focused on your goal. Allow it to guide all your decisions, including where to get the data and which analytics techniques are best suited for the answers you need.

As you begin a new analytics project, make sure you know and can explain where you want to go and what you want to accomplish. When people understand the common goal, they will buy into the project, share data and work together for mutual good.



2. Govern and protect the data

For governments, data privacy and protection are paramount. Much of the diverse data governments collect is covered by laws, regulations and rules designed to protect its sensitivity. Examples of protected data records with various forms of personally identifiable information include health records, student records, criminal justice information and tax information.

To adhere to the policies that guide the use of this data, governments should develop interagency data-sharing agreements that define how the data can be used, by whom and for what purpose. Such agreements establish trust and confidence among teams – and make it possible to share the data responsibly. This approach also fosters collaboration and establishes repeatable data practices.

As you establish data-sharing agreements, you should:

- Clearly define the purpose and scope for using the data – and articulate what challenge you're trying to solve.
- Identify privacy concerns for the data and associated data classifications, then establish how each data type should be handled.
- Ensure data contributors are available to provide a deeper and more complete understanding of the data.
- Identify which secure technology method you'll use to share the data – and limit access to authorized users and applications.

When an individual project within the larger analytic strategy and program has clear objectives that stakeholders share, all the data contributors will understand the impact – making data governance easier.

3. Prepare the data for analytics

Data is rarely pristine. Can you trust that your data is of reasonable quality to support your analytic initiatives?

Before implementing enterprise analytics, ensure your data is ready for analytics. Getting there requires a deep understanding of the data – how it's collected, its degree of sensitivity and whether its quality is sufficient for the intended uses.

An enterprise analytics platform should enable access to accurate data and provide:

- Regularly updated data that's available when it's needed – in a usable, analytics-ready form.
- Business rules that specify how the data can and cannot be used.
- Entity resolution techniques to identify which data and records are related, then merge them so they'll be treated consistently across data and policy areas.

By incorporating these provisions, you help ensure that the data you use is trusted, standardized and validated according to your data governance definitions. Being analytics ready is a marker of maturity for a small project and broader enterprise analytics programs. Applying extra effort at this stage prepares you for iterative analytic development in the future.

4. Embrace multiple analytic techniques

The richest insights come from applying the right form of analytics to the questions at hand – which often requires a combination of analytics techniques. Ranging from simple to sophisticated:

- Standard reporting provides an organized view of the past.
- Ad hoc reports answer specific questions as they arise.
- Query drill-down enables analysts and business users to look deeper into issues.
- Alerts provide timely notifications when a target is missed, or a threshold is exceeded.
- Statistical analysis generates knowledge that's not immediately apparent from scanning the data.
- Forecasting projects demand patterns and other future conditions to improve planning.
- Predictive modeling identifies likely future outcomes based on known inputs and past trends.
- Optimization determines the best allocation of resources to achieve a stated goal within multiple constraints.

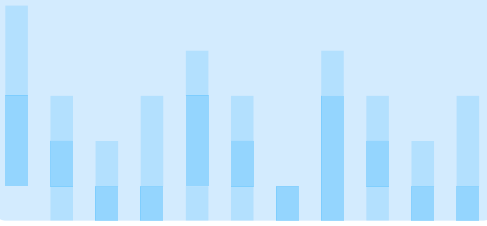
The value of analytic intelligence increases as you move up the hierarchy from hindsight to insight to foresight. You need the standard and ad hoc reports that tell you what happened, but you must also ask forward-looking questions. Why is this happening? What if these trends continue? What will happen next? How can we do better?

As you develop analytics and models, take an iterative approach and refine it throughout the life cycle of each project. Then continue integrating more data from various policy areas for new purposes as your organization matures. This helps you achieve and prove value from your enterprise analytics investments.

Don't assume analytics should be reserved for major, high-dollar strategic or tactical decisions. The cumulative impact of smaller, day-to-day operating decisions is significant enough to warrant analytic insight. Little wins add up big.

Analytic techniques come in many varieties:

- **Standard reporting and online queries.** (What happened in the past?)
- **Statistical analysis.** (Why is this happening?)
- **Forecasting.** (What if these trends continue?)
- **Predictive modeling.** (What will happen next?)
- **Optimization.** (What is the best that can happen?)



5. Operationalize analytics and establish a data culture

Investment in data and analytic capabilities is largely unfulfilled until you embed them into business operations and decision making processes across the organization. This means embedding analytics into daily systems and processes. It also means having engaged users who understand the data and can interpret the results of analytics.

It's ideal to do this through a framework approach that unifies data management, analytics and reporting. But government entities have varied levels of data maturity. These range from organizations that rely on isolated data methods to those that have fully embraced a culture of data and analytics that may include large scale open data activities. Ultimately, organizations should strive for full reliance on data for continual reinvention and discovery.

Remember that analytics isn't a linear, one-time journey to a destination. It is, instead, a continuous journey where the outcomes of your decisions become new data that's fed back into your models. As circumstances change, models learn and adapt. This positions you to serve and protect citizens locally, regionally and worldwide.

