
Top Five Considerations for Self-Service BI Dashboards

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Introduction

Organizations of all sizes around the world are increasingly familiar with the crush of data that characterizes business in the 21st century. Sales, marketing, supply chain, logistics, manufacturing, support, and many other types of data flow into businesses, but as most leaders know, the real challenge is being able to make both tactical and strategic decisions based on the data. Even more challenging is opening up siloed data to users at all levels of the organization so that data-driven approaches become the norm rather than the exclusive domain of the boardroom.

The Challenge of BI Adoption

Traditional approaches to BI suffered from a number of fundamental flaws:

- **Cost:** Data aggregation and presentation in BI reports (or “dashboards”) tended to be expensive and resource-intensive
- **Availability:** There were few tools available that end users, whether savvy power users or inexperienced staff unfamiliar with data management, could actually use on their own; those that did exist tended to require frequent client software updates and the movement of large amounts of data from warehouses and data marts to client machines
- **Limited time horizons:** BI tools have traditionally supported historical data analysis but are much less likely to pull in real-time data or predictive analytical capabilities
- **Security:** Users should only have role-specific access to data in an organization, therefore these dashboards need to be created individually
- **Time and resources:** When users at all levels needed customizations, the onus fell on IT or data management groups to implement these customizations, limiting real-time access to information when it was needed and increasing IT resource needs

Business intelligence and data analytics are critical pieces of any organization’s efforts to turn their many incoming streams of data into actionable information. Unfortunately the cost and resources necessary to make BI and analytical tools more widely available have generally been prohibitive.

Enter the Self-Service BI Dashboard

Fortunately, recent advances in cloud computing, analytics software, and the interactive Web are changing BI implementations drastically and creating opportunities for end users to largely manage their own analytics needs. The core of business intelligence remains the “dashboard”. In its simplest form, the dashboard is a report generated from a BI system that displays predefined measures, metrics, and aggregated data to a user. The most significant trend in business intelligence today is the “self-service” dashboard.

As the name would suggest, self-service BI dashboards allow end users to define their own reporting parameters within a secure, policy-based framework that ensures they have access to all of the data appropriate for their role. This means that IT needs to focus on the design and integrity of the data warehouse instead of on defining disparate dashboards for heterogeneous groups of users. In fact, because end users know best the sorts of data they need reported on a regular (or even ad hoc) basis, self-service models essentially cut out the data middle man and allow much more rapid development of useful dashboards.

Just as importantly, most self-service dashboards are delivered via the Web and/or mobile apps with much of the heavy lifting happening behind the scenes. The most sophisticated self-service solutions aren't just customizable reporting engines, though. They also include extensive analytics tools and often integrate with external data sources and desktop software for additional visualization and deeper analysis. As a result, they facilitate not just a static dashboard view but also the ability for end users to intuitively drill down into the underlying data behind the report.

Is it time for self-service?

In many ways, self-service BI dashboards seem like an obvious choice, both for organizations already leveraging business intelligence platforms and for companies looking to rollout BI. There are a number of considerations, however, that CTOs/CIOs and business leaders need to undertake as they evaluate possible solutions and look forward to implementation.

Interactivity and analytics

The concept of a self-service dashboard is inherently quite flexible. A report with a few simple user prompts is technically a self-service dashboard, as is a fully customizable report in which users can mash up data from multiple external and local data sources and define custom graphics and visualizations. Similarly, at one end of the spectrum, self-service approaches allow users to define particular reporting parameters and generate a one-off report. At the other end of the spectrum, users can not only fully define the contents of the report and how often it is run or delivered to them but can also be presented with a variety of analytics tools to make predictions, examine trends, create graphs and charts, and drill down as far as individual data points to do deep root cause analyses.

For the CIO or IT decision-maker, it's important to determine a priori what level of interactivity users or groups of users will need. In many organizations, choosing a self-service platform with too little interactivity will leave users asking for more flexibility and deeper levels of information access as they develop a stronger understanding of the data to which they are suddenly privy. As users learn the system, receive training, and move forward training themselves, most organizations find that users are not just happy to dive deeper and use analytic tools proactively, but eagerly embrace data-driven approaches to analyze their business, make decisions and implement action plans.

