White Paper

Implementing a Business Intelligence Strategy

- *A Practical Guide to Business Intelligence Standardization*

BUSINESS OBJECTS®

Author: Timo Elliott. timo.elliott@businessobjects.com

Contributors: Stuart Rowland, Kelly Byrne, Brad Surak

Audience: This paper is intended for information technology and business-line executives who wish to understand how best to implement an organization-wide business intelligence strategy within their organizations.

Contents

Executive Summary iii

Why Implement a Business Intelligence Strategy?

- **The Value of Business Intelligence** 1
- **The Problem Today** 3
- **The Value of Business Intelligence Standardization** 7

Implementing a Business Intelligence Strategy

- **Step 1: Decide if You're Ready** 9
- **Step 2: Limit the Problem** 11
- **Step 3: Build a Long-Term BI Strategy** 15
- **Step 4: Sell the Strategy** 34

Conclusion 45

About Business Objects 47

Executive Summary

Business intelligence (BI) technology gives business users the ability to track, understand, and manage information within an organization. BI is taking on an increasingly strategic role as more organizations look for ways to tap into the valuable data stored in their operational systems. A typical BI project has an average return on investment (ROI) of over 430%[1], but due to the fragmented implementation of these projects, organizations are unable to fully benefit from a global, cross-functional analysis of information.

BI tool standardization provides strong ROI by reducing BI purchase, implementation, and training costs. These benefits were detailed in a previous white paper entitled "Business Intelligence Across The Organization—Why Standardizing Business Intelligence Is Critical."[2]

This white paper, a companion to the BI standardization white paper mentioned above, was created to focus on the more practical aspects of implementing a BI standardization project. This document uses research data and the experiences of BI pioneers to outline the necessary steps you need to take to introduce an effective BI strategy within your organization.

▶ Decide if You Are Ready for BI Standardization

Your organization's ability to implement a successful BI strategy depends on its "BI maturity." If both your IT and business users believe in the benefits of BI, and have previous experience with successful BI projects, then your organization may be ready for BI standardization. However if there is inertia on either side, a cultural change may first need to be driven at an executive level.

▶ Limit the Problem

As new BI projects multiply, there are a number of steps you can take to keep the costs of BI fragmentation from increasing:

- **Perform an audit of existing BI projects**. Calculate the costs and benefits of each existing BI project.
- **Build a case for standardization**. Based on your research, build a strong business case for BI standardization in order to ensure adequate project resources.

[1] International Data Corporation, 2002.
[2] Business Objects, 2001. Available at http://www.businessobjects.com

- **Develop unambiguous criteria**. Define a standard set of non-overlapping tools for the BI needs of the organization.
- **Start enforcing the standard**. Implement a mechanism for ensuring the use of standard tools, such as formal project reviews or budget incentives.

▶ Build a Long-Term Business Intelligence Strategy

To ensure that you receive the full benefit of BI, it's essential that you implement a long-term strategy with the following steps:

- **Build trust between IT and business users**. BI stands at the intersection of the businesses and the IT organization. Many organizations have a history of mistrust that can prevent the successful implementation of any new BI strategy.
- **Implement a BI center of excellence**. A BI center of excellence (COE) is responsible for developing and sharing BI best practices throughout an organization. Ideally, a business person should head the center, and it should report to the core business departments in a collaborative environment with IT and the other departments. You can use a program management office as an intermediary step towards the creation of a full COE.
- **Align BI initiatives around a framework.** Map available BI functionality to the technical, functional, organizational, and business needs of the organization.
- **Implement a BI methodology.** Implement a formal BI implementation methodology that details the roles of different groups (IT, business users, technical support, etc.), covering both the technical and user-oriented phases of the project lifecycles.
- **Create an acquisition/deployment process.** Ensure that financial incentives are designed to promote the business use of your COE.

▶ Sell the Strategy

The biggest threat to a BI standardization project is when an organization doesn't invest enough time in proactively communicating project goals and status.

- **Monitor and communicate the implementation plan.** Constantly evangelize the benefits of BI and of the standardization project.
- **Avoid common BI project challenges.** Anticipate potential problems and use them as growth opportunities.

- **Conduct formal reviews.** Audit the BI center on a regular basis to ensure that it has been able to maintain the trust of the business organization, and that the processes and methodologies put in place still meet the needs of the end users.

The Value of Business Intelligence

What is Business Intelligence?

Business intelligence refers to the use of technology to collect and effectively use information to improve business effectiveness. An ideal BI system gives an organization's employees, partners, and suppliers easy access to the information they need to effectively do their jobs, and the ability to analyze and easily share this information with others. With its roots in early databases and "executive information systems," BI has evolved into a powerful set of technologies suitable for different types of user and information analysis needs.

The Value of Business Intelligence

Business intelligence is fast becoming a strategic differentiator for today's leading organizations. According to Keith Gile of Giga, "BI has evolved during the past three years from a niche, departmentally focused solution to a strategic enterprise asset."[3]

In today's tough economy, enterprises need to manage and reduce operational costs. The key benefit of BI is that it gives executives, mid-level or line managers, and employees the information they need to drive operational efficiencies. BI also makes the easy analysis of expenses across multiple information systems possible. For example, with BI, a company can get a global overview of travel costs, or make headcount reduction decisions based not only on overhead salary, but also on related expenses such as office space and communications.

BI helps target expenses while protecting the core business—for example, one U.K. supermarket chain was poised to cut some of its least profitable products from its shelves, only to find that high-profit customers usually purchased the products in question. If the store had cut these "non profitable" items, it would have run the risk of driving its most valuable customer segment into the arms of competitors.

BI is also a key factor in improving top line revenue growth. As competition increases, the ability to understand and target particular customer segments with appropriate and profitable products and services becomes a key differentiator. BI helps the drive towards higher service levels and increased revenues by bringing to light the latest trends in customer behavior, determining which customer segments are the most profitable, and identifying cross-selling opportunities.

A BI strategy is a fundamental foundation for enterprise performance management (EPM), a process that connects goals, metrics, and people in order to drive improved

[3] The Giga Group, *Developing a Business Intelligence Strategic Plan*, 2002.

management, analysis, and action across the organization. More information about EPM is available at http://www.businessobjects.com/solutions/epm.

▶ BI Leverages Your Existing Data Assets

The last decade has witnessed huge investments in operational information systems, but large numbers of organizations have yet to see many concrete benefits come out of these investments. According to a 1999 survey of large multinational companies, organizations took an average of 23 months to implement an ERP system (such as SAP or Oracle Applications). And over a five-to-six-year period, the average company incurred a net return on investment of *negative* $1.5 million.

The survey stressed that while these implementations did eventually produce a return, the real value of these systems was that they established a strong information foundation for the organization. The problem today is that the information is often locked away, or unavailable to business users.

BI is required to unleash the full value of ERP systems. According to a 2002 International Data Corporation study, the average return on a BI investment was greater than 430%[4]. Since BI projects rely heavily on underlying data infrastructure, it's clear that much of this value comes from previous ERP architecture investments.

Figures like the ones above show that BI continues, and will continue, to be a targeted area for increased IT spending in the years to come.[5] But success brings its own problems. In the next section we'll take a closer look at the problems that have risen as companies have begun implementing BI throughout their organizations.

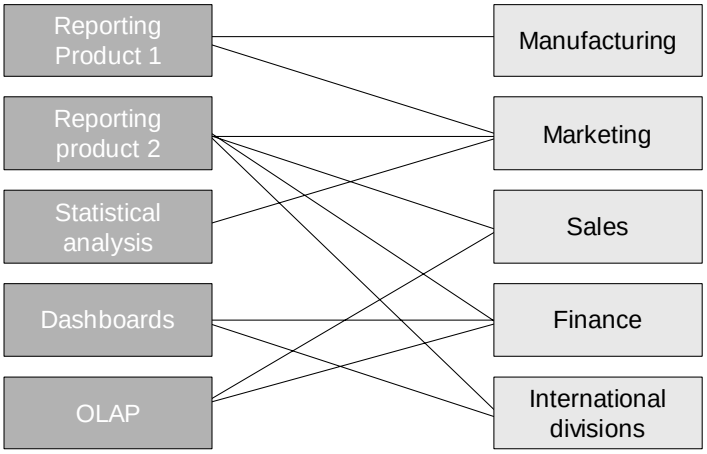
[4] International Data Corporation, 2002.
[5] AT Kearny and Line56 Research, 2001.

The Problem Today

BI is present in some shape or form in all of today's large organizations. In most cases, BI implementations are ad hoc and take place at a departmental level and without any overall BI strategy. These individual projects have generally shown the types of high return that we saw in the previous section, but so far, BI has not delivered its full potential in most organizations. For example, only 19% of companies say their employees have all the data they need to make informed decisions[6].

▶ BI Fragmentation is Increasing

Generally, BI is implemented on a one-time, or tactical, basis in response to specific user demands and with little attention paid to projects in other areas or to existing software. In many cases, BI has been acquired incidentally through, for example, packaged applications such as enterprise resource planning (ERP) and customer relationship management (CRM) systems. This can create a patchwork of applications that are difficult to maintain and support.



■ ***Fig. 1 Most organizations today have fragmented BI implementations, with many departments using multiple, overlapping products.***

The complexity of the BI technology market is also a contributing factor. Although consolidation is starting to occur, the BI market has traditionally been a crowded one, with many competing offers coming from a variety of organizations, each of which accesses a smaller or wider set of different data sources. As META Group notes, "Proliferating business intelligence tools, with overlapping functionality, are a common problem in large organizations."[7]

[6] HP-Business Objects study, 2001.
[7] META Group, *Business Intelligence Tools: Setting the Standard*, 2001.

