

Data Rich, Intelligence Poor: Creating a Business Intelligence Program That Works

By Matt Nichols

WATER, WATER, EVERYWHERE...

The fact that many health care organizations have amassed significant stores of data, capturing everything from addresses to A1C levels used to diagnose diabetes, has had limited impact on improving the quality and cost of health care in the U.S. Also keep in mind the millions of dollars health care organizations pay for the proliferation and maintenance of hundreds of custom built databases that are potentially rife with data errors and inconsistencies.

...BUT NOT A DROP TO DRINK

Executives worry that the lack of effective access to accurate data leads their people to routinely act on incorrect or incomplete information. In addition, they are overly reliant on IT analysts who have only a basic understanding of the business. Too often, these analysts produce difficult-to-use reports that take too long to prepare and are rooted in metrics that have not been adapted to a changing market environment.

These inaccurate and complex reports leave recipients frustrated and resistant to using the organization's data systems. In addition, the problems these databases are intended to solve only occasionally match larger organizational goals because there is no clear alignment between the two.

Add all of this together, and you have an organization that's data rich, intelligence poor.

HOW IS THIS POSSIBLE?

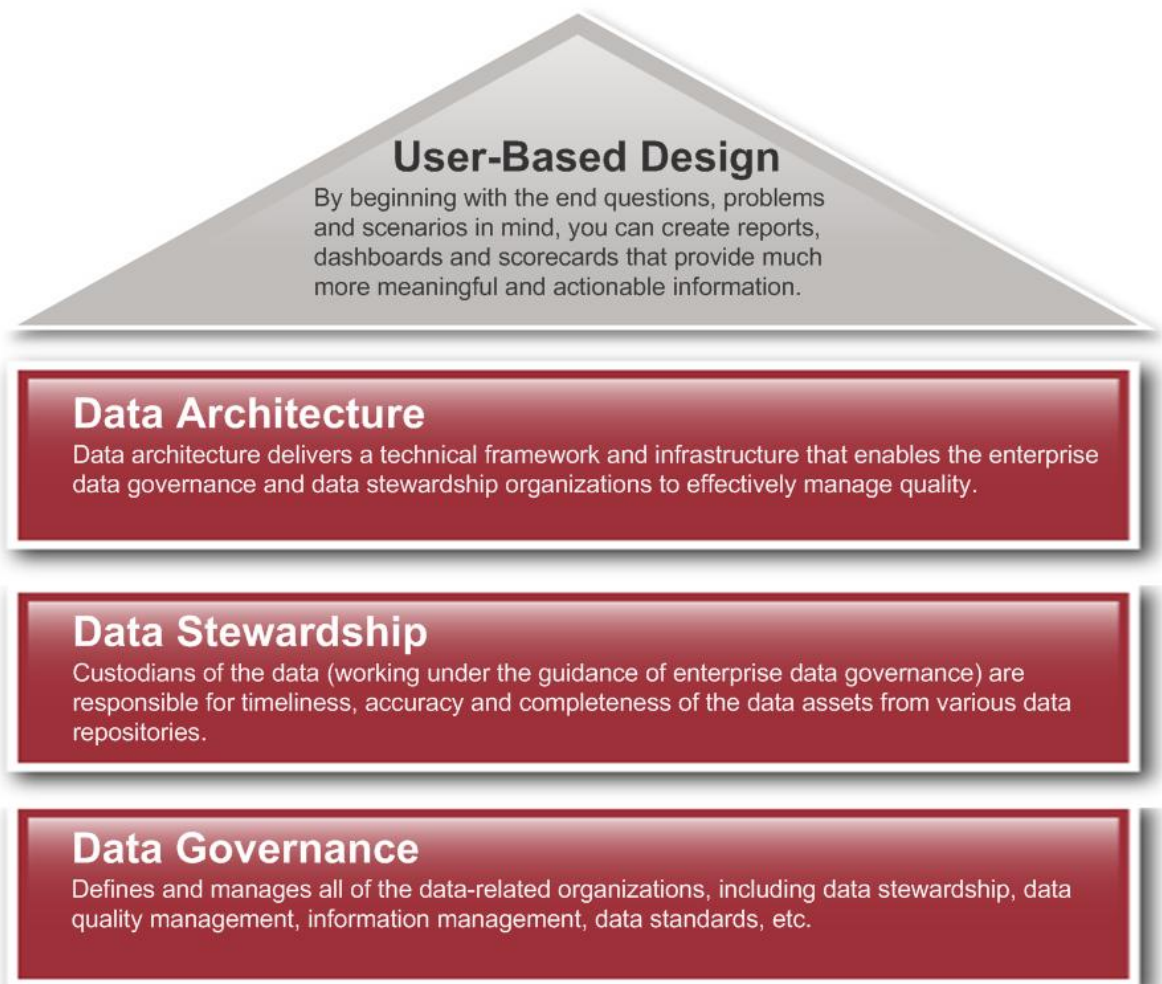
Here are the four likely culprits:

- design
- architecture
- stewardship
- governance

Data without the right processes, people or the technology to leverage it effectively remains just that — data — useless data. Leading organizations understand there is a better way.

First, they recognize that most business intelligence (BI) project failures can be traced to ill-defined organization requirements and data quality problems — in short, a fatal gap between business and IT. Then, with an eye toward closing that gap, they create lean but comprehensive BI programs that pair technology with both people and process-based solutions that incorporate a deep understanding of strategic business needs.

The following shows the components necessary for a well-constructed BI program:



Design

(Begin with the end in mind)

Effective design begins by focusing on the end result. It's important to first work with the end users to accurately define the problems they are trying to solve or the questions they want to answer. Only then can you truly identify the data necessary to guide the design and development of reports, dashboards and scorecards that will deliver actionable intelligence by the most effective means available.

Governance

(By the people, for the people and of the people)

One of the biggest challenges to achieving a maximum return from the data and analytics investments that form the basis of any BI program is achieving buy-in from all of the stakeholders in your organization. This is especially true for the business side, which too often is ignored as BI programs are built. All users and contributors must clearly understand the aims of the BI program and how to use the technology and processes to realize those aims. Effective communication, clearly delineated roles and responsibilities, accountability for making things happen and a collaborative culture all play key roles.

To garner that kind of buy-in, many organizations with strong BI programs have created what is known as a Business Intelligence Competency Center (BICC), which is typically a cross-functional team composed of both business and IT stakeholders. The BICC oversees the effective use of BI programs across the organization.

By having the business people act as the key architects of the BI program, the BICC has a clear vision of the organization's people and their roles, as well as current strategic priorities. As such, the BICC can clearly articulate fully informed business goals and establish them as the touchstone for all elements of the BI program.

Stewardship

(Take care of the little things and the big things will take care of themselves)

Once established, the BICC must focus equally on creating and overseeing organizational processes, as well as on the BI tools themselves. The processes should be based on a deep understanding of the business and the people within it to ensure a strong execution of the overarching BI strategy.

For example, from a data governance perspective, it should no longer be possible for any organizational group to create their own data mart without prior approval from the BICC, which in turn should be working from clear guidelines about what constitutes the need for the creation of any additional data mart.

Equally important, the BICC must create processes for data governance and data stewardship that ensure that the data feeding into BI dashboards are accurate, timely and complete. These processes should address everything from data profiling and assessment to correction, repair and the prevention of errors and inconsistencies. Data quality is a persistent problem, and while many organizations have begun quality initiatives (from metadata management through data quality assessment, root cause analysis and data cleansing) such initiatives achieve limited success when they fail to link closely with an overall BI vision driven by the strategic goals of the business.

Other processes the BICC should plan and oversee are communication and change management programs that create awareness throughout the organization and reinforcement for adhering to the critical processes. These programs might, for example, establish and automate common reporting and analysis procedures or outline how various groups should use the BI system to respond to external reporting mandates and provide detailed reports to internal customers.

Architecture

(Technology for technology's sake is misguided investing)

The BICC is often responsible for advising on technology purchases and overseeing the implementation and execution of those purchases. Again, the alignment with strategic business priorities and a deep understanding of how the organization operates are critical.

The BICC can improve decisions pertaining to architecture, such as:

- Which database technologies or analytical software will best meet the needs of the business for both the short-term and long-term periods?
- Should companies shift to a service-oriented architecture, rather than deeper investments in site-based technology?
- How and where in the architecture will data cleansing, matching and standardization take place?
- How will data marts that contain information for a number of key performance indicators share that information without compromising data timeliness and accuracy?
- How can all this be done in a way that is seamless to the end users?

NEXT STEPS

While the specifics of a strong BI program are unique to each organization, there are a few important steps any organization should take after establishing a BICC:

Discovery

Assess the current landscape by interviewing end-users to define their needs. What are the key questions they need to answer or problems they need to solve? How frequently do they need answers? Document any scenarios and requirements that emerge from these discussions.

