Improving the State of Affairs With Analytics

▶ **Insights from the Leveraging IT Investment to Strengthen Government workshop sponsored by the Foundation for State Legislatures Public-Private Partnership Project, National Conference of State Legislatures (NCSL)**

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THE POWER TO KNOW.

Contents

Data, Data – Everywhere

State legislators understand that government touches their citizens' lives in many different ways – it's why they chose to run for office. And at every point of intersection between government and people, new information is created. Given the scale of state governments, all this information adds up to massive amounts of data: big data.

At lightning speeds, and in all different sizes, shapes and forms, governments generate and encounter big data. It comes from citizens, businesses, government agencies and departments, and from all the areas they affect – roads, schools, hospitals, prisons, police departments, courts, utility companies, museums and more. And it's not just traditional data. Governments also have to manage social data. Plus there are new types of data – like geographical data – that can be overlaid with other information to foster deeper insights.

Without a fast, reliable way to capture and understand all that data – while separating the relevant from the insignificant, and the public from the confidential – governments can no longer operate effectively. And without the appropriate infrastructure, they can't do it securely.

This is why data management and analytics are so crucial at all levels of government.

Making the Case for Analytics

With sophisticated analytics, government leaders can pinpoint the underlying value in all their data. They can bring it together in a unified fashion and see connections across agencies to better serve citizens. Then they can get an eye-opening, big-picture view that crosses cultural and political boundaries. They can understand not just what happened in the past, but why it happened and what is likely to happen next. They can begin to see what they need to do to make it happen again (if it was positive), or to prevent it (if it was negative).

Many state legislators dream of being able to use big data and analytics to make their communities stronger, safer and better places to live and work. But changing the way government leaders view IT and analytics requires dedication and persistent engagement. To make the case for analytics – and convince government leaders of the need to change traditional business models, share data and update IT infrastructures – legislators must be able to show tangible evidence. They must be able to explain exactly how and why investment in analytics can save money, improve lives, avoid unnecessary future costs, and enhance operational efficiency and compliance.

Many states have been able to prove that analytics can make governing more effective – by strengthening fraud detection, enhancing child welfare services and improving health outcomes. They have shown that it can deliver citizen services faster and more cost effectively, and that it can boost public safety. Consider some examples.

Barriers to State Governments Using Data and Analytics Effectively

- **Data silos.** For years, agencies have provided unique programs and services to the public, setting up a multitude of built-in data silos that can't communicate with each other and are hard to break down.

- **Unwillingness to share.** Leaders may resist sharing data or working together to solve problems – partly due to security and privacy concerns, partly for political and cultural reasons.

- **Lack of resources.** IT budgets are limited, so agencies tend to have outdated IT systems that are incapable of managing today's big data. It's also hard to recruit and retain appropriately skilled IT personnel.

- **False perceptions.** Some see IT as an afterthought to the "real" work that needs to be done – things like building roads and helping people who suffer from mental health issues.

Fighting Fraud, Waste and Improper Payments

Traditional government approaches to combatting fraud and waste are insufficient. One reason is that fraudsters use very sophisticated methods – and those methods can change in an instant. Keeping up with these tactics is problematic for state governments. How can you do it?

Using predictive analytics, you can detect even highly sophisticated fraud schemes in state programs such as Medicaid, unemployment insurance, workers' compensation and tax. And with an enterprise approach that combines information from multiple, existing state resources, you can get more accurate information while protecting your state's data in a secure, flexible environment.

Uncovering Social Service Fraud Saves Millions, Reinforces Public Trust

In Los Angeles County, the Department of Public Social Services (DPSS) offers a range of programs to alleviate hardship and promote health, personal responsibility and economic independence. Across the county's many communities, DPSS offers temporary financial assistance, employment services, free/low-cost health insurance, food benefits, in-home services for the elderly and disabled, and other financial assistance.

To assist in program integrity efforts in the CalWORKs Stage 1 Child Care Program, LA County turned to SAS® Analytics solutions to identify potential fraud, enhance investigations and prevent improper payments. The system now analyzes social networks to determine if individuals are likely to commit fraud. Social network analysis also helps identify collusive fraud ring companion cases.

This approach has helped the most vulnerable members of the community while protecting millions in taxpayer dollars. Now investigators can spot more cases of fraud sooner, resulting in fewer losses, lower investigative costs and greater public confidence.

Enhancing Child Welfare Services

Children are among the most vulnerable citizens. All too often, they are neglected, abused or simply underserved. What if you could use the data you already have in a more meaningful way, to better understand the needs of your state's children? Then you could focus your efforts on ensuring that the programs designed to support them are providing the desired outcomes.

With evidence-based risk analysis, you can see if your services are available to the children who need them the most. You can find out if the services are being provided in accordance with each child's needs, and if funds are being spent wisely. Some effective techniques include reviewing prior case outcomes, using social network analysis to identify previously unknown connections, and using text mining to unlock the power of case worker reports and notes.

Can Analytics Help Prevent Child Abuse and Fatalities?

