

The Context for Performance Dashboards

Chapter 1 showed that performance dashboards provide a visual way for organizations to measure, monitor, and manage critical business activity. However, to understand performance dashboards, we need to examine the business and technical context in which they operate.

This chapter examines the concepts and principles of business performance management that provide the business rationale for performance dashboards. It also explores business intelligence concepts and technologies, which power most (but not all) performance dashboards today.

Business Performance Management

Defining BPM

Business performance management (BPM) is a series of management disciplines, processes, and tools that enable organizations to optimize the way they execute business strategy. Performance dashboards play a pivotal role in BPM initiatives since they provide a window into business performance and a visual way to chart progress against goals.

Confusion. Unfortunately, there is still confusion about what BPM is—and is not. Much confusion stems from the fact that performance management involves multiple processes and applications that all organizations already implement to some degree. These include strategic planning processes, financial consolidation and reporting, planning and budgeting, forecasting and modeling, and dashboards and scorecards. When introduced to the concept of BPM, many managers rightfully exclaim, “We’ve been doing that for years!”

However, few organizations have integrated the disciplines in a concerted or cohesive way or implemented a common strategic and technical

framework to drive all parts of the organization toward a common set of goals and objectives. Today, most organizations implement BPM applications in isolation, although this is changing as more companies understand the premise behind BPM and vendors offer more integrated BPM packages. For instance, an organization may deploy financial consolidation and reporting software to improve financial reporting but fail to automate planning and budgeting activities. Or they may kick off a budgeting initiative but neglect to integrate budgeting output with departmental and workgroup scorecards and dashboards.

The Vision of BPM. An integrated performance management system creates a nimble organization that adapts quickly to market changes without losing focus of its overall direction and goals. Because it continually monitors and measures key drivers of business performance through an integrated set of performance dashboards, the organization knows immediately how a new market condition will impact its ability to achieve targets. Every level of the organization quickly adjusts forecasts, plans, and budgets and launches new initiatives to respond to the change and shore up performance. If necessary, executives alter the strategy, moving the organization in a new direction that promises more favorable results. They communicate the new strategy in meetings and a series of integrated, cascading dashboards that align every part of the organization with the new objectives so everyone is marching in the same direction.

Confusion. Unfortunately, we have a long way to go to achieve the vision of BPM. Industry experts cannot even agree what to call it. Some prefer the term *business performance management* while others favor *corporate performance management* or *enterprise performance management*. To add to the confusion, most organizations have a performance management process that evaluates individual employees and determines incentive payouts. Finally, some vendors use the term *BPM* to stand for *business process management*, a related but distinct discipline. (See Spotlight 2.1.)

Spotlight 2.1 BPM versus BPM

Like the old Spy vs. Spy cartoons in *Mad Magazine*, business performance management (BPM) and business process management (BPM) are distinct but related disciplines. Both seek to optimize business processes, but one approaches the task from the top down and the other from the bottom up.

Business performance management is generally a top-down endeavor that focuses on executing strategy. Executives, managers, and staff use plans, budgets, reports, dashboards, and scorecards to

communicate strategy and measure and monitor progress toward achieving strategic objectives at every level of the organization. The goal is to help the organization work more *effectively*.

Conversely, business process management is a bottom-up approach designed to automate, optimize, and integrate existing business processes. It uses modeling, workflow, and application integration tools to streamline processes and improve quality, responsiveness, and customer satisfaction. Its focus is on helping the organization work more *efficiently*.

Definition. Today, the industry seems to have settled on the generic term *performance management* to describe the combination of processes and technologies that help an organization measure, monitor, and manage its business to optimize performance and achieve goals. More succinctly, performance management is *a series of organizational processes and applications designed to optimize the execution of business strategy*.

Obstacles to BPM

The concepts behind managing a business are straightforward: Executives set strategy and goals, managers develop plans and budgets to achieve the goals, and staff executes the plans. Then everyone monitors progress toward meeting the goals using reports and analytical tools, making course corrections as needed to ensure they hit the targets. However, defining a good strategy and executing it are two different things.

Strategy Gap. The prospects for performance management are bright because the state of business management in most companies is so poor. The main problem is that there is a huge gap between strategy and execution. Executives spend days or weeks devising well-crafted strategies and then throw them over the wall to the rest of the company, hoping and praying that their vision will bear fruit. Usually, nothing much happens. The organization is deaf to the executives' guidance and direction. Inertia reigns supreme.

Broken Budgets. Another problem is that traditional planning and budgeting cycles—based on centuries-old bookkeeping practices—are no longer fast or flexible enough to meet the accelerated pace of business today. Most plans and budgets are simply irrelevant and out of date before they are completed. Most employees view the budget as a mindless hoop to jump through, a corporate rain dance, rather than a real aid to planning and management.

