CHAPTER 3

Assessing Your Organizational Readiness

Performance dashboards cannot take root in a hostile environment. The organization must be ready to accept and nurture a performance dashboard for it to succeed.

Paul Niven, author of *Balanced Scorecard Step by Step: Maximizing Performance and Maintaining Results,* defines seven criteria for evaluating an organization's readiness to implement a balanced scorecard. Although Niven created these criteria specifically for balanced scorecards (i.e., strategic dashboards), they are equally valid for any kind of performance dashboard.

Ten Criteria. I have adapted Niven's list and added three criteria to reflect the importance of a solid business intelligence (BI) infrastructure to support all types of performance dashboards, not just strategic ones. Although some strategic dashboards do not initially require an investment in BI and data integration software, most eventually do. Therefore, the next 10 criteria are good ways to evaluate an organization's readiness to deploy and sustain a performance management system for the long haul.

To evaluate readiness, ask whether your organization has:

1. A clearly defined strategy
2. Strong, committed sponsorship
3. A clear and urgent need
4. Support of mid-level managers
5. Appropriate scale and scope
6. A strong team and available resources
7. A culture of measurement
8. Alignment between business and information technology
9. Trustworthy and available data
10. A solid technical infrastructure

A Clearly Defined Strategy

A performance dashboard is a window into an organization's strategy and planning processes, especially a strategic dashboard. If the strategy and planning processes are unclear, unaligned, or uncoordinated, the performance dashboard will be ineffective and short lasting.

For example, Hewlett Packard Co.'s Technology Solutions Group (TSG) asks business sponsors a series of questions to ascertain whether their group or unit is ready for a balanced scorecard. (See Spotlight 3.1.)

Spotlight 3.1 Strategic Dashboard Readiness Assessment

In 2004, Hewlett Packard Co.'s TSG had a program office that created strategic dashboards (i.e., balanced scorecards) for its regional groups and other units. When working with a new group, the program office first met with the sponsoring executives to explain strategic dashboard concepts and discuss their concerns. To assess the group's readiness to use a strategic dashboard approach to manage performance, the program team asked executives to answer these six questions:

1. **Is the relationship between your strategy and measures clear and obvious?** This question communicates the need to translate strategy into a small number of carefully defined metrics with corresponding objectives, targets, and initiatives. Most companies have hundreds of metrics, most of which they rarely consult and few of which are truly relevant to their mission.
2. **Do you measure outcomes or causes?** This introduces executives to the concept of leading and lagging indicators and gets them to start thinking about measuring value drivers instead of historical activity.
3. **Is there consensus about the importance of the measurements and objectives?** Do all executives agree that existing metrics accurately define the strategy? If the strategy and vision are vague, the answer is usually no. Do employees agree that the metrics used to evaluate their performance are valid and produce the desired results? Without employee buy-in, a performance management system cannot work.
4. **If you select 10 managers at random, how many know whether they are helping to achieve the strategy?** Most managers and workers know what tasks they need to do each day, but

few know how their work contributes to the company's strategy. This step helps executives see that the strategic dashboard is a communications tool that lets employees literally see how their work contributes to the strategy and performance of the company.

5. **Is important information easy and readily available for the right people?** It is one thing to measure performance, but it is another thing to empower people with information so they can take action to improve performance. This step helps executives assess the state of their information delivery systems and determine whether they need to be overhauled.
6. **What do you do with the data you receive?** It's one thing to understand performance; it's another to improve it. When performance trends downward, who is supposed to take action? Do people know what to do, and are they empowered to make decisions to resolve the situation?

The organization must have a strategy that defines its mission, values, vision, goals, and objectives, as well as metrics for measuring progress toward reaching those objectives. It also needs a planning process that devises new initiatives, refines existing ones, and allocates resources to implement the strategy. The major components of a strategy are listed next.

- **Mission.** A mission statement communicates the purpose of an organization. It typically defines its target customers and competitive differentiators in about 50 words or less.
- **Values.** Values are principles that guide the way the company does business. Values, along with the mission, are very important in a crisis when a new situation confronts the organization, and it has no historical precedent to guide its decisions and actions.
- **Vision.** The vision statement describes what the organization wants to achieve in a given time frame. Ideally, it is an inspiring, if not daunting, call to action that requires employees to think and act in innovative ways.
- **Goals and objectives.** Goals and objectives define the path a business takes to achieve the vision. They state what the company is committed to doing and, more important, what it *will not* do. Goals are broad statements that define what the company wants to achieve in the coming year, while objectives are the steps needed to reach those goals.
- **Metrics and targets.** To monitor progress toward achieving goals and objectives, organizations use metrics and targets. Each goal and

objective has one or more metrics and each metric has one or more associated targets. Chapter 11 goes into detail about how to craft metrics and targets for performance dashboards.

- **Plans and initiatives.** Plans allocate resources to achieve goals and objectives, including short- and long-term initiatives designed to close the gap between current and future realities. Continuous planning revises plans monthly or quarterly instead of annually in a budget to better align resources with market changes.

Strong, Committed Sponsorship

It is almost an industry cliché to say that strong business leadership is critical to the success of any information management project, including performance dashboards. A committed and involved business sponsor evangelizes the system, secures and sustains funding, navigates political issues, effects cultural change, and helps prioritize projects. Research shows a high correlation between the commitment of a business sponsor and success rates of BI solutions, which include performance dashboards.

In fact, what is most interesting is that projects with a "very committed" sponsor are twice as likely to succeed as those with a "fairly committed" sponsor, while almost half of projects with "fairly committed" sponsors are struggling. So sponsors cannot be halfhearted or even three-quarters–hearted; they must give it 100 percent if they want a successful project.

The sponsor must also assign a trusted lieutenant to guide the project on a daily basis. These drivers or champions need to devote at least 50 percent of their time to the project. Like the sponsor, they must be well respected and connected in the organization, with a direct line to the executive suite. They need to lead interference for the project when it gets bogged down in politics, vendor negotiations, or budget planning. Often drivers are the people who initiate the idea for the project and sell it to the sponsor, whose influence and credibility are vital to the success of the project.

A Clear and Urgent Need

Urgency plays a pivotal role in whether a performance dashboard project succeeds or not. If the sponsoring group doesn't have a clear and urgent need, the performance management system will not take root. The best performance dashboards address a critical business pain that stems from lack of information. The greater the pain, the more likely a performance dashboard will flourish.

The next situations often create an urgent need for a new performance dashboard:

- **New top executive.** The company hires a new chief executive, chief financial, or chief information officer who is used to running a metrics-driven organization with performance dashboards.
- **New strategy or initiative.** Executives need a powerful way to communicate a new strategy or initiative, channel everyone's energy toward achieving the new objectives, and monitor progress along the way.
- **Merger or acquisition.** A company must align two incompatible sets of strategies, cultures, values, and goals and get everyone marching in the same direction quickly.
- **Business crisis.** Many events can put an organization into crisis mode: a new competitor or market-transforming technology, an economic downturn, a natural disaster, financial mismanagement, or criminal wrongdoing.
- **Organizational restructuring.** Executives who reorganize groups and divisions to improve productivity or competitiveness need to explain their rationale and monitor the effectiveness of the move.
- **Data fragmentation.** Executives can become exasperated by the lack of consistent data, which prevents them from getting a clear picture of the organization at any given moment.
- **Core systems overhaul.** An organization that replaces multiple legacy systems with a packaged business application needs to monitor the progress of the project and measure return on investment.
- **New regulations.** New regulations, such as the Sarbanes-Oxley Act or the Basel Accord, may force organizations to change their strategy or revamp core processes.
- **Ineffective metrics.** Many organizations have too many metrics but not the right ones to change behavior.

Support of Mid-level Managers

Successful performance dashboards need the support of mid-level managers to succeed. It is critical to win their support because they translate strategic goals and objectives into concrete plans and initiatives and manage day-to-day operations. Mid-level managers often know which metrics will work and which will not and what data are available to populate metrics. Moreover, their words and actions signal whether their staff should take executive edicts seriously or not. If they are unwilling partners—or worse, active saboteurs—the project will not succeed.

Mid-level managers "generally know the best sources of information, the biggest issues, and the best workarounds. We also use these mid-level managers as advocates, both up and down and across the organization, to educate people about the program, its benefits, and how it works," says Martin Summerhayes, former program manager at Hewlett Packard TSG.

Unfortunately, mid-level managers can also be the ones most threatened by a performance dashboard. They are adept at massaging and spinning numbers to present themselves and their group in the best possible light. But a performance dashboard undercuts their ability to do this. It broadcasts their performance to everyone through an unfiltered lens, leaving them feeling exposed and vulnerable. For the first time, they may have to scramble and compete for budget dollars, resources, and promotions.

It takes considerable effort and political savvy to win the hearts and minds of mid-level managers. Executives have to educate the managers about how the program benefits them personally as well as their group, and they have to quell all unfounded fears. Executives need to identify key individuals who can make or break a project and work with them early and often. If appropriate, executives should invite the most pivotal managers to sit on the steering committee that oversees the project. The managers may see this as an honor and view the project more favorably as a result; at the very least, it gives executives a good way to keep an eye on key managers and make sure they have a positive attitude toward the project.