The average number of BI users today is expected to jump 50% in the next two years[8], and without a coherent BI strategy, fragmentation is set to increase in the future.

▶ BI Fragmentation is Expensive and Dangerous

Clearly, having multiple, disconnected BI projects leads to inefficiencies—fragmentation firmly places the burden of integration, operation, and recurring support on the IT organization. Procurement costs are higher, training costs are higher, projects take longer to implement, employee cross pollination within the firm is virtually impossible, information inconsistency is rampant, and required technical headcount is higher.

But more importantly, BI fragmentation impedes organizations from realizing many of the benefits of business intelligence. And the danger is very real. As Gartner puts it, "through to 2004, more than half of Global 200 enterprises will fail to properly use BI, losing market share to those that do (0.8 probability)."[9]

▶ BI Fragmentation and ERP

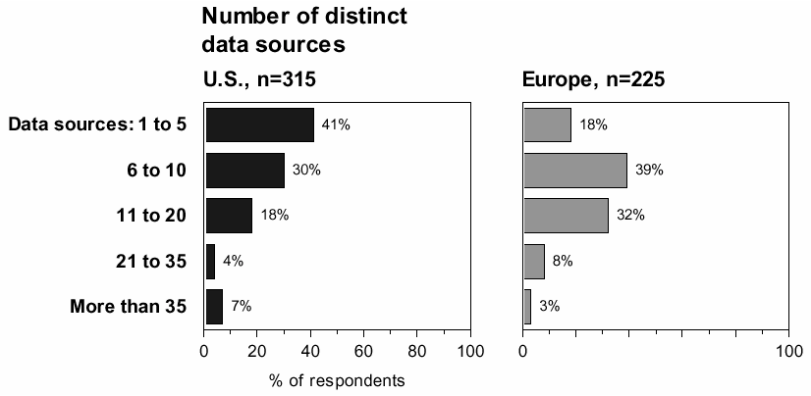
One tempting solution to the problem of BI fragmentation is to turn to the ERP vendors whose systems store much of the organization's information. Increasingly, these vendors offer "integrated BI" as additional options to their applications.

There are two problems with this approach. The first is the question of data dependence. The ERP systems are inevitably linked strongly to a particular data source—and for successful BI, organizations need a solution that can independently access information from any of the different systems.

According to IDC, the number of discrete data sources storing mission-critical information has increased exponentially, with an average of four-dozen applications and 14 databases deployed throughout the typical Fortune 1000 company. And each of these operational systems should eventually have its place in the organizational data warehousing strategy. Over time, the number of distinct data sources that are consolidated into the data warehouse will steadily rise.

[8] Gartner, *Business Intelligence Multi-client Study*, 2002.
[9] Ibid.

■ ***Figure 2: Organizations have multiple data sources that they want to use BI against.***



Source: Gartner group multiclient study

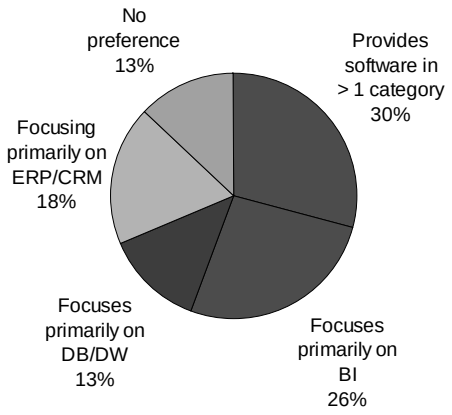
Therefore, turning to any one of those data sources for a BI solution is not ideal. According to META Group, "For enterprise-strength analytics such as business performance management (BPM) across multiple divisions employing diverse mega application packages (e.g., SAP for financials, PeopleSoft for HR, etc.), it is recommended that enterprises use staged data from the ERP packages' integrated analytics as a source of information to feed the enterprise data warehouse. Such an enterprise DW or operational data store strategy will provide the enterprise with the flexibility to adapt new analytical tools when they offer competitive advantage regardless of the vendor."[10]

The second problem is one of specialization. As META Group puts it, "A key reason for ERP vendors' poor track record in BI solutions is the fundamental philosophical differences between operational systems and analytical systems…BI vendors have been honing their analytics for more than a decade, and ERP vendors are now playing catch-up."[11]

[10] META Group, *Business Intelligence Solutions for ERP Packages: Best Practices 2003/04*
[11] Ibid.

Most organizations are heeding the analysts' advice. A Gartner study of U.S. organizations indicates that organizations would prefer to purchase BI software from a vendor that focuses primarily on BI, rather than from ERP vendors.[12]

■ ***Figure 3: Organizations want to purchase from BI specialists.***



Source: Gartner Multiclient Study, 2002

[12] Gartner, *Business Intelligence Multi-client Study*, 2002.

The Value of BI Standardization

We've seen that BI delivers strong ROI for individual projects. Standardization across an organization can bring additional returns.

▶ BI is Infrastructure

BI is increasingly becoming part of the standard infrastructure of the organization. Just as employees today receive a desk, electricity, network access, and access to email, they are increasingly being provided with business intelligence access to relevant data sources.

According to META Group, "BI…must be subjected to the same standardization processes used for other technologies widely deployed throughout the organization (e.g., productivity tools, workgroup databases, corporate databases, web servers, browsers)."[9] And in a 2002 study, Gartner Group found that over 50% of IT managers had plans to standardize on BI across the enterprise.[14]

▶ The Return on Investment for BI Standardization

BI standardization can bring considerable direct and indirect return on investment.

Direct cost benefits:

- **Reduced project costs.** With a standard approach, new BI projects can be more easily implemented on time and on budget, with less reworking and fewer cost overruns.
- **Reduced technical infrastructure costs.** With a standard BI architecture, multiple projects share technical components, resulting in less duplication, less need to prototype alternative solutions, and lower training costs. In addition, the best and newest products and features can be used on each project.
- **Greater leverage with vendors.** A standard approach means more leverage with suppliers and more coordinated support for the BI solution as a whole.

Indirect benefits:

- **Higher end-user acceptance.** Having a consistent look and feel across different applications and clear help desk and training policies helps to increase end user acceptance and use of the solution.

---

[9] META Group, *Business Intelligence Tools: Setting The Standard,* 2001.
[14] Gartner, *Business Intelligence Multi-client Study*, 2002.

- **Greater IT satisfaction.** IT teams have more time to focus on the customer delivery aspects of projects and on high-level architecture issues.
- **Better use of BI.** A standard approach makes it much easier to get the full value of information in an organization. Gartner estimates that by 2002, business management in 50% of large enterprises will identify BI as a strategic initiative, forging an alignment of goals, objectives, and resources to better support the enterprise with insight.[15]

[15] Gartner, *Business Intelligence Multi-client Study*, 2002.

Step 1: Decide if You're Ready

A successful BI strategy must be matched with the maturity of an organization's information. One of several different situations may exist in your organization today:

General low interest in BI
In this scenario, companies are narrowly focused on solving problems and don't fully understand (or care) how information access could improve their business. The IT group thinks of BI only as a technical infrastructure, while executives give too little attention to the strategic importance of BI.

To successfully implement a BI strategy in this case, cultural change must first be driven by executive level initiatives, which in turn may be triggered by external events or a changing business environment.

Fragmented BI
This is one of the most common situations in today's organizations. BI is installed on a project-by-project basis by business units in order to resolve critical needs, but without the support (or sometimes even the knowledge) of the IT organization, which is seen more as a utility than as a partner.

These projects can bring strong benefits, but businesses are often ill equipped to evaluate the BI products' technological foundation and architecture, and may end up choosing feature-rich products that conflict with existing architecture and technology choices. This leads to a fragmented BI deployment, with all the associated direct and indirect costs discussed earlier. And because data communication between different BI silos is often difficult, business users are frequently unable to access high-level strategic BI metrics that require multiple information sources (such as customer profitability).

In this case, a cross-business initiative is required to ensure that the needs of each line of business and the needs of the enterprise are taken into account. This initiative will generally require a more robust technology infrastructure to support the BI solution.

One-size-fits-all BI
This scenario typically comes up when IT attempts to standardize software tools and solutions in an effort to cut down the costs of buying and supporting BI technology on top of existing information systems. Standardization implies a reduction in technologies, but can be taken too far if IT seeks a single BI technology or product without understanding the end users' needs. This often results in a significant investment in technology that remains largely untouched by the business users.

In order to avoid this scenario, IT should focus on BI areas that provide the largest returns, in terms of resolving "business pains," in order to engage end users and better understand their needs.

BI alignment

In the ideal scenario, both IT and end users are keen to implement and use business intelligence. But even here there are potential problems.

In particular, if there is little trust or communication between business and IT teams, an organization may find that there is simultaneously an IT department pursuing a one-size-fits-all strategy while the business users create new BI silos.

Another common scenario occurs when an existing BI standardization effort does not develop into a full-fledged strategy but instead falls victim to budget cuts or reorganizations, or in some cases continues to exist but only as a centralized support facility.

In each of these cases, and in order to benefit from this BI alignment, organizations need to implement a BI strategy around a BI center of excellence and a BI framework.

Step 2: Limit the Problem

Whether or not your organization is in a position to implement a full-fledged BI strategy, there are a number of steps that you should take to ensure that the costs of BI fragmentation are not increasing as new BI projects start to proliferate.

