CHAPTER 1

What Are Performance Dashboards?

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The Context for Performance Dashboards

The Power of Focus

Executives in Training. In the summer of 2004, I found my 11-year-old son, Henry, and his best pal, Jake, kneeling side by side in our driveway, peering intensely at the pavement. As I walked over to inspect this curious sight, I saw little puffs of smoke rising from their huddle. Each had a magnifying glass and was using it to set fire to clumps of dry grass as well as a few unfortunate ants that had wandered into their makeshift science experiment.

In this boyhood rite of passage, Henry and Jake learned an important lesson that escapes the attention of many organizations today: the power of focus. Light rays normally radiate harmlessly in all directions, bouncing off objects in the atmosphere and the earth's surface. The boys had discovered, however, that if they focused light rays onto a single point using a magnifying glass, they could generate enough energy to burn just about anything and keep themselves entertained for hours.

By the time Henry and Jake enter the business world (if they do), they will probably have forgotten this simple lesson. They will have become steeped in corporate cultures that excel at losing focus and dissipating energy far and wide. Most organizations have multiple business units, divisions, and departments, each with its own products, strategies, processes, applications, and systems to support it. A good portion of these activities are redundant at best and conflicting at worst. The organization as a whole spins off in multiple directions at once without a clear strategy. Changes in leadership, mergers, acquisitions, and reorganizations amplify the chaos.

Companies need an "organizational magnifying glass" that focuses the energies and activities of employees on a clear, unambiguous set of goals and objectives laid out in the corporate strategy.

EXHIBIT 1.1 Organizational Magnifying Glass

Organizational Magnifying Glass. To rectify this problem, companies need an "organizational magnifying glass"—something that focuses the work of employees so everyone moves in the same direction. (See Exhibit 1.1.) Strong leaders do this. However, even the voice of a charismatic executive sometimes is drowned out by organizational inertia.

Strong leaders need more than just the force of their personality and experience to focus an organization. They need an information system that helps them clearly and concisely communicate key strategies and goals to all employees on a personal basis every day. The system should focus workers on tasks and activities that best advance the organization's strategies and goals. It should measure performance, reward positive contributions, and align efforts so that workers in every group and level of the organization are marching together toward the same destination.

Performance Dashboard. In short, what organizations really need is a *performance dashboard* that translates the organization's strategy into objectives, metrics, initiatives, and tasks customized to each group and individual in the organization. It provides timely information and insights that enable business users to improve decisions, optimize processes and plans, and work proactively. A performance dashboard is really a performance management system. It communicates strategic objectives and enables businesspeople to measure, monitor, and manage the key activities and processes needed to achieve their goals.

To work this magic, a performance dashboard provides three main sets of functionality, which I will describe in more detail later. Briefly, a performance dashboard lets businesspeople:

1. **Monitor** critical business processes and activities using metrics that trigger alerts when performance falls below predefined targets.
2. **Analyze** the root cause of problems by exploring relevant and timely information from multiple perspectives at various levels of detail.
3. **Manage** people and processes to improve decisions, optimize performance, and steer the organization in the right direction.

Agent of Organizational Change

A performance dashboard is a powerful agent of organizational change. When deployed properly, it can transform an underperforming organization into a high-flier. Like a magnifying glass, a performance dashboard can focus people and teams on the key things they need to do to succeed. It provides executives, managers, and workers timely and relevant information so they can measure, monitor, and manage their progress toward achieving key strategic objectives.

One of the more popular types of performance dashboards today is the balanced scorecard, which adheres to a specific methodology for monitoring and managing the execution of business strategy. A balanced scorecard is a strategic application, but, as we shall soon see, there are other types of performance dashboards that optimize operational and tactical processes that drive organizations on a weekly, daily, or even hourly basis.

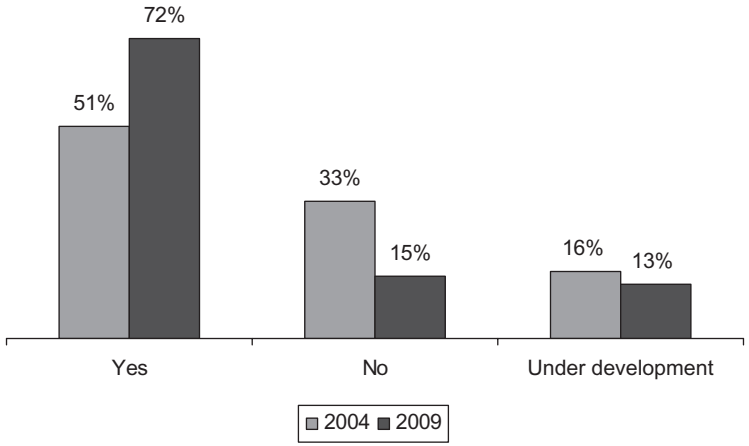
Historical Context. Although dashboards have long been a fixture in automobiles and other vehicles, business, government, and nonprofit organizations have only recently adopted the concept. The trend started among executives who became enamored with the idea of having an "executive dashboard" or "executive cockpit" with which to drive their companies from their boardroom perches. These executive information systems (EISs) actually date back to the 1980s, but they never gained much traction because the systems were geared to so few people in each company and were built on mainframes or minicomputers that made them costly to customize and maintain.