According to the US Department of Health and Human Services, an estimated 1,640 children died from abuse and neglect in 2012 in the US. To reduce the number of child fatalities caused by abuse and neglect, some experts in child welfare, law enforcement, public health and technology have used predictive analytics, a cornerstone of the Florida Department of Children and Families' (DCF) child welfare improvement efforts.

A recent project in Florida analyzed data on approximately 1 million children to identify factors that indicate a high risk of death. As part of this project, the DCF teamed up with SAS and consulting firm North Highland to analyze nearly six years of data on children that had some contact with DCF. The analysis considered factors such as prior removals due to sexual abuse, prior removals due to drug abuse, and physical or mental disabilities.

The resulting five-year Child Fatality Trend Analysis is helping investigators better predict the needs of families in crisis. The hope is that agencies will be able to shift from mitigating tragedy to improving outcomes. Analytics helps by enabling overburdened case workers to identify the most at-risk kids and pinpoint the services that can lead to the most positive outcomes.

Improving Health Outcomes

You may know the size of your state's Medicaid budget, but do you know where those Medicaid dollars are spent, for which services, and at what utilization rates? More importantly, can you predict the impact of policy changes on the costs or quality of care?

With new analytic techniques, state governments can more effectively manage their Medicaid programs, ensuring access and quality of care while maximizing program effectiveness and achieving budget efficiencies. With just a swipe and a touch, you can work through hundreds of thousands of lines of Medicaid data to drill down and understand the precise cost and impact of Medicaid spending decisions, ensuring better results for all of your constituents.

New Hampshire Health Organizations
Using Health Data to Deliver Higher-Quality, Lower-Cost Care

The Accountable Care Project, a program of the NH Citizens Health Initiative, is working to improve its system for sharing information from the state's all-payer claims database and from electronic medical records. Rather than receiving a standard report, participating organizations – including hospitals and physician groups – can now delve into the data themselves to explore the variables they're interested in.

"We're creating a mechanism for partners across the state to access reports that are focused on measures they care about and that allow them to better visualize the data," says Jo Porter, Deputy Director of the University of New Hampshire's Institute for Health Policy and Practice (IHPP), which staffs the NH Citizens Health Initiative.

Previously, users had to search through long documents, such as a 700-page PDF, to find the information they wanted. Now, with SAS Visual Analytics, they can point and click to instantly generate customized reports.

The reports enable the organizations to assess how they're doing compared to others in New Hampshire on measures related to cost, quality and use. This information guides their health care reform efforts as they seek to provide better care for residents while containing spending.

"Before we couldn't tell what value we were providing the [health care] system because we had no data to gauge it from," said Sharon Beaty, CEO of Mid-State Health Center. .... Now we do."

Improving Policy Decisions and Laws

National and state lawmakers today are increasingly challenged to understand the effect complex policies and laws will have on their constituents. It's also difficult for them to effectively communicate the intricacies of those policies to their constituents.

Recently, a senator's office found a new way to address this issue. Instead of relying on a 10-year-old study about something only tangentially related to a policy decision that was being made, the deputy legislative director used Esri's location platform solutions to obtain insights from an assortment of demographic, health, economic, business, education and other types of data.

Esri uses geography as an index to tie different information types together in a meaningful and easy-to-understand way. Legislative leaders can quickly and easily analyze this data in the context of developing and changing policies. As a result, lawmakers and their constituents get up-to-date information and a better understanding of the overall impact various courses of action could have on pending policy decisions.

Keeping Citizens Safe by Improving Criminal Justice

Most state legislators have asked the question: "Are we doing everything possible to keep our citizens safe, and to bring criminals to justice?" This question became a hot topic in North Carolina in 2008, after the tragic murders of University of North Carolina student body president Eve Carson and Duke University grad student Abhijit Mahato.

The murders were shocking enough to these small, seemingly safe college communities. Then it came to light that just two days before Eve Carson was murdered, one of the defendants in the case was in the county courthouse – but the case was in the wrong courtroom, and the system didn't show that the defendant had a probation violation. So he was sent away and given a new court date.

Where did the criminal justice system go wrong? Why did the computer system fail? Was there a chance this tragedy could have been prevented?

At the time, each criminal justice agency in the state held data in its own silo and there was no comprehensive view of an offender. If a prosecutor wanted to know how a defendant had performed on probation – whether he had been in jail or arrested in other counties, for example – he had to look in five or six databases to find out.

Probation officers were no better off. There was no automatic notification when a probationer picked up new charges. And when law enforcement officers pulled over a driver on the highway, there was no way to check driver photos or get detailed information about the person inside the vehicle.

The Eve Carson case sparked a massive overhaul of how North Carolina ran its criminal justice system – and set the stage for updating other areas of state government as well.

CJLEADS in North Carolina

Soon after the Eve Carson case came under scrutiny, SAS began working with the state of North Carolina to determine what could be done to fix the criminal justice system. The first step was to integrate various criminal justice databases so that authorized people could quickly see an accurate, comprehensive profile of an offender.