▶ Perform a BI Audit

The first step of an audit is to review the existing BI projects within your organization. Your goal should be to determine the costs and benefits of each project, and to understand how they are being used by each business unit. This information can then be used to establish standards for different BI technology categories in order to reduce management and training costs.

Next, you should establish a BI task force that includes IT managers with experience in setting corporate-wide standards, members from existing BI and data warehouse projects, and key end user representatives. The extent and complexity of the audit will vary greatly according to the maturity of the various BI implementations in your organization as well as the extent of your existing BI strategy.

Key information to be collected includes the number of users, versions of tools in use, planned upgrade schedules, and supported platforms. Some of the more advanced BI suites have mechanisms that allow you to track their use, speeding up the process considerably. And be sure to determine the status of your software licenses (type of license, upgrade conditions, maintenance payments, etc.).

For each project, the task force should associate the number of users with the total costs of implementing and running the solution, including software licenses and training. Analyze the project by function (such as reporting, analysis, dashboards, or statistics) in order to provide the foundation for a set of non-overlapping functional criteria for standard tools.

The task force should then match the cost of each project with its resulting benefits. Keep in mind that measuring the overall value of each project can be difficult. In general, users should be responsible for defining the value, assuming that the BI solution is better, faster, or more scalable than what was formerly available. In order to have cross-functional comparisons, there must be a consistent way of assigning a number to the end-user value. Note that a "perfect" valuation method is probably unattainable —how the values are derived is usually less important than having general agreement on the process used.

Note that during the audit, it's inevitable that technical issues and requests for improved functionality will come up. You should anticipate and respond to this with appropriate

internal or external technical resources. Organizations usually find that by simply performing the audit with the end users, the overall satisfaction and use of BI in the company increases.

▶ Build a Strong Case for Standardization

When you've completed the BI audit, your task force should be able to use the resulting data to show the current total cost and overlapping functionality of your organization's BI projects. You can then use this information to build a strong case for BI standardization. In addition, by making a reasonable estimate of projected cost savings, you can get the executive attention and support you need to ensure that the project is completed. Only after this executive support is engaged should the task force attempt the next steps, the politically more difficult ones of defining and implementing new standards.

▶ Reduce Functional Overlap through Unambiguous Criteria

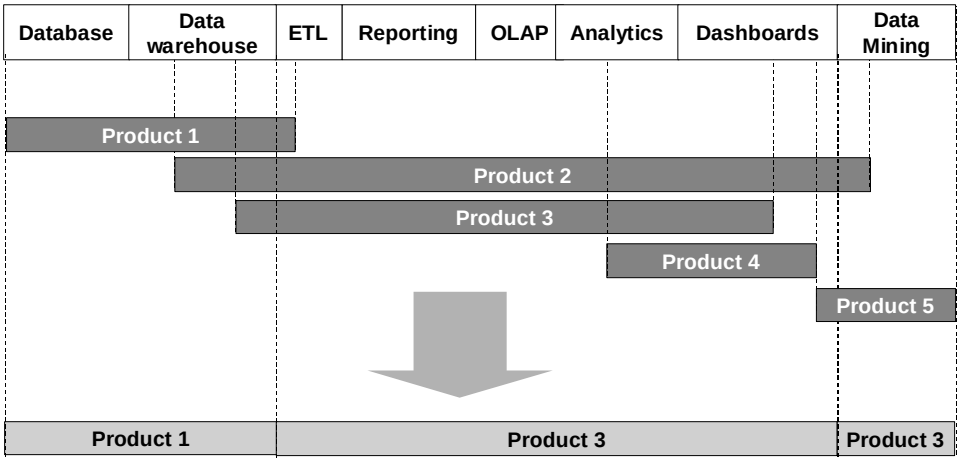
Your next step is to create a set of BI standards for the organization. The goal is to reduce functional overlap as much as possible without creating an unattainable "one-size-fits-all" strategy.

Before implementing new standards, your task force needs to perform a thorough review of BI tool requirements, which may or may not be aligned with the existing tools being used. Determining the BI architecture requirements is usually a relatively straightforward extension of existing technical standards, but it's often more difficult to assess end-user BI requirements.

You can use surveys to get this information from users, but it may be difficult for them to articulate their functionality and data requirements if they do not have a good understanding of the tools or of what can be achieved with them. You can obtain better results by carefully interviewing business users after making them aware of the costs associated with various alternatives. Be sure to take into account the needs of business users outside the organization—customers, partners, suppliers, and other members of the extended organization are increasingly becoming key users of BI information.

The end user and IT requirements should be used to create an unambiguous list of criteria that you will use to make (and, in the future, defend) standardization decisions.

■ ***Figure 4: A set of unambiguous criteria should be used to reduce BI functional overlap.***



In general, these criteria should be in three main areas:

Functional capabilities. The ability of a product to cover one or more of the identified BI user needs. Ease of use is an important criteria and preference should go to product families that enable smooth transition from basic to more sophisticated tools. Additional key criteria includes the availability of associated management tools and the future product vision. A full consideration of all the tools that make up a BI solution should include capabilities in the following areas:

- Data management
- Information delivery
- Data mining and analytics
- Business specialization (i.e., functionality for a particular horizontal or vertical business domain, if relevant)
- Support for collaboration and goal-setting

Infrastructure. The extent that the short-listed tools meet the infrastructure needs of the organization:

- Architecture (scalability, security, extensibility)
- Integration
- Consistency
- Globalization

Vendor criteria. Give preference to first-tier products that are already widely installed within the organization. In particular, standards groups should vigorously oppose political pressure to include obsolete or second-tier products. In turbulent times, the ability of a vendor to weather the storm can be an important factor in choosing a strategic vendor. You should also look for a vendor that has previous experience in the type of BI standardization projects that you are undertaking:

- Vendor strength (market leadership, market vision)
- Cost

The selection process will usually yield a small number of acceptable product choices. The final choice is often based on financial terms and a subjective assessment of the business relationship with the vendor (e.g., support, mapping of user needs to vendor strategy).

▶ Enforce the Standard

When you've made your final choice, it is critical that you deal with user populations who are dependent on the products that did not make the standards list. Proactively let these "orphaned" users know of any plans for future support.

BI standardization is often applied to new projects instead of trying to convert existing projects. While a proliferation of existing products does impose extra ongoing costs—in terms of training and maintenance—these costs rarely outweigh the costs of retraining existing users (unless they are unhappy with the solution provided today).

Over time, there are inevitable changes in technology or in the organization that provide an opportunity to swap over to one of the new standard tools. In the meantime, large populations of orphaned users should be supported but with little or no growth allowed.

If the standard proves hard to enforce, it is usually because one or more of the previous steps has been omitted or rushed. If there is a strong case for standardization, executive support, a cross-functional task force, and a clear set of unambiguous criteria, your standardization efforts should be successful.

These outlined steps will cut the costs associated with BI fragmentation, but will not, on their own, result in optimal use of BI. Over time, your standards effort will degrade your organization unless the task force evolves and implements a true long-term BI strategy.

Step 3: Build a Long-Term BI Strategy

You need a full-fledged BI strategy in order to align BI with the business needs of your organization. The tactical standardization steps that we've covered so far serve as a foundation for this strategy, which requires more fundamental changes to the way the organization works with BI.

▶ Overview

Optimal use of BI requires organizational changes to ensure the proper coordination of different roles. As Howard Dresner of Gartner notes, "smart enterprises are beginning to recognize the strategic impact of BI. They understand the need for the investment, the need to move past tactical and isolated implementations, and the need to involve every department and every function, especially senior management, in the BI implementation."[16]

The long-term goal is to implement a BI center of excellence that embodies the business and technical best practices of the organization. Experience has shown that BI standardization without implementing a COE is destined to be a short-term solution that ends with higher costs, frustration for end users, and decreased trust that in turn make it harder than ever to implement a successful strategy.

A COE should champion and reaffirm the value of standards, keep abreast of technology changes, and ensure that projects are synchronized. Without a COE, standardization efforts quickly grind to a halt. As technology and the organization change, your first set of standards will soon appear dated and slowly degrade into centralized procurement contracts and technical support. Enterprising business units, wooed by non-standard tools, will argue successfully for exceptions. The deployment of these exceptions will increase, causing the ugly head of BI fragmentation, and all its associated costs, to rear again.

Rather than trying to build a COE from scratch—which may be politically difficult in today's cost-cutting culture—many organizations find that a good first step towards creating a COE is to establish a BI program management office (PMO) that is responsible for running initial projects under the direction of the executive team. This can lead to direct operational efficiencies and, as the team develops expertise, it can take over the best practices role.

[16]Gartner, *Business Intelligence in 2002, the User's View*, 2002.

▶ Build Trust

Before a successful COE can be built, you should always establish a high level of trust between the business users and IT. This is an important first step. BI stands at the historically troubled intersection of the business unit and the IT organization. Many organizations have a history of mistrust between IT and the business units that can prevent the successful implementation of any new BI strategy.

This situation can arise because of a traditional separation of roles—IT is responsible for managing data assets and security while the business unit assumes ownership for purchasing, managing, and developing applications for its own use.

This can lead to problems, where businesses are forced to perform technology administration tasks that IT should be handling (such as hardware and software administration, security implementation, application design, requirements specifications, and results tracking). This leaves IT to resolve problems when the solution becomes too large for the business to manage or too complex for the power users to work with, leading to IT frustration and increased friction between IT and business units, and high integration costs.

Trust may already have been rebuilt through the process of auditing existing BI projects. If not, you may need to hire new personnel with the ability to communicate effectively between the business world and the IT world before making further progress.

