Business Objects™

MAKING A STRATEGIC BUSINESS INTELLIGENCE CHOICE—A CHECKLIST

Practical Considerations and Key Components to Selecting a Business Intelligence Solution

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INTRODUCTION

Operations and analytics go hand-in-hand, and business intelligence (BI) technology allows your organization to track, understand, and manage vital business information. As more organizations look for ways to tap into the valuable data stored in their operational systems, both directly and by first consolidating it in a data warehouse, BI assumes an increasingly strategic role. A typical BI project has an average return on investment (ROI) of over 430%[1] —yet due to the fragmented implementation of these projects, many organizations don't fully benefit from global, cross-functional information analysis.

Selecting the best BI platform and establishing it as your organization's standard ensures strong ROI by reducing total BI tool acquisition, implementation, and training costs and allowing your organization to achieve useful results sooner. This white paper offers criteria and guidelines for selecting the most appropriate BI platform for your needs. It helps your organization better evaluate its alternatives and assists your evaluation team in making an intelligent and appropriate BI choice. Ultimately, your choice appeals to all your organization's constituencies, including the IT department, technical and nontechnical business users and analysts, and corporate finance.

Since Business Objects offers a wide spectrum of products that supports the criteria and guidelines outlined here, we will use Business Objects products to illustrate our key examples.

[1] International Data Corporation, The Financial Impact of Business Analytics. (2002)

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Audience: Office of the CIO

CHOOSING A BUSINESS INTELLIGENCE SOLUTION

Evaluating and selecting a BI vendor and an appropriate solution may be challenging for even the most experienced decision-makers. In addition to evaluating features and functionality, cost-effectiveness and ROI, and overall architectural fit, you must also consider your prospective vendor's reputation and ability to meet its commitments.

Vendor evaluations can be especially challenging, since almost all vendors try to lure prospects with impressive features—and sometimes a promise of "things to come." Unfortunately, many organizations find the reality at implementation doesn't reflect what was presented in the vendor proposal. In some cases, this disparity could be due to overly aggressive sales people trying to close the sale. In other cases, although the vendor had the best of intentions when promises were made, the vendor was subsequently acquired by another company who later backed away from prior commitments.

The vendor's reputation and long-term viability is perhaps more important than any particular feature or function. Ideally your vendor of choice should be an industry leader capable of providing a wide spectrum of integrated offerings, with strong features and functionality to meet your current and future needs. Your vendor should have a reputation for honoring its commitments, continually reinvesting in its products, and likelihood that it will be around for the long-term.

Small-to-medium (SMB) size companies may think they're too small or lack the resources to deploy a market-leading BI solution—but this usually isn't the case. Robust BI solutions provide core capabilities along with optional components you can use as your business needs change and your company's growth require them. Deployment options such as on-demand options make it feasible for SMB organizations to start small, with minimal upfront investments. Although many SMB organizations have traditionally relied upon spreadsheets as their primary analysis tool, they need to recognize that a spreadsheet is just one data source. With the help of a strong BI platform, you can integrate your spreadsheets with other organizational data.

This white paper focuses on the factors your organization should consider when selecting a BI vendor and establishing its products as its BI standard. While every organization's needs are likely to be somewhat different, there are criteria that, in general, apply to all of them. The criteria for BI selection groups into four major categories:

• **Functional capabilities**. The ability of a product set to address the identified BI user needs.

• **Infrastructure requirements**. The extent to which the product meets the infrastructure needs of the organization, in terms of fitting with existing enterprise IT architecture plans, scalability requirements, and extensibility.

• **Vendor criteria**. The capability of the chosen vendor to support your current and future projects in terms of stability, resources, experience, and how it supports and treats its customers.

• **Cost-effectiveness**. Your BI technology should be cost-effective. This does not imply that you should simply acquire the cheapest solution—rather, you should acquire a BI platform that provides the greatest benefits relative to acquisition, implementation, training, and support costs.

The following sections cover each of these areas in more detail.

FUNCTIONAL CAPABILITIES

"While lots of companies talk about the need for data quality, Business Objects is actually delivering a complete EIM solution that is tightly integrated with the rest of our Business Objects deployment. This is technology I can load in the morning and it will immediately start to improve the completeness, accuracy, and quality of our data. Also, it will give our warehouse team much needed visibility into our data and metadata."

–Ed Todd, Data Warehouse Manager, Nemours.

A solution that doesn't meet your basic functional requirements is obviously a poor choice. When evaluating the functional capabilities of a BI solution, you should examine its enterprise information management features, reporting and analysis features, self-service and ad hoc capabilities, dashboarding and visualization features, report delivery and distribution options, and overall architecture and infrastructure.

ENTERPRISE INFORMATION MANAGEMENT

Enterprise information management (EIM) is the broad collection of goals, processes, practices, and technologies that an enterprise uses to guide and manage its information assets and infrastructure. EIM provides data integration methods for physical or virtual integration, allowing organizations to integrate data from disparate sources and reconcile this data for consistency and accuracy. It enables real-time information access and historical trending and analysis, while reducing the implementation time of BI and performance management projects that support an organization's decision-making processes. A successful EIM solution involves data integration, data quality, and metadata management.
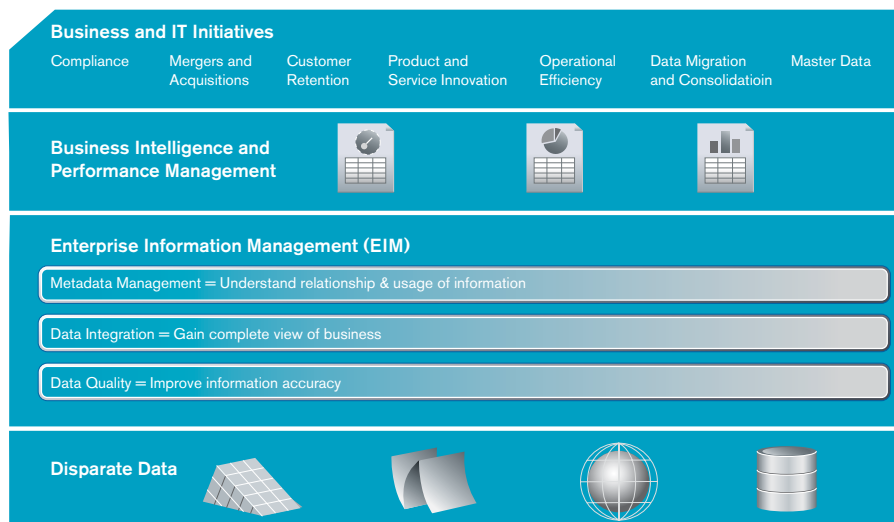

Figure 1: Enterprise information management (EIM) products from Business Objects deliver business intelligence you can trust

DATA INTEGRATION

A BI solution is only as accurate and efficient as the data being analyzed, so ensuring high data integrity is essential. Data integration technology includes export, transformation, and load (ETL) tools, real-time capture of operational transactions, and enterprise information integration (EII) tools to provide a way to explore, transform, clean, and move information before you use it in critical business analytics. While in-house programming staffs may have at one time written custom code to address data integration issues, organizations quickly realized that this was a thankless task that required ongoing maintenance and consumed valuable IT resources. Most organizations now use data integration technology and tools to reduce data management hassles for IT, avoid hand-coded (and frequently undocumented) SQL or legacy language programs, and improve the accuracy of BI analytics and reporting. Look for the key data integration features described below.

Source Data From, and Target to, Many Data Structures

Your BI solution should be able to source data from many data structures– and target them as well.