Appropriate Scale and Scope

Most people assume a performance dashboard is always implemented on an enterprise scale starting with the executive suite, but this is not always true. Sometimes it is better to implement a performance dashboard in a business unit, region, or department that is highly receptive to it. If the initial project succeeds, it will spread quickly throughout the organization. However, if executives try to force-fit a performance management system into an organization or business unit that is not ready for it, the tool will not gain the momentum it needs to expand throughout the enterprise.

When deploying a strategic dashboard (i.e., balanced scorecard) in a business unit or group, Niven recommends selecting a unit that conducts business across an entire value chain of activities. In other words, the business unit should have a "strategy, defined customers, specific processes, operations, and administration." Selecting a unit with a narrow, functional focus will produce a strategic dashboard with narrow, functionally focused metrics that will not be readily transferable elsewhere in the organization.

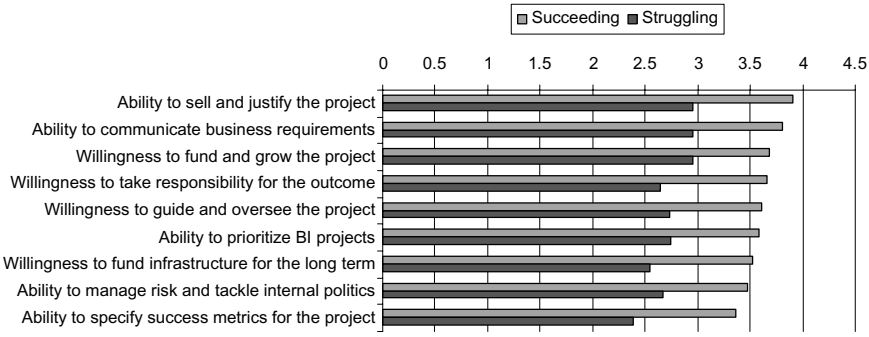

Chart based on a 5-point rating scale, with 1 being "poor" and 5 being "excellent."

EXHIBIT 3.1 Business Team Capabilities by Degree of BI Success
Source: Wayne Eckerson, "Smart Companies in the 21st Century: The Secrets of Creating Successful Business Intelligence Solutions," *TDWI Report Series*, 2003.

A Strong Team and Available Resources

To succeed, an organization needs business and technical people with the right skills who are willing and available to work on the project.

On the business side, the sponsor and driver must allocate enough time and attention to nurture the project through its entire life cycle. They also must stick around for the duration of the project or garner sufficient consensus and momentum so the project can continue without them. Successful projects have businesspeople who are skilled at selling, funding, prioritizing, and completing projects as well as communicating requirements, managing risk, and accepting responsibility for the outcomes (see Exhibit 3.1).

On the technical side, successful projects have technical teams with strong technical and project management skills. Successful technical teams score especially well on the soft issues, such as the ability to communicate technical issues clearly, respond to business requirements, and develop desired functionality (see Exhibit 3.2).

If the needed resources do not exist in-house, the organization must be willing to bring in outside consultants and contractors. However, it needs to put in place a plan to transfer consultants' knowledge and skills to in-house workers so the company is not dependent on the consultants. Organizations with successful solutions often rely heavily on management consultants to help formulate strategy and metrics, develop project plans, and implement change management programs; they use technical consultants largely to assist with application development, architectural design, product installation, requirements gathering, and application integration.

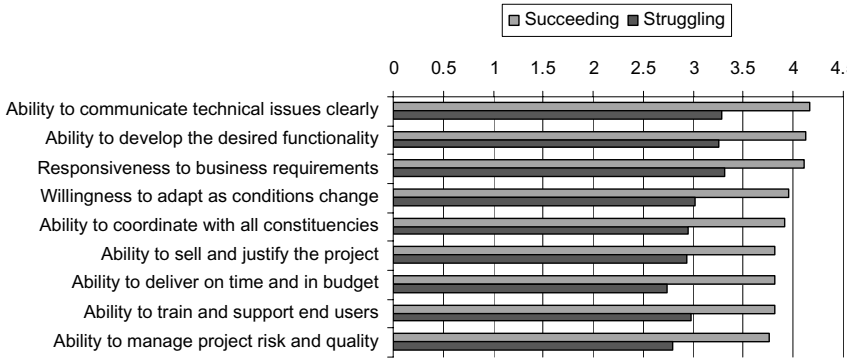

Chart based on a 5-point rating scale, with 1 being "poor" and 5 being "excellent."

EXHIBIT 3.2 Technical Team Capabilities by Degree of BI Success
Source: Wayne Eckerson, "Smart Companies in the 21st Century: The Secrets of Creating Successful Business Intelligence Solutions," *TDWI Report Series*, 2003.

A Culture of Measurement

Does the business already have a culture of managing through performance measures? If not, even the strongest desire may not be enough to overcome organizational inertia. At a bare minimum, does it compare performance with plan or forecasts? Does it hold individuals and groups accountable for performance? Does it conduct individual performance reviews using objective data? Similarly, the organization should have a history of using information and data to make decisions. If the organization relies primarily on intuition, it will struggle to succeed.

"Our company used to make decisions on gut feel," says a director of business information and analysis at a major U.S. manufacturer, "but now our executives believe strongly that fact-based decision making gives us a competitive advantage. Executives now ask, 'Where are the data to back up this decision?' and they expect sales people to use information to close deals, not just rely on the strength of their client relationships. And it's working!"

Performance dashboards work best in a corporate culture that encourages users to share information. They cannot flourish if executives tightly control information to insulate themselves from the rest of the company; or if managers use information as a political weapon to protect their turf; or if users are penalized for sharing information with colleagues. In contrast, organizations whose employees share information "very openly" are five times more likely to have a successful solution than those whose employees do not (17 percent to 3 percent). Organizations whose employees do not

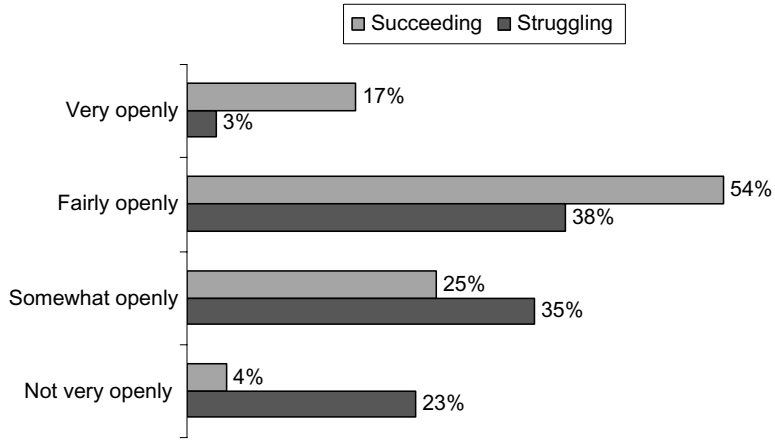

EXHIBIT 3.3 Level of Information Sharing by Degree of BI Success
Source: Wayne Eckerson, "Smart Companies in the 21st Century: The Secrets of Creating Successful Business Intelligence Solutions," *TDWI Report Series*, 2003.

share information openly are five times more likely to struggle (23 percent to 4 percent) (see Exhibit 3.3).

Alignment between Business and Information Technology

The degree of alignment between the business and the technical team also determines the readiness of an organization to adopt a performance dashboard. That is because performance dashboards are adaptive systems that continually change as the business changes. Performance dashboards require a great deal of ongoing interaction between the business user and the technical team to define new requirements, metrics, and targets and refine old ones. If the relationship between business and technical groups is tense and both groups eye one another with distrust and sarcasm, then the chances that a performance dashboard will succeed are minimal. Chapter 5 discusses strategies for aligning business and information technology in depth.

Like sponsorship, there is no middle ground with alignment. Teams that are "very aligned" are almost five times more likely to succeed, whereas teams that are only "fairly aligned" struggle a whopping 46 percent of the time. The key to guaranteeing success is to achieve total alignment between the business and technical sides of the team (see Exhibit 3.4).

What does a "very aligned" team look like? First of all, it has an actively involved business sponsor and business driver. Second, it is a team—not

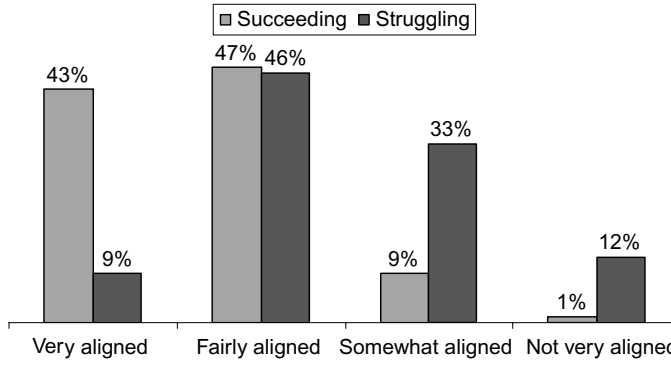

EXHIBIT 3.4 Alignment between Business and IT by Degree of BI Success
Source: Wayne Eckerson, "Smart Companies in the 21st Century: The Secrets of Creating Successful Business Intelligence Solutions," *TDWI Report Series*, 2003.

two or more disparate groups with different leaders, objectives, and cultures. "We sit side by side with businesspeople and report into the same leadership," says a senior technology manager who helps run the BI team at a telecommunications firm. "The only difference is that we specialize in the data and they specialize in the business processes."