In the past 20 years, information technology has advanced at a rapid clip. Mainframes and minicomputers gave way in the 1990s to client/server systems, which in turn were supplanted by the Web this decade as the preferred platform for running applications and delivering information. Along the way, the economy turned global, squeezing revenues and profits and increasing competition for more demanding customers. Executives have responded by reengineering processes, improving quality, and cutting costs, but these efforts have provided only short-term relief, not lasting value.

Two Disciplines. During the 1990s, organizations began experimenting with ways to give business users direct and timely access to integrated information, an emerging field known as business intelligence (BI). At the same time, executives began turning to new techniques and methods to manage strategy and optimize performance, a discipline broadly defined as business performance management (BPM), or just performance management. (See Chapter 2 for background on BI and BPM.) Many organizations began using BI to provide the technical scaffolding to deliver information for performance management initiatives. Starting in 2000, it became clear that BI was converging with performance management to create the "performance dashboard."

This convergence created a flood of interest in performance dashboards. A study by The Data Warehousing Institute (TDWI) in 2004 showed that a majority of organizations (51 percent) were already using a dashboard or scorecard. The same study showed that almost one-third of organizations were using it as their *primary* application for reporting and analysis. The popularity of performance dashboards has continued to surge. In 2009, TDWI repeated the survey and found that almost three-quarters (72 percent) of organizations have deployed a performance dashboard. (See Exhibit 1.2.)

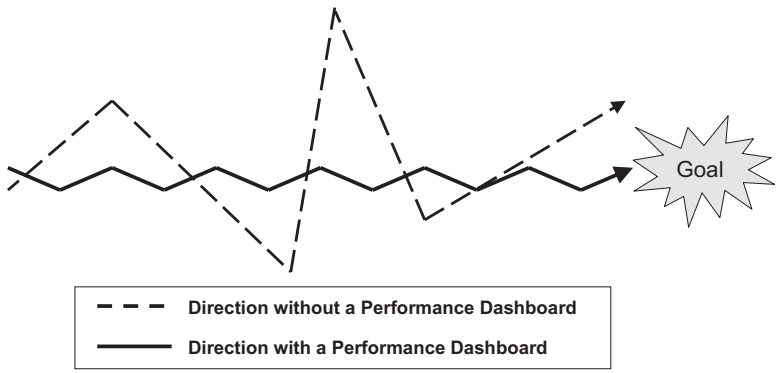
Benefits. The reason so many organizations are implementing performance dashboards is a practical one: They offer a panoply of benefits to everyone in an organization, from executives to managers to staff. Here is a condensed list of benefits:



Based on 437 and 495 respondents respectively.

EXHIBIT 1.2 Has Your Organization Implemented a Performance Dashboard?
Source: TDWI Research.

- **Communicate strategy.** Performance dashboards translate corporate strategy into measures, targets, and initiatives that are customized to each group in an organization and sometimes to every individual. Each morning when businesspeople log into the performance dashboard, they get a clear picture of the organization's strategic objectives and what they need to do in their areas to achieve the goals.
- **Refine strategy.** Executives use performance dashboards like a steering wheel to fine-tune corporate strategy as they go along. Instead of veering drastically from one direction to another in response to internal issues or industry events, executives can use performance dashboards to make a series of minor course corrections along the way to their destination. (See Exhibit 1.3.)
- **Increase visibility.** Performance dashboards give executives and managers greater visibility into daily operations and future performance by collecting relevant data in a timely fashion and forecasting trends based on past activity. This helps companies avoid being surprised by unforeseen problems that might affect bottom-line results.
- **Increase coordination.** By publishing performance data broadly, performance dashboards encourage staff from different departments to work more closely together, and they foster dialogue between managers and staff about how to improve performance.
- **Increase motivation.** By publicizing performance measures and results, performance dashboards engender friendly competition among peer groups, improving motivation and productivity. Performance dashboards impel people to work harder out of pride and



A performance dashboard enables executives to chart a steady course to their destination by making a series of fine-tuned course corrections instead of veering dramatically from one direction to another in response to internal or industry events.

EXHIBIT 1.3 Charting a Course

desire for extra pay when compensation is tied to performance results.