- **Prepackaged connectors to enterprise applications**. The ability to connect to and access the data in your operational systems (including SAP, Oracle, PeopleSoft, and Siebel) means IT won't need to develop customized, hard-to-maintain code. Prepackaged connectors help minimize the impact on your data integration processes when implementing new releases of commercial software packages. Even if you're not currently deploying commercial enterprise application packages, your organization may decide to do so in the future.

- **Populate your data warehouse from application, legacy, relational, multidimensional, and unstructured data sources**. Your systems environment likely contains a variety of heterogeneous data sources–it's important that you be able to populate a data warehouse from all of them. For example, your ETL tools should provide the ability to extract, transform, and load data on a scheduled basis from databases such as Oracle, SQL Server, and other popular database systems in a bidirectional manner, while providing the ability to source data from

legacy systems (e.g., Adabas, IDMS, IMS) as well as Microsoft Excel and XML documents.

- **Consolidating data from multiple systems into a single database**. This is one of the basic concepts behind data warehouses that can, for example, be used when assembling data from multiple divisions or lines of business into a single data source for reporting and analysis purposes. It can also be used to consolidate data from multiple departmental systems within the same organization. Since your data warehouse platform database may change in the future, your ETL technology should be able to populate a variety of databases.

- **Transformation and data cleansing technology**. Robust transformation and data cleansing technology assists developers in creating ETL processes and increases their productivity by verifying the data and catching and correcting a wide variety of data problems. For example, when loading data into your data warehouse or data mart, if you could parse name-and-address data and verify and correct it using authoritative third-party reference data, you're likely to improve the overall quality of your data.

- **Library of transformations and functions**. A data integration library permits ETL designers to utilize prebuilt and vendor-supported functions, such as data filtering and consolidations, without having to create custom code. Your organization should also be able to create its own functions, such as the assignment of customer number to new accounts, and add them to the library so you can use them again for other ETL projects.

- **Integrated data quality and cleansing functionality**. Accuracy and consistency are of paramount importance in any analysis, and the ability to ensure high data quality helps ensure the validity of your results. Even if every operational system contains high quality data, they may each use different value sets or address formats and abbreviations that first need to be converted to a common set of values before they can be aggregated or compared.

- **Data profiling**. Things (and data files) are not always as they are assumed to be, especially if documentation is incomplete or inaccurate. Data profiling identifies potential data quality problems early on so that corrective action can be taken. For example, you can use data profiling to discover that a telephone number field contains all alphabetic characters, or that the field "address line 2" has frequently been used to hold special delivery instructions (e.g.," leave on porch"), instead of storing a true address element such as "Apt 203." You can also use data profiling to verify there is a valid customer record for each customer number in the sales order file. Once used after-the-fact to discover problem causes, data profiling

should be used early in the development cycle in order to prevent them.

• **Graphical drag-and-drop user interface**. Rather than using a command language or writing custom code, a graphical user interface presents a much more efficient way of designing the ETL process and data flow, resulting in increased productivity and improved process documentation while greatly reducing design and coding errors. Your user interface should include source profiling, testing, and debugging features.

• **Prebuilt data marts from enterprise applications such as SAP and Oracle**. Greatly reduces development costs and implementation times by providing integration processes and analysis and reporting templates for popular commercial application packages. Because the requisite domain knowledge is embedded in the application data mart software, your IT staff doesn't need to understand the often complex and detailed inner workings of the enterprise application.
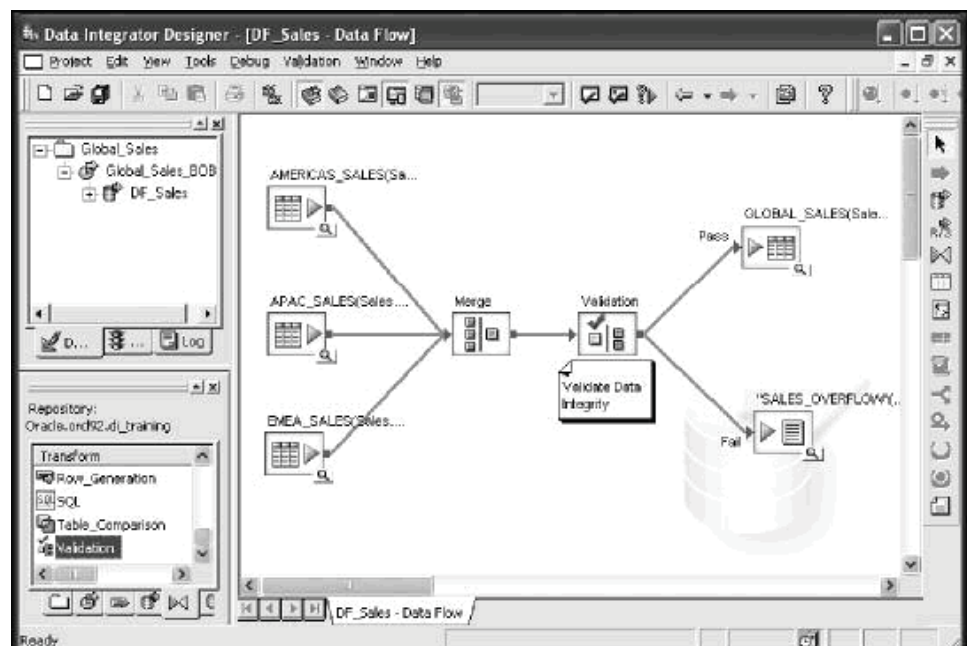

Figure 2: BusinessObjects Data Integrator includes built-in data quality transforms for batch and real-time ETL

Efficient Operations

In addition to classical batch extracting and loading, the ability to capture real-time transactions and utilize change-data capture can reduce the time it takes to update the target database. Look for the following data integration features that enable efficient operations:

- **Change-data capture**. Rather than extract all of the current set of records to be loaded into the data warehouse, change-data capture is more efficient—it extracts only data values that have changed since the prior extract, thus reducing the time it takes to update the data warehouse. This results in less data transfer and reduced data-loading times. For example, if only 10% of your customers made purchases since you ran the last extract, there's no need to download the year-to-date balance for the remaining 90%.

- **Real-time capture of operational transactions**. Provides the ability to update the data warehouse in real time so it contains the most current values, thus allowing immediate recognition of exceptions and problems so your staff can take corrective action quickly. Real-time capture is especially important in operational BI environments—for example, monitoring sales in retail stores in order to restock the shelves during the day.

- **Data federation capabilities**. EIM—the ability to access and view multiple disparate sources and query them as if they were in a single "virtual" database—can be useful in a federated or distributed database environment. For example, EIM can be used to determine the current total inventory for a given part across all inventory locations. To be effective, it requires a metadata layer that maps to the underlying individual data sources while hiding the underlying complexities—so the federated data sources appear as a single source to business users.

- **Parallel processing capabilities**. Parallel processing reduces the ETL process time, narrows the "batch window" that is continually being squeezed because of ever-increasing data volumes, and increases the overall availability of the data

warehouse. Your BI solution should use parallel processing in both the data extraction and data transformation processes—allowing data to be transformed as it becomes available, without having to wait for the entire extraction step to complete. For example, you can standardize name and address records as they are downloaded while additional records are still being extracted. Enabling parallelism through the use of multiple concurrent job servers also helps ensure high availability.

"We conservatively estimate that Data Federator, BusinessObjects XI, and Crystal XI will save us roughly one million dollars annually."