Trustworthy and Available Data

Does the organization have the right data to populate metrics in a performance dashboard? Although it is unlikely that data exist for all measures, a new initiative should supply data for most of the metrics under consideration. It is also critical that someone evaluate the condition of the data. Nothing can damage the credibility of a project faster than launching a performance dashboard with inaccurate and untrustworthy data.

Because data are at the heart of most performance management systems, organizations need to treat data as a vital corporate asset, as important as other assets, such as buildings, people, and cash. Companies whose executives view data as a corporate asset are six times more likely to be successful than those whose executives do not (31 percent versus 5 percent). Companies with executives who do not view data as an asset are between two and three times more likely to struggle with BI projects (see Exhibit 3.5).

A Solid Technical Infrastructure

To generate data for performance dashboard metrics, companies often must either overhaul operational systems and processes or establish a BI

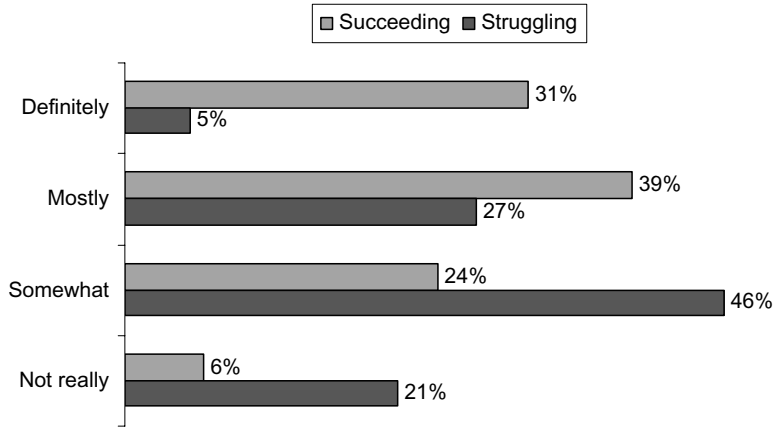

EXHIBIT 3.5 Executives' View of Data as a Corporate Asset by Degree of BI Success
Source: Wayne Eckerson, "Smart Companies in the 21st Century: The Secrets of Creating Successful Business Intelligence Solutions," *TDWI Report Series*, 2003.

infrastructure that delivers high-quality data, or both. However, not all performance dashboards require a robust technical infrastructure to initiate a project. Strategic dashboards, in particular, can often start by using manual processes to capture and disseminate key data elements (see Spotlight 3.2).

Spotlight 3.2 Growing into a BI Infrastructure

Balanced scorecard consultants argue that organizations should not delay a strategic dashboard project because they lack the requisite data or a robust BI infrastructure. Bill Barberg, president of Insightformation, Inc., describes a hypothetical scenario:

> *Suppose that the executives at a midsize manufacturing company that recently acquired several plants, each with its own IT systems, create a strategy to become a low-cost producer. One causal driver in this strategy involves driving scrap and rework to levels significantly below the industry average. Unfortunately, the company does not have good data to measure scrap and rework processes, and the data that exist are spread across many operational systems with different database fields and definitions. Few of the systems track why things are scrapped and do not reflect labor costs associated with the process. In addition, there are no industry benchmarks against which they can compare their performance.*

(*Continued*)

The executives quickly realize that it might take several years to overhaul the company's operational systems and processes to capture the information they need and then create a BI solution to analyze, aggregate, and accurately track detailed scrap and rework information. Rather than delay the balanced scorecard project until they have a solid technical foundation, the executives decide to forge ahead and make do with less than perfect information.

Barberg says that even a set of rough monthly measures for scrap calculated by hand helps benchmark improvements and, more important, communicates a powerful message about the company's strategy for success. The scorecard motivates managers and staff to take positive steps to reduce scrap, and these behaviors can be reinforced through additional objectives and monthly scorecard review meetings.

Meanwhile, the company can work on a parallel track to upgrade its operational systems to capture data required for the balanced scorecard and implement an activity-based costing system to allocate labor cost to scrap. The company can also implement reporting and analysis tools that deliver a standardized view of scorecard metrics.

Although the company would have benefited from having integrated operational systems and a robust BI infrastructure to start, it can reap benefits without them. Eventually, its technical infrastructure will catch up with the scorecard initiative.

The BI infrastructure consists of the BI environment (data warehouses, data marts, and analytical tools), the technical platform (servers, storage, networks), and the people to feed and maintain the environment. Organizations that are very willing or fairly willing to fund a BI infrastructure are more likely to succeed than those that are not. We'll focus more on this issue in Chapter 4.

Summary

Not all companies are ready to implement a performance dashboard. Organizations need strong leadership, a receptive culture, and a robust technical environment. You can assess your organization's readiness to implement a performance dashboard by asking these questions:

- **Strategy.** Does your organization have a clear, coherent strategy with well-defined goals, objectives, and measures?
- **Sponsorship.** Is there a high-level executive who strongly believes in the project and is willing to spend time evangelizing and nurturing the project?
- **Urgent need.** Does the organization have a demonstrated need for the system? How much is it suffering from an inability to track and measure performance?
- **Buy-in.** How willing are mid-level managers to support the project? Will the open sharing of performance results threaten their positions and their hold on power?
- **Scope.** Does the group have sufficient scope so that the implementation can be adapted by other groups in the organization?
- **Team.** Does the group have business and technical people with proper skills and experience to deliver a successful project?
- **Culture.** Does the group already have a culture of measurement and make decisions by fact instead of intuition?
- **Alignment.** How aligned are the business and technical teams? Do they have a good working relationship and trust one another?
- **Data.** Do data exist to populate the measures? How clean, valid, and complete are the data?
- **Infrastructure.** Does the group have a solid technical infrastructure that generates the required data and delivers it to users in a format that is easy to monitor and analyze?

CHAPTER 4

Assessing Your Technical Readiness

Business Intelligence Maturity Model

In Chapter 3, we discussed 10 criteria for evaluating the readiness of an organization to implement a performance dashboard. This chapter focuses more specifically on evaluating an organization's technical readiness. Without a strong technical foundation—especially in business intelligence (BI)—most performance dashboards will not survive. They will be crushed by the weight of cumbersome and costly data-gathering processes, inaccurate and untrustworthy data, poor performance, and antiquated functionality.

Like organizational readiness, technical readiness does not happen overnight. It takes years to build a robust BI infrastructure and develop the internal skills and talent necessary to support an effective performance management system. During the past several years, many organizations that initiated performance dashboards became disillusioned when they could not automate the solution or populate its metrics with valid, accurate data.

I have created a BI Maturity Model to help organizations understand the maturity of their BI infrastructures and, by extension, their readiness to build and sustain a performance management system. The five-stage model shows the trajectory that most organizations follow when evolving their BI environments. Typically, the journey takes the BI program from a low-value, operational cost center to a high-value, strategic initiative that delivers a competitive advantage. The model provides organizations with a big-picture view of where their BI environment is today, where it needs to go, and how to get it there.

The model also shows that performance dashboards are best deployed once organizations reach Stage 3. At this level of maturity, organizations

can quickly deploy performance dashboards without having to make significant investments to create a BI environment. In Stage 4, organizations are ready to cascade strategic dashboards throughout the enterprise and link them (logically at least) to operational and tactical dashboards. In short, it takes a reasonable amount of BI maturity for organizations to deploy a performance dashboard successfully on an enterprise scale.

Stages and Sticking Points

The BI Maturity Model consists of five stages: (1) Prenatal/Infant, (2) Child, (3) Teenager, (4) Adult, and (5) Sage, and two sticking points: the Gulf and Chasm. (See Exhibit 4.1.) As an organization moves through successive stages, business value increases, data become more consolidated, and business rules and definitions (i.e., semantics) become consistent. Architecturally, the BI environment evolves from operational reports and spreadmarts, to data marts and divisional data warehouses, to an enterprise data warehouse and finally BI services.

Bell Curve. The BI Maturity Model is shaped in a bell curve to indicate that most organizations today have reached Stages 2 and 3. Only a few are still stuck in the first stage (a combination of prenatal and infant), and only a few have made it to the advanced stages.[1] Because business intelligence emerged as a distinct discipline only in the 1990s, it is no surprise that after a decade or so, most organizations are stuck in "BI adolescence" and suffering the requisite growing pains. (See Spotlight 4.1.)