▶ Implement a BI Center of Excellence

A COE is a group within an organization that ensures the long-term success of the standardization effort, and the more strategic use of BI. The goals of a COE are to:

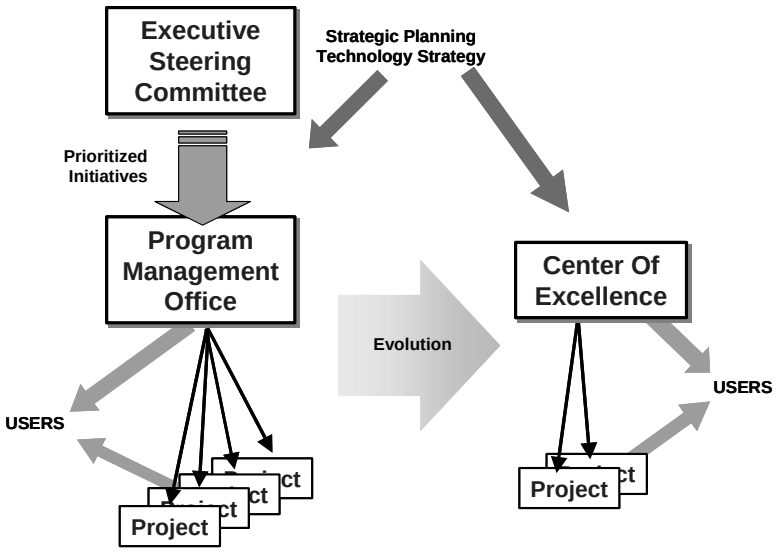
- Help executives understand the critical role of BI in managing the business better
- Build cross-business unit communication to prevent the creation of new BI application silos
- Help users understand the benefits of a robust BI architecture as the foundation for successful delivery of a BI strategy
- Help IT realize that users may need several BI technologies to meet their varied analytical needs, while getting users to support the IT organization's need to provide a platform that will support changing user requirements

An Intermediate Program Management Office (PMO)

An intermediate body called a program management office (PMO) can be used to ensure a smooth transition to a full-fledged COE.

The PMO is directed by an executive steering committee (ESC) composed of executives from your organization and key BI-related product and service suppliers. The ESC meets on a regular basis to:

- Formalize and re-enforce the importance of and PMO commitment to the undertaking
- Identify and prioritize PMO initiatives and set delivery expectations
- Act as a forum for escalated issues or concerns before they reach critical status
- Provide direction and measurement requirements to the PMO



■ ***Figure 5: The evolution from a program management office to a BI center of excellence.***

The PMO is composed of your BI and architecture project managers and the project managers from your key BI product and service suppliers. This team will have direct project management responsibilities for the first projects.

The objectives of the PMO:

- Execute strategies and initiatives defined by the ESC

- Oversee development of the COE as the focal point for expertise and knowledge transfer
- Assist with the development and management of individual project plans, and promote the use of skill-set requirements, metrics, and milestones to measure success
- Provide tiered oversight and responsibility for BI activities—including the formalization of the BI vision and roadmap—based on return on investment
- Provide knowledge of product capabilities and direction for business users
- Interact with vendors: gather responses to problems, change, and enhancement requests and product direction that impact the project
- Provide technical support in the form of technical guidance to project teams and a help desk for user's technical questions

The PMO should be provided with enough resources to be able to undertake multiple concurrent projects. The number, complexity, and project phase of initial projects will be determining factors for establishing week-to-week requirements, and not all roles necessarily require full-time participation. For the first projects, the key BI product and service suppliers typically provide technical services and guidance and transfer expertise to the members of the team.

▶ Evolving Your BI Center of Excellence

A primary objective for the PMO team is to transfer knowledge and BI-specific considerations to the COE team. Once the COE is fully prepared, the PMO can be dissolved or turned into an independent entity with responsibilities absorbed into the COE.

Once the first projects go into production, the COE will be responsible for establishing and maintaining the resources and infrastructure required to support the appropriate levels of technical support for the existing projects.

In addition to carrying out the project-oriented tasks of the initial PMO, the COE should also:

- Help users access information in a self-service way, through product and data training.

- Create complex analysis in situations where end users can't, by using the center's advanced analytic skills. As their skills improve, end users should take over more and more complex analytics themselves.
- Ensure consistency across the organization. Where different business units have similar needs or problems, the center should propose consistent solutions.
- Define a consistent data vocabulary across the organization through reuse of business metadata in the enterprise.
- Create a BI framework and use it to maintain standards for the BI tools that are used and supported throughout the enterprise.

▶ Ensure the BI Center of Excellence Has the Right Skills

A COE requires more advanced skills than a PMO. You can establish a PMO with project and technical skills, but to ensure that information is being used strategically, the COE needs to know how information is used, how to perform analyses, and how that analysis is used to facilitate decisions and actions.

The center should contain dedicated analytic, business, and IT experts. Business managers are not typically part of the COE since their responsibilities go beyond BI, but the center must be staffed with individuals who understand the needs of the business users and have their trust. While organizations often staff the COE with business-savvy IT people, a better fit would be technically-savvy business users who already look after their own BI projects.

It may not be easy to staff the center with the right employees. According to Gartner, there will be a worldwide shortage of BI staff by 2004, and "by 2003, enterprises that do not recognize and leverage their analytic skills and staff, and do not invest in them by forming a competency center, will be unable to meet strategic objectives."[17]

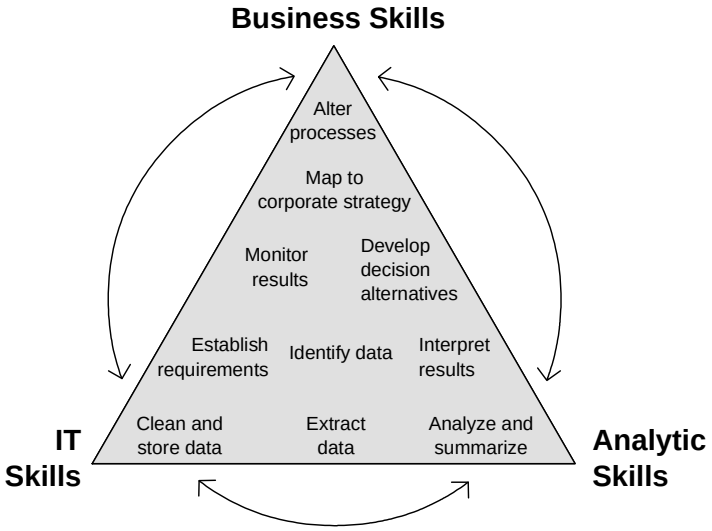
The center will need analytic skills, including the ability to:

- Research business problems and create models that help analyze these problems
- Explore data to discover patterns, meaningful relationships, anomalies, and trends
- Work with the IT department to identify data for a specific analysis or application

[17] Gartner, *The Business Intelligence Competency Center: An Essential Business Strategy*, 2002.

- Use a range of techniques, from simple data aggregation to statistical analysis and complex data mining
- Develop and maintain fluency in the use of analytic tools
- Summarize relevant information and make recommendations based on the correct set of metrics
- Train users how to use the data

■ ***Figure 6: BI center of excellence employees need three types of overlapping skills.***



The COE requires a variety of business skills including:

- An understanding of what business units—like sales and marketing, human resources, supply chain management—need
- An understanding of cross-business unit issues such as customer and channel profitability
- The ability to communicate at an executive level and link BI with the strategic goals of the enterprise
- The ability to help business managers set priorities by analyzing the consequences of decisions, create business cases, and return on investment models

IT skills required in the center include a deep understanding of:

- The implications a BI infrastructure will have for business and analytical requirements
- How to access and manage the data required to support business and analysis requirements
- BI tools and technologies, the data warehouse, and data administration

While it may appear challenging to find employees with skills matching those listed above, most of us know of people such as the marketing manager who knows the systems well and who generates reports for the rest of the team. Contacting these "power users" can be the best way to start looking for COE members.

▶ Implement the COE Center within the Organization

The position of the COE within an organization is a key success factor. Placed too high, it runs the risk of becoming an ivory tower that is disconnected from the business. Placed too low, the center will not be able to get a big picture overview of the BI implementations spread throughout the organization.

There is no single best location for a COE within an organization—it varies based on the type of organization and the scope of the BI strategy. For example, in a large multinational such as General Electric, a single business unit may be comprised of several hundred different business units, each with multiple departments, and each level could benefit from a BI strategy.

BI strategies rarely fail because of technology—more often than not, they fail for business and management reasons. To ensure that the COE is closely tied to company strategy, it is recommended that, whenever possible, the COE report to the largest business unit, or to the discipline that has the greatest role in driving the company business. For example, in a consumer goods organization, marketing is often the driver, while in a manufacturing organization, operations is the driver. Because BI is by its very nature a cross-functional discipline, this strategy will only work successfully if there is an appropriate level of cooperation between departments.

If the COE cannot report to the business units, it should report to the IT department at a level that is considered strategic within the enterprise—for example, reporting directly to the CIO. If the IT department is not considered strategic, the finance department may also be an option if its function is more than that of simple financial control.

Some organizations may already have related cross-functional teams—a data warehouse project team or a Six Sigma competency center. In this case, the organization of the COE needs to be carefully considered in the context of the existing teams. For example, a COE is usually created only after a data warehouse project has been started. In this case, a transition from the data warehouse project(s) to the COE could be managed through the PMO process described earlier in this document (where the CMO acts as a central learning body throughout multiple distinct data warehouse phases or projects).

