CENTER FOR DIGITAL GOVERNMENT

Issue Brief

Business Intelligence Roadmap:

A Strategy for Government to Minimize Risk and Maximize Value

Broadly defined, business intelligence (BI) is the capability to access, integrate and analyze data and other knowledge for the purposes of managing performance and making optimal decisions. According to a 2012 Gartner survey, BI continues to be a top technology priority for CIOs.[1] BI can help state and local government address a range of business needs, whether an agency focuses on human resources, information technology, finance, supply chain management, operations, law enforcement or something else. However, the promised benefits of BI can lose luster when an organization discovers that implementing a BI solution is more complex and costly than expected and doesn't necessarily deliver the desired results.

In a recent National Association of State Chief Administrators (NASCA) survey,[2] respondents identified inadequate funding and budget constraints as critical issues. In spite of relentless demands to do more and to do it better, funding for state and local agencies has gone flat. As government entities strive to cut costs, capitalize on their investment in enterprise applications and unlock the potential of the increasing volume of data they capture, they need a robust BI solution that gives them actionable insights in real time or near real time and from myriad systems.

Historically, the path to BI adoption was through department-level initiatives, but as BI becomes more aligned with enterprise activities and integrated into core business processes, it will be utilized throughout the enterprise and will be transformed into a pervasive technology delivered to operational front lines for decision support.

To fully realize the potential of BI and to stay on course with BI planning, implementation and management, state and local governments need a clear strategy and proven tactics for moving from vision to success. As many organizations have found, a well-conceived BI roadmap can provide the framework for meeting BI goals. When based on industry standards, best practices and proven experience, a roadmap helps minimize project risks while transforming BI into a valuable tool for efficient and well-informed decision-making.

Key Implementation Risk: Lack of Experience

When properly designed, a BI solution can help state and local governments address business needs at the macro and micro levels — from anticipating change and managing risk to improving efficiency, cutting costs and providing better service.

While many organizations are eager to take advantage of these benefits, few have the proven experience, methodology and best practices to successfully execute a BI initiative on their own. BI solutions often draw on hundreds of heterogeneous data sources; involve numerous stakeholders; require the development of overlapping subject areas and must comply with ever-changing internal and external workflows, policies, processes and regulatory requirements. All of these interdependent moving parts must come together in a coherent system that allows the right people to access the right information as easily as possible. It is often difficult to see the big picture when stakeholders each have a different view of the organization and data. It's a classic case of not seeing the forest for the trees. A successful BI strategy, therefore, requires an understanding of business relationships between disparate pieces of information in order to transform raw data into actionable knowledge.

Given the complexity of such an undertaking, organizations can easily underestimate the budget, timeline and resources required for a BI solution, or they may become too overwhelmed to execute the solution properly. In some cases, lack of experience can lead to a solution that meets technical specifications but does not satisfy business expectations. For example, planners may not truly understand what BI can do, or they may assume that users will take advantage of the system simply because it has been built. Some organizations neglect to develop a clear vision and implementation strategy for a BI solution. In other cases, they do not have the skills to normalize inaccurate or inconsistent source data. This inability taints analysis and decision-making, undermines trust in the solution and stalls adoption and return on investment.

Using a BI Roadmap to Stay on Course

To avoid the pitfalls of BI implementation and to meet project budgets, timelines and goals, organizations need a flexible but standardized framework for minimizing project risks and maximizing success. When based on industry standards, best practices and proven experience, a BI roadmap provides a system for BI development and expansion and helps executives and management understand what they need to do in order to move forward.