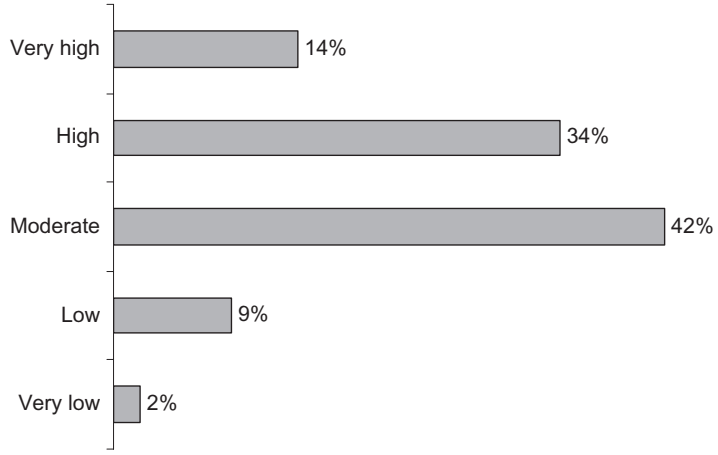
- **Consistent view of the business.** Performance dashboards consolidate and integrate corporate information using common definitions, rules, and metrics. This creates a single version of business information that everyone in the organization uses, avoiding conflicts among managers and analysts about whose version of the data is "right."
- **Reduce costs and redundancy.** By consolidating and standardizing information, performance dashboards eliminate the need for redundant silos of information that undermine a single version of business information. A single performance dashboard can help an organization shut down dozens, if not hundreds, of independent reporting systems, spreadmarts, data marts, and data warehouses.
- **Empower users.** Performance dashboards empower users by giving them self-service access to information and eliminating their reliance on the information technology (IT) department to create custom reports. Through layered delivery of information, structured navigation paths, and guided analysis, performance dashboards make it easy for average businesspeople to access, analyze, and act on information.
- **Deliver actionable information.** Performance dashboards provide actionable information—data delivered in a timely fashion that lets users take action to fix a problem, help a customer, or capitalize on a new opportunity before it is too late. A performance dashboard prevents users from wasting hours or days searching for the right information or report.

When we asked organizations the degree to which their performance dashboards have had a positive impact on business results, almost half (48 percent) responded either "very high" or "high." Another 42 percent said the impact has been "moderate" and only 11 percent said "low" or "very low." Thus, performance dashboards are not only pervasive; they are effective. (See Exhibit 1.4.)

In short, performance dashboards deliver the right information to the right users at the right time to optimize decisions, enhance efficiency, and accelerate bottom-line results.

Pretenders to the Throne

Although many organizations have implemented dashboards and scorecards, not all have succeeded. In most cases, organizations have been tantalized by glitzy graphical interfaces and have failed to build a solid foundation by applying sound performance management principles and implementing appropriate business intelligence and data integration tech-



Based on 495 respondents, 2009.

EXHIBIT 1.4 To What Degree Has Your Dashboard Had a Positive Impact on Business Results?
Source: TDWI Research.

nologies and processes. Here are the common symptoms of less than successful solutions:

Too flat. Many organizations create performance management systems, especially tactical and strategic dashboards, using Microsoft Excel, Microsoft PowerPoint, and advanced charting packages. Although these applications often look fancy, they generally do not provide enough data or analytical capabilities to let users explore the root cause of problems highlighted in the graphical indicators.

Too manual. In addition, some organizations rely too heavily on manual methods to update performance dashboards that contain sizable amounts of information. Highly skilled business analysts spend several days a week collecting and massaging this information instead of analyzing it. The best performance dashboards automate the collection and delivery of information, ensuring a sustainable solution over the long term.

Too isolated. Some performance dashboards source data from a single system or appeal to a very small audience. As a result, they provide a narrow or parochial view of the business, not an enterprise view. In addition, these dashboards often contain data and metrics that do not align with the rest of the organization, leading to confusion and chaos.

In the end, performance dashboards are only as effective as the organizations they seek to measure. Organizations without central control or coordination will deploy a haphazard jumble of nonintegrated performance dashboards. However, organizations that have a clear strategy, a metrics-driven culture, and a strong information infrastructure can deliver performance management systems that make a dramatic impact on performance.

Composition of Performance Dashboards

Layered Delivery System. Every performance dashboard looks and functions differently. People use many different terms to describe performance dashboards, including portal, BI tool, and analytical application. Each of these contributes to a performance dashboard but is not a performance dashboard by itself. Here is my definition:

> *A performance dashboard is a layered information delivery system that parcels out information, insights, and alerts to users on demand so they can measure, monitor, and manage business performance more effectively.*

This definition conveys the idea that a performance dashboard is more than just a screen populated with fancy performance graphics; it is a full-fledged business information system designed to help organizations optimize performance and achieve strategic objectives. An equivalent, and perhaps better, term is *performance management system*, which conveys the idea that it is a system designed to manage business performance. Since the title of this book uses the term *performance dashboards*, I will stick with that term on most occasions, although I feel that the two are interchangeable.