Characteristics. The BI Maturity Model defines each stage using a number of characteristics, such as scope, analytic structure, executive per-

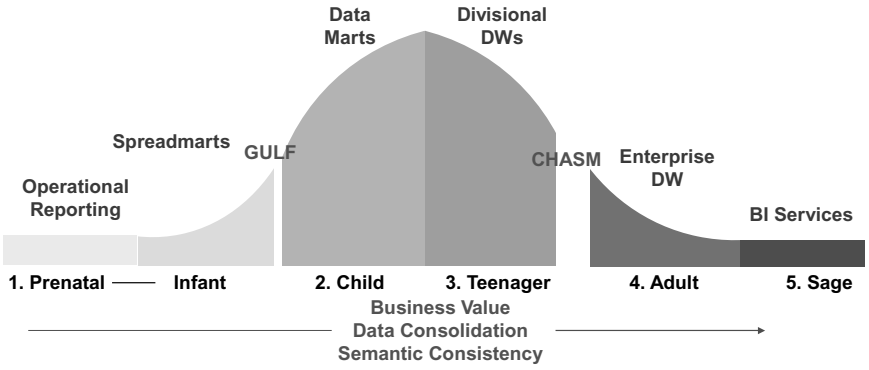

EXHIBIT 4.1 BI Maturity Model

Spotlight 4.1 Symptoms of BI Adolescence

Most organizations today are in the adolescent phase of business intelligence. If you remember correctly from your youth, adolescence is both an exciting and a painful time, full of change, transition, and surprises. The same is true for companies that reach adolescence in BI. Every step forward is tentative, and more setbacks are experienced than victories. The key to getting through this stressful period is to stay focused on the future and the value that awaits those who persevere while taking one step at a time in the present. Here are a few symptoms that signify that your organization is square in the middle of BI adolescence:

- The BI team moves perpetually from one crisis to the next.
- The BI program manager has to explain continually why the BI budget should not be cut.
- Usage of the BI environment peaked several months after deployment and continues to decline.
- The BI manager has to evangelize continuously the value of the BI environment to executives and business users.
- The number of spreadmarts, independent data marts, and other data warehouses with redundant data keeps increasing instead of decreasing.
- Users keep asking the information technology (IT) department to create custom reports even though the organization recently purchased a "self-service" BI tool.
- Executives still believe BI is a tool, not a strategic information resource to drive the organization in the right direction.

Managing a BI environment in its adolescence is painful. Perhaps the only comforting thought is that most companies are also experiencing the same growing pains. Like your organization, they spend more time reacting to problems than proactively solving them and put more effort into putting out fires than delivering lasting business value. The good news is that with persistence and some luck, you will eventually cross the chasm into adulthood.

ceptions, types of analytics, stewardship, funding, technology platform, change management, and administration. This book focuses on only a few of these characteristics.

Skipping Stages. Organizations evolve at different rates through the five stages and may exhibit characteristics of multiple stages at a given time. Thus, organizations should not expect to move cleanly and precisely from one stage to the next. Although it is possible to skip stages, it is unlikely. Organizations must learn critical lessons at each stage before they can move to the next. Organizations that feel compelled to catch up and skip stages will encounter problems that eventually bog down the project.

However, it is possible for organizations to move rapidly through each stage if they have strong sponsorship, adequate funding, and veteran BI experts equipped with a battle-tested methodology to guide the project. A solid methodology creates a logical road map for the BI environment that consists of a set of prioritized analytical applications and an information infrastructure to support them. The methodology will implement just enough infrastructure at each stage of development to support the new application and ensure a seamless evolution to an enterprise environment.

In essence, an accelerated BI program "thinks global, but acts local." It creates a full-fledged, enterprise DW environment one data mart at a time. Each new application extends the existing logical data model with new subject areas, brings new data into the data warehouse, and equips users with new reports and analytical functionality. By following a logical road map, an organization can usually accelerate through development stages without hitting architectural dead ends.

Even so, BI is not something that can be rushed because ultimately it is an exercise in change management. BI asks the business and users to alter the way they consume information and make decisions. Such changes don't happen overnight. And these days, business sponsors typically are willing to fund only short, tactical projects with a rapid return on investment (ROI), not large infrastructure projects that cost millions of dollars and take years to complete.

Regressing Stages. Rather than skipping stages, it's more likely that an organization will regress stages and slip backward in the evolutionary cycle. Often the cause is beyond the project team's control: a merger, acquisition, new executive leadership, changing economic or competitive circumstances, or new regulations. Here, BI projects and plans are shunted aside to address new concerns and issues in the most expedient (i.e., architecturally nonstandard) way possible. This makes many BI professionals feel like Sisyphus, the ancient Greek hero who was condemned forever to roll a huge stone up a hill only to see it roll down upon reaching the top.

Sticking Points. Almost every organization gets stuck at two points in the life cycle, represented by the "Gulf" and the "Chasm." The Gulf

represents the obstacles that afflict early-stage BI deployments, including lack of sufficient sponsorship, funding, scope management, data quality, and spreadmarts. The Chasm represents challenges that afflict most later-stage BI deployments, including the transition from departmental- to enterprise-scale BI deployments, the lack of consistent definitions and rules, unrelenting business volatility, report chaos, and lack of awareness of the strategic value of BI.

As you can see from the challenges on this list, the Chasm is deeper and wider than the Gulf, and many organizations never cross it. We'll delve into the Gulf and Chasm in the next section.

Five Stages

Stage 1: Prenatal/Infant

The Prenatal and Infant stages are depicted separately in the model, but I treat them as a single stage since they are flip sides of the same coin. The lack of accessible, interactive reporting in the Prenatal stage spawns the creation of spreadmarts, which are the hallmark of the Infant stage.

Production Reporting. Most established organizations have production reporting systems that generate standard reports that are distributed to large numbers of employees on a regular basis, usually weekly, monthly, or quarterly. Because programmers hand-code the reports, it can take several days or weeks to produce a new report or custom version of an existing report. This creates a backlog of requests that the IT department can never fulfill in a timely manner, as well as many frustrated users who cannot obtain critical information to do their jobs.

Spreadmarts. Consequently, many users take matters into their own hands, especially business analysts who know their way around corporate information systems and whose job is to crunch numbers on behalf of executives and managers. These individuals circumvent the IT department by extracting data directly from source systems and loading the information into spreadsheets or desktop databases.

Spreadmarts are spreadsheets on steroids. They are shadow data systems, renegade data marts, if you will. Each spreadmart contains a unique set of data, metrics, and rules that do not align with other analytical systems in the organization. An organization afflicted with spreadmarts has no consistent view of the business and no single version of truth from which every employee can work.

Spreadmarts ultimately wreak havoc on organizations. They bleed organizations dry, often without the organizations knowing it. Users spend inordinate amounts of time collecting and integrating data, becoming, in

effect, human data warehouses. Executive meetings dissolve into chaos as managers argue about whose data are right rather than making effective decisions, a phenomenon known as dueling spreadmarts.

Spreadmarts are difficult to eradicate—because they are ubiquitous, cheap, and easy to use. Many users, especially business analysts and financial managers, cannot function without spreadsheets, which give them a high degree of local control at extremely low cost. As a result, spreadmarts proliferate like weeds—organizations have dozens, if not hundreds or thousands, of these pernicious analytical structures. Unfortunately, the ubiquity of spreadsheets (or any low-cost analytical tool) undermines an organization's ability to obtain a consistent view of business activity. Running a business on spreadmarts is like having a thousand points of light but no clear direction in which to head.

The Gulf

To move from the Prenatal/Infant stage to the Child stage, organizations must cross the Gulf. As mentioned earlier, the Gulf represents the challenges that organizations face when trying to launch a BI program. Ironically, many companies in their rush to implement a BI solution don't fully address these early-stage challenges—especially those pertaining to spreadmarts. So, while they may appear to cross the Gulf by deploying a new data mart or reporting system, their fledgling BI program won't bear real fruit until they address the challenges posed by the Gulf.

Sponsorship. The first and most difficult challenge is obtaining suitable sponsorship. As mentioned in Chapter 3, sponsorship is critical to success of any BI or IT endeavor. With BI, sponsors come in two flavors: (1) enlightened executives who understand the value of running the business by the numbers and view BI as a no-brainer and (2) traditional executives who won't endorse a program until they see tangible benefits and a favorable ROI. The first set of executives make excellent sponsors as they stay put long enough to see the initial project through to completion. They may require a formal cost justification as part of the planning process but not as a litmus test for approval.

Chicken and Egg. The traditional executives, however, get caught in the chicken-and-egg syndrome. They won't allocate funds until you prove returns, but you can't demonstrate value until you deploy a solution. Essentially, traditional sponsors force you to bootstrap a BI solution and get creative in cost justifying the project. At this stage, you need to show tactical cost savings from implementing BI. This can include savings from shutting down legacy reporting systems, reducing training costs, and con-

solidating staff. You might be able to get away with some softer tangibles, such as time saved by analysts who no longer have to spend days gathering and preparing reports.

Of course, as mentioned in Chapter 3, the more pain a traditional executive feels from lack of adequate information to make decisions and monitor operations, the more he or she is likely to embrace a BI project. So, improve your chances of success by hunting first for enlightened executives and then for traditional executives who are suffering from information pain. If none of these executives exists, then bide your time and wait. It's likely that your organization won't be attaining its objectives and the board will bring in a new slate of executives who might be more enlightened when it comes to BI. Or if patience isn't your strong suit, look for another job.