The effectiveness of the COE will also be influenced by budget and funding concerns. If the costs of the center are seen as pure overhead, then BI users can take full advantage of the service. However in this case, it will be difficult to show the economic value of the center and the COE is likely to be under-funded and under-appreciated. At worst, it will become little more than a second-tier help desk for technical questions.

To launch the center, you can use an internal billing system and charge users for help given on projects or analyses. This helps you impose value-added behavior, through the virtual profit-and-loss sheet, but can also limit the growth and use of the center by end users. While "early adopters" who leverage the investment in the center pay more, the "late adopters," who may need more time and persuasion to make best use of BI, may use the charges as an excuse to not get involved.

In the longer term, we recommend a subscription-based model that assigns costs across all potential users, based on usage levels. This will maintain your virtual profit-and-loss sheet while providing an incentive for all potential users to work with the center.

▶ Aligning BI Initiatives: the BI Framework

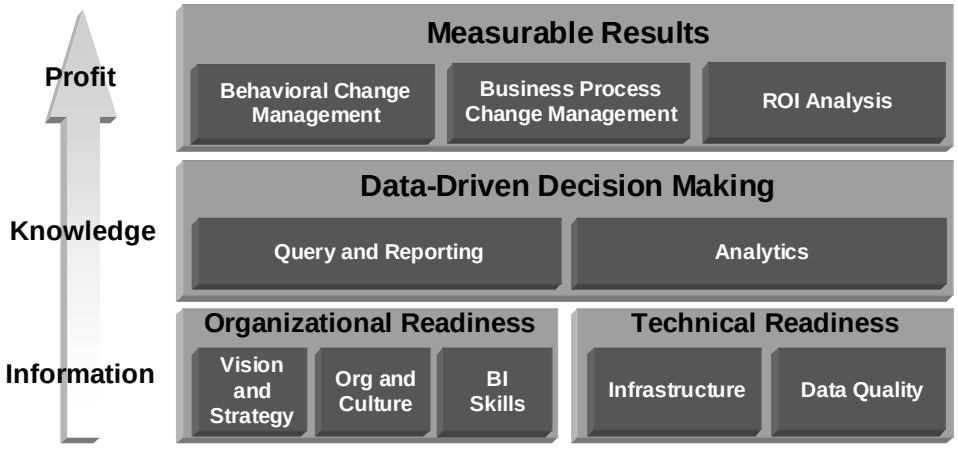
A primary function of the COE is to create a BI framework to align the various BI initiatives of the organization at various levels.

One approach to creating a BI framework is to apply a traditional view of the IT "stack" consisting of several layers of technical infrastructure (networks, followed by applications, followed by data warehouses, etc.). BI standardization efforts then take their place alongside other technical standardization efforts within the organization. The benefits of this approach are organizational familiarity with the process and the ability to reuse existing corporate structures.

But in this document, we propose a different framework—one that is tailored to the particular nature of BI standardization. In many cases, a layered-cake approach over-emphasizes the technical aspects of standardization, while neglecting the potentially

more important business and cultural aspects of cross-functional information sharing. The model below seeks to bring balance—and ultimately, help the success of your standardization efforts—by showing how organizational readiness is an essential foundation layer of BI standardization, and not a step to be thought about after the "technical" aspects have been resolved.

■ ***Figure 7: A BI framework enables enterprises to align various BI initiatives.***



The "information" layer is the foundation of the BI framework and requires technical and organizational readiness.

Technical readiness. This outlines the technical criteria for BI to be successful. It includes:

- **The underlying operational systems.** While this is not strictly part of the BI framework itself, BI analysis is often constrained by the quantity, and especially the quality, of the data stored in these systems.
- **The infrastructure to transform data from the operational systems into data that is suitable for BI.** This is done with a combination of hand-coded scripts or, increasingly, specialized extraction, transformation, and loading (ETL) software.
- **The storage infrastructure.** There are many different possible architecture choices according to the needs of the organization. Common components are operational data stores (ODS), that store a relatively detailed level of data from multiple systems, and data warehouses/data marts that store historical data in a format optimized for querying.

The goal of the technical readiness framework is to balance efficiency and flexibility. For example, the need for a simple project structure and direct ROI may result in the

creation of multiple data marts, one for each project. This compounds the problem of implementing a coherent BI framework, so the framework should impose criteria on the data mart creation to ensure that the data definitions are consistent, and that data can be easily accessed across the different projects.

Organizational readiness. Using information effectively requires more than a technical architecture. Many organizations do not have a framework for this phase—once the technical and architectural needs of getting the information have been fulfilled, there is often little thought given to the organizational considerations for ensuring that end users make the best use of the information available. This part of the framework outlines how best to deploy BI in a way tailored to the particular needs of your enterprise. The following things should be taken into account:

- **Company strategic goals**. Are your corporate goals aligned with your BI strategy? Have you implemented business improvement methodologies such as a balanced scorecard or Six Sigma?
- **Decision making styles**. How are decisions really made in your organization? Does BI support and facilitate collaboration around data?
- **Availability of analytical skills.** Does the organization have the analytical skills to take advantage of BI? If not, who should be trained or hired, and in what areas?
- **The goals of BI**. What are the goals for using information, and how are they prioritized? For example, is it a higher priority to cut costs or to improve customer satisfaction?
- **The prevailing information culture**. Is there a culture that allows information to be used as a strategic asset, to be shared not only with employees, but also with business partners and customers? Are dashboards and metrics shared, but with the interpretation of that information left up to each individual?
- **The user types**. What are the different types of BI users in the organization, from the executive office to the factory floor? How do the BI characteristics of these users change from group to group?
- **The competitive environment.** How do your competitors use BI? Do they have a better understanding of customer behavior than you? Are they encouraging customer partnerships by sharing high-level BI information with them? Do you have an opportunity to spot new business opportunities before they do?

- **The economic environment.** In today's global economy, priorities for the business can change rapidly. How does this affect the ability of your organization to use BI? Could it be used to give you a fast, accurate assessment of financial stocks in different regions or markets? Can it give you advance warning of the effects of unexpected changes in demand? Can it help strategic planning in the event of unforeseen mergers or partnerships in the industry, or amongst customers?
- **The extent of globalization**. With the trend towards globalization, is your organization ready to carry out BI with an infrastructure that will be adapted to support users and customers around the world, in many different languages, and potentially with many non-standard environments?
- **Trends in regulatory oversight and transparency**. Is there increasing pressure to help ensure that you have the necessary internal oversight to reassure independent board members, investors, and regulatory authorities?
- **The extended organization**. Does your organization work closely with partners to provide goods and services to customers? How do you share information with them? Do you provide information to customers today? Is there information that you could share that would help them with their business processes?

The next layer in the BI framework is the "knowledge" layer, which concerns the effective deployment of BI systems once the necessary foundation is in place. This will rely heavily on the portfolio of BI applications that were chosen as part of the previous phase of standardization, as discussed earlier in this paper. In order to get the full benefit of the framework, organizations should focus on implementing best-practice BI projects in response to solid business cases.

The third and final layer of the BI framework is the "profit" layer, concerning the use of information to effect change. Despite the challenges organizations face when trying to collect and channel information effectively, this is, in many ways, the easy part. Truly using information means making changes to the way you do business, which in turn requires change management around new processes, with formal return on investment analysis used to ensure that the expected values are achieved.

The return on investment of a BI infrastructure can be enormous. BI can help organizations make the right decisions when faced with unexpected situations. In some cases—as in the recent turbulence in the high-tech sector—inaccurate, slow, or insufficiently sophisticated systems may make the difference between survival and going out of business. A full BI framework, taking into account both technical and organizational requirements, is key to achieving competitive differentiation with BI. By

organizing and deploying BI in a manner appropriate to your organization's own characteristics, you can unleash the full value of the data stored throughout the enterprise.

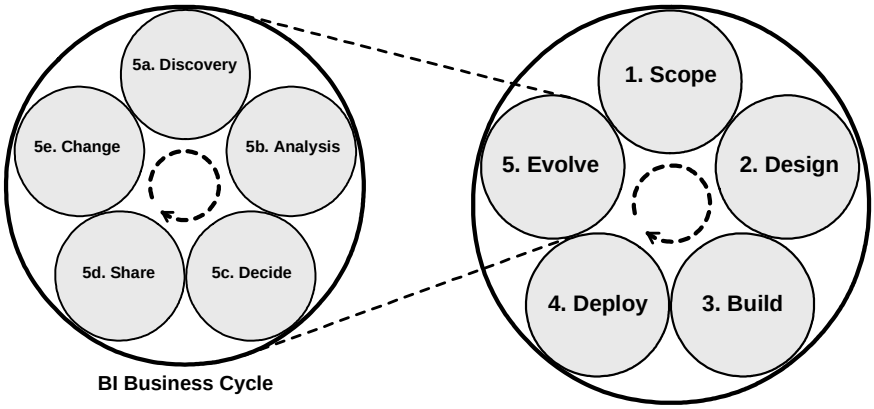
▶ Implement BI Methodology and Life Cycles

A successful competency center must have the appropriate tools to deliver BI consistently and reliably, including a best practice BI methodology.

This will vary from organization to organization, but should cover all of the significant steps described in the section below. This model, based on the work of analysts such as the Gartner Group and by organizations that have successfully implemented BI, identifies five significant steps in the life of a BI deployment.