A sound BI roadmap describes the major components of a BI solution and offers a methodical, well-documented and phased approach to BI implementation. At a high level, it helps organizations stay on track by:

- Identifying all the moving parts and their dependencies (e.g., users, data, subject areas and workflows)
- Providing an overview of what's possible with BI from a business perspective

- Breaking down goals and requirements into manageable steps
- Assessing BI tool and technology requirements
- Identifying stakeholders
- Allowing prioritization and incremental investment
- Promoting phased implementations that allow for correction and refinement as needed

The roadmap is typically developed in collaboration with a third party that specializes in BI planning, implementation and management, and includes the following phases of development:

- **Clarification of vision and goals:** The organization invites input from industry BI specialists and stakeholders to create a vision and identify goals for BI. An important part of this phase is the development of metrics that will allow objective assessment of the BI initiative and its progress. Another important consideration is the sustainability and scalability of the solution.
- **Analysis of requirements and assessment of current state:** The organization evaluates input from the vision and goals statement and uses data modeling and other tools to identify requirements for subject areas. It assesses existing data sources, stakeholders, workflows and policies, technical infrastructure, end users and other "moving parts" that it can leverage for the BI solution.
- **Comparison of the current state to the target state:** The organization performs a gap analysis to compare the desired state to the current state. Data collected during this phase provides insight into resource and training needs, strengths and weaknesses, dependencies and other considerations.
- **Creation of an implementation plan:** The organization develops a step-by-step plan to reach short- and long-term goals. This plan describes the specific action items, delivery dates, roles and responsibilities, and strategy for reaching goals. It may include provisions for a short-duration pilot project as well as change management plans to enable a smooth transition to the new solution. It may also include a governance model for securing and maintaining executive sponsorship, ensuring that the plan is business driven and sustaining the solution over time.

When based on industry standards, best practices and proven experience, a roadmap helps minimize project risks while transforming BI into a valuable tool for efficient and well-informed decision-making.

Benefits of a Business Intelligence Roadmap

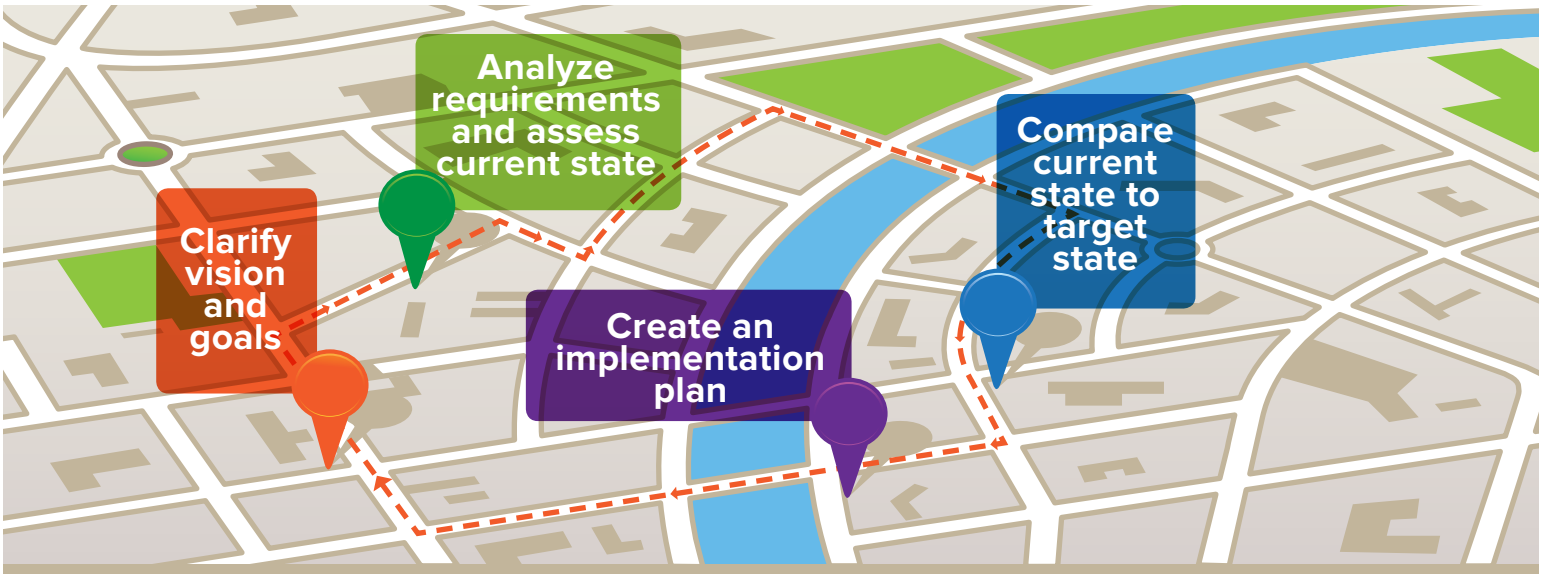
A business intelligence roadmap that is based on open standards and actionable insight from industry BI specialists offers the following benefits:

- Creates realistic expectations for what BI can and cannot do
- Provides high-level assessment and insight into BI needs at a relatively low cost and within a relatively short time
- Clarifies the standards and methodologies used to support a successful implementation
- Facilitates planning, communication and sponsorship
- Ensures consistent messaging
- Helps ensure the resulting BI solution aligns with business and IT goals
- Minimizes risks associated with project budget, timeline and complexity; allows organizations to estimate future phases more accurately and with less contingency
- Helps ensure tools and features are compatible with the skill level of the people actually using the solution
- Promotes efficient deployment of resources
- Provides a framework for a sustainable BI implementation that includes future BI expansion

Drawing on Real-World Experience

A business intelligence implementation plan should be based on best practices and lessons learned from years of work in the field. For this reason, organizations usually need to collaborate closely with industry specialists who have extensive experience in planning, assessing and implementing BI

Business Intelligence Roadmap: Development Phases



solutions. The following agencies have worked with third-party specialists to help them apply best practices and real-world experience to their BI solutions.

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ALLEN SCHMIDT, ACCOUNTING APPLICATIONS MANAGER, WASHINGTON DEPARTMENT OF ENTERPRISE SERVICES

Financial Management

When the State of Washington's Department of Enterprise Services (DES) decided to revamp its business intelligence solution for the Office of Financial Management (OFM), the key success factors were: collaboration with a proven industry BI specialist, extensive interviews with customers and other stakeholders, and strong executive sponsorship.

Business intelligence at the OFM supports a wide range of financial administrative functions, from statewide budgeting, accounting and contract management to fleet and facilities management, purchasing and procurement. As DES Accounting Applications Manager Allen Schmidt explains, "We collect a lot of data, but we weren't putting it into a format that maximized its value to agency administrators, policy makers and other business decision-makers. One of our executive sponsors had actively used our ad hoc reporting tools. Because he understood first-hand the challenges of using the existing data format, he was strongly motivated to help drive the project to success."

The department contracted with a third-party BI specialist, who started by assessing existing systems and data and interviewing many of OFM's customers to expose gaps in the existing BI solution. Using this information, the project team created a BI roadmap that guided strategy and tactics for improving the department's BI capabilities. "The roadmap helped the department define our BI data models, what kinds of subjects we should be looking at, how to organize our BI team and what kind of people we should have on the team," says Schmidt. "It also helped us address data governance and the data stewardship role within each customer organization."

One key outcome of the project was the hiring of a BI manager who brought data management and BI under one leadership role. "We have data coming from a lot of different sources," says Schmidt. "By bringing together data management and BI, we were forced to resolve data discrepancies and make data more consistent." The department also made a key change to how it structured data. Whereas the prior system was optimized for transactional processes, the new system's reporting environment will focus on business users' questions so they can easily get the answers they need.[3]

Managed Health Care

Thanks to forward-thinking leaders and a comprehensive vision and roadmap, the Los Angeles County Department of Health Services is on track to consolidate a vast repository of patient data and extend reporting capabilities in order to move more agilely into a managed health care model. The target solution will include not only financial data from the existing system, but also administrative and clinical data on more than 800,000 patients annually.

"With a unified, expanded view of patient information, we'll be able to compare data from a financial, administrative or clinical standpoint to see what type of patients we have, their diagnoses, the kinds of services they're getting and the costs," explains Lily Wun-Nagaoka, chief of the department's Fiscal Programs Division. This capability is becoming especially important as the department moves to managed care, in which the department is paid a flat dollar amount per patient instead of a fee for each service.

