



CHECKLIST REPORT

2016

Gaining Business Value from Governed Analytics and Discovery

Seven Steps for Solving People, Process, and
Data Challenges and Increasing Business Impact

By David Stodder

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TDWI CHECKLIST REPORT

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FOREWORD

Visual analytics and discovery tools are revolutionizing what nontechnical subject matter experts in lines of business (LOBs), departments, and corporate management can do on their own to make informed decisions. These users have been frustrated by long waits for IT deployment of business intelligence (BI) tools, only to find that the applications are inflexible and built primarily for managed query and reporting rather than for flexible, ad hoc analysis. In organizations that have no experience with BI, users are typically limited to spreadsheets and simple databases that do not make it easy to explore data. Users in such organizations desire tools that provide more support for analytics and data visualization.

Strong interest in easier-to-use, self-service tools is democratizing BI, analytics, and data discovery. The tools are spreading by popular demand, often beginning in LOBs and business departments outside of IT control. This has led to tension between IT and business users over data access, data ownership, and the development and execution of analytics models. Some of the friction is about politics, but many IT concerns are valid—democratization of BI and analytics has the potential to introduce data chaos. In organizations that do not have centralized IT, users moving from spreadsheets to more powerful visual analytics and discovery tools can become frustrated when they encounter the “chaos” of poor data quality, particularly when trying to share analyses with colleagues.

These issues make it imperative for organizations that seek democratized visual analytics and discovery to improve governance. Governance encompasses multiple objectives. First, it is about giving the right users access to the right data while ensuring sensitive data is protected. Data preparation and hygiene are also key, particularly for improving and safeguarding data quality. Governance is also about promoting efficiency, consistency, and reuse of analytics models and processes, including the management of champion models. Finally, governance must oversee the content produced by end users, such as dashboards and visualizations, to ensure they adhere to standards and reduce—rather than spread—data chaos.

This TDWI Checklist provides seven steps your organization can follow to apply a balanced governance strategy as you expand your use of self-service visual analytics and discovery.

STEP ONE

ADDRESS PEOPLE AND PROCESS CHALLENGES ARISING FROM ANALYTICS DEMOCRATIZATION

Adoption of popular self-service visual analytics and discovery technologies is a big change for many organizations, disrupting how business users, business analysts, BI teams, and IT departments have traditionally worked together. Thus it is critical for companies looking to increase data-driven decision making to remove friction and improve collaboration among these core stakeholders.

Most often, newer technologies are adopted first by LOBs and business functions such as marketing, sales, and finance. IT may have had little to no involvement in the initial software deployment. Typically, increased adoption of visual analytics and discovery technologies is driven by business users focused on solving specific business challenges. When they succeed, users share their work with colleagues who seek to apply the same technologies to their own projects.

It is at this point that IT leadership and BI teams should get involved so that projects are properly governed and that data access, performance, and scalability requirements are addressed. Unfortunately, business users are often reluctant to involve IT and BI teams, fearing that they will lose control of their projects (and their data), and will have to wait longer to realize value from their solution. IT leadership must be sensitive to users' concerns and stay focused on the needs of the business.

Here are two best practices that organizations should adopt:

- **Establish a center of excellence (CoE).** Organizations should bring business, IT, and BI team stakeholders together by creating an internal, independent CoE or competency center. The core functions of a CoE are to negotiate and prioritize analytics projects and their related requirements, improve cross-functional communication, and solve problems.
- **Provide training and guidance.** Even though technologies are becoming easier to use, end users still need to be properly trained. Alongside formal training, the BI team should provide expert counsel to users about how to work effectively with different data sources and should suggest improvements to user-built content such as dashboards.

IT and BI teams must become enablers rather than obstacles. Establishing a CoE and formalizing how BI teams impart wisdom can help organizations realize a new collaborative culture.

STEP TWO

MAKE SOLID AND BALANCED GOVERNANCE A PRIORITY AS ANALYTICS AND DISCOVERY EXPAND

Data governance is critical to the healthy operations of any organization. Without it, business users risk losing trust in the data and the resulting analytics assets; the organization can also be exposed to regulatory violations. As BI adoption grows, properly securing and regulating use of these assets ensures that consistent, high-quality content is promoted and shared among your organization's business users. Additionally, as the role of analytics in operations increases, governance can help manage and monitor the operationalizing of challenger and champion models.

Data governance, though, is just as much about people as it is about technology. Teams must collaborate to protect and enhance shared data and analytics assets. Often the first priority is to set policies, rules, processes, and accountability regarding the use, sharing, and protection of sensitive data. Governance has also come to include the "stewardship" of data quality and data models to ensure that what users have suits their needs. With the popularity of self-service analytics and discovery, organizations will need to ensure that governance and stewardship evolve to cover new data requirements and analytics patterns rather than try to force fit them into systems set up for centralized BI environments.