Nonaligned Reporting. Finally, reporting and analysis in most organizations is not aligned with strategic objectives. Most organizations have too many reports measuring too many things of too little importance. And most of the reports don't use consistent definitions for common entities, such as customer or supplier, or shared rules for calculating key metrics, such as sales or profits. Most reports are focused on operational or tactical processes and don't measure things that drive real value embodied in strategic objectives.

Benefits of BPM

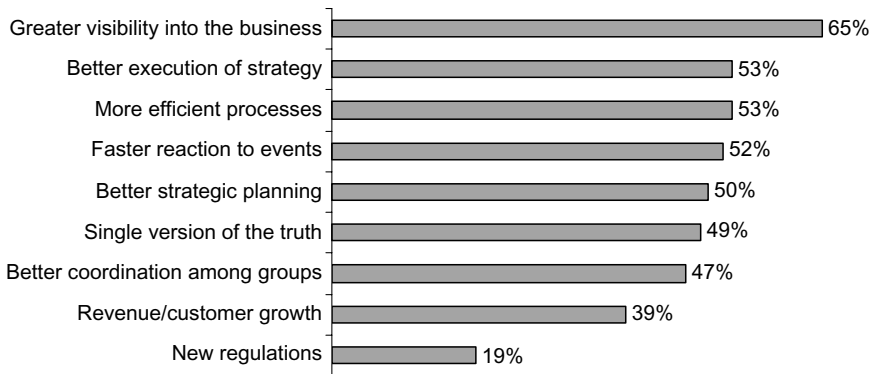
Most people think that performance management is simply about improving performance in general, but it is not. Performance management is about improving performance *in the right direction*. It is possible for organizations to work efficiently but not effectively. Groups and teams may work long hours with great enthusiasm, but if they develop or refine the wrong processes, products, or services, then all their sweat, blood, and tears will not help the company achieve its strategic goals.

Performance management is designed to help organizations focus on the few things that really drive business value instead of many things that generate activity but do not contribute to the organization's long-term health or viability. Performance management bridges the gap between strategy and execution, resulting in three major benefits:

1. **Improved communication.** Executives can more effectively communicate strategy and expectations to managers and staff at all levels of the organization via dashboards and scorecards tailored to individual roles.
2. **Improved coordination.** Managers can more effectively exchange ideas and information between organizational levels and among business units, departments, and workgroups.
3. **Improved control.** Staff is better able to adjust plans and fix or improve operations in a timely manner using up-to-date information about market conditions and operational processes.

Research shows that most organizations implement performance management solutions to gain greater visibility into the business, execute strategy, improve process efficiency, react faster to business events, improve strategic planning, and deliver a more consistent view of business information. (See Exhibit 2.1.)

The desire among executives to gain greater visibility into the operations is fueled in part by the U.S. Sarbanes-Oxley Act of 2002, which established strict new standards for corporate governance and financial disclosure. In particular, section 409 of the act calls for organizations to



Note: Based on 635 respondents who have deployed a performance management system.

EXHIBIT 2.1 Why Implement Performance Management?

Source: TDWI Research, 2004.

provide real-time disclosure of material events that may affect performance. Combined with heightened competition and the accelerating pace of business, organizations feel a pressing need to know what is happening in their operations at all times.

Automating Management. From a technology perspective, performance management is merely the latest—and perhaps the last—business function that corporations are automating with packaged application software. Starting in the 1980s, organizations deployed software packages to integrate and automate back-office operations, such as manufacturing, finance, and human resources. In the 1990s, organizations deployed software packages to support and enhance front-office activities, such as sales, service, and marketing. In the late 1990s, organizations purchased software packages to optimize cross-functional processes, such as supply chains and customer relationships. (See Exhibit 2.2.)

Today, the last remaining business process to be automated or fully supported by packaged software is business management. This is the domain of performance management, and it might be the last great untapped market for business software. By virtue of its position at the top of the business pyramid, performance management software holds a commanding view of the rest of the organization. Whereas software at lower levels of the business pyramid focuses on increasing the efficiency of business processes, performance management serves as the brains or central nervous system of the entire organization. Performance management enables organizations to work more effectively, not just more efficiently, to achieve strategic objectives.