As an example, [a German pharmaceutical company](#) rolled out self-service BI dashboards at all

levels of its sales organization. The company had previously pushed data cubes out to field sales and regional management, but as operations grew, this became cumbersome, slow, and too inflexible for users to truly understand the data behind key performance indicators for sales personnel. Fast forward as self-service dashboards now provide immediate, granular insight from overall sales targets and competitive outlooks by region down to the daily performance of individual sales team members. Much of this is accomplished through a simple point and click interface; the team didn't require deep analytical and predictive tools but instead needed clear views of specific data and chose their particular system and implementation accordingly.

Security

In the previous example with the pharmaceutical company, a key part of the implementation was the ability to differentiate dashboards, the roles-based data they displayed, and the particular drill-down capabilities they enabled based on the individual users' roles. Field sales staff could only see limited aggregated sales data and targets as well as their own sales while regional managers had full view of their team's sales data. The underlying system managed all of this automatically based on their defined roles in the organization.

A nationwide insurance company, on the other hand, rolled out self-service dashboards for managing agent relationships, business development, and risk management. They had actively trained users to adopt available analytics tools and, as users develop appropriate levels of expertise, make the tools available through the dashboards.

In both cases, an underlying security model was surfaced through the BI platform to ensure that the right users had the right levels of access, both to specific data as well as to specific capabilities. As IT looks to implement self-service dashboards (and/or BI initiatives in general), the broader issue of roles and security needs to be very well understood by all stakeholders. Even if BI is in its infancy in an organization, the data is already present and accumulating, facilitating discussions and policy development around the roles in an organization and the particular pieces of data to which each role should have access.

Ideally, these roles would already be defined in an LDAP database and the BI platform of choice would be capable of leveraging these directory services to automate dashboard delivery. Because dashboards often serve as mashups of data from disparate sources, it is even more critical that sufficient time and effort be devoted to cleaning up the overall user/role security picture within an organization and then aligning security with data dictionaries and mappings. Although this process may be time-consuming for many organizations that are just getting a handle on their data management needs, it will also serve as an opportunity to carefully review the data structures that so often become unwieldy early in data warehousing, mining, and analysis projects.

It should be noted that self-service dashboards bring another aspect of security to the

table. In general, these systems are web-based, eliminating the need for local storage of potentially very sensitive corporate data. No local storage on laptops or devices means far fewer opportunities for theft or loss. At the same time, though, advanced reporting capabilities mean that end users will be able to generate highly insightful, intuitive reports. Documents that are intuitive for end users will also be intuitive for anyone who might attempt to access a device nefariously and therefore, clear policies need to be in place about downloading data, PDFs of dashboards, etc., from the system.

Users

Sophisticated self-service dashboards are of little utility if users don't have the experience, training, or computing savvy to access, manipulate, or understand them. Although self-service dashboards are generally designed to be intuitive and the Web interfaces for them are usually not overly complicated, IT decision-makers need to assess the general preparedness of their users. Prior to implementing self-service dashboards, IT groups need to be able to answer several questions:

- How well do users understand the data that will be aggregated and presented?
- Which groups of users, if any, are capable of undertaking more substantial analysis tasks?
- Which users, if any, can really benefit from highly interactive dashboards with drill-down capabilities and/or analytics, with appropriate training?
- What sorts of training will be necessary for all users to reach a common understanding of both the available data and the concept of data-driven decision making?
- For which roles should simple prompted reports be designed? Which roles will need specific training? Which roles should be given higher levels of access to tools and data?
- Who are the champion users?
- Are there aspects of organizational culture that should be considered during and after implementation?
- What are other barriers to adoption?

Self-service BI dashboards are a quantum leap forward in terms of usability and breaking down organizational barriers to data access and utilization. Despite advances in the technology, the users themselves are the keys to a successful implementation. User-specific training will need to be in place and ongoing coaching, training, and mentoring will help increase adoption.

Two different examples from the education vertical point to the role users play in successful implementations. In one school district, the CTO opened up access to a statewide data warehouse via self-service BI dashboards. Users could generate reports from state standardized tests as well as grading and demographic data uploaded by the district. The district trained all of the teachers and identified champion users to be ongoing coaches for

other teachers. However, the union blocked its use as a change in working conditions after teachers complained about a complicated interface and poor performance.