—Dave Weldon, Vice President of Information Technology, Iron Mountain

DATA QUALITY

The quality of your operations and analyses are only as good as the quality of the underlying data upon which they are based—the old adage "garbage in, garbage out" applies throughout your organization. The April 2007 issue of Baseline quotes information quality consultant Larry English as saying, "companies can lose 15% or more of their revenue due to bad information." [2]

Fortunately, organizations can dramatically increase the accuracy and overall quality of their data through an ongoing data quality initiative that includes the use of robust data quality software. Features to look for in data quality software include:

- **Parses and standardizes customer and operational data**. In a multisystem environment, or even within a single system, it's possible that customer name-and-address data may differ for the same customer or that product numbers may be inconsistent. The ability to standardize customer and operational data when entering it into an operational system or when loading it into a data warehouse ensures consistency and helps establish a trustworthy data foundation. For example, your data quality software should determine if "Dr. J Smithe, at Apartment III 123 Maine Street" and "Mr. John Smith at #3 123 Main Street" are the same person, and if so, standardize both occurrences to a common format.

- **Corrects the data based on secondary data sources to improve matching**. The ability to utilize secondary data sources in order to correct or standardize data values not only facilitates record matching between files but also serves to identify potential duplicates within a file. For example, you can use secondary data sources to validate and correct customer-mailing addresses, and to determine if two customers with similar names and the same mailing address are, in fact, the same customer.

[2] John McCormick, Starting Point Editorial. "25% of Data is Bad; What Should You Do," Baseline, Issue 071 (April 2007), page 12.

- **Appends additional information to provide a more complete base of customer knowledge.** Your organization should be able to append data from third-party data sources to its own records in order to enhance them with demographic information, credit scores, etc. For example, you should be able to append a customer's home phone number to the customer's entry in the customer file.

- **Identifies duplicate records and matches data to build relationships**. Duplicate records can lead to data inconsistencies and incorrect summary values. Software that can determine if customers are members of the same household or companies are divisions of a larger organization helps ensure that the true value of the household or organization can be recognized.

- **Integration APIs with web services and customized toolkits**. Program access through APIs or as a web service facilitates your organization's ability to integrate data quality with all of your applications. This helps leverage your data quality investment so it can be utilized throughout your computing environment. For example, you can integrate data quality software with your data entry programs to identify data problems at their source—and correct them before they enter your operational systems.

- **Standalone application ideal for batch processing**. Batch processing permits massive quantities of data to be efficiently cleansed during, for example, an overnight batch run. Your data quality software should be capable of running as a standalone batch processing application as well as in conjunction with your real-time environment.

- **Third-party integration with Oracle (including PeopleSoft and Siebel), SAP, and Informatica**. In addition to integrating with its own products, your data quality software should easily integrate with the third-party enterprise applications and third-party data integration tools your organization may currently be using.
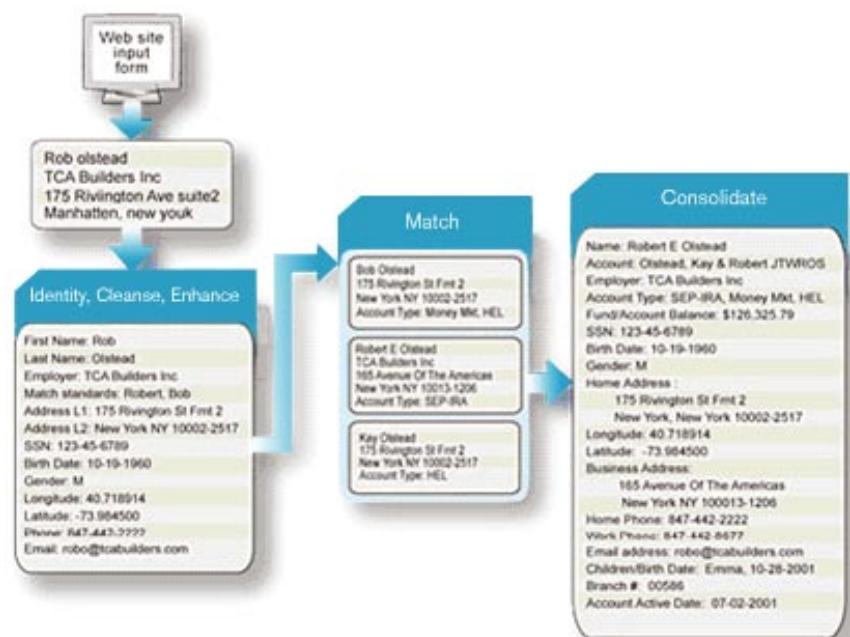
Figure 3: BusinessObjects Data Quality XI first corrects the data and then standardizes the elements to ensure a consistent format throughout all records. It enhances the record by appending missing data– like geographic information–at the point of entry. Next, the robust matching capabilities of the software search existing data records for other similar records, according to your own customized business rules. The software then consolidates or links any matching records, allowing for a single profile of the client or household.

"We have access to information instantly now. We couldn't do that before. BusinessObjects XI helped us fill a critical business need."

–Robert (Bob) Rogers, Assistant Administrator, Financial Management, Georgia Department of Transportation

METADATA MANAGEMENT

In addition to integrating source data from multiple systems, it's also desirable to integrate and manage associated metadata. Metadata management is an important component of an overall EIM solution that can not only greatly assist overall development and integration efforts but can also provide a semantic layer that facilitates user communication and understanding. Capabilities to look for include:

- **Impact and where-used analysis**. Impact and where-used capabilities assist developers by showing them, for example, which reports a source data element appears on so that they can assess the impact of potential changes. End-to-end impact analysis prevents unpleasant surprises and the resulting user dissatisfaction.

- **Data lineage**. The ability to track data lineage facilitates user understanding and increases user confidence by showing where the data being viewed originated, its meaning, and when it was last updated. If based on a computation, it can show the underlying algorithm.

- **Metadata integration with the rest of your BI environment**. This EIM feature provides the capability to establish and share common rules, formats, and syntax across your BI environment, enhancing overall developer productivity and user understanding while eliminating ambiguities. A simple example is using "Customer Name" as the common literal across all reports rather than "Cust Num," Cust#," and "Customer" on three separate reports. Another example is organizational-wide metric definitions. Your organization's employees speak a common business language, and software in your BI environment should do so as well.

- **Usage tracking**. You should be able to audit and analyze your metadata to determine usage trends concerning which reports are the most or least used, or what data in an organization's data warehouse is the most or least in demand.

Figure 4: Business Objects metadata management tools consolidate, integrate, and audit metadata from disparate tools and data sources. IT organizations benefit from source-to-report impact analysis and business intelligence users benefit from end-to-end data lineage.
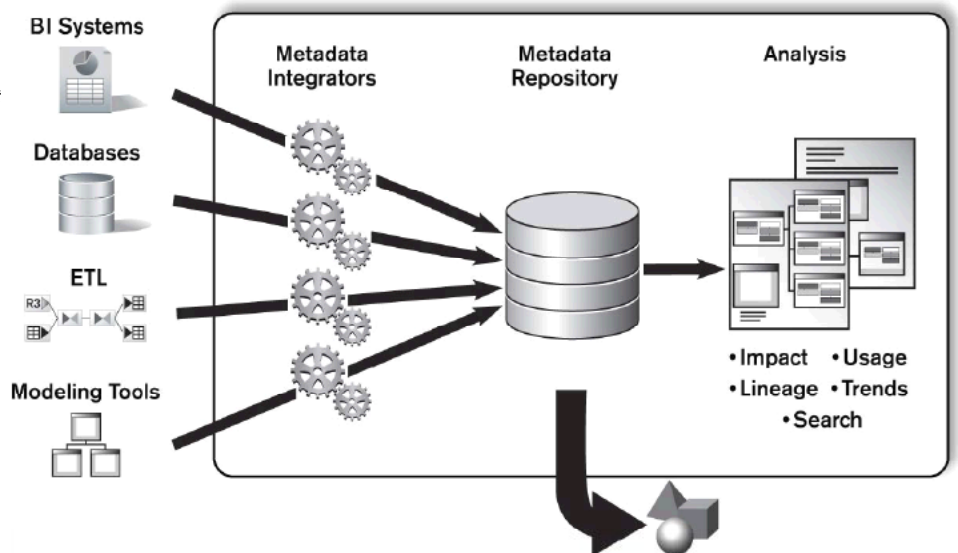
- **Conformance to industry metadata standards**. Facilitate integration with third-party tools using standards such as the Common Warehouse Metamodel (CWM), enabling metadata interchange and increasing overall user and IT productivity.