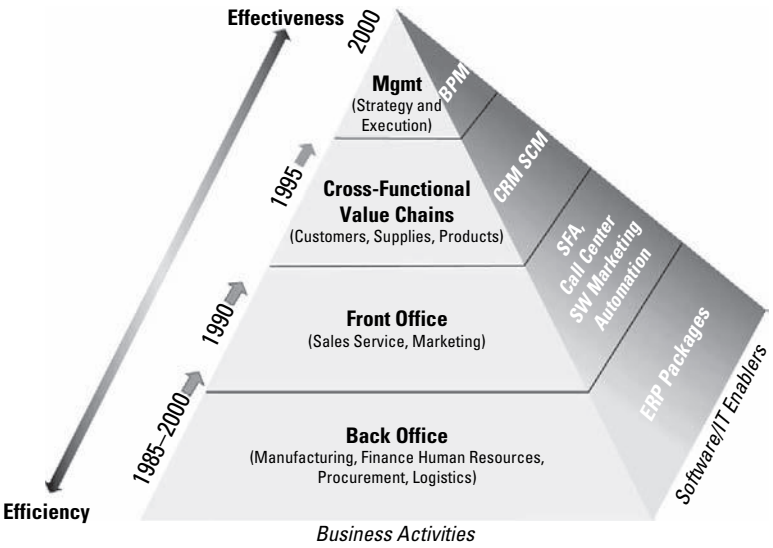


EXHIBIT 2.2 Evolution of Software Automation

A Framework for BPM

Four-Step Process. If performance management optimizes business management, what is the process by which it works? What are its components? What are the technologies required to support it?

Performance management consists of a four-step, closed-loop process that turns strategy into action as depicted in Exhibit 2.3. The steps are strategize, plan, monitor/analyze, and act/adjust. The four-step cycle revolves around integrated data and metrics, which provide a common vocabulary and means for measuring performance across all dimensions of the organization.

The top half of the circle in Exhibit 2.3 constitutes the “strategy” portion of performance management, while the bottom half of the circle represents “execution.” Organizations define “strategy” by creating a vision and goals and devising plans for achieving them. They “execute” the strategy by monitoring and analyzing performance and adjusting plans and targets as needed.

When all steps in the BPM process are executed in a concerted manner, they enhance communication, control, and coordination among staff and groups in the organization. In many ways, performance management greases all the parts of the organizational engine to keep it moving in the right direction. Let’s examine each step.

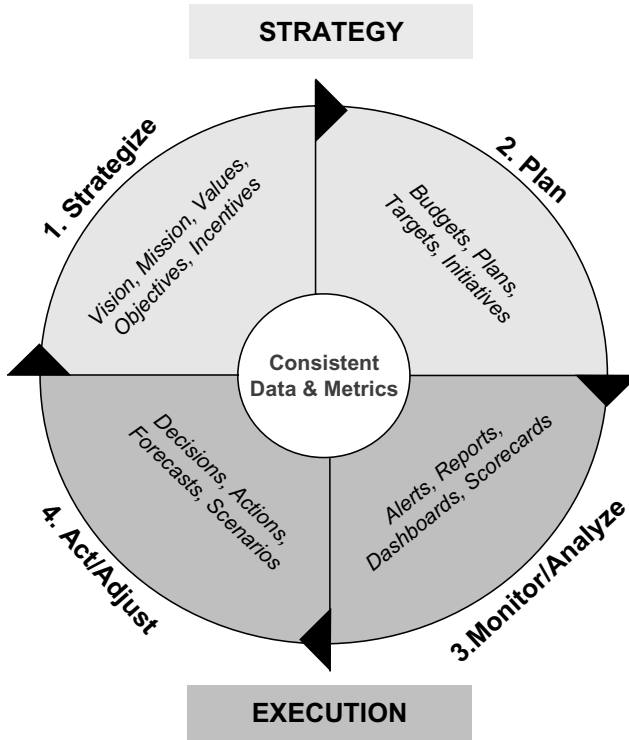


EXHIBIT 2.3 A Performance Management Framework

Step 1: Strategize. Here, executives define or refine the vision, mission, and values of the organization and set goals and objectives to achieve short- and long-term objectives. Every team, department, and business unit should develop strategies and plans that align with top-level strategies and plans. The best strategic plans define key *drivers* of business value and ways to measure them. Examples of drivers might be “high customer satisfaction” or “excellent product quality” and measures might be “customer satisfaction scores” and “number of defects per thousand.” Measures of business drivers are called *key performance indicators* (KPIs). KPIs foster action that helps an organization achieve its strategic objectives. As we shall see in Chapter 11, it is not easy to create effective KPIs.

Some organizations use a *strategy map* to tell the story of their strategy. For example, the Ministry of Works in the Kingdom of Bahrain, profiled in Chapter 9, has 17 sets of strategy maps governing every aspect of the work it performs. A strategy map arranges

strategic objectives on a single page and links them using cause-effect logic so that it's clear how each objective influences others. *Incentives* are another key tool that executives use to reinforce strategy and focus employees on key drivers of performance. Organizations, such as Cisco (see Chapter 9) that align compensation with strategic objectives can turbo-charge productivity and achieve corporate goals.