Three Threes. One of the most salient features of performance dashboards are the "three threes": three applications, three layers, and three types. The "three threes" provide a convenient way to describe the major characteristics of performance dashboards and a litmus test to differentiate imposters from bona fide performance dashboards.

Three Applications

A performance dashboard weaves together three applications in a seamless fashion. These applications are (1) monitoring, (2) analysis, and (3) management. Each application provides a specific set of functionality. The applications are not necessarily distinct programs or code bases but sets of related functionality built on an information infrastructure designed to fulfill user requirements to monitor, analyze, and manage performance. (See Exhibit 1.5.)

EXHIBIT 1.5 Performance Dashboard Applications

	Monitoring	Analysis	Management
Purpose	Convey information at a glance	Analyze exception conditions and drill to detail	Improve alignment, coordination, and collaboration
Components	Dashboard Scorecard BI portal "Right time" data Alerts Agents	Multidimensional analysis Time-series analysis Reporting What-if modeling Statistical modeling	Strategy maps Initiative management Collaboration annotation Workflow Usage monitoring

1. **Monitoring.** A performance dashboard enables users to monitor performance against metrics aligned with corporate strategy. At an operational level, users monitor core processes that drive the business on a day-to-day basis, such as sales, shipping, or manufacturing. At a strategic level, users monitor their progress toward achieving short- and long-term goals.

   In general, organizations use *dashboards* to monitor operational processes and *scorecards* to monitor strategic goals. Dashboards and scorecards are visual display mechanisms within a performance management system that convey critical performance information at a glance. They are the lens through which users view and interact with performance data, but they are not the entire system in themselves. Although dashboards and scorecards share many features and people use the terms interchangeably, they have unique characteristics. (See Spotlight 1.1.)

Spotlight 1.1 Dashboards versus Scorecards

Dashboards and scorecards are visual display mechanisms in a performance management system that graphically communicate performance at a glance. The primary difference between the two is that dashboards monitor the performance of operational processes whereas scorecards chart progress toward achieving strategic goals. (See Exhibit 1.6.)

(*Continued*)

EXHIBIT 1.6 Dashboards versus Scorecards

	Dashboard	Scorecard
Purpose	Measures performance	Charts progress
Users	Supervisors, specialists	Executives, managers
Focus	Act	Review
Updates	Intraday/daily	Weekly/monthly/quarterly
Data	Details	Summaries
Display	Charts/tables	Charts/comments

Dashboards. Dashboards are more like automobile dashboards. They enable operational specialists and supervisors to monitor and act on events as they occur. Dashboards display detailed data in "right time" as users need to view them, usually on a daily or intraday frequency. Dashboards display performance visually, using charts or tables. Interestingly, people who monitor operational processes often find visual glitz or graphics distracting and prefer to view raw data as numbers or text, perhaps accompanied by visual graphs.

Scorecards. Scorecards, however, are performance charts—like school report cards—designed to help executives and managers track progress toward achieving goals and review performance with subordinates. Scorecards usually display weekly, monthly, quarterly, or annual snapshots of summary data. Like dashboards, scorecards also make use of charts and visual graphs but include textual commentary that interpret results, forecast the future, and record action items.

In the end, it does not really matter whether you use the term *dashboard* or *scorecard* as long as the tool helps focus users and organizations on what matters.

A monitoring application also delivers information to users in "right time"—within minutes or hours in an operational activity or within days, weeks, or months for a strategic one—so users can take steps to fix a problem or exploit an opportunity. We cover "right time" information delivery in Chapter 6.

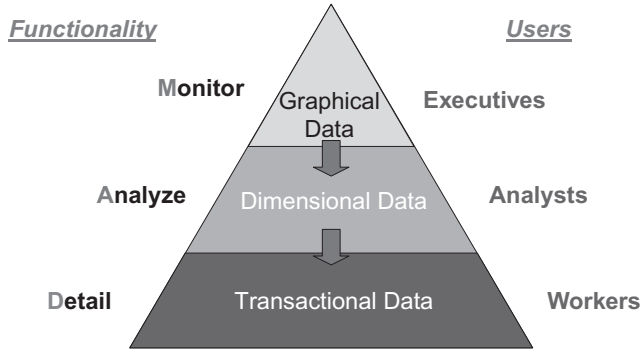
Other key elements of a monitoring application are alerts, which notify users when events exceed predefined thresholds of performance, and agents, which automate the responses to well-known exception conditions, such as ordering new stock when inventory falls below predefined levels.