- **Support for design and modeling tools (e.g., ERwin)**. Allows data models created by third-party tools to be utilized by your data integration developers.

QUERY, REPORTING, AND ANALYSIS FUNCTIONALITY

How your company will use BI is an important factor in your BI evaluation. A platform for enterprise reporting should allow any user with proper authority to access, format, and deliver data inside and outside the organization. Query and analysis products provide self-serve analytics to users and should allow anyone from data analysts to business users to easily create queries and perform calculations—without technical expertise and without having to rely on IT resources. Your BI platform should also support the generation and distribution of formal enterprise reports—reports that often are viewed by your customers and partners. An enterprise reporting system should provide highly automated, web-based reports that are simple to use and support.

Figure 5: Business Objects query and analysis products provide self-serve analytics to users and allow anyone from data analysts to business users to easily create queries and perform calculations.

Not all users are created equal and your BI platform should be able to accommodate the various reporting needs of all your users, without compromising how it serves any of them. In order to do so, it must also have flexible security options, collaboration functionality, and be intuitive and easy to use. When evaluating query, reporting, and analysis capabilities, look for the following key features.

Access and Present Any Data

- **Flexible and unconstrained connectivity to both structured and unstructured data**. The data your organization needs to analyze resides in a wide variety of sources, including multidimensional and relational sources, legacy systems, Excel spreadsheets, text, and XML documents. Your BI platform should allow you to access, integrate, and analyze all of them.

- **Automated wizards and reusable templates speed report production**. Your IT staff shouldn't have to constantly reinvent the wheel when creating reports. Wouldn't it be great if your BI users could spend their time analyzing reports rather than waiting for them to be built? Wizards and templates enhance IT and user productivity, and lead to quicker and more effective deployments for your organization.

- **Best-of-breed OLAP access**. Access to popular online analytical processing (OLAP) servers—including Microsoft, Hyperion, IBM DB2 OLAP, and SAP OLAP servers—allow you to use your BI platform to directly access your existing OLAP technology. Your EIM solution should allow you to simultaneously view data from multiple OLAP cubes, perhaps even from different vendors.

- **Save and view reports as PDFs or in HTML**. For web publishing and document distribution, you should be able to save and view reports in a variety of formats, including as PDFs or in HTML.

- **SDKs to view, print, export, and modify reports within an application**. Software development kits (SDKs) provide your IT department with tools to directly integrate BI products with application programs, thus enhancing the overall value of your company's BI technology investment.

- **Data lineage**. In order to better understand and have confidence in their analysis results, your business users should be able to click on a report item to display the meaning and lineage of data back to its source systems, including calculations for derived data (e.g., how "gross profits" and "net profits" are computed).

Information Delivery and Distribution Options

- **Real-time and scheduled reports**. While some reports, such as "Weekly Sales by Retail Store" are needed on a regularly scheduled basis, others should be available upon request or when an exception condition is met. It's not uncommon for users to initially request a report and then decide they wish to receive it on a regular basis.

- **Event-driven notification and alerting (i.e., when a metric reaches a threshold value)**. Providing business users with immediate notification when special events or exceptional conditions occur (e.g., out-of-stock conditions or sales falling more than 10% below forecast for the prior two months) allows organizations to take quick actions to resolve a minor problem before it becomes more serious.

- **Embeddable in Microsoft Office**. Many users consider Microsoft Office as their interface of choice—your BI tools should accommodate this by allowing analysis results to be directly embedded inside Word, Excel, or PowerPoint, while keeping a live, secure link back to the original data. For example, a sales manager should be able to update a PowerPoint presentation with the latest available sales figures.

- **Ability to share information across your extended enterprise**. Not only should your BI platform support your organization's internal users, it should also be capable of supporting its customers, partners, and suppliers while ensuring appropriate security and privacy. For example, a supplier should be able to see orders your organization has placed with it, but not orders your organization has placed with its competitors.

- **End-user access without proprietary client software (e.g., via a web browser)**. Provides access from almost anywhere while eliminating the need to install client software. Access should be possible from desktop and mobile devices, including laptops, cell phones, and PDAs.

- **Ability for mobile workers to work in a disconnected mode from their laptops**. Users should be able to download reports and then work on them while disconnected from the web.

- **Mobile Device Support**. Support for any mobile device, such as BlackBerry or Windows Mobile, provides mobile users with report access and the ability to drill down on interactive charts and take direct action on what they see. Ideally, the reports should be automatically reformatted and optimized for the display characteristics of the user's mobile device.

Figure 6: Business Objects Mobile BI solutions allow remote users to access favorite business intelligence reports, metrics, and real-time data with a single click of their wireless device.

- **Report Cataloging and Distribution**. Provides authorized personnel with the capability to browse report subjects to locate and request receipt of selected reports on both a periodic subscription and upon-request basis. A report catalog is analogous to a card catalog in a library as it enables users to determine what is available while providing information about the contents.

Flexible, Integrated Analysis

- **Intuitive, web-based interface**. Eliminates special training requirements and permits users to get answers to their business questions from almost anywhere without IT involvement. Enhances both IT and user productivity and allows business users to receive the information they need more quickly and from any device that supports web access.

- **Point-and-click query generation allowing nontechnical business users to ad hoc reports**. In order to improve user satisfaction and enhance both IT and user productivity, organizations should empower IT staffs to enable nontechnical business users to create their own reports on an ad hoc basis.

- **Robust semantic layer**. Allows users to formulate queries in business terms so that they can focus on business issues and not technical terms. Business users speak in business terms—their BI platform should allow them to continue to do so. For example, the semantic layer should be able to recognize business synonyms—like "vendor" and "supplier"—and allow users to query using either term.

- **Drill down and slice-and-dice over the web**. Users should be able to drill down to details and perform robust analyses over the web. Analysis is often an interactive process, with one result leading to additional questions—the ability to slice-and-dice and drill down to details facilitates this. For example, a manager might want to view "year-to-date sales," then drill down to "sales by region" or "sales by store" within a region, and then view "the top 10 selling products in the Western region in the prior quarter."

- **Ability to combine multiple sources in a single report**. Users often need to combine data from multiple sources across multiple subject areas within a single report for a more complete analysis of the issue they are investigating. For example, a single report might combine current sales numbers from a commercial enterprise application with year-to-date sales forecasts in Excel spreadsheets.

- **Combine tables, graphics, text, and data in a single report**. Augmenting data and text with graphics and tables can greatly enhance user understanding and lead to insights that might not be evident by just looking at tables alone.

- **Drill down to further details**. The ability to drill down allows you, for example, to first view regional sales and then look at the sales of the individual stores within a region. Results can then be further analyzed by looking at sales of individual products within a selected store.

- **Flexible on-report analysis**. If a single tool can be used for both query and analysis users have the ability to further analyze the details that underlie the numbers displayed on a report and to slice and dice as appropriate in order to perform interactive analyses. Users should be able to engage in "query and analysis," not "query or analysis."