Step 2: Plan. Next, groups within the organization meet to develop plans to carry out the business strategy and allocate resources to execute the plans. The plans may involve launching new initiatives, projects, and processes, or refining and reaffirming existing ones. The primary planning tool is the *budget or plan*, which allocates resources—people, knowledge, technology, equipment, and money—to carry out the group's goals. The planning process involves breaking down high-level corporate objectives (e.g., “increase market share by 10 percent”) into discrete targets and operating models for every group at each level in the organization. The groups then create projects and processes to meet those targets.

Experts agree that planning should be a collaborative process that ties together people across the organization rather than a corporate ritual that imparts little value. Unfortunately, the budgeting process is broken in most organizations. It projects last year's activities onto the coming year and, once approved, is rarely adjusted as circumstances change. In many organizations, the budget is already out of date by the time it is finalized and published.

Part of the problem is that most organizations use custom spreadsheets to disseminate and collect data, a process that is cumbersome, error prone, and time consuming. Another pitfall is that many companies do not have a standard planning process or shared definitions for calculating currency conversions or the fully loaded cost of hiring a new worker, for example. If each business unit has a separate planning system, it becomes virtually impossible to align the organization and deliver a consistent view of business activity.

New Web-based planning solutions promise to transform budgeting from a backward-looking, static, and labor-intensive process to one that is dynamic, forward-looking, and tied to strategic drivers and objectives. Leading-edge companies are moving away from grueling, bottom-up budgeting to continuous planning with rolling forecasts based on actual performance.

Step 3: Monitor/Analyze. Executing strategies requires people armed with good information and clear directions from the top. Therefore,

a good performance management solution provides tools that enable users to monitor and analyze performance in a timely manner and take proactive steps to achieve goals—in other words, a performance dashboard.

Chapter 1 showed that a performance dashboard consists of business intelligence (BI) tools for reporting and analyzing information; a data integration infrastructure for collecting and integrating data from diverse sources; data storage systems, such as data warehouses and data marts; and monitoring and management tools. Collectively, these tools and components enable business users to access and analyze information and chart their progress toward achieving strategic objectives. (See the section “Business Intelligence.”)

Step 4: Act and Adjust. The last part of the performance management process is the most critical. To execute strategy, workers must take action to fix broken processes before they spiral out of control and exploit new opportunities before they disappear.

Performance dashboards play a key part in the act/adjust phase because they alert users to potential problems and provide them with additional detail and guidance to help them make fast, high-quality decisions. “It’s not enough to provide just metrics,” says one information technology professional. “If the metrics show something is wrong, the first thing users want is more information.” For certain well-known processes, organizations implement *intelligent alerts*, which automatically recommend action or execute tasks sometimes without human intervention. For example, one online travel site uses an operational dashboard to alert managers when surges in demand require the organization to expand its inventory of airline seats and hotel rooms.

Organizations also need to adjust plans and forecasts to reflect changing market conditions. With centralized, Web-based planning systems, staff can more easily adjust forecasts and planning models. Forward-thinking organizations are now moving to a continuous planning environment so they can adapt more quickly to market changes. For example, one equipment manufacturer now reforecasts sales eight times a quarter and financials once a quarter, creating plans 90 percent faster using half the staff.

Business Intelligence

If performance management defines the management principles and processes for executing strategy, business intelligence describes the underlying

technical infrastructure needed to measure, monitor, and manage key processes that drive business performance.

Most of the companies profiled in this book built performance dashboards on top of a BI environment. Without BI, organizations cannot exploit the full potential of a performance dashboard to align people and processes with strategic objectives and make smart, timely decisions. In short, BI is the foundation upon which most performance dashboards grow and flourish.

Origins. BI emerged as a distinct discipline in the early 1990s as a way to provide end users with better access to information for decision making. The initial goal was to give users “self-service” access to information so they did not have to rely on the IT department to create custom reports. By the early 1990s, BI consisted of two data warehousing and query and reporting tools.

Companies began building data warehouses as a way to offload queries from operational systems. Data warehouses became “analytical playgrounds” that let users query all the data they wanted without bogging down the performance of operational systems. At the time, users needed to know SQL, a database query language, to query the data warehouse. Prescient vendors began shipping query and reporting tools that hid SQL behind a point-and-click Windows interface. Vendors converted these desktop query and reporting tools to the Web in the late 1990s and bundled them with other types of analytical tools to create BI suites or BI platforms.

Modern BI. Today, *BI* is an umbrella term that encompasses a raft of data warehousing and data integration technologies as well as query, reporting, and analysis tools that fulfill the promise of giving business users self-service access to information. Performance dashboards represent the latest incarnation of BI, building on years of innovation to deliver an interface that conforms to the way a majority of users want to consume information.