Project Scope and Data Quality. Most early-stage BI initiatives founder on the shoals of ambitious project plans. In an effort to gain sponsorship and funding, BI managers often oversell the project. They promise to deliver too much data from too many sources and offer too much functionality in the initial deliverable. What looks great on paper often fails miserably in practice. This is primarily because a huge wildcard is the quality and condition of source data.

Typically, data that are sufficient to run operational systems are woefully inadequate when merged and aggregated for use in analytical systems. Source data often contain many errors, especially if portions are entered by hand, such as from a Web site. The data may be formatted and represented differently in each system, and they may not be consistently defined, creating a semantic reconciliation nightmare. And administrators may have added, deleted, or changed fields in a system without proper documentation, making it difficult to sort out what is valid data and what isn't.

The ideal scope for an initial BI project is to source data from one or two well-known data sources. This limits the surprises that you'll encounter once you open the data stores and peer inside. Although sponsors may not get the full application they seek in the first deliverable, they will obtain enough benefits (it is hoped) in a short enough period of time to continue funding the initiative.

Spreadmarts. Spreadmarts can ultimately strangle any BI initiative. Although you may succeed in finding a sponsor, obtaining funding, and building an initial solution, if users cling to their spreadmarts, your BI solution will die on the vine. Although spreadmarts are difficult to eradicate, there are remedies for curing this "disease" before it poisons the BI program. (See Spotlight 4.2.) Ultimately, the best remedy is a successful enterprise BI program that delivers the right data to the right users at the right time.

Spotlight 4.2 Strategies for Eradicating Spreadmarts

Spreadmarts are renegade spreadsheets and desktop databases that contain vital pieces of corporate data needed to run the business. However, because they are created by individuals at different times using different data sources and rules for defining metrics, they create a fractured view of the enterprise. Without centrally defined metrics and a single version of corporate information, organizations cannot compete effectively.

Today, spreadmarts are the bane of workers in IT departments, who cannot control their proliferation, and the nemesis of chief executives, who cannot gain an accurate view of the enterprise because of them. Although it is impossible to completely eradicate spreadmarts (and probably not wise to until BI tools offer comparable analytical flexibility as spreadsheets), here are five strategies—the five Cs—for minimizing the proliferation of spreadmarts:

1. **Coerce.** Have the CEO mandate the proper use of spreadsheets and desktop databases. By itself, this strategy rarely works because it is difficult to enforce. In fact, coercion usually makes the problem worse. Users go underground, managing their divisions and departments with clandestine spreadmarts that run parallel to official systems. However, without a strong executive mandate, users won't change their analytical habits. So, it's best to use this tactic in conjunction with one or more of the next approaches.
2. **Convert.** This strategy involves selling the benefits of the organization's standard BI environment. The key is to make sure the BI environment provides at least 150 percent the value of spreadmarts (which is sometimes difficult!). The BI environment should provide:
   a. All the data users need to monitor processes and conduct ad hoc analyses.
   b. Better-quality data defined consistently across all subject areas.
   c. Deeper insights that come from delivering cross-functional views of information.
   d. Comparable functionality to what users already have, including flexible "what-if" modeling and custom analysis (e.g., custom groups, calculations, ranking).
   e. New functionality that goes beyond what they have, such as collaboration, publishing, what-if modeling, and offline usage.
   f. Central support services.
3. **Corral.** The previous convert tactic should be enough to convert most casual information users (e.g., executives, managers, and

front-line staff) but not power users, who conduct ad hoc analyses using data from a variety of sources. For them, you'll need to create an analytical sandbox inside the data warehouse that enables them to combine their own local data with data in the warehouse. This gives them the best of all worlds: unfettered access to enterprise data, a robust server environment to conduct their analyses, and the ability to add unique data to the mix. Of course, such sandboxes require that administrators understand how to create partitions and use mixed workload utilities. Another option is to create an outboard analytical sandbox using a data warehousing appliance that holds a replica of data in the warehouse.

4. **Coexist.** This strategy turns Excel into a full-fledged client to a BI server. Rather than force users to switch tools, let them use Excel to access reports on a BI server or data in a multidimensional database. This gives them all the spreadsheet features they know and love and lets the organization manage data in standard way. This is perhaps the best option when used in conjunction with the Convert strategy (number 2).
5. **Co-opt.** This strategy takes the approach: If you can't beat them, join them. This strategy automates spreadmarts by running them on a central server. IT does not change the data access methods, processes, or rules set up by spreadmart users, it just maintains the spreadmarts on their behalf, freeing them to spend more time analyzing data and less time collecting and massaging it. Gradually, over time, the IT department can transfer the spreadmarts to a more standard environment.

Stage 2: Child

In the Child stage, departments recognize the need to empower knowledge workers with timely information and insight, not just business analysts and executives, who are the primary beneficiaries of spreadmarts. Departmental leaders fund the development of data marts, assign project managers to oversee the initiatives, and purchase BI tools so users can access and analyze data in the marts.

A data mart is a shared, analytic structure that generally supports a single business process or department, such as sales, marketing, or finance. The departmental team gathers information requirements and tailors the data mart to meet the needs of the members in its group. A data mart requires members of a department to consolidate or replace multiple spreadmarts and negotiate data definitions and rules to ensure data consistency throughout the department.

Unfortunately, data marts often fall prey to the same problems that afflict spreadmarts. Each data mart supports unique definitions and rules and extracts data directly from source systems. Although these so-called independent data marts do a great job of supporting local needs, their data cannot be aggregated to support cross-departmental analysis. What is needed is a mechanism to integrate data marts without jeopardizing local autonomy. This is the hallmark of the Teenager stage.

Also, most companies purchase more BI licenses than they need. They do not realize that many BI tools are geared to power users who are technically literate and conversant with the company's databases and access methods, not casual users who prefer to examine canned reports and dashboards. Since power users comprise fewer than 20 percent of all knowledge workers, BI in the Child stage serves only a small minority of users. In essence, while BI has established a beachhead in the organization, it is by no means pervasive.

Stage 3: Teenager

Proliferation of Data Marts. In BI, success breeds demand for more BI. When one group in a business unit successfully deploys a data mart, every other group wants one too. Soon the business unit has a proliferation of data marts, each developed independently for a different group with unique requirements.

Before long, a business unit executive recognizes that these so-called independent data marts cost a considerable sum of money to maintain and undermine a single view of the business. Typically, the executive initiates a project to consolidate existing independent data marts onto a single data warehousing platform. This consolidation is usually triggered by a business event or strategic initiative that requires clean, consolidated, and integrated data, such as a new customer loyalty initiative or an acquisition, merger, or reorganization.

Architectural Consolidation. Meanwhile, BI architects have recognized that the proliferation of data marts is overloading source systems with multiple, redundant extract programs. To streamline processing and ease administration, they backfill the data marts with a staging area that consolidates all data in one place and simplifies extract processing. This staging area then feeds data marts on a regular basis. Typically, the architects establish an update schedule for each data element based on user requirements. In most organizations, a majority of data elements will be updated once a day.

Next, architects recognize that many data marts share common dimensions, hierarchies, and metrics even though each data mart defines them differently, which creates problems for executive decision makers. Architects

decide to create a new set of tables inside the staging area that represent shared dimensions, hierarchies, and metrics across all data marts. These tables are modeled in a dimensional format, called a star schema or snowflake schema, and become the standard reference data for all data marts. The data marts can query them directly or create a replica for use in their own databases.

Divisional Data Warehouse. At the same time, executives seek greater data unification and consolidation, BI architects are ready to deliver a data warehouse with conformed dimensions and metrics that is updated in right time according to user requirements. This divisional data warehouse is a hallmark of the Teenager stage.

BI Program. Not surprisingly, the divisional data warehouse brings along the sponsors and users of each data mart, each of whom has different expectations and requirements for the shared resource. At this stage, the BI initiative is no longer a series of projects carried out independently by one or more teams of developers with no particular BI expertise; it's a BI program managed by a director of BI who must work with business sponsors to prioritize projects and align them with strategic objectives. Ideally, the BI director creates a BI road map that spells out the short- and long-term direction of the program.

To execute the program, the BI director hires a team of BI specialists to build solutions. These include BI project managers, data acquisition and transformation specialists, data modelers, business requirements analysts, BI architects, BI developers and report writers, technical writers and trainers, data administrators, quality assurance specialists, and data warehousing administrators. Individuals may handle multiple roles, and some roles may be outsourced to contractors or offshore developers.

Performance Dashboards. Whereas power users reap most of the benefits in the Child stage, general casual users enjoy most of the benefits in the Teenager stage. Once the BI team has ostensibly met the BI needs of its most demanding users, it is ready to make BI more pervasive by putting tools in the hands of casual users that conform to the way they want to consume and act on information. These tools are performance dashboards.

As mentioned in Chapter 1, performance dashboards are layered information delivery systems that enable business users to visually monitor business processes and drill into successive layers of information to discern the root cause of a problem or issue. The best performance dashboards display key performance indicators (KPIs) in a graphical manner, so users can glance at the dashboard to see whether performance is on track to meet predefined targets. If not, they can drill down to analyze dimensionalized data or access transactional details, if needed. The best performance dashboards tailor the display to each user, delivering the right information at the right time to take action while there is still time to affect outcomes.