2. **Analysis.** The analysis application in a performance dashboard enables users to explore data across many dimensions and organizational hierarchies to ascertain the root cause of an exception condition highlighted in the monitoring layer. Performance dashboards leverage a variety of technologies to enable this analysis: online analytical processing (OLAP), parameterized reporting, ad hoc reporting, visual analysis using in-memory data, and predictive analytics. The analysis requires a data management infrastructure that creates clean, consistent, and integrated data, which is often modeled dimensionally and hierarchically. Chapter 3 describes various types of BI tools and data warehousing (DW) and data integration tools required to support a layered delivery system.
3. **Management.** Performance dashboards typically support a variety of features that foster collaboration and decision making. Many performance dashboards are tailored to support executive meetings that review strategy and/or operations and performance review meetings between a manager and subordinate. The tools let managers quickly create or navigate to a desired page and print the output, if desired. In addition, many performance dashboards let users annotate charts or pages, engaged in threaded discussions, or kick off workflows to follow through on action items. These features, for example, enable subordinates to explain performance discrepancies and list action steps and enable executives to review, comment, and approve the action plan. In addition, most dashboards enable IT administrators to track usage and trouble tickets. (See Chapter 15 for more on usage monitoring.)

Three Layers

Besides three applications, a performance dashboard consists of three layers of information. Just as a cook peels layers of an onion, a performance dashboard lets users peel back layers of information to get to the root cause of a problem. Each successive layer provides additional details, views, and perspectives that enable users to understand a problem better and identify the steps they need to take to address it.

Going MAD. This layered approach gives users self-service access to information and conforms to the natural sequence in which users want to handle that information: (1) monitor, (2) analyze, and (3) drill to detail, or MAD for short. That is, business users want to monitor key metrics for exceptions; then analyze information that sheds light on those exceptions; and, finally, drill into detailed reports before taking action. This layered approach helps users get to the root cause of issues quickly and intuitively. (See Exhibit 1.7.)



The MAD (monitor, analyze, drill to detail) framework shows how a performance dashboard parcels out information in layers.

EXHIBIT 1.7 MAD Framework

The MAD framework consists of a pyramid divided into three layers. The shape of the pyramid represents both the number of metrics and number of users at each level. Typically, there are about a dozen or so metrics displayed at the top layer, each of which explodes into 10 additional metrics in the middle layer (or dimensional views), each of which then expand into 10 more metrics (or views) at the bottom layer. So a dashboard of 10 to 12 metrics will deliver 1,000+ contextual views of those metrics at increasing levels of granularity.

Information Sandbox. Typically, performance dashboards consist of about 10 to 12 top-level metrics and 20 dimensions, creating a nice-size information sandbox for a specific role, subject area, or activity. This type of sandbox is big enough to provide casual users with 60 percent to 80 percent of the information they need to do their jobs on a regular basis, but not so large that they get lost in the data. Most performance dashboards provide structured navigation or drill paths that guide users from high-level views to more detailed analyses. Most also include "bread crumbs," or navigational clues, that show users exactly where they are in the dashboard and how to retrace their steps.

The three layers of information consist of:

1. **Graphical, metrics data.** The top layer provides a graphical view of performance metrics, usually in the form of charts and alerts. This layer is where users monitor information and is essentially a visual exception report. When performance exceeds a threshold, the dashboard alerts users via a colored icon (e.g., a "stoplight"), pop-up message, or animation, or sends a message via e-mail, pager, or another channel.

2. **Summarized, dimensional data.** The middle layer usually consists of dimensional data that lets users navigate the data by subject (e.g., customer, geography, or time) and hierarchy (e.g., country, region, or city). Dimensional analysis tools enable users to slice and dice, drill down or up, or pivot data to view exceptions and trends from any perspective they want. Some tools enable users to perform what-if analyses or apply various complex algorithms.
3. **Detailed, transactional data.** The bottom layer lets users view detailed data, such as invoices, shipments, or transactions, stored in data warehouses or operational systems. Users often need such data to understand the root cause of a problem, such as a decline in sales due to missing or incomplete orders or a salesperson who has been sick. Most data in this layer is delivered as reports or lists, which are usually displayed in a separate window.

Users. Users can enter the performance dashboard at any of the layers and drill up or down. Executives typically start at the top layer, analysts at the middle layer, and workers at the bottom layer. Ideally, the performance dashboard enables users to navigate seamlessly from one layer to the next without shifting application contexts or user interfaces. In the past, developers built performance dashboards by integrating three separate toolsets: portals at the top layer, OLAP in the middle, and reports at the bottom. This created a cumbersome experience for users who were forced to switch application and software contexts when moving from one layer to the next. Today, however, many vendors offer a more seamless navigational experience, although many stop short of supporting all three layers.

Evolution of BI. Interestingly, the MAD framework also shows the evolution of BI. In the 1980s, BI was simply the bottom layer or detailed, operational, or management reports. In the 1990s, vendors began offering ad hoc query and multidimensional analysis (i.e., OLAP) tools to provide interactive access to information. Then in the 2000s, vendors began offering monitoring tools (i.e., dashboards and scorecards) to visually manage exception conditions. A performance dashboard simply stitches together all three generations of BI technology in a seamless package.