Conceptual Framework

BI is often used as a synonym for query, reporting, and analysis tools. However, the term *business intelligence* is broader than a set of software tools. Specifically, it is *the processes, tools, and technologies required to turn data into information and information into knowledge and plans that drive effective business activity*.

Given this definition, performance dashboards based on a BI infrastructure provide more than just a visual display of performance metrics. They are powerful tools for transforming companies into learning-based organizations that use fact-based decision making to achieve strategic objectives.

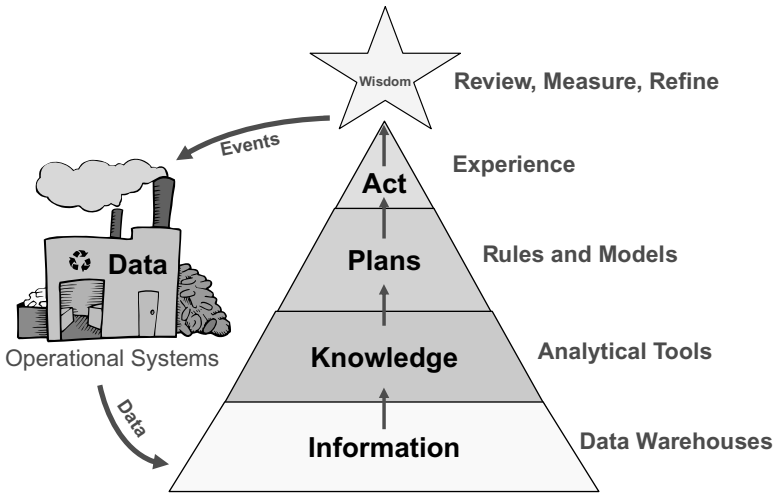


EXHIBIT 2.4 BI as a Data Refinery

One way to think about BI is as a data refinery. To understand this analogy, think of an oil refinery, which is designed to take a raw material—crude oil—and process it into a multiplicity of products, such as gasoline, jet fuel, kerosene, and lubricants. In the same way, BI takes another raw material—data—and processes it into a multiplicity of information products. (See Exhibit 2.4.)

Data. The cycle begins when operational systems that “run” the company—such as order entry, shipping, billing, and general ledger—capture business events and store them in databases. This detailed, transactional data is the raw material of BI.

Information. From there, a data warehouse captures data from multiple operational systems and harmonizes it as a granular level so the shared data have consistent meaning, attributes, and hierarchies. For example, a data warehouse might match and merge customer data from four operational systems—orders, service, sales, and shipments—turning data into a new product: *information*.

Knowledge. Then users equipped with query, reporting, and analysis tools examine the information and identify trends, patterns, and exceptions in the data. Analytical tools enable users to turn information into *knowledge*.

Plans. Armed with insights, users then create *rules* from the trends and patterns they discover. These rules can be simple—“Order 50 new units whenever inventory falls below 25” or “We expect to sell 1,000 widgets next month based on our past three months of sales and year-to-date comparisons.” The rules can also be complex, generated by statistical

algorithms or models. For example, statistically generated rules can dynamically configure prices in response to changing market conditions, or optimize freight-hauling schedules in a large carrier network, or determine the best cross-sell opportunities for use in a call center or Web site.

Users then create plans that implement the rules. For example, a marketing manager may create a marketing campaign that provides unique offers to customers in six market segments using a scientifically tested combination of direct mail and incentives tailored to each customer. Plans turn rules into *action*.

Action. Once plans are executed, they generate business events that are captured by operational systems, starting the process anew.

Wisdom. Each time an organization cycles through the process, executives, managers, and staff learn more about how the business works and what levers they can pull to achieve the desired effects. In effect, BI creates a continuous feedback loop and a learning organization that can respond flexibly and nimbly to new events in the marketplace.

Misconception. Some executives mistakenly think that there is no difference between BI systems and operational systems. They do not believe they need to spend hundreds of thousands or millions of dollars to create a BI system when their operational systems already generate reports and business analysts are adept at creating ad hoc analyses in Excel.