The Chasm

Unfortunately, many BI teams never advance beyond the Teenager stage. They do not capitalize on their momentum and fall headfirst into the Chasm, which represents challenges that later-stage BI teams face when migrating from departmental and divisional views of information to an enterprise view with a single, integrated set of information and analytical tools for everyone.

What Is an Enterprise? Some people question whether every organization needs an enterprise data warehouse. The answer depends on their definition of enterprise. Certainly, a multinational conglomerate with many distinct business units, each with its own products and customers, doesn't need an enterprise data warehouse. Yet each of its divisions—which function as profit/loss centers—certainly do.

Cross-functional Views. The value of enterprise information—no matter what the scope of the enterprise—comes from viewing information across functional boundaries. Most organizations of any size quickly fragment into a variety of departments, such as finance, sales, marketing, research, development, and so on. The people in each department carry out a specific set of related tasks and report to a single department head. After a while, everyone in the department focuses more on departmental requirements than enterprise ones.

These physical and mental silos are why it's so hard to build an enterprise data warehouse and yet why it's so important to do so. Unlike single-subject data marts, enterprise data warehouses encourage deeper levels of analysis. This is because users can now submit queries across functional boundaries, such as finance and operations, and gain new insights not possible when data were confined to departmental subjects.

Ironically, even when a new data warehouse provides access to cross-departmental data, most users never move beyond their mental silos, which are still departmental in scope. BI managers must spend a great deal of time educating users about highly profitable insights that they can obtain by examining the full value chain of information and processes.

Semantic Integration. One of the challenges in building an enterprise data warehouse is getting users in each department to agree on the definitions of commonly used terms, such as *sale*, *customer*, or *return*. For example, the finance department might say that a sale occurs when a customer payment clears the bank, while the sales department says it occurs when the customer submits a purchase order, while the marketing department says it occurs when the customer enters into negotiations to purchase.

Obviously, when calculating "sales," each department will come up with completely different numbers, which drives executives crazy. Getting

each department to relinquish its definition is challenging, if not impossible. But standardizing terms and definitions is critical for obtaining a consistent view of enterprise activity. Since gaining consensus is a political, not a technical, issue, the only way it occurs is when the CEO locks the heads of each department in a room and doesn't let them leave until they achieve consensus.

Typically, what happens is that the department heads agree to disagree: They keep their metrics where reasonable but agree to give them distinct names so people aren't comparing apples to oranges. However, if there are 20 definitions of *customer*, department heads need to narrow it down to a handful of definitions. They often also need to identify one definition that will serve as the enterprise metric and know how to translate their local metrics into the global one.

Corporate Volatility. Another equally vexing problem is dealing with the vicissitudes of corporate life. A Greek philosopher once wrote, "The only constant is change." Anyone who has spent five years in an organization knows that just as you or your department starts hitting its stride, something happens and you have to adjust. Mergers, acquisitions, reorganizations, new executives, new competitors, new technologies, or new regulations happen on a disturbingly regular schedule to upend the best-laid plans of any BI or IT department.

Each change causes executives and managers to ask a new set of questions that your data doesn't support. Yet they need the answers immediately since the survival of the organization is at stake—or at least their ability to meet strategic objectives or budget goals. But these questions often require a major rework of the BI infrastructure to answer. The BI team must gather new requirements, revise data models, recode extract, transform, and load (ETL) programs, rewrite reports, and update metadata. None of these things is easy to do and none was designed to be changed on a regular basis.

Adaptable System? How do BI teams create an adaptable system? How do BI teams meet business demands for new solutions in a timely manner? How do they stay ahead of the project backlog? There are no straightforward answers here, but most BI teams are looking for ways to become more nimble and agile.

Slowly, there is emerging a set of best practices that enable the BI team to go as fast as the business wants. BI practitioners are coming up with new ways to gather requirements; developers are embracing agile development methodologies; modelers are abstracting more of logical model to make revisions easier; BI teams are cross-training staffers and creating small, interdisciplinary teams; and vendors are offering a slew of innovative technologies that promise to accelerate time to value while lowering costs, including open source BI products, specialized analytic databases, cloud-based BI implementations, and in-memory analytics, to name a few.

Report Chaos. By the time BI teams reach the Chasm, power users have taken the self-service BI tools and created hundreds if not thousands of reports, most of which are variations on the same theme. With so many reports, casual users can't find the right ones to use and fall back on IT to create their reports for them, which re-creates the report backlog that initiated the BI project to start. In addition, many of the reports embed custom calculations and metrics that don't sync up with other reports. The result of all this activity is report chaos, and it can torpedo the BI program, sending it back to Stage 1.

BI teams need to know the difference between self-service BI and self-serving BI. BI teams love the notion of self-service BI because it seemingly kills two birds with one stone: self-service BI gives users what they want (direct access to data) while eliminating the report project backlog at the same time. But BI teams can't abdicate responsibility for reporting. While self-service BI tools work for a while, they ultimate wreak havoc on the BI program unless the BI team creates standard reports for each department and establishes a governance program for managing ad hoc reports.

Strategic Value. Finally, BI programs stuck in the Chasm still have to fight for every budget dollar while it's getting harder and harder to justify BI on tactical, cost savings. At this point, BI teams need to sell their services based on the strategic value to the organization. This is impossible to do unless the company has enlightened executives (see the earlier discussion on "The Gulf") or the BI team has become indispensable to users. Sometimes the only way to determine the value of the BI system is to turn it off and see what the reaction is. If users scream immediately and loudly, then the data warehouse is delivering significant value.

Of course, I don't recommend disabling the data warehouse, but understanding users' dependency on the BI system is the first step in defending its value and budget dollars. It is hoped that you can also point to one application that generated outsized ROI or was instrumental in holding on to a major client. You need these quick wins and anecdotes to build a positive storyline that becomes associated with the BI brand. It's also important to begin building more value-added applications that the business can't live without. Certainly, a performance dashboard is one of those, as is a balanced scorecard and deep analytics on big data.

Stage 4: Adult

In the Adult stage, an organization overcomes the challenges posed in the Chasm and delivers an enterprise-wide information resource for insights and decision making. It has established standard definitions for commonly used terms and consolidated various divisional data warehouses and independent data marts into a single, integrated architectural environment. It

has embraced agile development methodologies and other techniques in all disciplines of BI to become more adaptable to changing business requirements and demands. The BI program is viewed as a strategic asset.

A BI program in the Adult stage exhibits these attributes and characteristics:

- **Strong BI governance.** In the Adult stage, the BI team no longer drives the BI program, the business does. The business decides the direction of the BI program through various governance committees, and the BI team implements their wishes. A steering committee comprised of sponsors from the major business units and departments prioritizes projects, approves the road map, and secures funding. A working committee comprised of power users from each department refines the BI road map, discusses application enhancements, selects products, and addresses problems.
- **BI Center of Excellence.** At the same time, the BI team has formed a BI Center of Excellence. This new moniker simply means that the team has defined and documented best practices for implementing BI solutions. This includes processes and procedures for gathering requirements, managing BI projects (versus transaction processing projects), developing BI software, administering data warehousing systems and processes, selecting new products, and training and supporting users. The BI Center of Excellence also has defined architectural and technology standards that align with the organization's overall IT standards.

  Until now the BI team has developed most of the BI solutions, but now it provides consultative services with fledgling BI groups in the rest of the company. It is viewed as a corporate resource for sharing knowledge and skills—not a body shop—and plays a critical role in ramping up BI expertise throughout the organization.
- **Marketing machine.** A hallmark of an Adult stage program is that it knows how to market itself. To ensure the organization gets full value from its BI investments, the BI team works hard to evangelize the BI solution to executives and users. To win hearts and minds, it creates a marketing plan that tailors messages to each constituency through a variety of channels, including a Web site, a newsletter, and presentations at internal meetings and forums. The team has branded the BI program with a catchy name and has developed posters, advertisements, and other marketing material to increase market awareness.
- **Sales savvy.** An Adult stage program recruits technically savvy business users from each department to serve on its team. These business-oriented people help solidify alignment between business teams and the BI program, serving as strategic advisors to the business

units from which they came. They help the business understand how the BI resource can help them address current issues while gathering new requirements to bring back to the BI team. The people who straddle the worlds of business and IT are known as purple people because they are neither business (blue) or IT (red), but a blend of the two (purple).

- **Performance driven.** The BI team has moved beyond simple dashboards and developed performance management systems that cascade strategy from the executive suite to every employee. Organizations now have a complete set of operational, tactical, and strategic dashboards and top-level objectives, KPIs, and targets that are translated uniquely at every level.
- **Analytics driven.** At the same time, the BI team has helped the organization move beyond simple reports to sophisticated analytics. The BI team has empowered business analysts and statisticians with new tools, specialized databases, and analytical sandboxes so they can explore large volumes of data and create sophisticated predictive models that optimize various departmental processes.
- **Intraday updates.** To support embedded modeling and user demands for fresher data, the BI team has rearchitected the data warehouse to deliver near-real-time data using trickle feed, change data capture, and/or replication technologies. A right-time-enabled data warehouse combined with predictive analytics enables the organization to deliver valuable new customer-facing applications, such as cross-sell engines, fraud detection systems, and targeted marketing campaigns.
- **Master data management.** Finally, the BI team extends its expertise to data in the operational system and helps steer a master data management initiative. The BI team has developed technical and political skills needed to standardize reference data for the data warehouse and understands how standardized operational data can benefit the organization and simplify data warehousing operations.