The methodology embraces the ideas and concepts associated with concurrent engineering and iterative or rapid development methodologies. It uses a fluid cycle, in which involved parties are simultaneously involved in the various steps.

■ ***Figure 8:***
A BI best practice methodology is important for the success of your BI projects.



Resources from the BI competency center, the IT organization, and the user communities are needed at different points in the methodology, with varying degrees of involvement. At each point in the cycle, there should be clear leadership and secondary roles outlined.

The construction phase (steps 1 to 4) of any BI deployment takes up the most time, resources, and money. It is the single most important phase in the BI deployment life cycle. Success here determines success in all the other phases.

Step 1. Scope. Scope is an important, often neglected aspect of BI projects. Armed with the BI framework, any proposed project should be compared against the technical and organizational requirements and goals of the enterprise. This will allow you to determine if the project is scoped appropriately, and fits the current, prioritized goals of the organization.

Step 2. **Design.** The design phase involves carrying out a needs assessment, including a predefined set of the key performance indicators (KPIs) that are required by the end users. The plan should include an ROI case that establishes the value of the new information, and helps prioritize the business needs compared to other projects. The KPIs should be formulated without regard to currently available information—the aim is to capture business needs, even if support for those needs is currently impractical. The plan should include a high-level design of the various components of the solution, including the sources of relevant information. Then members of the project team, including key business and IT managers, should formally agree upon the plan and success criteria.

The design phase includes the selection of appropriate BI technologies, based on user needs and the complexity of the deployment. The selection of tools should be handled jointly by the COE and IT (in accordance with architectural and BI standards), and should include active participation by end users (to ensure fit with their needs).

The plan should also determine which information sources are required to support the requested KPIs, including their quality and any transformations that are needed to make them suitable for analysis.

Step 3. **Build**. Build a prototype or testing environment and check it against the goals of the plan. The full process of how information circulates around the organization should be modeled, and not just the first-level access for information specialists.

The data infrastructure could count for as much as 70 percent of the effort and cost of this phase. This step and step 2 typically consume a majority of the time and resources during the construction cycle.

The amount of work involved in building the solution once the data is in place will depend on the complexity of the project. It could require simple configuration or a full-blown customization. For example, a digital dashboard application requires customization.

Step 4. Deploy. Deploy the solution to the end users. Regardless of the underlying technologies used, the success of your project will depend largely on the quality of end-user training and support, especially in the early phases of the deployment. This phase requires an iterative approach, with extensive user training and adjustment to meet the users needs. This phase will include the development of predefined reports and analyses for the business users, and laying the groundwork for more advanced analytics in the future.

This effort may be led by the IT organization, with significant guidance and direction from the center. The end users serve in an advisory capacity to both. This is also the step in which the center and the IT organization train the technical-support department for ongoing user support.

Step 5. Evolve. This the "consumption" phase of the BI methodology. End users use the information made available to them to make decisions and change business processes. The general goals of this step include measurement of project success, extension of use within the enterprise, and increased cross-functional information sharing, both internally and externally.

The business-oriented aspects of this step are often neglected—once the BI solution is available from a technical point of view, users are left to move forward. Many projects stall at this point, since the responsibility for forward momentum has not been formally passed to a business manager. For this reason, it is worth subdividing this step to more clearly show what is required for the methodology to be successful.

Step 5a. Discovery. Often the organization will not truly understand how the center will be used until it has been put in place. Working cooperatively together, the end users and the COE build on the initial environment to create a solution that can only be formed when a base system has been established.

Step 5b. Access. Having identified indicators and information of value during the discovery step, end users begin to track, understand, and manage the information, leading them to deeper insights and perspectives, in support of the business mission. The users may call on tech support for assistance, or on occasion, re-engage with the center for additional guidance.

Step 5c. Decide. End users make decisions based on the new information. The COE may be involved to ensure that optimal value is being obtained.

Step 5d. Share. The decisions, and the analysis behind them, are shared with others in the organization. The resulting action will involve some change in organizational behavior.

Step 5e. Change. Permanent changes may suggest more fundamental process re-engineering. At this point, technical resources and the COE may have to review the problem to help address and assess the changes.

After the cycle has been completed, it should begin again at Step 1, but with the methodology operating at a new level of focus:

- Analysis
- Re-evaluation
- Modification
- Optimization
- Tuning

This allows for the benefits of experience to be put back into the process to keep the deployment fluid and relevant to the business.

The use of a BI methodology gives the center a useful tool for understanding and promoting the sequence of steps for successfully developing and implementing BI. The methodology can also serve as a guide in the application and alignment of resources and funding.

▶ Establish Clear Responsibilities

For each of the steps in the BI methodology, you should assign "responsibility," "approval," "support," and "inform" roles to the different groups involved. This will vary from organization to organization, and potentially from project to project, depending on the nature of vendor services used. For example, you can use outside vendors for their tactical implementation skills or for strategic business advice.

▶ Consider User Needs Carefully

Careful consideration of the needs of the users in each particular project is the key to any BI project. Analyze each user segment using a number of different criteria, including:

- **Functional complexity.** The need for advanced BI functionality, such as segmentation, statistical analysis, forecasting, visualization, and mapping.
- **Data depth**. The need to have access to detailed information. The definition of detailed will vary greatly from organization to organization—in a smaller organization it could mean focusing on the lines of command on an order, or, in a large multinational company, focusing on the sales of a single store.
- **Data breadth.** The need to have access and compare information from several different systems. For example, to find the effect that human resources information, such as tenure and salary, have on customer satisfaction.
- **User control.** Some users need to access information directly and autonomously, while others will need a lot of support and handholding.
- **Ease of use.** As with most IT products, there is often a trade off between ease of use and functional complexity.
- **Customization.** The need for a highly customized interface. This, for example, may be the case for executive dashboards.

Organizations often find that their BI users segment along the following lines:

- **Analysts.** BI has traditionally focused on these people—individuals whose primary role is to track, understand, and manage information in order to pass it on to others in the organization. These users typically use the available products and features to their fullest extent, need to be highly autonomous, and have a need for both data breadth and depth.
- **General knowledge workers.** The role of these individuals is to make decisions and run the business They make up the bulk of BI users. These users require information to make decisions, but compared to analysts, they usually need an interface that is easier to use, less powerful, and more narrowly focused on a particular data area.
- **Executives and managers.** Because these users have a wide span of control and ever-changing information requirements, they have a unique set of needs. They want breadth of data combined with ease of use and customization. They typically want to see information based on key performance indicators, exceptions, and trends rather than detailed analysis. This is a relatively small segment of BI users today, but should increase rapidly in the next two years with the growth of dashboards.

- **Customers and partners.** Increasingly, organizations need to treat customers, partners, and suppliers as users of their BI systems. Information delivery beyond the firewall has been the most rapidly growing segment of BI.[18] These users typically need access to status and service level agreement information that allows them to work more closely in partnership with your organization. Deployment is typically in a web-based environment, and the interface is usually customized to show a limited set of information in an easy, practical way.

▶ Create an Acquisition and Follow-Up Process

In order to ensure that the best-practice BI methodologies are followed, a BI acquisition process can be an efficient control mechanism within your organization.

An acquisition process will involve the procurement department. It should also ensure that business units make an ROI case for the BI project by tracking metrics that will enforce the achievement of ROI.

You should use some form of financial incentive to ensure the long-term success of your BI strategy and to motivate business units to continue working with the COE. The incentive could take the form of license purchases that are negotiated centrally, and then made available to the different business units.

Note that in the case of a successful BI strategy, there will always be other vendors that try to approach the business units directly to persuade them to use their technology. If you are a large, visible organization that would be a good sales reference for a technology vendor, the offers may be financially very attractive. To ensure that all projects continue to fit the BI framework and to avoid BI fragmentation, the COE must be able to have the last word in deployment choices.

▶ Outside Vendors and the Center of Excellence

When possible, you should work with outside vendors who meet your BI framework criteria, and who are willing to work cooperatively with you on the long-term success of your BI projects.

There are two main types of vendor services that may interact with the COE. The first, and by far the most common, are technical services for implementing and maintaining the BI infrastructure. In most cases, outside services will be essential while the COE is in

[18] META Group, *Categorizing Business Intelligence Users*, 2002.

the beginning stages of implementation, and then used as required for particular projects.

There are several reasons why organizations turn to outside vendors for technical assistance on their projects:

- **Technical expertise**. Vendors naturally tend to know the most about the technical capabilities and implementation of their products.
- **Experience.** Vendor consultants are knowledgeable about a wide variety of BI deployments and best practices, and can use that experience to help you deploy effectively.
- **Focus**. Vendor consultants are usually heavily specialized. Even when the COE is fully operational, you are unlikely to cover all the specialized technical skills needed for your BI strategy.
- **Availability**. Vendor resources are more flexible than internal resources, making it much easier to cover a period that requires an exceptionally heavy workload.
- **Training.** Vendors usually offer training courses on their products, which may be more flexible and cost effective than using internal resources, and may include computer-based training. Note that vendor training can only cover technical skills and must be supplemented by data-related training that can only be done by your organization.

BI is a maturing market, and relatively few vendors understand the importance of, or are able to support, a partnership-based approach. Ideally, your vendor relationships should be based on the following:

- **A single point of contact worldwide**. If you are an international organization, you should look for vendor partners who are able to support your needs in different geographic regions and who allow you to deal with a single person or team for your worldwide needs. This will greatly simplify any work around contracts, pricing, and support.
- **Dedicated resources**. If you have large-scale projects, look to vendors that can provide dedicated resources to your organization. This person or team should anticipate future needs and act as part of your organization, while having all the accountability benefits of an outside supplier.