Then, identify existing data sources and analyze cross-system data gaps and overlaps. Next, map related data structures distributed across multiple source systems and make strategic decisions on subject-oriented data sources. Finally, create a prioritized roadmap and plan for addressing the gaps and migrating to the new architecture. As noted above, the roadmap should consider the way people function in your organization, as well as the processes necessary to make this migration work with full buy-in from everyone involved.

Data Profiling

Inventory source system information and dependencies for the data governance committee. Next, implement profiling tools that help data stewards monitor quality. Determine the data value frequencies and identify outliers as potential inconsistencies that may require specific cleansing rules.

Development

Design and build solutions identified in the discovery phase that consolidate and aggregate the data needed to populate reports and dashboards. Wherever possible, business people should be able to find information and create both standard and ad-hoc reports (without needing IT help) that seamlessly export into standard business applications for presentation purposes.

Data Monitoring & Remediation

Develop and implement processes and tools to validate data and notify stewards of changes and exceptions.

Informed by a deep understanding of the business and its people, these four steps should lead to the creation of easy-to-use dashboards, scorecards and reports that intuitively guide users to actionable intelligence, as well as transparent explanations of the data and its appropriate usage.

SO WHAT DOES SUCCESS LOOK LIKE?

Consider the following scenarios drawn from real life BI implementations:

Scenario One

At a large health plan, decision makers turn on their computer each morning to access a few Web-based dashboards centered on the organization's key performance indicators, such as paid amount per member per month and medical loss ratio. The dashboards automatically update by drawing on a half-dozen consolidated data marts for clinical, claims, financial, consumer, employer and prescription spending data.

One morning, the chief operating officer receives an alert on one of the dashboards telling him that the average paid amount per member per month is up 10 percent over an industry benchmark. He clicks on the graphic indicating the problem and quickly determines that the cost increases are most prominent in a particular geography and for a particular condition, which has been delineated by DRG codes. He models a few potential fixes (without the IT department's help), decides on a course of action and puts a plan in motion to address the issue.

Scenario Two

A hospital system is concerned because the Centers for Medicare & Medicaid Services (CMS) is refusing payments for hospital-acquired infections (HAIs) and is tightening reporting requirements. The hospital integrates data from various sources, including its electronic medical records, into a single clinical data mart around HAIs. It establishes common processes and definitions for HAI-related information across the hospital. The data includes everything from hospital-acquired pneumonia and catheter-associated infections to hand washing, materials management and infection control procedures. The organization programs in key performance indicators around each of these areas.

When the chief nursing officer sees that hospital-acquired pneumonias have risen, she quickly examines the data to find that bedside nurses have been ignoring an important optional protocol more than half the time. Working with the IT staff, she reprograms the electronic bedside checklist so nursing staff cannot move on without adhering to the protocol. The number of hospital-acquired pneumonias returns almost immediately to acceptable levels.

These types of common scenarios clearly demonstrate how investments in BI can pay substantial dividends. The intelligence that organizations glean in these scenarios is "actionable" because it enables managers to quickly shift resources to where they are needed the most. In addition, employees can view the same or related dashboards and performance measures, quickly aligning their efforts with the organization's strategic priorities. Organizations save money by consolidating a disjointed array of data marts into a manageable few; thus, freeing up IT resources to work on programs that truly advance the business. These scenarios, made possible by a solid foundation of governance, stewardship and architecture, allow an organization to move beyond the data to a position of informed knowledge and action.

FROM ROOT CAUSE TO RIGHT ACTION

By considering people and processes, consolidating information in a few key data marts and creating intelligence that reliably synthesizes key information, health care organizations do more than improve data quality and integrity — they gain a 360-degree view of their operations that enable them to:

- Measure performance in accordance with key strategic goals
- Use consistent metrics for the entire organization
- Understand root causes and the linkages among cost and efficiency concerns
- Efficiently broadcast essential information and necessary actions
- Ensure timely, effective action

Perhaps most exciting, the program flexibly responds to a new era in health care. Health care reform, consumer demand and the current business environment have created a need for closer alliances among key stakeholders, as in the much talked about Accountable Care Organizations. The hope is that such arrangements can further reduce costs and improve quality and efficiencies. An effective BI program creates visibility that can move beyond a single organization to help coordinate improvement efforts all along the health care continuum.