Stage 5: Sage

Once BI becomes a strategic enterprise resource that drives mission-critical operations, you may think the job is done. But the real challenge and opportunity is just beginning!

Commercial Services. The Sage stage turns the BI resource inside out and makes it available to customers and suppliers. By providing secure access to their account data, the BI team can help customers and suppliers better manage their business operations and work smarter and more efficiently. This improves customer service and loyalty. In some cases, these extranet applications enable customers and suppliers to compare their

performance against peers to benchmark their standing in the industry. If the company charges for such access or embeds the cost in a broader service offering, the data warehouse changes from a back-office cost center to a front-office revenue generator.

Application Services. At the same time, a Sage stage BI team embeds BI deeper into the business processes that drive the company, turning BI from a reporting tool into an analytical service that any person or application can tap to obtain information and insights. With such services, users no longer have to shift from an operational application to an analytical application to analyze data. The data, information, and insights they need to do their jobs will be embedded in the core applications they use on a daily basis. For example, customer service representatives can view cross-sell recommendations generated in real time from the data warehouse while working within their customer management software.

Decision Engines. These BI services also make it possible for companies to capitalize fully on their investments in statistical analysis and analytical modeling. They turn statistical models into decision engines embedded in internal and external applications. Workers or applications feed information into these engines and receive recommendations instantaneously. For instance, a fraud detection system reviews your credit card transactions, compares them to a statistical model of your past purchasing behavior, and spits out a score that indicates the degree to which a given purchase may be fraudulent. Other examples of decision engines are Web recommendation engines and automated loan approval applications.

Bottleneck. Although there are great opportunities in the Sage stage, there are significant challenges. Ironically, the biggest challenge is the hardest to see because it is the BI team itself.

As the BI team has grown and assumed more control over the delivery of information, it has become a bottleneck for getting things done. We see the bottleneck, of course, but we think the answer is more staff, faster machines, and better software. We don't see that *we* are the bottleneck and that the only way to reduce or eliminate the project backlog is to do something that is both counterintuitive and terrifying: We must let go. That is, we must empower departments and business units to build their own data warehousing and BI solutions.

This is the Zen of BI: We must embrace the very thing that we have resisted for years. Entrusting departments to build their own analytical systems is a terrifying prospect for most BI veterans. We fear that the departments will create islands of analytical information and undermine data consistency that we have worked so hard to achieve. Rather than let go, we grip the proverbial BI steering wheel tighter and tighter. But asserting control at this stage usually backfires.

Trust in Standards. BI veterans need to heed the advice of Yoda in the movie *Star Wars* who counsels his Jedi warriors in training: "Let go and trust the force." But, in this case, rather than the "force," we must trust the BI standards that we've developed in the BI Center of Excellence, such as standards for ETL scheduling and error management, BI semantics, project planning, and BI tool selection. It's now time to educate the rest of the business about these standards.

BI veterans who have gone down this path add the caveat: "Trust but verify." Educating and training departmental BI staff about proper BI development is critical, but it's also important to create validation routines where possible to ensure they conform to standards.

Fox in the Henhouse. The cagiest BI veterans recognize that the key to making distributed BI development work is to recruit key analysts in each department to serve on a BI working committee. The working committee drives the BI effort on a weekly or monthly basis and reports its recommendations to the BI steering committee. The working committee addresses problems, prioritizes enhancements, selects new tools, helps design subject areas, and creates the road map. This tactic ensures buy-in and compliance from business analysts who are most apt to undermine corporate BI standards and architectural integrity.

Hybrid Approach. With an extended BI Center of Excellence in place, a Sage stage team can then manage a hybrid BI environment in which the corporate BI group manages the data warehouse and conformed dimensions (or BI semantic layer) and allows distributed teams, if they desire, to build and manage their own data marts and reports using the central resources and standard practices. Business units that don't have or want the requisite BI skills in house will continue to rely on the BI Center of Excellence to build local capabilities. In other words, the BI Center of Excellence provides a flexible set of development and support services that business units can exploit as much or as little as they want without undermining the consistency of enterprise information.

Maturity Dynamics

So far, we have examined each stage in the BI Maturity Model as well as the Gulf and the Chasm. Now it's time to step back and examine how key characteristics of a BI program evolve over time.

Autonomy and Control

Exhibit 4.2 depicts the five stages at the top of the table along five other characteristics defined in text: (1) scope, (2) funding, (3) team, (4) sponsor-

ship, and (5) architecture. The two curved lines represent a sixth characteristic: the dynamic interplay between autonomy and control that evolves over the life of a BI program.

Scope. But first, let's quickly review the first five characteristics, most of which should be obvious from our description of the five stages. Ignoring the Prenatal substage for now, the scope of a BI program evolves from an individual (i.e., spreadmarts) to department, business unit, enterprise, and finally interenterprise level, when the organization makes the data warehouse available to customers and suppliers.

Funding and Sponsorship. Funding and sponsorship follow a similar trajectory with a few twists: Funding at the Sage stage comes from direct or indirect revenues generated by the data warehouse; and sponsorship in the last two stages becomes formalized in a BI governance program, described earlier. Team composition evolves from an individual analyst, to a project team, to a BI program, and finally to a BI Center of Excellence in the Adult stage and a hybrid team in the Sage stage, where responsibilities are divided between central and distributed groups.

Autonomy and Control. The straight line represents local control, or the autonomy of departments and business units to create and manage their own information and reporting and analysis environment. The dotted line represents enterprise standards, or the ability of the BI team to set standards governing the definition and management of information. As you can see in Exhibit 4.2, there is a big gap between local control and enterprise standards in the Infant stage. This gap explains why spreadmarts are so prevalent. The mantra of business analysts is "Think local, resist global." They have the upper hand at this stage and create information structures that suit their parochial needs.

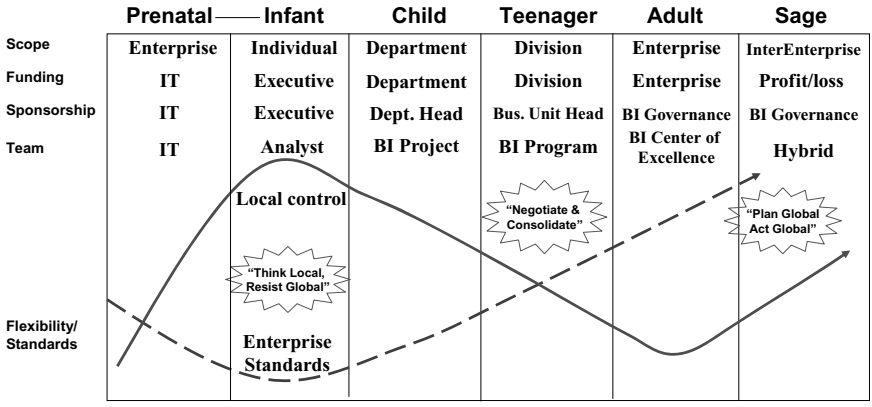

EXHIBIT 4.2 Autonomy versus Control

As a BI program evolves local control ebbs while the ability of the BI team to enforce standards increases to the point where the balance of power shifts in the Teenager stage. Here, the mantra of the two groups (i.e., business and IT) is "Negotiate and consolidate." Unfortunately, in most cases, the dynamics keep moving in the same direction. By the Adult stage, the BI team or BI Center of Excellence has most of the power, and local groups are starting to feel shortchanged as the BI project backlog builds.

Unless the BI team can figure out ways to respond more quickly to the needs of local groups, the line representing "local control" will continue to plummet and local groups will abandon the BI effort altogether and start creating spreadmarts, repeating the cycle all over again. The bottom inflection of this curve represents the chasm and the need for BI teams to embrace agile techniques. It also reflects what BI teams must do in the Sage stage, which is push more development effort back to the business units without sacrificing architectural standards and integrity.