- **A partnership approach**. No vendor wants to see your projects fail, but you should work with companies that have put specific incentives in place within their organization that reward long-term partnerships. These could include customer satisfaction incentives and sales quotas based on successful deployments over time rather than single large deals.

The second type of outside service is strategy consulting for help in implementing the COE itself. All the traditional large strategic integrators such as Accenture, IBM, and EDS offer such services.

Step 4: Sell the BI Strategy

As with any other business project, it's more important to implement your BI strategy effectively than to spend too much time wondering whether it is the *best* BI strategy. The hardest part of any COE project is ensuring that it is implemented and maintained, not least because people often resist any new processes that organizations try to implement. In many cases, this is because they don't understand the benefits. According to a CFO Magazine survey, more than 54% of executives said they have no consistent, reliable way of measuring reengineering benefits.[19]

▶ Monitor and Communicate the Implementation Plan

Regular, interactive communications are required to promote your BI strategy and ensure that it meets the goals of the end users. Be sure to track and promote your successes internally (and, if possible, externally, especially if the new capabilities provide benefits to your customers). Your education and evangelization communication methods should include your intranet site, email newsletters, internal seminars, and trophies for best implementations.

Executive and management dashboards are also a highly visible way for sharing BI information throughout the organization. You can even use BI technology to track the progress of your BI strategy and analyze the causes of any deviations.

Be sure to track and explain the reasons behind any failed or inadequate projects to your business users. This will greatly enhance the credibility of the COE and make it more likely that the business will follow the BI framework.

▶ Manage Costs and Project Effectiveness

As with any other successful management initiative, information has to be tracked to ensure that the gains being made are cost-effective. BI helps analyze and optimize the metrics of your project, such as direct and indirect payroll costs and the effectiveness of internal training programs

▶ Avoid Common BI Project Challenges

In general, the phases in a BI deployments—and the problems that can occur—are very similar from project to project. By anticipating and communicating around these problems, the COE can turn them into growth opportunities rather than threats.

[19] CFO Magazine, May 1995.

- **Under-resourced on data integration**. The time and resources required to collect and integrate quality data for analysis are usually underestimated. Early projects should focus on data that is already available, but business users will quickly require additional information from other systems or in different formats.

  The solution to this problem is investing appropriately in data collection and integration staff or services, and in specialized data cleansing and ETL tools, rather than manual methods and scripts. The initial cost may be higher, but these tools tend to pay for themselves rapidly because of their flexibility and the fluid nature of business information requirements.

  The BI technologies chosen should also allow information to be integrated into reports, even if the data is stored in separate systems.

- **Inaccurate information.** Business users often access information, only to quickly lose trust in the system because of data inaccuracies. This problem is related to the resource issue mentioned above. In many cases, the lack of quality data, combined with a general lack of resources, leads to stalls in the BI project implementation.

  Don't expect to get perfect data in the initial phase. It's often very difficult, if not impossible, at this stage, especially in systems where the incentives of the people entering the data are not aligned with data quality (this is notoriously the case in sales information systems, for example). Try to set reasonable expectations about data accuracy with business users, and start off by producing reports from the most reliable systems available. Often the only way to gain momentum and resources for the data cleansing efforts is to proceed iteratively with "dirty data," clearly showing the value, and demonstrating what would be possible if only the underlying data systems contained accurate information.

- **Expectations set too high**. There may be problems in the early stages of project implementation, where the COE and vendors have created a lot of awareness and momentum, and set high expectations. Because technical problems or delays inevitably crop up, there may be high pressure on the project before it has even started.

  The solution in this case it to set high expectations for the final goals of the project, but also to be realistic—even pessimistic—when communicating about the amount of time and resources it will take to achieve those goals. If, in spite of this, there are still delays in the project, you must clearly and proactively communicate about the cause of the delays, and set new and more realistic expectations.

- **Lack of functionality.** If the new system is replacing an outdated one, there will inevitably be differences between the capabilities of the new system and the old. In general, the new system will have many advantages, but it may be that there are some areas of functionality that will suffer in the short term, causing existing users to suffer and start complaining.

  Again, reasonable expectations must be set well in advance of the project implementation, and the project should be managed so that any functional shortfalls are not critical or are temporary in nature.

- **Under-use of the data**. Data only becomes valuable when—and if—it is analyzed and acted upon. Even in organizations that already have sophisticated and effective customer data-gathering systems, the problem of getting executives and managers to pay attention to the data remains.

  This situation is most likely to be relieved by having the appropriate business and analysis skills in the COE, and ensuring that the BI methodology explicitly includes business cycle steps of the type outlined in the earlier section.

- **BI focused only on individual users**. The goal of BI is to improve decision-making, but many BI implementations overlook the business reality that decisions are made by groups of people, not by individuals. A BI implementation should explicitly try to expose how information is really used to make decisions— the information flows of the organization—in order to improve BI collaboration.

- **Constantly changing data needs**. Organizations sometimes make the mistake of organizing their projects as if the BI system, and especially the underlying data warehouse were static and unchanging. But businesses are not static, and external events, reorganizations, and mergers all mean that data warehouses require constant and frequent changes to keep up with new information sources and new information needs. The process of using BI will often lead to new data requirements itself, as business processes are analyzed and as users realize that the data needed to gain further insight is not yet integrated into the system.

  The organization must choose a BI framework that has been created with steady evolution taken into account, especially in large, multinational organizations where change is a familiar part of the corporate environment.

- **Business process lag**. In a mature BI environment, where users have access to reliable, accurate measures, it may be clear that traditional rules of thumb about the business no longer apply. But it may take considerable efforts to change the users' long-established notions about how the business works, to prove to them that the new data is correct, and help them establish the new rules that lead to better business efficiency.

  This process can be accelerated by helping promote a fact-based business culture, where decisions are made on the basis of the information given by BI, and not by the traditional ways of doing things. In particular, you may want to promote the new BI abilities by explicitly showing that an existing rule of thumb does not operate as people believe. This can be a very effective way of changing opinions.

- **Insufficient communication**. With today's swamped email and voicemail inboxes, it is extremely difficult to ensure that all the people involved with the COE are informed on progress. But without regular, proactive communication, the end users can rapidly lose trust in the COE and start pursuing other BI options that do not fit in with the BI framework.

  Most groups have no problem promoting good news, but honest communication about delays and problems—and constructive self-criticism where warranted—is also essential if the COE is to retain its trusted role between business and IT.

- **Forgetting to update the standards**. Over time, and as new products and technologies become available, the standards set by the COE may become dated. If this is not taken into account, the COE may generate end user frustration, especially as users start to notice tempting offers from other vendors that seem to offer a better solution than existing standards.

  In particular, this can occur when the COE and vendors that make up the BI framework do not form a partnership to ensure that each is aware of the latest projects and circumstances. The solution is to stay abreast of new developments and analyst opinions, and regularly prove to the businesses that the existing standards are appropriate.

- **"Bundled" or "free" BI.** Business intelligence is now often included in a larger application or database offering, with no extra cost associated. For business units in an era of corporate belt-tightening, this is often irresistible. But the purchase costs of BI tools are typically only a fraction of the overall deployment and maintenance costs. If these "free" BI tools are used to the detriment of existing standards, they will typically, and ultimately, be very expensive for the organization. Any BI project, whether it is "part of an application" or not, should be overseen by the COE and follow the established BI framework.

- **The wrong people**. There is a tendency in BI projects to underestimate the need for business abilities to ensure the project's success. A frequent mistake is to make a business-savvy IT person the project lead, rather than a technology-minded businessperson. The leaders of the COE and the BI projects do not need detailed knowledge of technology issues, but do need the political and business skills to work around the issues inevitably raised by strategic, cross-functional initiatives.

No BI deployment is completely without problems. In some cases, the problems may even be an essential part of getting the right resources and increasing focus on some aspect of the BI project (for example with the data quality issues discussed earlier). It's important that you effectively manage expectations. For example, communicate in advance about likely problems before they become general knowledge, so when problems occur, you can use your energy to focus on constructive change, rather than on assigning blame.

General best practices for BI project management include:

- **Keep the project up to speed**. When a crises occurs, explain (again) what has been planned to overcome it. Don't dwell on the problems.

- **Structure the project into a number of smaller ones, where possible**. Long-lasting projects run a greater risk of getting out of control in a crisis. Ensure that the business and the IT organization are aligned at all times. A crises tends to be worse when there is misalignment.

▶ Review and Adjust

The COE and the business users should conduct a formal quarterly and/or yearly review and planning process with business users. At minimum, the review should cover the following:

- Business user satisfaction
- Review of COE key performance indicators
- Review of support policies and issues
- ROI of BI investments
- Communication policies
- Repartition of roles
- Future business needs
- Future technical possibilities

Case Study

This case study concerns one of the world's leading telecom operators. This company serves over 91 million customers, in 220 countries, on five continents. It has 190,000 employees and offers a full range of telecommunication services: local, international, and mobile telephony, internet and multimedia, data transport, and cable TV broadcasting.

Over the last few years, international competition, mergers, and acquisitions have led the company to streamline operating costs and adopt a global approach to management. In order to become more competitive and collaborate closely with customers and suppliers, the company placed its architecture and information systems at the heart of its strategy.

Standardization runs deep at the company. In 1998, the architecture moved to a web-based model and in 2001, all BI projects were standardized with a three-year plan to deploy 70,000 licenses to nearly half of the company's total PC population.