User Mantra. This layered approach to delivering performance information meets the needs of most users in an organization. These so-called casual users simply want to monitor, analyze, and manage the key processes for which they are responsible and usually check information only a couple of times a week, depending on their role and responsibilities. (Chapter 2 discusses casual users in more depth.) As a result, performance dashboards do a great job of adhering to the casual user mantra.

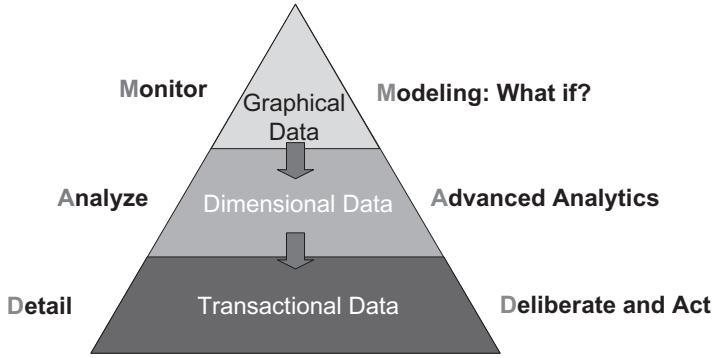


EXHIBIT 1.8 Double MAD

When you ask casual users what information they need, they typically repeat the mantra (more or less): "Give me all the data I want, but only what I need, and only when I really need it." In other words, casual users do not want to be overwhelmed with too much data on a regular basis—they only want to monitor summary data that is relevant to their jobs. But when a problem occurs, they want to access all data possible to understand its full scope so they can take appropriate action.

Double MAD. The functionality of performance dashboards is evolving rapidly. Next-generation performance dashboards are subsuming adjacent applications, such as planning, advanced analytics and visualization, and collaboration, to create what I call the "double MAD" framework. In this case, "M" stands for *m*odeling, "A" stands for advanced *a*nalytics, and "D" stands for *d*eliberate and act. (See Exhibit 1.8.)

In a double MAD performance dashboard, the graphical monitoring layer incorporates what-if modeling capabilities that enable executives and managers to change the value of one metric to see how it impacts performance of the rest of the metrics displayed in the dashboard. Since performance dashboards provide a snapshot of current performance, what-if modeling delivers a glimpse into future performance. This capability transforms performance dashboards from monitoring environments to planning environments. Most performance dashboards that support this feature today use Adobe Flash to present users with a visual slider to adjust variables, although HTML 5 appears poised to supplant Flash as the preferred method for delivering highly interactive Web-based applications. (See Chapter 13.)

Next-generation performance dashboards will also provide more advanced analytics in the analysis layer. Today, most offer some sort of drill-down or, in the best case, a full-featured slice-and-dice OLAP environ-

ment for analyzing dimensional data. But some performance dashboards now incorporate visual analysis capabilities (see Chapters 2 and 6 for more detail) that enable users to visually analyze information held in memory for superfast interactive analysis. Sometimes, these double MAD dashboards also incorporate regression and other statistical algorithms that enable users to forecast or categorize information. These predictive capabilities can help users segment customers, forecast revenues, and optimize processes.

At the bottom layer, double-MAD performance dashboards will add support for collaboration and action-oriented activities. In terms of collaboration, double-MAD dashboards enable users to annotate charts and tables, engage in collaborative dialogue via threaded discussions, and kick off workflow processes when multiple people need to review and/or approve certain actions. These collaboration features probably will be most evident in the graphical layer of the dashboard but should permeate all layers as well. Double-MAD dashboards will also be action-oriented, enabling users to define alerts that trigger actions when performance exceeds a specified threshold. Actions can range from alerts, to e-mail messages, to queries and database updates.

Three Types

The last thing you need to know about performance dashboards is that there are three types: operational, tactical, and strategic. Each type of performance dashboard emphasizes to different degrees the three layers and applications previously described. Here is a quick summary of the different types of performance dashboards. (See chapter 6 for more detail.)

1. **Operational dashboards** mirror the description of dashboards in Spotlight 1.1. They enable front-line workers to manage and control operational processes using detailed data that is refreshed frequently. Of the three applications, operational dashboards emphasize *monitoring* more than analysis or management. Chapter 7 profiles operational dashboards from 1-800 CONTACTS and the Richmond Police Department.
2. **Tactical dashboards** monitor and manage departmental processes and projects. Executives use tactical dashboards to review and benchmark the performance of peer groups across the company, while managers use them to monitor and optimize processes. Tactical dashboards tend to emphasis analysis more than monitoring or management. Chapter 8 profiles tactical dashboards at Rohm and Haas and the University of Arizona.

3. **Strategic dashboards** monitor the execution of strategic objectives and frequently are implemented using the balanced scorecard methodology. Executives use strategic dashboards to communicate strategy and review performance at monthly strategy or operational review meetings. Strategic dashboards tend to emphasis management more than monitoring or analysis. Chapter 9 profiles strategic dashboards at Cisco and the Ministry of Works in the Kingdom of Bahrain.