The profile, including photos, legal background and other personal information, is accessed through a single web-based, user-friendly application. The solution is named Criminal Justice Law Enforcement Automated Data Services, or CJLEADS[1]. The new system made it easy for people who needed more details about an offender to drill down in a record to look at specific criminal offenses, charges, sentences and more.

> Using leading-edge technology in state government requires overcoming cultural and political differences.

CJLEADS shows up-to-date information about warrants, jail records, court records, prison records, probation and parole status, sex offender registration and DMV information. It also includes an automated offender watch-list capability, which sends criminal justice professionals alerts whenever a person of interest has a change in status. That includes things like an arrest, an upcoming court date, release from custody, etc.

Today more than 27,000 state, local and federal law enforcement officers, judges, prosecutors, clerks of court, magistrates, probation/parole officers, prison officials and juvenile court counselors use CJLEADS. But getting there required patience, diligence and the concerted efforts of many people – in both government and business.

Putting Analytics to Work: Lessons Learned by the State of North Carolina

In North Carolina, legislators learned many lessons as they began to build and expand CJLEADS. These lessons can create a best-practices approach for others in state government who want to expand their use of analytics.

Nurture Buy-In and Build a Common Vision

As you begin a new analytics project, make sure you know where you want to go and what you want to accomplish; in other words, have a clear vision. Then you can start to convince everyone involved, in different branches of government, why your vision will work. It helps to have a champion – someone who is well respected and can support you by saying, "Here's where we're going."

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[1] The CJLEADS program is a joint effort managed by the North Carolina Office of Information Technology Services, with participation from various state agencies and SAS. This collaborative team has partnered with local subject-matter experts to understand industry best practices in criminal justice information sharing and to further the efforts of the project. See: cjleads.nc.gov and sas.com/en_us/customers/nc-office-of-state-controller.html.

Work to build a common vision among all government branches, getting buy-in from key people as you go. You may have to work hard to overcome resistance. Be sure to show tangible ways your vision can help. For example, if you can show that consolidating data and using sophisticated analytics will reduce the number of automobile accidents on a highway, you'll be able to get the attention of people concerned about that issue.

Start Small

Change rarely happens all at once. In state governments, not every agency will be willing to jump on board when you propose a new idea. Instead, you should plan to build your solution step by step. Start with agencies you can persuade, and be patient. The solution can be expanded over time.

There's no need to wait until you reach the ideal starting point, either. For example, Wake County was the pilot for the CJLEADS system in NC. While government leaders described a comprehensive wish list when they first discussed the concept of CJLEADS, they didn't wait to build the pilot until everything else was ready.

Starting with a small project is a good way get off the ground quickly – especially one that's a great investment and stirs passion. It's easier to get startup funding for these types of projects; then you can use your success from that project to build momentum. The state of NC is still expanding CJLEADS because so many people know that it works.

Find Ways to Keep It Affordable and Effective

Need to rein in the costs? There are ways to keep the costs down with any analytics project. You always have to weigh the cost versus the benefit of spending more money.

Consider data latency as an example. Look at each situation to decide if you must have real-time data (which is more costly to achieve). In CJLEADS, different data sources have different latencies. Some is updated weekly, some monthly. For key information, like warrants, CJLEADS pulls data in real time directly from the warrant system. But each situation is different. Your goal should be to refresh the data as often as needed to address the issue at hand.

Don't forget about the cost of storage and any limitations you must adhere to for handling and storing data. Not all data has the same value, so you need to know what to keep and what to toss. For example, DMV data is not stored in the data warehouse for CJLEADS, to adhere to privacy restrictions. This data is pulled in real time only when the information is needed.

Get Help From a Trusted Expert: Consider a Center of Excellence

Some states have found that outsourcing certain aspects of a project to a skilled business partner is a more effective approach than trying to do it on their own.

To take full advantage of all the latest technologies – like high-performance analytics designed to rapidly process and deliver insights from big data – you may need to work with a trusted business partner. An expert business partner that specializes in sophisticated analytics can help you unite data silos to deliver better services. And they can help you determine the most cost-effective way to do it, whether that involves hosting, phased rollouts or creating an analytic center of excellence.

To be efficient, you may want to consider pooling analytical talent in a central location, like a center of excellence. That prevents individual departments from needing to independently develop their own unique solutions. You can start by building a common solution that works for one agency; then you can expand it to work with other agencies. This nurtures analytics expertise and efficiency going forward.

Discover What Analytics Can Do for You

To keep your state's analytics efforts moving forward, focus on the many ways that analytics can address your needs. Discover how analytics has helped many states save money, break down silos for better efficiency and collaboration, improve citizen services, strengthen homeland security and protect sensitive data.

For most state governments, cultural change is needed to take full advantage of analytics. But over time, and with the right approach, analytics can become a central part of your processes. One that can help you run all your programs and services better. And one that can deliver life-changing payoffs.

SAS stays abreast of current research to take advantage of the latest methods and algorithms, and uses real-life industry experts to help solve your unique problems. Our goal is to find the best ways to enrich the lives of citizens and transform the way government is run. All while keeping your data safe, secure and in compliance.

Find out more about the SAS Center for Analytics and Government Advancement.

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