"Currently, a lot of what we do is a mash-up of data from multiple sources, and it's very labor intensive to pull together information manually and ensure that it is correct," continues Wun-Nagaoka. A single patient may go through multiple sites, and each facility may have differing data or different structures for presenting the data. The new system will normalize all the information and link it together via one unique patient identifier so that users can access a more detailed level of understanding and reporting. "Instead of taking time to crank the data, I'll have more time to analyze the data and look at different aspects," says Wun-Nagaoka. "I'll be able to explore what-if scenarios that clarify our financial situation as we move into managed care."

Director of Planning and Data Analytics Irene Dyer adds, "Historically, a small group of highly trained programmers has analyzed our systemwide data and produced ad hoc reports as requested by the executive team. Now we are moving towards a solution where not just executives, but administrators and supervisors also have real-time access to data so they can make decisions and do their jobs more effectively."

The multi-year project is still in its infancy, and the BI roadmap provides a standardized framework and documents for completing phases and making decisions related to each phase. The department has identified stakeholders and what they need to

do their jobs, defined its vision and scope, assessed the current state and analyzed gaps. It is now moving toward an implementation plan that focuses on iterative processes. "We don't have the expertise to do this on our own," says Wun-Nagaoka. "Working with a specialist to develop a roadmap has helped us set the right goals and is showing us how to reach those goals."[4]

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Ensuring Success

The following best practices help ensure the successful implementation of a business intelligence solution and should be reflected in the BI roadmap:

- **Work with an industry BI specialist:** Successful implementation depends greatly on the thoughtful application of best practices and lessons learned. Few organizations have sufficient internal experience in planning, assessing and implementing BI solutions. In addition to experience, BI specialists have also developed relationships with reputable vendors and other contacts who can assist in the BI solution.
- **Use a standards-based project management framework:** Some organizations make the mistake of using a traditional software development lifecycle framework for BI development. However, development with this model is usually too rigid and drawn out for BI. IBM's Rational Unified Process (RUP) and agile frameworks provide a better outcome for BI development. These frameworks focus on rapid releases, iterative development and ongoing validation, so organizations can quickly launch, test and refine the solution. They also provide for change management, training, governance and other processes that help ensure the project's adoption and sustainability.
- **Iterative approach:** Organizations can save time and money by taking small, tangible steps and limiting the number of variables within a specific step. Users and other stakeholders can provide feedback, and project leaders can correct course as needed during development. This practice is especially useful when creating subject areas, which commonly overlap and build upon one another.
- **Executive sponsorship and stakeholder participation:** Strong executive sponsorship helps ensure that the project receives the prioritization, funding and organizational "buy-in" that it requires to succeed. Stakeholder participation helps ensure that the solution truly meets the needs of users and has the support of everyone who is affected by it.
- **Ongoing knowledge transfer:** To maximize the benefits of a BI solution, organizations need a plan for ensuring it remains useful over time. If needed, business users should receive training on how and why to use reporting tools. Internal BI teams may need coaching or training from external specialists in BI.
- **Business driven vs. IT driven:** The solution should focus on answering business users' questions, not on transactions and other processes that are difficult for the average user.
- **Metrics for measuring BI success:** To justify costs and approach and to evaluate progress, organizations should define success indicators. Ideally, the organization has already established a baseline against which to measure success.

Conclusion

To reap the benefits of business intelligence, organizations need a sound framework for planning, implementing and managing a BI solution. A well-conceived BI roadmap — developed in collaboration with specialists in BI — helps organizations clarify their vision and goals, assess requirements, determine next steps and move into the future methodically and confidently.

Endnotes

1. Gartner – Annual Survey of CIO Technology Priorities, 2012
2. NASCA News, Chief Administrator Pain Point Survey, June 2012. http://www.nasca.org/DNN/Portals/21/Documents/newsletter/June2012.html
3. CDG interview with Allen Schmidt, September 24, 2012.
4. CDG interview with Lily Wun-Nagaoka and Irene Dyer, September 13, 2012.

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