Build a data culture that engages users

- Target analytics on agreed-upon objectives for specific purposes.
- Use an iterative approach to create and manage models across the project life cycle.
- Embed analytics into day-to-day operations and decision processes.
- Surface information in an understandable, usable manner.
- Ensure users understand the data and the business, trust the process, can interpret results, and are empowered to act on the insights.

Tips for success

Start small

You can set strategic plans with lofty data and analytic goals – but change rarely happens all at once. Not every agency will jump on board with a new idea or investment, especially if it uproots established ways.

A better approach is to start small, thinking strategically about the end goal of building toward an enterprise analytics approach. First, pick an achievable analytics project of high value and impact and then find an engaged champion or sponsor to lead and promote the project. This sponsor should be someone with executive-level authority who will assume ownership and accountability for establishing and achieving the stated objectives.

Show success, however small, to build interest. From there, cultivate believers and use this success to catalyze more ambitious analytic efforts.

Shared data enables some of the noblest – and most essential – aims of government.

- Foster transparency and public trust
- Measure collective impact of programs and services
- Improve government effectiveness and resource stewardship
- Gain new insights to inform policy development

Tap experts for greater insight and better results

Governments have many knowledgeable experts in their policy and service areas. These internal resources are great collaborators when you need to interpret data, understand trends and improve services based on analytical results. At the same time, data professionals in different teams can play vital roles in supporting outcomes across the enterprise.

As various agencies or ministries contribute data to broader analytics efforts for other teams or government-wide efforts, encourage them to participate in knowledge-sharing, not just routine data-sharing tasks. Such collaboration will lead to better outcomes for the project and broader government initiatives.

To get the most value from all your data sources, it's important to be realistic about capabilities and resources. You may have to rely on advocacy and expertise outside the organization, especially when external resources can produce results faster.

You may need to partner with vendors if you face headcount constraints, can't recruit the data talent you need or have a short-term need for specialized skills. Rather than holding back on starting a project, consider the pros and cons of each method available to help achieve your objectives.

Converging agencies in a statewide analytics hub

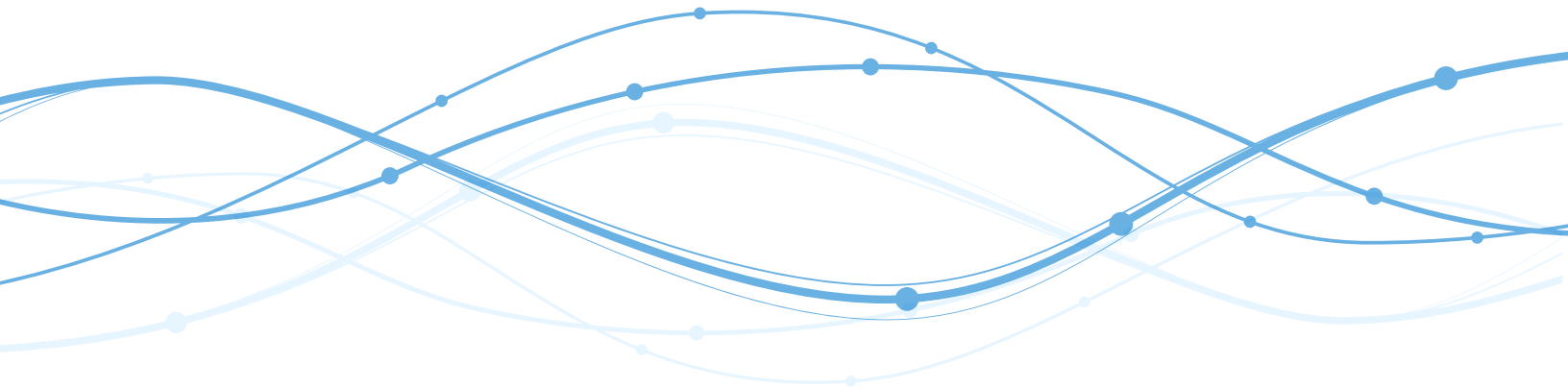
Leading the pack, the State of North Carolina's Government Data Analytics Center (GDAC) is a great example of an established enterprise data and analytics organization working with various departments and leaders to help solve some of the state's most challenging issues. The Center started through a focused effort to integrate criminal justice data. It expanded quickly to lead large-scale cross-agency data sharing, data integration and analytics programs across almost all government policy areas.

The GDAC strategy was to start small and think enterprise – an approach that enabled the center to grow with each success. Other state and local government organizations have established similar capabilities that can be extended government-wide with the proper funding and leadership.

Stay resilient for the future

Analytics isn't a destination; it's an ongoing journey. An enterprise analytics program creates a dynamic, evolving capability where questions are asked, data is analyzed, decisions are made – and the impact and outcomes of those decisions become new data to feed back into analytic models.

As circumstances change due to policy decisions, economic cycles, health pandemics, natural disasters and more, your models learn and adapt to the changing world and the data it provides. This ever-changing, always-learning approach will help you stay prepared to serve and protect your citizens.



Learn how SAS can help you implement an enterprise analytics strategy.