Users and Usage

Exhibit 4.3 depicts three more characteristics in the BI Maturity Model: types of users, types of tools, and applications. In the Prenatal substage, everyone in the company uses largely static operational and management reports, which means they are not tailored to anyone in particular. This creates an IT backlog as users request custom reports. While most casual users glance

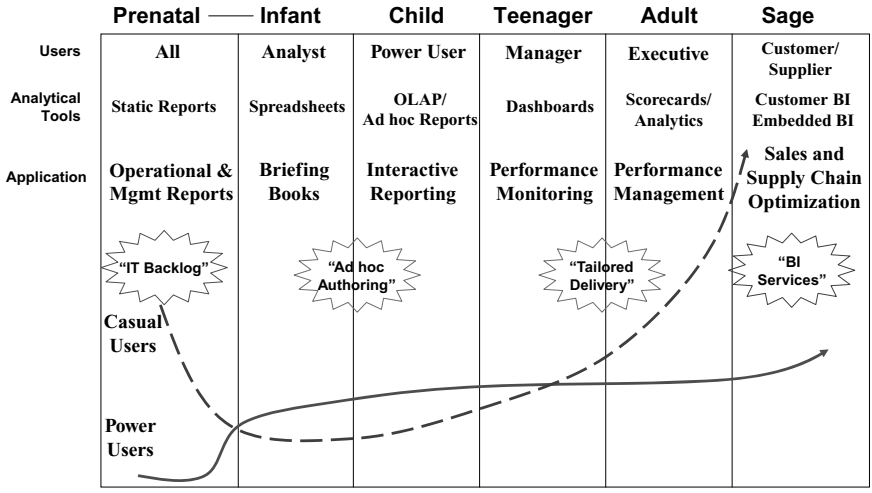

EXHIBIT 4.3 Users and Usage

at them, most power users ignore them entirely, which is why BI usage among power users (straight line) is zero during this stage.

In the Infant substage, analysts armed with spreadsheets and desktop databases conduct custom analyses for executives, creating a briefing book from what they discover. During this substage, almost all power users are engaged in conducting analyses, although none is using standard BI tools. In the Child stage, the company rolls out standard BI tools, which brings on the remaining power users (e.g., mainly technically savvy business users) and some casual users. These early BI adopters largely use reporting and OLAP tools to create ad hoc reports.

In the Teenager stage, organizations roll out dashboards to managers who need to monitor the performance of business processes. Here, usage among casual users starts to climb since dashboards conform to the way they want to consume information. In the Adult stage, companies roll out performance management systems via scorecards and move beyond reporting to analytics. In both stages, BI applications are tailored to individual users and groups and BI becomes pervasive.

Finally, in the Sage stage, the organization offers BI to its customers and suppliers to optimize sales and improve supply chain efficiency and embeds it in core processes. The result is that BI becomes ubiquitous and usage grows exponentially. In this stage, people are using BI without really knowing it.

Business Value and ROI

Exhibit 4.4 depicts three more characteristics of BI maturity: type of system, executive perception, and ROI.

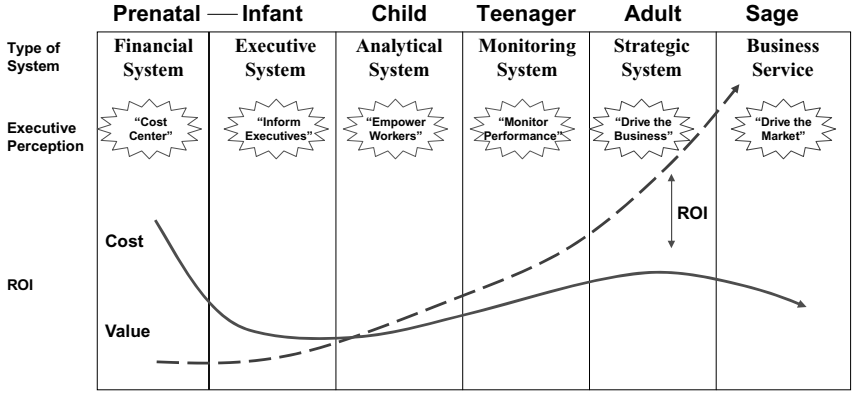

EXHIBIT 4.4 Business Value and ROI

In the Prenatal substage, BI is largely a back-office financial reporting system that is viewed by executives as a necessary cost of doing business, or cost center. Costs are high and perceived value is low, creating a negative ROI. In the Infant substage, BI is largely an executive support system in which individual analysts using spreadsheets prepare custom reports for executives. Here, the cost is low (except for the salaries of the business analysts) and the value from an organizational perspective is low, although each individual executive derives significant value from having his or her own "human data warehouse."

In the Child stage, power users armed with ad hoc reporting tools are empowered to explore data and deliver insights on a departmental basis. Value increases as does cost. In the Teenager stage, BI becomes a monitoring system to improve performance on a departmental level. This generates significant value and adds to costs only incrementally, especially if existing BI tools and data marts and divisional data warehouses are used to build the dashboards.

In the Adult stage, BI becomes strategic to the organization. Executives and managers use dashboards and scorecards to manage core processes, continually improve performance, and monitor progress toward achieving strategic objectives. Analysts apply deep analytics to big data to deliver valuable insights. At this point, BI is a mission-critical resource that drives the business. In the final stage, BI becomes a revenue-generating business service and embedded application service that gives the company a competitive advantage. Overall costs actually start to decline as the data warehouse is fully populated with detailed data from all subject areas. Consequently, ROI grows exponentially.

Exhibit 4.4 is a valuable chart to show to sponsors because it shows that ROI doesn't start accumulating until a BI program reaches its final stages of maturity. The message is that sponsors need to be patient and invest continuously in BI to achieve its full promise.

Insights to Action

Exhibit 4.5 depicts several more characteristics of BI programs, including BI focus, BI output, data capture, and business purpose.

The focus of BI exploration evolves significantly over the life of a BI program. At first, users use monthly static operational or management reports to find out "what happened." Then business analysts use spreadsheet models based on historical data and business assumptions to create scenarios about what can happen based on different variables and market tendencies. When organizations deploy BI tools, users create ad hoc reports or use parameterized reports to explore why things happened or the root cause of various trends or market anomalies.

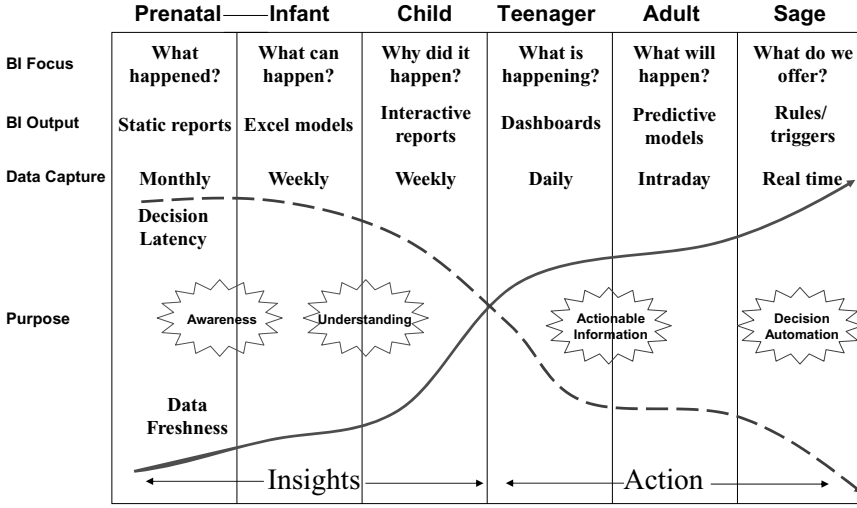

EXHIBIT 4.5 Insight to Action

In the Teenager stage, we use operational dashboards refreshed daily to find out what is happening right now. In the Adult stage, we use predictive models and intraday data to forecast what will happen by the end of the transaction or end of the day or week. And finally in the Sage stage, we use simple and complex rules and database triggers and other automation engines to make real-time offers to customers and anticipate events before they happen.

Decision Latency and Data Freshness. The dotted line in Exhibit 4.5 refers to decision latency, which is the time between when an event happens and business user needs to decide what to do about it. The straight line refers to data freshness, or how current the data is when it's delivered to business users. In the early stages of a BI maturity, data are fairly old, and there is a big delay between events and decisions. Consequently, the focus of early-stage BI programs is building awareness and understanding of what's happened in the past in order to optimize processes and develop future plans.

Decision latency and data freshness flip-flop dramatically in the Teenager stage, when companies deploy dashboards to monitor current performance. Here, the focus is acting on information to affect outcomes before it's too late. The Sage stage takes this notion to the extreme by automating certain processes using decision engines, as described earlier. The radical inversion of the lines in Exhibit 4.5 underscores the impact that performance dashboards can have on the business in general and the BI program specifically. Here, BI becomes a power agent of organizational change and improvement.

Summary

The BI Maturity Model is a good way to assess an organization's technical readiness to deploy a performance management system. The model shows that performance dashboards typically are deployed in Stage 3 when organizations have implemented BI tools and one or more data marts and are in the process of consolidating them into a divisional data warehouse. This level of infrastructure makes it possible to deploy performance dashboards without a lot of additional investment.

Many people who have heard presentations about the BI Maturity Model say it is therapeutic. They find comfort in knowing that others have encountered the same growing pains they have. Many view the BI Maturity Model as a tool to help them envision the future and the steps needed to get there. They also view it as a perfect way to explain the potential of BI to business sponsors and the investments they need to make to deliver long-term value.

Note

1. Since the first edition was published in 2005, overall BI maturity has advanced. Our latest research shows that the bell curve has shifted to the right. The majority of companies (60 percent) are now in the Teenager stage, on the precipice of adulthood; 29 percent are in the Child stage; and 10 percent in the Adult stage. I still prefer to draw the bell curve as depicted, however, for simplicity.