Integrating Performance Dashboards. Since each type of performance dashboard serves a different purpose, most organizations have multiple versions of each type. In fact, most departments have their own operational, tactical, and strategic dashboards. Ideally, all performance dashboards share a common set of metrics and rules and are populated with data from a shared BI and DW infrastructure. In reality, most performance dashboards are built independently and use unique metrics, rules, tools, and data. Although each performance dashboard provides local value, collectively they create information chaos. Chapter 14 discusses how to deploy and integrate disparate performance dashboards, a challenging endeavor for any organization.

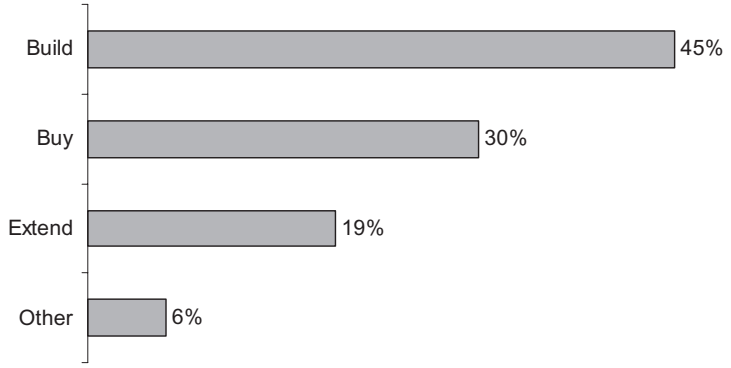
Build or Buy

A common question that people ask is whether it is better to build or buy a performance dashboard. When I wrote the first edition of this book in 2004, all the companies that I profiled had built their own dashboards using custom code. However, during the past several years, many software vendors have shipped dashboard or scorecard solutions. As a result, more organizations are buying rather than building performance dashboards. Half of the companies profiled in this edition have built their own dashboards using custom code and half have extended a BI or dashboard tool.

Our 2009 survey shows that 45 percent of companies that have deployed a performance dashboard built it from scratch, 30 percent deployed a dashboard tool without customization, and 19 percent extended a dashboard tool with custom code. So there is a trend toward leveraging vendor products to deliver performance dashboards. (See Exhibit 1.9.)

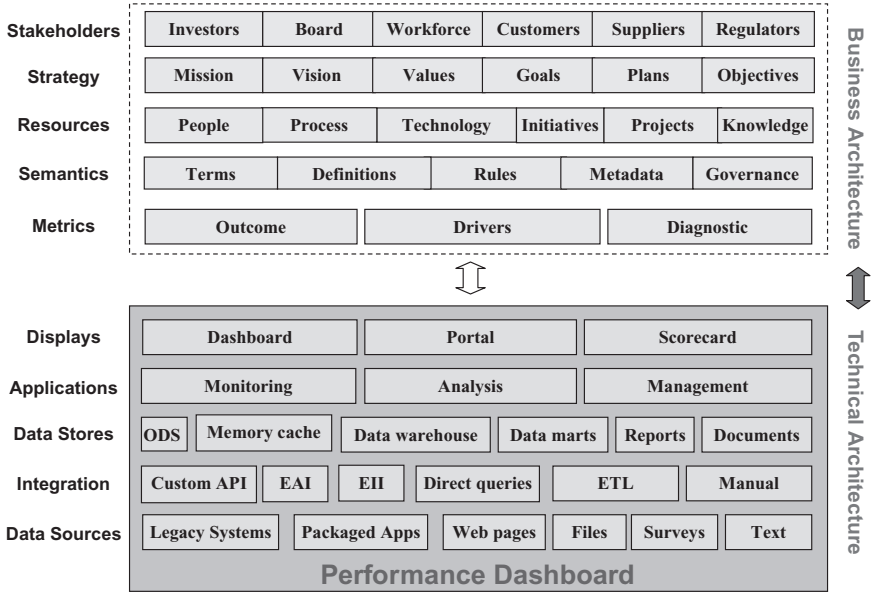
Performance Management Architecture

A performance management system consists of a business architecture and a technical architecture. Exhibit 1.10 shows the components of these two architectures and how they relate.



Based on 495 respondents. Build = Programmers code most of the solution by hand; Buy = Purchased a dashboard solution and deployed with minor configuration changes; Extend = Purchased a dashboard solution and deployed after lots of custom coding.

EXHIBIT 1.9 Build, Buy, or Extend
Source: TDWI Research, 2009.



Metrics are the linchpin that connects the business and technical architectures in a performance management system.