- **Drill through to detailed data source**. Enables users to see the detailed data records in the source systems that might have been aggregated to produce a summary result. This can help uncover additional information that may have been obscured in the summary result. For example, a user might drill through from year-to-date purchases for a given part to the details concerning the quantity of the part that was purchased from each of its suppliers.

- **Data mining capabilities and/or import/export to SAS, IBM Intelligent Miner, etc.** While data mining is often best left to specialized niche vendors, your BI tool should integrate with major products and leverage any data mining functionality in the databases it accesses.

- **What-if analysis**. What-if capabilities give users the ability to see how results might change if the value of underlying variables are changed, allowing them to test various business scenarios prior to actually implementing them. For example, you can use what-if analysis to show the effect that changing a 401(k) matching contribution rate has on overall company profits.with prebuilt but highly customizable analytic applications with industry or function-specific data models and terminology. Functional areas might include customer profitability, performance management, product and service analysis, financial reporting, government compliance, and supply chain management.

- **Packaged horizontal and industry-specific analytic applications.** Facilitate analysis with prebuilt but highly customizable analytic applications with industry or function-specific data models and terminology. Functional areas might include customer profitability, performance management, product and service analysis, financial reporting, government compliance, and supply chain management.

- **Applications-specific data marts (e.g., SAP)**. Your BI platform should provide integration including data models, data extracts, transformation logic, and reporting and analysis templates with enterprise applications such as Oracle, PeopleSoft, Siebel, and SAP in order to populate data marts in subject areas such as financials, human resources, inventory and production planning, purchasing, and sales.

Full Range of Reporting Options

Different users and applications have different reporting needs. As such, your organization likely will need to access and report on data that is resident in both its operational systems and its data warehouses and data marts—your BI platform should allow you to work with both. Your BI solution should provide a comprehensive set of options, including:

- **Web-based, end-user, ad hoc analysis.** Enables business users to interactively ask business questions and perform analyses without IT involvement from almost anywhere that they can gain web access.

- **Formal enterprise reporting.** Production reports such as the generation of customer invoices and mailings for marketing campaigns require enterprise reporting abilities. In many instances, an organization's mailings are the primary contact between the organization and its customers—thus, accurate and professional looking pixel-perfect documents are an absolute requirement.
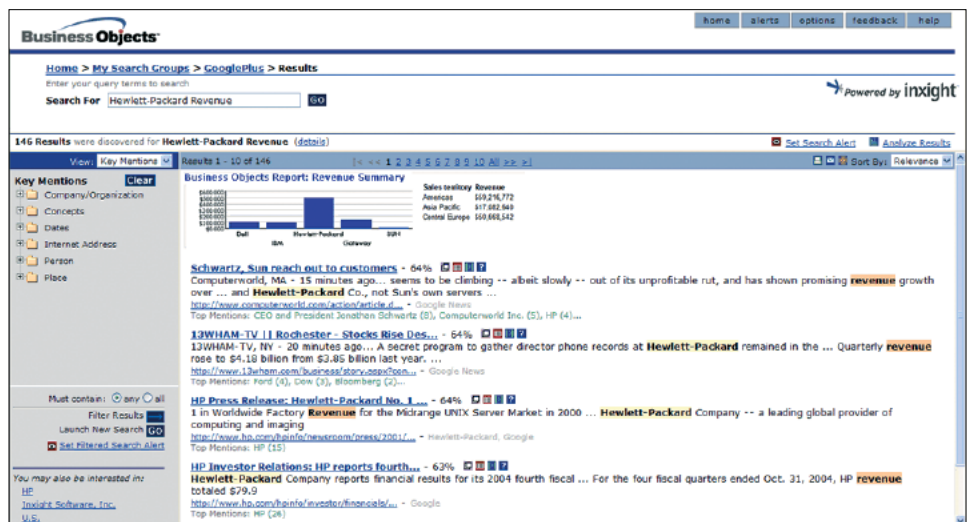

Figure 7: Enterprise search solutions can complement BI by allowing users to search and find the information they need from all digital assets, including the web, files, repositories, and applications.

- **Microsoft Office as a user interface.** A familiar user interface that allows end users to view current and refreshable data from within their Office documents enriches the end-user experience. For example, through a PowerPoint presentation insurance companies could provide their agents with the values and commissions on customer policies that were underwritten in the prior week. This greatly facilitates the ability to introduce nontechnical users to the benefits of BI as they can view it through technology they use every day.

- **Visualization techniques.** Dashboards and other highly intuitive visualization techniques can greatly assist users in analyzing results. In addition to traditional display techniques, your BI platform should include highly visual and interactive user interfaces that can be used to quickly spot trends or areas of concern.

- **Support for multiple languages and currencies**. Multinational companies frequently report local results in local languages and currencies. They require currency and language support that accommodates financial comparisons and consolidations. While adding "apples to oranges" has become somewhat of a cliché, it doesn't make much sense to directly add deutschmarks to dollars either.

- **Aggregate awareness**. If summary records are available, your BI tool should be able to use them rather than having to aggregate underlying detail records. This can reduce query response time. For example, if a total already exists for sales by product category, aggregate awareness avoids having to add up the sales of the individual products in the category.

- **Segmentation analysis**. The ability to define, track, and analyze segments or groupings helps organizations understand how each segment contributes to overall performance by simplifying and accelerating the process of segmenting data to create dynamic, customized groupings (e.g. good customers, bad suppliers, at-risk customers).

- **Search capabilities**. Your BI tool should permit users to quickly and intuitively find reports and information that satisfy their search criteria. If none exist, it's desirable for the search criteria to auto-generate a new query or report. Searches should encompass all of your organization's digital assets—both structured and unstructured—and integrate with popular search technologies, such as Google Search, enabling users to search and find the information they need from all sources. Sources may include the web, internal files, repositories, and applications.

- **Analysis of data from third-party providers**. BI isn't limited to just analyzing your organization's own data—it can also be used to gain insights from data available from commercial third-party data providers. A BI platform that provides the capability to identify, acquire, and analyze relevant third-party data will facilitate your organization's decision-making process. For example, a company may use commercially available financial data in combination with robust dashboard and visualization BI technology to compare its own performance metrics against competitors.

- **Text analytics**. Much information is contained in semi-structured or unstructured sources such as blogs, call center records, emails, Word documents, note fields, and web content, including collaborative websites such as wikis. Text analytics can help identify critical, previously undetectable, events and relationships. In order to make the most effective decisions, your organization should be able to access and analyze all the data available to it, regardless of how the data is structured.
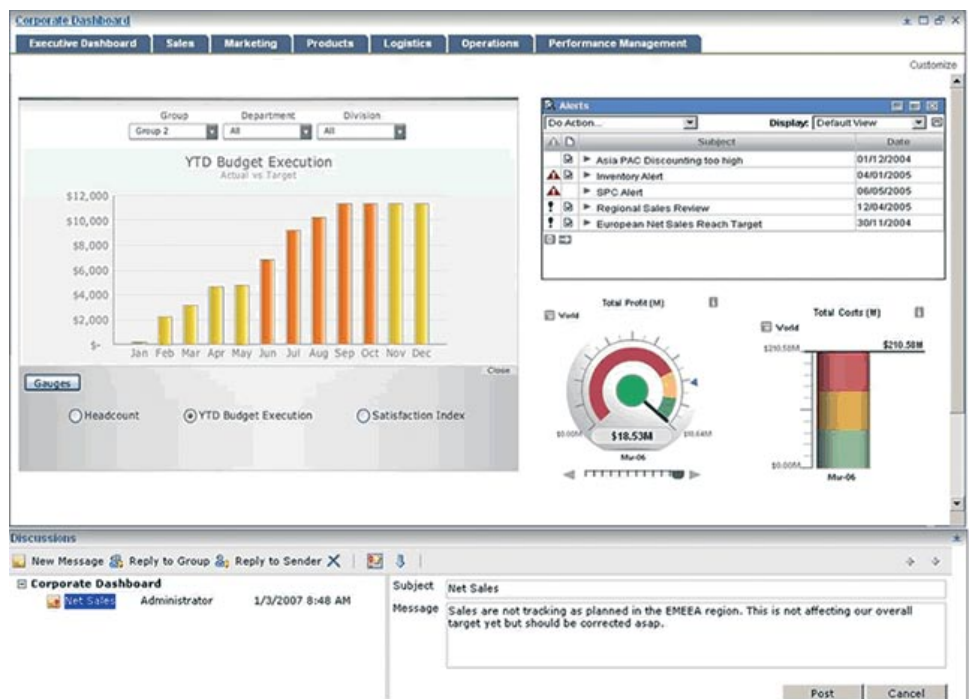
Figure 8: Business Objects dashboard and visualization products allow you to deliver and display information in a consolidated portal with electrifying and interactive visuals. Users will see, interact and understand their business like never before.