These are two key areas of focus for governance:

- **Security.** Even though TDWI research finds that most organizations consider data security and protection of sensitive data as their top governance priorities, they are often handled by separate areas of the organization. Interestingly enough, security professionals are becoming more data driven themselves and are using analytics and visual discovery to monitor vulnerabilities and track cyberattacks, fraud, and abuse. Thus it is important to bring data security together with governance to share practices and policies.
- **Analytics.** As experts on the data, stewards can help business users manage use of data in analytics models. Stewards should act as guides for working with big data sources that do not have traditional schema and structure.

Striking a good balance between user freedom and governance is critical and organizations should avoid imposing unnecessary rules just for the sake of control. Governance committees are helpful in facilitating discussion between users and IT and help to create the right balance.

STEP THREE

IMPROVE DATA PREPARATION PROCESSES FOR GOVERNED ANALYTICS DISCOVERY

Traditional data preparation is under pressure as users employ visual analytics and discovery tools and seek flexible data interaction. To perform business-driven analytics, users don't want to wait for long IT development cycles to create extraction, transformation, and loading (ETL) routines only to find that the results do not meet their needs. Users need data preparation that supports self-service ad hoc queries, scoring of analytics models, exploratory discovery across multiple and new data sources, and blending for more complete views.

Data preparation covers a range of processes that include data ingestion and acquisition, profiling, quality, validation, transformation, integration, master data management, and cataloging definitions in a glossary. These processes increase knowledge of the data and its lineage (i.e., how it has been used and transformed and by whom, which are of interest from a governance perspective). Preparation processes should also enable data scientists to share models and analytics processes with users of visual analytics tools. Yet too often these processes are typically not well integrated or common across applications and data resources. Although it is unlikely that an organization will ever have completely integrated processes, it would benefit from greater coherence and elimination of unnecessary routines.

Self-service data preparation is about enabling users to do more on their own, often through front-end self-service visual analytics and discovery tools. New technologies for self-service data preparation are automating manual processes so users needn't get their hands dirty with data. Some specialized tools help users and data scientists profile and transform raw and unstructured data in Hadoop data lakes, improve its quality, and enrich it by blending it with data from structured sources such as data warehouses.

To improve data preparation, organizations should take these three steps:

- **Evaluate new technologies.** Organizations should test self-service data preparation features that may be integrated with their visual analytics and discovery toolsets, as well as new standalone technologies.
- **Rationalize current data preparation steps.** Organizations should evaluate current procedures to eliminate unnecessary routines.
- **Align data preparation and governance.** Well-managed data preparation is critical to governed analytics and discovery. Organizations should include governance considerations as they modernize data preparation.

 **STEP FOUR**

USE GOVERNANCE TO GUIDE USERS TO SUCCESSFUL INTERACTION WITH INTEGRATED DATA

Data integration is one of the most critical functions for users of visual analytics and discovery tools. By merging disparate data sets, data integration equips decision makers to make well-rounded decisions. In marketing, for example, decision makers want to get to a 360-degree view of customers, which means being able to see data about customer interactions across channels such as transactional and behavioral. Business users want to see those data sets in a single dashboard or portal for a holistic view of the business. They also want to see segmentation analysis and results from running predictive models. Governance processes are essential for developing integrated views because along with protecting sensitive data from exposure, these processes help ensure that users are viewing high-quality, relevant data and that the content they create and share meets standards.

Some types of analytics create more value if they can be run across multiple data sources. Business users often need to look at trends, find correlations, and pursue other insights by looking beyond just one source. Yet this can be difficult to do without first bringing the data together in a data warehouse, data mart, or data lake. Hadoop data lakes, for example, not infrequently bring together hundreds of millions of rows as well as petabyte-sized unstructured data files that would not fit into a traditional data warehouse. Technologies that enable front-end visual analytics and discovery tools to query Hadoop data lakes are maturing; these include connectors as well as direct, SQL-on-Hadoop solutions. These are providing support for more continuous data interaction—as opposed to periodic batch processing—than has been possible in the past.

Organizations should evaluate new approaches that give users access to data views built from broader, varied data sets and the ability to access and analyze multiple data sources. However, user expectations for analysis of multiple data sets in Hadoop data lakes must be set carefully because data quality could be poor and different data types do not always match up. Governance committees and CoEs can be helpful in guiding users to appropriate data sources and recommending data preparation technologies and processes to address specific use cases.

 **STEP FIVE**

INCREASE BUSINESS AGILITY BY GOVERNING PROJECTS TO DELIVER VALUE SOONER

Agility is prized today as organizations seek to prosper in fast-changing markets, adjust to changes in customer preferences, overcome supply chain disruptions, and deal with new competition from unexpected directions. Traditional BI and data warehouse environments often fall short on this front. Many of these systems were built primarily for historical reporting or monitoring performance metrics and were not designed for easy access for end users or to adjust to rapid changes in the business. In addition, traditional systems generally depend on BI teams for development or the addition of new data. Under these conditions, projects can take months to deliver results. Businesses need to shrink the time to value with analytics projects if they are to become more agile. Governance approaches must be adjusted to fit this new rhythm.

Many visual analytics and discovery tools are more self-service than traditional BI and are suited to faster, more agile decision making. Ease-of-use features enable users to go beyond just consuming reports to interacting with the data so they can learn why, for example, performance metrics are moving in an unexpected direction and then determine what to do about it. Consequently, IT resources are freed up to focus on other mission-critical projects as well.