EXHIBIT 1.10 Performance Management Architecture

Metrics. The linchpin that ties the two architectures together is the metrics that define leading, lagging, and diagnostic measures of business performance. On the business side, the metrics embody the organization's strategy, represented by all the layers in the business architecture. On the technical side, the metrics contain rules that define how to design the performance dashboard, including what data to collect and how to aggregate, filter, calculate, and display metrics.

Performance metrics are the means by which organizations measure, monitor, and manage the effectiveness of their strategy and tactics to satisfy key stakeholders. They really are the heart and soul of a performance dashboard, and organizations must take great care in deciding what metrics to display and what targets to apply to each metric. Chapter 11 dissects performance metrics and examines how to design effective ones.

Business Architecture. The business architecture consists of stakeholders, strategy, resources, semantics, and metrics. To succeed, a performance dashboard must have a well-defined set of stakeholders or audience whose requirements dictate the strategy, resources, and metrics used. Semantics represent the corporate vocabulary, the words and meaning that enable stakeholders and others to communicate clearly and effectively. Semantics often prove to be the biggest stumbling block when launching a performance dashboard (or business intelligence) project. Chapters 3 and 10 provide tips and techniques for getting buy-in from stakeholders and establishing consistent semantics, among other things. Chapter 15 shows how to use the performance dashboard as an agent of organizational change and ensure adoption by stakeholders.

Technical Architecture. The technical architecture consists of the components that comprise the performance dashboard. The components in each layer represent a superset of functionality. Developers select one or more components (or buy a dashboard with the requisite combination of functionality) that best serves the needs of the stakeholders. Chapter 2 examines the core components of a BI and a DW infrastructure that often comprise a performance dashboard solution, and Chapter 4 shows how that infrastructure evolves over time. Chapter 13 describes how to architect a performance dashboard, and Chapter 12 examines how to design effective dashboard screens.

Although this book recommends building performance dashboards on a BI/DW infrastructure, this is not a hard-and-fast rule, especially with strategic dashboards, which often measure objectives for which there is no ready source of data to populate the metrics. In these cases, companies will need to manually count and enter data into a spreadsheet or other tool to populate the dashboard displays. (See Spotlight 1.2.) This is fine in the short term but is not usually a sustainable practice.

Spotlight 1.2 Small and Strategic

Although performance dashboards can store large volumes of data, this is not a prerequisite for success, especially with strategic dashboards. In fact, some successful strategic dashboards contain only a few gigabytes of data, less than you can store on a single thumb drive.

For instance, Brown & Root, a Halliburton subsidiary that provides marine oil rig construction and services, used a strategic dashboard with small volumes of information to execute a new business strategy that helped the company go from losing money to number one in its niche, with a net income increase of 30 percent. The strategy involved offering high-margin solutions that simultaneously lowered customer costs by integrating offerings from six operating companies in the newly merged firm.

To chart the effectiveness of the strategy, the company used several metrics, none of which required substantial amounts of data, according to Bill Barlberg, president of Insightformation, Inc., a strategy management consultancy and balanced scorecard provider. For example, the company tracked the number of contracts it won that contained integrated solutions involving two or more operating companies. Since the company does a limited number of huge projects each year, the data for these metrics were hand calculated and manually added to the strategic dashboard. Other key metrics included percent of revenue from integrated projects, number of integrated solutions created, and survey results of employee awareness and acceptance of new cultural values.

For strategic dashboards, the quality of information is the key, not the quantity. In some cases, they can deliver significant business value with just a few gigabytes of data, although this is not the norm. As long as a strategic dashboard focuses an organization on what is important, the volume of data is irrelevant.

Business–IT Partnership. To deliver a successful performance dashboard, the business must work closely with the IT department to create metrics that embody strategic objectives and compare performance to plans. Since strategy and plans are constantly changing, these two groups must work closely together to create a performance management system that delivers immediate and lasting value. Chapter 5 addresses the all-important issue of how to establish a strong partnership between the business and technical teams.

Summary

A performance dashboard sits at the intersection of two powerful disciplines: business intelligence and performance management. A performance dashboard is a layered information delivery system that parcels out information to users on demand so they can measure, monitor, and manage business processes and achieve strategic objectives.

A performance dashboard is composed of the "three threes." There are three types of applications (monitoring, analysis, and management), three layers of data (graphical, dimensional, and transactional), and three types of dashboards (operational, tactical, and strategic.) Different types of dashboards emphasize the three applications to different degrees. Bona fide dashboards support the three threes, but many vendor dashboards fall short of this ideal.

Ideally, a performance dashboard runs on a BI/DW infrastructure that provides a clean, integrated, and consistent set of data to populate dashboard metrics in a timely fashion. However, not all performance dashboards are automated or require large volumes of data, especially strategic dashboards, which often measure objectives for which there are no ready source of information.

The key to the success of any performance dashboard initiative is tight alignment between business and IT. The performance dashboard initiative must have strong sponsorship, engaged users, and managers who know how to use the dashboard metrics to drive change in a positive direction.