PERFORMANCE MANAGEMENT, DASHBOARDS, AND SCORECARDS

Performance management products use BI technology to align business strategy with continuous improvements. Performance management allows an organization to measure how well it's executing against strategy and objectives. Results often are made available through dashboards, scorecards, and alerting mechanisms.

Performance Management

Performance management helps your organization align its people and resources around common goals and measure performance against established targets and plans. It allows management and staff to monitor business processes to see if they are on track or if actions need to be taken to adapt to changing business conditions. Your performance management solution should offer the following capabilities:

- **A full complement of performance management applications**. In addition to the classic financial applications related to planning, budgeting, and financial reporting, your performance management portfolio should also include applications for sales and marketing analysis, activity-based costing, customer profitability, and supply chain analysis.

- **The ability to define and set metrics and measure performance against them**. It's been stated that you can't judge performance unless you have something to measure it against. An effective performance management solution allows your organization to define appropriate metrics against which performance can then be measured. Performance management isn't just limited to financial metrics—it could also include metrics for customer satisfaction, call-center response times, or warranty claims.

- **Event-driven alert capabilities**. Alerting capabilities can be used to proactively notify you of exceptional conditions or even trigger business processes so that corrective action can be taken before a minor issue becomes a major problem. For example, it could alert a sales manager when the eastern region's sales fall below 15% of target.

- **Root-cause analysis**. In addition to monitoring metrics and key performance indicators, your performance management solution should enable you to determine the underlying cause of any problem or exception.

- **Integration with enterprise application software**. Integrating with commercial software applications from vendors such as Oracle and SAP enhances productivity, letting your users analyze financial information using preconfigured reports, dashboards, and alerts.

DASHBOARDS AND VISUALIZATION

Dashboards and visualization allow and presentation highly complex and sometimes highly abstract information without overwhelming the viewer. Dashboards turn static information into dynamic charts, graphs, and interactive what-if scenarios while maintaining connectivity to the underlying data.

Dashboard Design and Creation

- **Dashboard creation without manual coding.** You should be able to define metrics and other key performance indicators and measure performance against them without having to resort to manual coding through the use of features such as a library of customizable templates and a drag-and-drop interface—for example, the ability to drag a gauge or other indicator directly onto the design area.

- **Sophisticated gauges and other visualization techniques**. A picture (or a dashboard) can be worth thousands of tables or rows of data. Displaying a consolidated view of your results through a dashboard it easier to comprehend and understand. Dashboard visualization techniques should include traffic lights, gauges, speedometers, charts, and maps.

- **Be part of an integrated BI platform**. Your performance management tools should be a part of the BI platform so they share common services and metadata and integrate with other analysis.

- **Industry certification**. Check to see if the vendor's balanced scorecard software is certified as compliant with the Balanced Scorecard Functional Standards of the vendor-neutral Balanced Scorecard Collaborative.

Dashboard and Scorecard Usage

- **Drill down to the details**. The ability to drill down from summary-level metrics to detailed reports enables you to explore and determine the underlying causes of the displayed results. For example, when identifying disappointing sales for a given region, you could drill down to individual stores within the region or even individual products within the stores for deeper analysis.

- **What-if analysis**. Interactivity, through visual sliders and dials, allows you to quickly evaluate multiple scenarios by altering the underlying assumptions, and immediately viewing the impact on the results directly on the dashboard. The ability of performance what-if analysis can drive discussions and answer unprompted questions without taking time to perform additional calculations. For instance, the impact of changing the value of "cost-of-goods sold" relative to profit margins could be immediately reviewed and a decision finalized.

- **Statistical processing for trend extrapolation**. Tracking metrics over time and identifying trends early on enables you to take action to correct negative conditions or leverage positive ones. Catching a trend early on, such as increasing customer churn, might provide additional time for your organization to take appropriate actions to retain its other customers.

- **Collaboration tools**. The ability to annotate your dashboards with notes and threaded user discussions and commentary not only allows users to comment on variances and explain the results, but also to inform them of any corrective actions that are underway.

- **Predictive analysis**. In addition to analyzing what's happening today, the ability to integrate data mining technology with your dashboards allows you to forecast what may occur in the future. For example, you can use predictive analysis to forecast which customers are likely to switch to one of your competitors based on characteristics they have in common with customers you've recently lost.

- **Integration with Microsoft Office**. Your organization should be able to deploy personalized dashboards for any user across the enterprise and allow them to view them in Microsoft PowerPoint or Adobe PDF. For example, the ability to embed refreshable visualizations inside of a PowerPoint presentation enhances its timeliness and its value. Providing access to the visualizations from the desktop will increase user adoption and help extend BI throughout your organization.

BUSINESS INTELLIGENCE INFRASTRUCTURE

Your BI infrastructure should allow your organization to readily manage and securely deploy your BI tools on a proven, scalable, and open architecture. It should be capable of integrating with your existing computing environment, and be highly reliable and easy to use and administer. It should help you analyze your business—not get in its way. This requires a platform that can accommodate broad-scale deployments without failing, provide easy to use analysis and collaboration capabilities to your business users, and be IT as well as user-friendly.
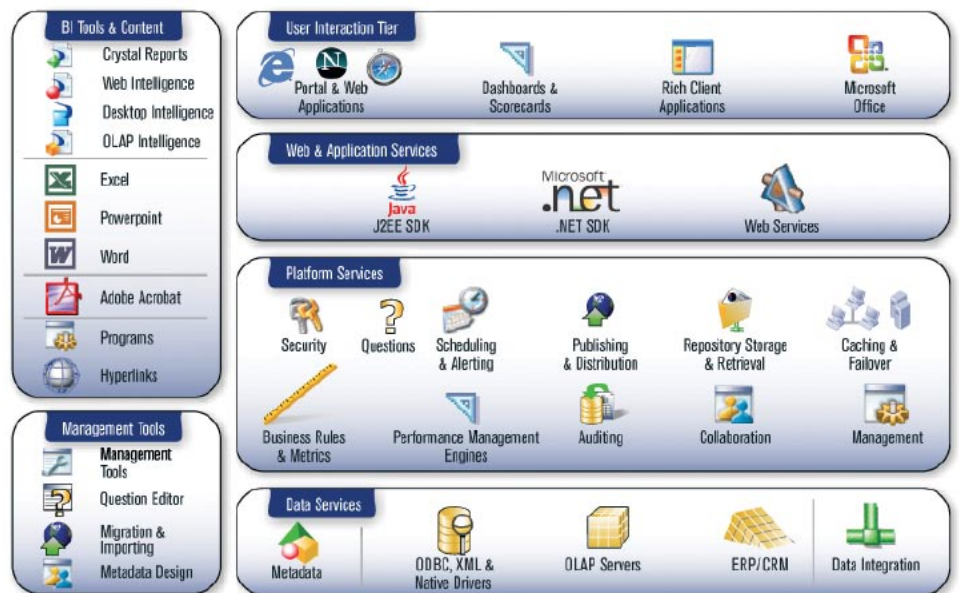
Figure 9: BusinessObjects XI is the first and only business intelligence platform to deliver a complete set of market-leading, end-to-end BI capabilities: best-in-class enterprise information management, reporting, query and analysis, dashboards and visualization, and enterprise performance management .