Another school district, however, identified the problems of very high dropout rates and the inability to intervene early with at-risk students. The district gave access to self-service dashboards to administrators, counselors, and lead teachers, provided appropriate levels of training, and built out a data warehouse combining several measures of student success and risk. Within two years, the district had made statistically significant reductions in its dropout rates and counselors were empowered by the data.

Time horizons

Should users in an organization only have access to historical or transactional data? Are real-time data streams entering the system that can have a tactical impact for day-to-day decision makers? What level of predictive capabilities should users have (and what tools do they have the expertise to use in this case)? The ability to work across time horizons is largely available only in more sophisticated BI systems. Self-service dashboards in these systems can integrate considerable analytic and predictive power for staff with the training to use them, enabling what-if analyses, trend reporting, etc.

For many users, though, simple visualizations and scorecards based on key performance indicators are more useful than the more sophisticated analytical capabilities. IT decision-makers, however, should keep in mind that self-service dashboards can be used at all levels of an organization. When implemented properly, the most advanced users (including those who may have been running existing BI systems without self-service options) can also benefit from their ease of use and secure, web-based interface. These are the users who will be interested in advanced scenario modeling and trend analyses and the right role-based security can ensure that only those users for whom predictive capabilities are useful will access them.

The ability to visualize data across time, horizons, however, is both powerful and critical to achieving the real vision of BI. Marketers, for example, rely on real-time data to modify online ad campaigns. Minor tweaks in keyword targeting, bids for ad impressions, and simple changes to landing pages can have significant impacts on conversions. Without being able to leverage real-time data and take advantage of traffic spikes from any number of factors, CMOs and their staff can lose incredible opportunities in hours.

Big box retailers rely on logistics, inventory, supply chain, and point of sale data to forecast optimum purchasing cycles and coordinate distribution to retail and online outlets. A hardware chain, for example, can predict based on past seasonal fluctuations, long-term climatologic data, and supplier data how often to replenish snow shovels in stores in any given region. Much of this is automated for the largest of retailers but the process needs to be transparent and human analysis is always required at some level. The self-service dashboard can even provide powerful predictive tools to management at individual retail locations so that they can play a role in inventory management, discounting, and local marketing.

Growth and scalability

Businesses looking to thrive and grow in the 21st century will have little choice but to begin leveraging data far more effectively, though, and BI is either on the radar or already implemented for most forward-looking companies. Because implementation can be challenging, and yet transformative for organizations, it is a long-term commitment to a platform and an overall approach to doing business.

That long-term commitment needs to be first in the minds of those selecting and rolling out a system that supports self-service BI dashboards. Is the system

- Scalable?
- Modular, to facilitate phased implementation?
- Backed by a stable company likely to still be supporting and advancing BI for several years to come?
- Cost effective enough to deliver meaningful returns on the investment?
- Prepared for the rapid innovation in the BI/Big Data markets in the years to come?

Best of breed systems will allow IT to implement simple dashboards and add capabilities like analytics and custom applications as users become more sophisticated and an organization's needs grow. At the same time, while the number of users and complexity of reporting may be relatively low early on, as the organization grows, demands on backend hardware will increase significantly. IT decision-makers will need to evaluate the overall solution and expected rate of growth to purchase appropriate hardware or allocate necessary cloud resources (depending on the implementation) to support both near and mid-term needs.

IBM Business Analytics can help

IBM Business Analytics delivers self-service capabilities to any user – from the most casual to the most sophisticated. Users can flexibly access these capabilities at the point of impact, whether it be in a browser, on a mobile device or desktop. And with access to any data from historical to predictive, users have a complete view of all information required to make business decisions. The highly scalable IBM Cognos platform underpins these self-service capabilities by providing fast and secure access that is easily managed through a web-based administration interface. IBM Business Analytics balances essential elements of user customizations with IT control over security and the data for which they are ultimately accountable and is modular and extensible, meaning that organizations can “start anywhere and go everywhere”, adding capabilities as they need them.