Here are two steps organizations can take to increase business agility with well-governed visual analytics and discovery:

- **Define initial projects that will deliver quick wins.**
Project teams should identify opportunities to help the business right away and demonstrate value. Defining, prototyping, and implementing key performance indicators are often good areas to address first. CoEs should guide users to help them move quickly through governance processes toward the quick wins.
- **Provide data “sandboxes” for user experimentation.**
IT is often wary of letting nontechnical users access the data warehouse or other key data assets for fear of performance problems or other unexpected events. By setting up sandboxes—potentially in the cloud to eliminate setup and configuration—users can have easier and faster access to well-governed, curated selections of data without impacting back-end systems directly.

 **STEP SIX**

TRAIN USERS TO TAKE ADVANTAGE OF DATA VISUALIZATION AND STORYTELLING POTENTIAL

Data visualization technologies continue to advance, enabling many users to work more effectively with data—particularly those with little experience or affinity for doing so. No technology trend has been more important to bringing data-driven analysis to the forefront than data visualization. Subject matter experts in roles where data has traditionally played only a small part are now able to make data-driven decisions. Visual analytics and discovery tools have facilitated the work of users who seek insights from data and share them with colleagues in ways that all can readily understand.

Dashboards are often the first step. Simple dashboards can be effective for consolidating multiple visual objects, such as charts and gauges for monitoring performance thresholds. As users advance, they need more than just better ways of consuming data; they need visual data interaction, including the ability to drill down to deeper layers behind the visualizations. As mentioned earlier, CoEs and governance committees can play an important role in guiding users to appropriate data and ensuring that the content they produce meets standards and adheres to data policies. The committees can help determine what data visualization training users need to complete, potentially using media such as how-to videos.

One type of visual analytics gaining popularity is integrating data with maps for geospatial (or location) analytics. Users can employ geospatial analytics to engage in data-rich, thematic mapping and spatial analysis that can reveal, for example, how sales are trending in a specific region, whether field services are deployed efficiently, or other trends that would not be easily noted without seeing the data in a geographical dimension. For users with little experience in working with data, geospatial analytics is a good starting point.

Visualization is critical to collaborative decision making. A concept gaining popularity is data “storytelling,” which is about using a series of visualizations to explain how data-driven conclusions were reached, what the trends show, and what decisions need to be made. Communication of data insights is often one of the hardest skills to master. With technology support and training in data storytelling, users and analysts can be more effective and persuasive in explaining the importance of data insights.

 **STEP SEVEN**

USE GOVERNED ANALYTICS TO PRODUCE SMARTER OPERATIONAL DECISIONS

Achieving higher operational efficiency and effectiveness has long been a top objective for deploying BI, and visual analytics and discovery tools are no exception. Organizations want to integrate analytics with business applications, rules, processes, and workflows to improve operational performance. Many firms with enterprise BI systems use them to communicate performance management metrics to departmental managers via dashboards. Increasingly, users in these enterprises are implementing self-service analytics tools so that they can better examine the data and determine how to achieve their goals. In organizations that do not have an enterprise BI standard, users need better solutions than spreadsheets for analyzing operational performance.

Properly governed visual analytics and discovery can help users improve operations. Organizations should focus on these three tasks:

- **Give users guidance about the quality of real-time data.** Our research finds that many organizations have increased data refresh rates for BI and performance management dashboards to more than once a day, and they are pushing to refresh data even more frequently to keep operational managers informed about performance metrics and situations that demand immediate attention. However, organizations need to apply governance to set user expectations about the quality of near- or real-time data to which data quality processes may not have been applied.
- **Share the story behind predictive analytics.** Organizations need to get ahead of events so they can adjust decisions and be proactive in the face of unexpected events and trends. Operational managers can benefit from predictive models, typically developed by the organization’s data scientists, which they can run against continuous, real-time data streams. It is critical, however, that stakeholders have some understanding of the “story”—that is, the data lineage and assumptions that went into the models. Governance and CoE committees should encourage data storytelling for sharing this knowledge.
- **Integrate analytics with applications, rules, and processes.** Organizations should make it a priority to develop tighter integration between analytics and operations so that insights can be applied more rapidly. Nevertheless, governance must be a priority so analytics is integrated (or embedded) in applications and processes to ensure that sensitive data is protected and model quality is monitored.

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ABOUT TDWI RESEARCH

TDWI Research provides research and advice for data professionals worldwide. TDWI Research focuses exclusively on business intelligence, data warehousing, and analytics issues and teams up with industry thought leaders and practitioners to deliver both broad and deep understanding of the business and technical challenges surrounding the deployment and use of business intelligence, data warehousing, and analytics solutions. TDWI Research offers in-depth research reports, commentary, inquiry services, and topical conferences as well as strategic planning services to user and vendor organizations.

ABOUT TDWI CHECKLIST REPORTS

TDWI Checklist Reports provide an overview of success factors for a specific project in business intelligence, data warehousing, or a related data management discipline. Companies may use this overview to get organized before beginning a project or to identify goals and areas of improvement for current projects.