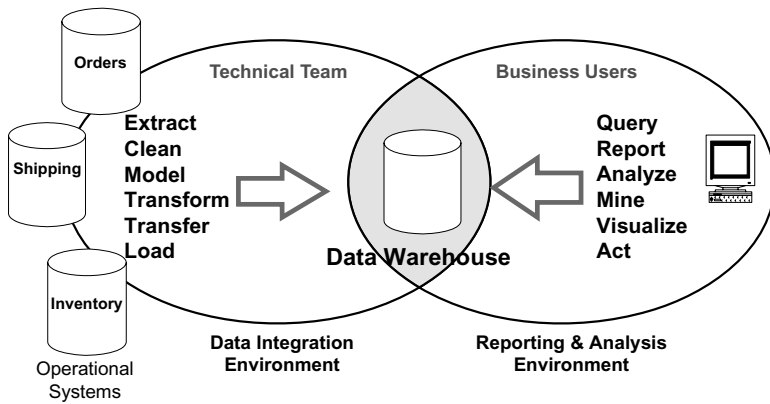
Eventually, these organizations become bogged down gathering and analyzing data, wasting hundreds of thousands of dollars in man-hours every year. Even worse, they make bad decisions based on incomplete, inconsistent, and inaccurate data, leading to a loss of sales or credibility.

Technical Framework

The diagram in Exhibit 2.5 depicts BI as two intersecting ovals. This is the technical framework for BI.

DATA INTEGRATION ENVIRONMENT

The left-hand oval is the data integration environment. This is where the technical team spends 60 to 80 percent of its time. Its job is to extract, clean, model, transform, transfer, and load transaction data from one or more operational systems (e.g., orders, shipping, and inventory) into the data warehouse. These tasks are not easy because operational data are rarely clean, consistent, or easy to integrate. Like archaeologists, the technical team needs to decipher the meaning and validity of thousands of data elements and values in multiple operational systems. It then needs to glue everything back together again into a single coherent model of the business, much like a paleontologist might reconstruct a life-size model of a dinosaur from an assortment of bones.

**EXHIBIT 2.5** BI Environment

Needless to say, these tasks take a tremendous amount of time and effort. Just as it takes years for a paleontologist to piece together a dinosaur from its pieces, it can take months for a technical team to create an initial data warehouse or data mart. This is why most teams start small and incrementally build an enterprise view one subject area at a time. Also, just as paleontologists need expert knowledge of their domain, technical teams need a deep understanding of the business they are trying to model. To do this, most technical teams need to work closely with subject matter experts who are intimately familiar with the business and its data to assist them in gluing the business back together again.

Data Integration Tools. To build a data warehousing environment, technical teams must first analyze source systems to see what data they contain and also examine the condition of the data. Often, source systems contain incomplete, missing, or invalid data, which makes it challenging to build a data warehouse. Most teams now use *data profiling tools* to audit and assess the condition of source data and identify relationships among columns and tables. They use *data cleansing tools* to validate and fix known problems in source data as it is loaded into the data warehouse.

Once the team finishes analyzing the data in source systems, it creates a target *data model* for the data warehouse. The model, in effect, is a logical representation of how the business operates in a specific area, such as sales or service. Most technical teams create conceptual, logical, and physical data models using commercially available *data modeling software*, although some data modelers still work entirely by hand.

With a target model in hand and a good understanding of data in source systems, the team is now ready to map source data to the target

data warehousing model. It does this by using *extraction, transformation, and loading (ETL) tools* or by coding transformation logic by hand. ETL programs are the heart and soul of a data warehousing environment because they contain all the rules for gluing data from multiple source systems into a single data store that provides an integrated picture of the business. ETL tools also contain engines that automate the process of extracting source data, transforming and mapping it to the target model, and moving and loading it into the data warehouse.

DATA WAREHOUSING ENVIRONMENT

Data Warehouses. Once the data archaeology is complete, the technical team loads the integrated data into a data warehouse, which is usually a relational database designed to handle large numbers of both simple and complex queries. A *simple query* might ask for the customer record for “John Doe,” which was pieced together from multiple systems and stored in one row of the data warehouse database. A *complex query* might ask to see the top 10 customers for the previous 12 months who have outstanding credit but declining orders. Whereas simple queries take seconds to execute, complex queries may take many minutes or hours, depending on the complexity of the query and the volume of data in the data warehouse.

Data Marts. Rather than build an enterprise data warehouse that tries to meet everyone’s needs at once, most technical teams minimize their risks and capital requirements by building a data warehouse one data mart at a time. A data mart is a subject-specific application designed for a department or group. It can be a set of tables within a data warehouse or a physically distinct system. Most teams can deliver a new data mart every three to six months, depending on scope and the cleanliness of source data. A typical dashboard project involves creating a data mart.

Hub and Spoke. Today, most companies use a hub-and-spoke architecture when building a data warehousing environment. Here, a central data warehouse feeds information to multiple logical or physical “dependent” data marts. (Stand-alone data marts are “independent” and generally undermine information consistency.) Most users and applications (i.e., a performance dashboard) query the data marts to ensure good performance. Only data-savvy business analysts are allowed to query the data warehouse directly.