SCALABILITY AND EXTENSIBILITY

A scalable and extensible BI platform ensures that your BI solution not only handles today's needs—including peak requirements at month end—but any expanded needs you might have in the future as your business grows.

- **Ability to solve current problems**. A solution that can't solve your current problems is of little help to your organization. Still, while your first priority should be to address your immediate issues, you should view your BI solution as a long-term investment.

- **Ability to solve tomorrow's needs**. Although solving today's problems is certainly a critical requirement, the ability to address future needs is also of paramount importance. Select a BI platform that will continue to meet your needs as your organization grows. As your organization gains experience with BI and its usefulness becomes evident, it's very likely usage will quickly spread.

- **No unreasonable limits on the number of users**. Your BI platform should support all the users that need to simultaneously utilize it. BI shouldn't be a "first come, first served" technology. It should be easily scalable to hundreds, if not thousands, of users.

- **A multi-tiered architecture**. A distributed, multi-tiered server architecture provides load balancing, scalability, and failover—ensuring high availability for end users when they access information.

- **Integrated platform with optional components**. Your organization may not immediately need all the functionality that a complete BI platform offers. An integrated platform with optional components permits you to cost-effectively license what you need today and add additional functionality later.

- **Benchmarks**. Your BI vendor should be able to show you the results of benchmarks for performance and number of concurrent users that reflect your organization's needs.

  "BusinessObjects Rapid Marts contain the mapping tables between Oracle ERP and BusinessObjects, so they allowed us to move a lot of data into the BusinessObjects environment quickly."

  −Alla Johnson, Director IT, Datacard Group

OPENNESS
Your BI platform will be integrated with the other technology in your organization.

- **Software development kits (SDKs) to access all functions**. SDKs allow other systems and programs to access the functions of BI platform. By doing so, SDKs enhance the value of the investment you've made in your BI technology.

- **Services-oriented architecture (SOA)**. An SOA allows other systems and applications to access the BI platform's functions as a service and leverage their capabilities. This allows your organization to integrate its BI functionality across its computing environment. For example, you could publish a query concerning customer purchase history that could then be called by any of your applications.

- **Metadata integration across all platform components and third-party tools**. Consistent metadata across all platform components enhances both developer and end-user productivity. The ability to exchange metadata with third-party tools facilitates their integration.

- **Support for design and modeling tools (e.g., ERwin)**. Allows data models created by third-party tools to be utilized by your BI and ETL developers.

- **Support for industry standards**. Helps ensure openness and facilitates integration with other products and technologies within your current and future infrastructure. Look for support for standards such as XML, Java, LDAP, J2EE, CORBA, and .NET as well as open connectivity to leading databases and enterprise applications, metadata exchange and sharing for adaptive BI change management, and deep integration with leading enterprise portals and desktop productivity tools.

- **Ability to work with a wide variety of data sources**. An open BI platform should be able to access and analyze data in a wide variety of data sources, including relational and legacy databases, unstructured and semistructured sources (including text), and data resident in commercial enterprise application software packages from vendors such as Oracle (e.g., PeopleSoft, Oracle, Siebel) and SAP.

BROAD PLATFORM SUPPORT

Ensure that the investment your organization makes in BI technology today will be able to run on the computing environment you may have in place tomorrow.

- **Hardware support**. Your organization's hardware configuration likely will change over time. In addition to supporting your current hardware platform, your BI solution should be able to run a wide variety platforms to ensure future compatibility.

- **Database support**. Your organization is likely to deploy multiple databases–it's important that your chosen BI solution be able to support them. A BI solution that works with a wide variety of databases protects your BI investment. Even if your organization has standardized on a single database vendor, its next acquisition could introduce another database into your computing environment. Some database vendors offer their own proprietary BI technology, but if your organization adopts a different database, you might have problems. A major advantage of choosing a marketing-leading BI specialist as your vendor of choice is that its BI platform isn't optimized for one particular database.

- **Operating system support**. Not everyone sees the world through Windows. It's important that your BI solution support a variety of operating systems, including Linux and UNIX. Support for multiple operating systems allows your organization to keep future options open.

- **Platform repository uses nonproprietary database (e.g., Oracle, Microsoft, DB2)**. Rather than having to acquire new DBA skills to manage a proprietary database, your BI platform should allow your organization to leverage the database technology you already have in place.

- **Choice of deployment options**. A BI platform that can be hosted onsite or made available as an on-demand (software as a service) offering supports additional hosting and deployment options while providing an additional degree of BI architectural flexibility. For example, an SMB organization may wish to minimize its upfront investment in hardware and IT infrastructure by initially utilizing its BI platform as an on-demand service while retaining the flexibility to deploy it on-premise sometime in the future.

EASE OF ADMINISTRATION AND DEPLOYMENT

Your BI platform shouldn't place an undue burden on your IT department or your business users. Software that isn't easy to use frequently doesn't get used at all–and winds up being shelfware.

- **Ease of implementation**. Ensure that your BI solution can be up and running without draining IT resources or diverting them from other projects. In many cases, hard-to-implement systems never get implemented at all. Wizards and guided installation and setup routines enhance IT productivity and lead to quicker deployments.
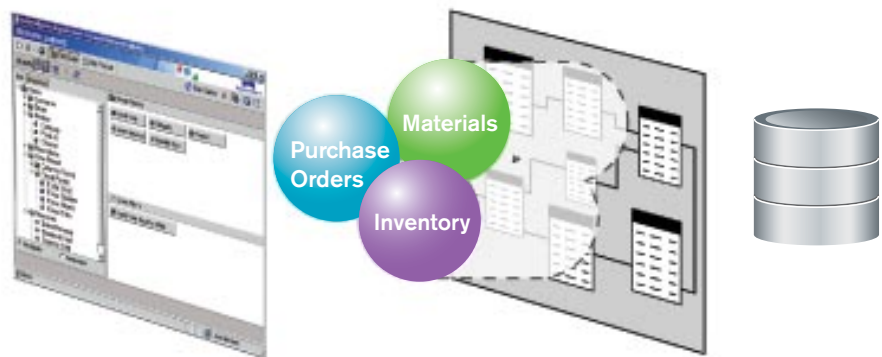
Figure 10: With the Business Objects semantic layer, users are shielded from the complexities of database access by using familiar business terms for their reporting needs.

- **Ease of learning**. Maximize user productivity by allowing your organization to quickly deploy the BI solution and benefit from quick results. An easy-to-learn product likely is also easy to use–thus encouraging business users to deploy it.

- **Support for Section 508 of the 1998 Federal Rehabilitation Act**. U.S. government agencies must provide disabled users with the ability access information that is comparable to the access it provides others. Not only is this the right thing to do, it's also a requirement in many governmental procurements.

- **Ability to work with business language rather than technical terms (i.e., semantic layer)**. Business users speak in business terms and shouldn't need to understand underlying database complexities. Your BI solution shouldn't force them to do otherwise in order to deploy it. If different business terms are used by different user groups, your BI solution should accommodate them all. In addition to mapping complex data into familiar business terms, a semantic layer also shields users from inconsistencies in data names, data types, and organizational metrics.