> *"To win new customers and develop loyalty, we now base our action on a business intelligence process in which BI plays the key role of retrieving and analyzing data in our corporate resources. Today, the company has 130,000 PCs, nearly half of which will soon be running BI software."*
>
> ***Director of Operations, Customer Relations Information Systems***

▶ The Costs of Complexity

The company was originally organized on a regional basis—each branch and business unit had its own tools and IT budget. The coexistence of so many dissimilar technologies, solutions, and versions made PC and network administration a headache, and application implementation extremely complicated. Users took longer to learn and develop their skills, leading to lower overall productivity, while development, operating, training, and support costs remained high. 80% of the time, the data used by the different departments and business units was identical, but the access methods and interfaces were different. Each of these issues made it impossible for the company to get maximum value from its mass of customer, product, and market data. The company had a fragmented view of its business and no way of introducing tools to enable global management.

▶ Turning Information into a Competitive Advantage

In 1998, information systems became a major strategic weapon in the battle between telecommunications operators. Support for the company's OS2-based architecture was

drying up, and a major reorganization was required, along with a switch to a 100% web-based model. This required standardizing the information system first at the corporate level and then standardizing throughout the company and its subsidiaries.

▶ Standardizing on "Archimedes" and "Aristotle"

Two major strategic programs—Archimedes and Aristotle—spearheaded the standardization process at the company. Archimedes, launched in 1998, was designed to adapt the technical architecture to the internet, giving employees standard and secure access to the information system via web browsers. All client-server applications were expected to migrate to this new architecture by the end of 2002.

Aristotle was launched in February 2000 with the aim of defining the functional building blocks that could be reused in different business areas, with the goal of leveraging shared skills and know-how. This required the adoption of common definitions for concepts such as "customer" and "product" throughout the company.

The company also implemented corporate standards for software. Selected software had to comply with technical architecture standards and globally address users' functional needs. The software also had to show proof that it could successfully penetrate and gain widespread use throughout the organization. Included among the selected software were BusinessObjects™, for retrieving and analyzing data, Oracle Applications for finance, PeopleSoft CRM and Genesys for CRM, PeopleSoft HR for human resources, WebMethods for enterprise application integration, and Documentum for document management.

▶ The BI Choice

The two most important factors that influenced the decision to go with Business Objects products were its high level of penetration within the company and end user satisfaction. More than 140 BusinessObjects-based projects were already up and running, and most users in the company were already familiar with the software. The company selected Business Objects as their corporate BI standard and signed a corporate contract for 70,000 licenses, to be deployed across all business areas: human resources, finance management, marketing, sales, and networks.

"We aren't going to enforce a solution if there's a very good reason for not choosing it. Our BI choice matched a very genuine business need. The software penetration rate within our company was already very high, and so was the level of user satisfaction, so the choice was easy."

Director of Decision Support Information Systems

▶ Standardization Equals User Support

The more information is understood, the greater its value. Once the decision has been made to standardize around a software package, the key to making that standardization successful lies in the quality of support that is given to both project managers and end users. The four-person BI center of excellence is responsible for overseeing the business intelligence implementation. It is also their job to ensure and maintain the consistency of projects involving BI, and to ensure that each of the different teams share best practices.

The COE heads up several important tasks:

- **Consulting and development**. The COE offers advice to project managers on deployment strategies (design, audit, installation, implementation, etc.) and guides them towards best practices in terms of reporting and BI metadata design.
- **Support.** The COE provides support for project managers (architects, designers/ developers, operators) via a hotline, and has installed an intranet web site providing access to BI news, tips, methodology advice, and installation documentation.
- **Negotiations**. All contacts between the company and the BI vendors are conducted via the COE, which centralizes the opening of support case files, requests product upgrades, and certifies new versions.
- **License management**. Large BI deployments require careful license management. All user license requests must be sent to the COE, where a tool has been developed to track the number of licenses and their distribution.

As a result, the COE has gradually built up a complete BI knowledge base, quickly detects the most common problems, and responds promptly by taking corrective action in the form of further training or calling on the BI vendors.

The COE also helps support end users. Since the ultimate aim is for users to become fully independent, the COE provides users with a number of tools to help them become more autonomous: an intranet site dedicated to user support, online training, and interactive help, based on Microsoft NetMeeting, to support users who are building queries and creating reports.

▶ Two Keys to Success: Pragmatism and Communication

One of the key lessons learned from the standardization project was "never start from scratch." The company recommends being practical and leveraging what you have. The 140 BI deployments implemented across the company, and the related high satisfaction rate, dramatically increased the chance of success of the BI standardization project.

Consensus is a must. To standardize an application there must be something at stake for the business area. The project must be perceived as useful and represent an opportunity. Users must be consulted and convinced. Finally, standardization needs strong support. The introduction of a project requires communication, explanation, and above all, training, to help users develop skills.

> *"The COE concept is an essential part of any standardization initiative. It provides users with the support they need to make optimal use of the product. In our different missions we gradually build up a genuine knowledge base around BusinessObjects and gain increasing credibility with the users."*
>
> ***COE Manager***

▶ Fast, Tangible Benefits

The company now has a standard environment that covers all its BI needs. The corporate contract signed with the vendor has enabled savings on license fees, now accrued at the corporate level and no longer for each project. The choice of a single BI framework has enabled a substantial reduction in user training and support costs. Professional development is also a lot easier because the tools are the same for all business areas. This is crucial in a company where business areas are in constant flux. Another significant advantage is that applications are easier to deploy, upgrade, and maintain, saving time and money.

A Map for Tomorrow

The COE has opted for step-by-step development. Its current priority is to conduct a complete survey of BI projects within the company and to find ways to streamline internal business processes by consolidating them at branch and business area levels. The aim is to produce a comprehensive map of BI projects to detect overlaps and gaps in the coverage.

Ultimately, the COE aims to think in terms of users and business areas, rather than projects. The goal is to pull common reports for a particular business area together and then build a BI portal.

Conclusion

Today's organizations are sitting on stockpiles of information assets gathered over the last decade. Business intelligence, with its ability to unleash the value in those information assets, is becoming more prevalent and more important, but is not yet implemented strategically in most organizations.

By following the steps outlined in this document—having a BI strategy based on the creation of BI standards, a center of excellence, and a set of proven project methodologies—organizations can reap large returns on investment for the organization, through lower vendor and support costs, and more effective use of the information assets of the organization.

About Business Objects

Business Objects is the world's leading provider of business intelligence solutions. Business intelligence lets organizations track, understand, and manage information internally with employees and externally with customers, suppliers, and partners. It helps organizations improve operational efficiency, build profitable customer relationships, and develop differentiated product offerings.

▶ Market Leadership

Business Objects is recognized as the market leader in business intelligence. It is the only major BI vendor to have maintained consistent growth in both revenues and profits. In fact, Gartner placed Business Objects as the leader in the Enterprise BI Suite Market in its 2003 report[20], while the IDC 2002 Information Access Tools Market Share Report listed Business Objects as the leader in end user query and reporting. [21]

Business Objects continues to receive many industry awards, including the InfoWorld Readers' Choice Award and the DM Review Readership's Award, as best BI product of the year. Additionally, it was voted by Intelligent Enterprise as one of the 12 Most Influential Companies in IT for the seventh year running.

▶ Complete Business Intelligence Solution

The company's products include data integration tools, the industry's leading integrated business intelligence platform, and a suite of enterprise analytic applications. Business Objects is the first to offer a complete BI solution that is composed of best-of-breed components, giving organizations the means to deploy end-to-end BI to the enterprise, from data extraction to analytic applications.

[20] Gartner, *BI Magic Quads: Excitement in a Flat Market*, January 2003.
[21] IDC, *Worldwide Information Access Tools Forecast and Analysis*, *2002-2006*, July 2002.

▶ Proven Track Record of BI Standardization

The following companies have implemented large-scale deployments of Business Objects.

Adidas	France Telecom	Pfizer
Allegiance	GE Power Systems	Principal
American Red Cross	Ingram Micro	Taylor Made
BellSouth	Kraft	TruServ
Canadian Pacific Railway	Lands' End	Volkswagen AG
Cardinal Health	Owens & Minor	

Americas
Tel : +1 408 953 6000
+1 800 527 0580

Australia
Tel : +61 2 9922 3049

Belgium
Tel : +32 2 713 0777

Canada
Tel : +1 416 203 6055

France
Tel : +33 1 41 25 21 21

Germany
Tel : +49 2203 9152 0

Italy
Tel : +39 06 518 691

Japan
Tel : +81 3 5720 3570

Netherlands
Tel : +31 30 225 90 00

Singapore
Tel: +65 6887 4228

Spain
Tel : +34 91 766 87 43

Sweden
Tel : +46 8 508 962 00

Switzerland
Tel : +41 56 483 40 50

United Kingdom
Tel : +44 1 628 764 600

Distributed in:
Argentina
Austria
Bahrain
Brazil
Chile
China
Colombia
Costa Rica
Croatia
Czech Republic
Denmark
Ecuador
Egypt
Finland
Greece
Hong Kong SAR
Hungary
Iceland
India
Israel
Korea
Kuwait
Lithuania
Luxembourg
Malaysia
Mexico
Morocco
Netherlands Antilles
New Zealand
Nigeria
Norway
Oman
Pakistan
Peru
Philippines
Poland
Portugal
Puerto Rico
Qatar
Republic of Panama
Russia
Saudi Arabia
Slovak Republic
South Africa
Thailand
Turkey
UAE
Venezuela

▶ www.businessobjects.com