Lightweight Infrastructure. Not all performance management systems require organizations to build data warehouses and deploy data integration middleware, which can be expensive. Some strategic dashboards succeed without them. However, just because an organization does not want to spend money creating a BI infrastructure does not mean it can succeed without it. (See Spotlight 2.2.)

Spotlight 2.2 Do We Really Need a BI Infrastructure?

Some executives balk at the cost and complexity of creating a BI infrastructure and question whether it is necessary to deliver performance dashboards.

If a manager simply wants to visualize an Excel spreadsheet, there is no need for a BI infrastructure. Of course, from an enterprise perspective, there is little value in a personalized dashboard, especially one created independently without standard data, definitions, and rules. In fact, such dashboards are no more than glorified spreadmarts, renegade systems that undermine information consistency.

However, most performance dashboards require a BI infrastructure of some sort to deliver clean, integrated, historical data, although there are some exceptions. Some operational dashboards may pull data directly from source systems to get the most current data possible. But many organizations are now operationalizing their data warehouses to do the same thing and preserve information consistency. (See the profile of 1-800 CONTACTS in Chapter 7 as an example.) Strategic dashboards are often populated manually from Excel spreadsheets because executives want to measure things or processes that aren't yet systematized.

Long-term Problems. Organizations that put off building a BI infrastructure when implementing performance management systems create problems for themselves in the long run. They usually hit a brick wall once they try to expand a performance dashboard beyond the initial department or target group of users. Successful projects are cursed with success, and the team must support three to four times more data and users than they anticipated. When this happens, the team often quickly slaps together a BI infrastructure that is not reliable, scalable, or aligned with corporate information standards. These make-shift BI infrastructures are costly to maintain and are prime candidates for consolidation into a more standard infrastructure.

Managing Costs. A robust BI infrastructure does not have to cost a fortune, and it does not have to be built all at once. Many companies profiled in this book bootstrapped their performance dashboards with little or no money and without making long-term technical compromises at the infrastructure level. Most built the BI infrastructure incrementally along with new applications and functionality requested by users. Some also leveraged existing data warehouses and data marts, accelerating development and avoiding duplication of resources. With a robust data BI infrastructure in place, the added costs to create a performance dashboard are minimal.

REPORTING AND ANALYSIS ENVIRONMENT

The right-hand oval in Exhibit 2.5 refers to the reporting and analysis environment, which is the domain of the business users. They use a variety of tools to query, report, analyze, mine, visualize, and, most important, act on the data in the data warehousing environment.

Standard Reporting Tools. Standard reporting tools allow power users or developers to craft custom queries and format the results in a standard report layout, such as a management report, master-detail report, pixel-perfect invoice, or even a performance dashboard. A decade or two ago, most standard reports were handwritten using a programming language, printed on paper, and distributed via snail mail. However, vendors now offer powerful Web-based reporting tools that enable users to interact with the reports in a variety of ways.

Ad Hoc Reporting. Ad hoc reporting tools enable users to query data marts or data warehouses directly. They usually provide users with pre-defined query objects (e.g., a semantic layer) that shield users from having to know SQL or master the complexity of back-end database structures. Users simply drag and drop the objects onto a “query panel” to formulate a query and view results, which they can manipulate further. These tools make it easy for users to explore data and create custom reports.

Analysis Tools. There are many types of analytical tools. In fact, one could make a case that interactive reports are analytical tools since they enable users to interact with data. Many business analysts use Microsoft Excel or Access to collect, massage, and present data, while others use online analytical processing (OLAP) tools that deliver dimensionalized views of data. The beauty of OLAP tools is that they let users query data the way they think about the business—dimensionally. For example, a typical OLAP query might be “Let me see net profits by product, by channel, by geography, and by time.”

Visual analysis tools are the newest form of analytical tool. They let users interact with charts and tables at the speed of thought because they store data in memory. Leveraging advanced visualization, compression, and 64-bit operating systems, these tools are increasingly being used as a foundation for performance dashboards.

Search tools also aid in analysis. Increasingly, BI vendors offer keyword search as a way for users to find relevant reports and kick off ad hoc queries. BI search is a great way for casual users to explore data without having to know SQL or query tools.

Data Mining Tools. Data mining, also known as predictive analytics or knowledge discovery, enables statisticians and power users to discover patterns in large sets of structured data and generate statistical models. The models use historical patterns to predict the future. They are widely used in sales and marketing applications, but their range of potential uses is

virtually unlimited. In addition, some vendors now sell *text mining tools* that discover patterns in call center comment fields, e-mail, social media, and other unstructured text-based files.

Performance Dashboards. As we know, performance dashboards provide a layered information service that combines monitoring, analysis, and reporting—and increasingly prediction and visualization—in a single integrated environment. By integrating the functionality of most BI tools, performance dashboards meet 60 percent to 80 percent of the information needs of most casual users.

BI Platforms. The six categories of BI tools described earlier—report design, end-user query and reporting, OLAP, data mining, and performance dashboards—deliver different types of functionality for different types of users. To meet user requirements, organizations must purchase multiple BI tools, something most executives are loath to do. For years, executives have made it abundantly clear that they want to purchase only one tool for all users to minimize upfront license fees and downstream maintenance, support, and training costs. The reality, however, is that one size does not fit all when it comes to BI tools.

Most companies purchase a different BI tool in each of the six categories, although increasingly these tools come from a single vendor. In the best-case scenario, the BI tools are simply functions or modules in a BI platform that leverage a common set of services (e.g., graphical controls, security, metadata, query, and rendering) and can exchange parameters when users shift from one module to another. These BI platforms provide a more seamless experience for users who want to switch from reporting to analysis and back again.

User Fitting

Exhibit 2.6 provides a simple framework for mapping users to BI tools. The framework divides all users into two categories: (1) *information producers*, who create reports and views for others, and (2) *information consumers*, who consume those reports and views. All information producers are also consumers, but certain consumers (i.e., executives, managers, customers, suppliers) are not producers.

Information Producers. Information producers are *power users* who create information building blocks for others to consume. They can be IT developers who create pixel-perfect reports, complex standard reports, and dashboards; superusers who create simple reports and dashboard for colleagues in their departments; business analysts who use a variety of analysis tools to explore issues; or statisticians and analysts who create predictive models.

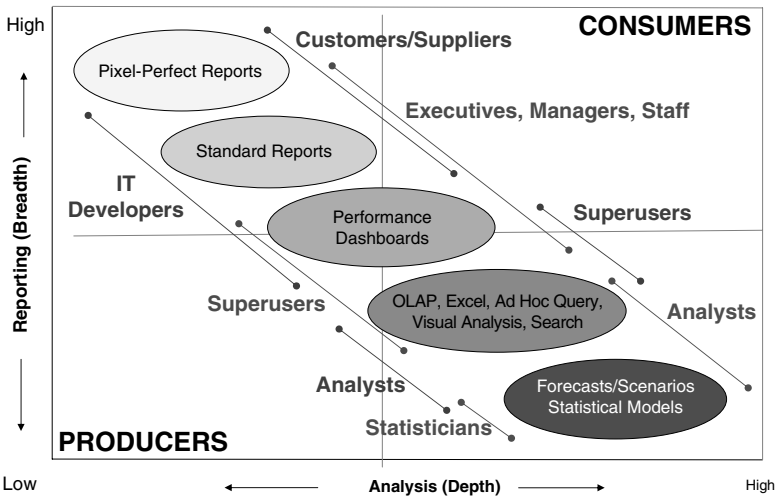


EXHIBIT 2.6 Mapping Users and BI Tools

Information Consumers. Most information consumers are *casual users* who regularly view reports but do not crunch numbers or perform detailed trend analysis on a daily basis. Casual users are executives, managers, staff, customers, and suppliers who primarily use performance dashboards and standard reports. Other consumers are superusers and analysts who primarily use exploratory tools, such as OLAP, Excel, visual analysis, and search, although some also use data-mining tools.

Historically, BI tools have been designed for power users, not casual users, and geared to exploration and analysis rather than monitoring and reporting, which are the bread and butter of casual users. As a result, the penetration of BI tools among casual users has been abysmally low, hovering around 20 percent, according to TDWI Research.

User Mantra. However, performance dashboards are beginning to reverse this trend, making BI pervasive among casual users. That's because performance dashboards conform to the way casual users want to consume information. Their needs are best summed up in the mantra "Give me all the data I want, but only the data I really need, and only when I really need it."

In other words, most casual users don't want to spend unnecessary time analyzing data unless there is an exception condition that demands their attention. When that happens, they want immediate access to all relevant information, but in a systematic and structured way so they don't get lost in the data.

Performance dashboards perfectly fulfill the requirements of the user mantra. They provide casual users all the information they need but dish

it out on demand as they need it. They do not force users to search through hundreds of reports or remember how to use dozens of features, functions, and options. They are intuitive to use and tailored to the user's role. They highlight exception conditions and make it easy and fast for users to discover root causes.

In short, performance dashboards conform to the way users want to work instead of forcing them to conform to the way the tools work. As a result, performance dashboards and their underlying BI infrastructure are spreading like wildfire in organizations throughout the world.

Summary

The marriage of performance management and business intelligence has given rise to the performance dashboard. Performance dashboards leverage a business intelligence infrastructure to help organizations monitor their progress toward achieving strategic objectives as measured by key performance indicators. It's critical to understand the major elements of performance management and BI before launching a performance dashboard project.