- **Portal functionality**. The ability to access and view all reports through a single portal interface aids user productivity and reduces training requirements.

- **User interface supports non-English languages**. Your BI platform's user interface should be capable of supporting the native language of your users. Furthermore, it should provide Unicode support so your data can be stored in multiple languages.

- **Documentation available through a variety of channels**. User manuals never seem to be readily at hand when they are needed. Being able to access documentation from a CD or over the Web greatly enhances overall productivity.

- **Documentation available in non-English languages**. It's important that your documentation be available in a variety of languages, especially in global implementations.

- **Context-sensitive help**. Greatly facilitates the ability of a user to find the relevant answer to any platform or "how do I do this?" questions they might have. This helps encourage, rather than discourage, continued use of the product.

- **Microsoft Office integration (access and refresh reports in the Microsoft Office environment)**. Many users consider Microsoft Office to be their interface of choice. Integration with it can reduce user training and increase productivity. The ability to optionally refresh Office documents (i.e., PowerPoint, Excel, Word) with the most current data is also desirable.

SECURITY, MONITORING, ADMINISTRATION, AND RELIABILITY

Your BI platform should provide a comprehensive set of services for scheduling, security, monitoring, and administration. It should also be highly reliable while providing comprehensive backup and failover capabilities. Easy-to-use but powerful administrative tools allow your organization to enforce who can access what. An organization's data is a major asset that your BI platform should help protect, while allowing your users to easily analyze the data they are authorized to access.

- **Single sign-on**. Rather than signing on to each platform component separately, your users sign on once to gain access to all features they are permitted to access.

- **Web-based administrative management facilities**. A comprehensive web-based administrative console enhances administrative productivity and effectiveness. It provides a single, integrated point of control for all administrative functions.

- **Security integrates with third-party tools**. In addition to empowering your employees with BI technology, your organization might also decide to provide access to partners, suppliers, and customers. Your BI tool should provide appropriate security. Furthermore, if your organization utilizes third-party security tools as part of its overall systems deployment, your BI platform should be able to integrate with them.

- **User and group-based privileges for reading, creating, modifying, and deleting**. Users have varying rights as to what they can create or even access. The ability to assign privileges at both the individual and group levels helps ensure user rights are enforced. For example, all department managers might have access to the corporate reports while only being allowed to see departmental reports for their own departments.

- **Controlled access to reports, rows, and columns**. Rather than simply deny users the right to see a given report, it may be acceptable for them to see data that only pertains to their department or just themselves. For example, a user might be permitted to only see his own salary while a department manager might be permitted to see the salaries of everyone in his department. Assigning granular row-level security to protect sensitive information, so that different users can see different versions of the same report, avoids the need to implement administration-intensive database views.

AUDITING OF SYSTEM PERFORMANCE

System performance auditing monitors your BI platform and identifies system bottlenecks and changes in usage and performance so you can correct potential problems before they become major issues.

- **Auditing of user access**. Determining "who accessed what" helps you to monitor what your users are seeing and when they are seeing it, ensuring overall security. Besides indicating which data and reports are being accessed (and perhaps more importantly, which reports have been dormant for a while), auditing can be useful in addressing privacy requirements, including helping adhere to HIPAA regulations concerning access to medical records.

- **Database-based backup and recovery.** Database vendors have worked hard to provide strong backup and recovery for their products. Your BI platform should be able to leverage these capabilities.

- **Reliability.** A BI platform that avoids a single point of failure greatly enhances its overall reliability. In situations where you lack a single point of control, failover capabilities help ensure continuous availability.

- **Failover, recovery, and automated restart.** What is up may on occasion go down. Automated failover, recovery, and restart can dramatically reduce the impact of any failure without disrupting business operations.

COLLABORATION

- **Team/collaborative development**. Analysis often is a collaborative effort, and features that facilitate collaboration can enhance productivity. For example, the ability to augment an analysis with discussion threads can lead to greater insight and understanding of the results.

- **Central and local repositories**. While the central repository represents the "official truth," local repositories permit testing and changes that don't affect the rest of the organization.

- **Versioning of reports and objects**. Prevent errors and assist collaborative efforts or tests by tracking multiple versions of reports and objects.

- **Reference guides**. An online reference guide or encyclopedia assists collaborative efforts by helping users locate and consistently interpret corporate information for accurate and better decision-making.

VENDOR CRITERIA

While a vendor's product and architecture criteria are two important factors in making acceptable product choices, you must also consider financial performance, customer support, industry recognition, business reputation, and partner ecosystem. In the case of a large vendor with multiple product lines, the following sections should be considered in relationship to the vendor's business intelligence products, rather than to the company as a whole.

FINANCIAL PERFORMANCE

The ability of a vendor to weather the storm in turbulent times is an important factor in choosing a strategic vendor. You are making an investment in your BI vendor's technology and its ability to meet both your immediate and future requirements— you want assurance that your chosen vendor will be around in the future.

- **Financial stability**. Consider if your BI vendor will be there when you need support or wish to acquire additional functionality. A financially successful vendor can afford to invest in continually enhancing its product's capabilities, thereby protecting the investment you've made in its BI technology.

- **Public versus private (public company means audited records available)**. Public companies must report their financial results and are subject to SEC filing and compliance regulations. Consequently, their financial results are verifiable and subject to public scrutiny.

- **Track record of growth and profitability (growth and profitability for the last several years)**. Solid growth and profitability indicates both astute management and product acceptance. It allows the vendor to better serve its customers and invest in the future, rather than fixating on cost (and perhaps customer support) reductions. A growth in license revenue is a good indication that the vendor is expanding its customer base and also that its installed base is broadening deployments.

- **Revenue reinvested in R&D (high percentage indicates long-term commitment over short-term profits)**. A vendor that reinvests in research and development (R&D) is investing in both its future and yours. Continued improvement of its own products protects your investment in them as well.

REPUTATION, EXPERIENCE, AND COMMITMENT

- **User references**. A vendor with limited user references may be one with limited successful implementations. Be especially wary of vendors that never mention specific company names in their reference material (e.g., "a large retailer" or "a major bank"). If possible, seek references from your own industry or those with problems similar to your own.

- **Commitment to BI**. A vendor that specializes in BI devotes all of its energies (and management attention) to focusing on continuing to improve and evolve its BI technology—rather than worrying about how to allocate its resources over multiple, and perhaps unrelated, lines of business. For example, a database vendor that considers BI as a minor adjunct to its primary business is more likely to be responsive to the needs of its database customers than to the needs of its BI customers.

- **A history of vision and innovation**. A vendor that has a proven track record of innovation and industry leadership is likely not only to meet the current needs of its customers but also to anticipate and meet their future needs as well.

- **Company acquisitions (complementary rather than new, unrelated, business areas)**. A vendor that engages in complementary acquisitions shows its commitment to its product portfolio by demonstrating that it wishes to augment it rather than enter new, unrelated business areas. The vendor's installed base should also benefit, as acquisitions likely will complement the technology they have previously acquired from the vendor.

- **Maintenance renewals**. A high percentage of customers renewing their maintenance agreements each year indicates customer satisfaction with both the vendor and its product portfolio. It also bodes well for the vendor's future financial success.

- **Industry experience**. Vendors with experience in your industry are likely to better understand your needs and speak your language. They can draw upon their experiences with other customers in your industry and apply them to your organization's issues.

- **Executive team**. The experience and track record of a vendor's executive team can provide insight into how the company will succeed in the future. Look for a team with a solid record of success—and with a reputation for honoring its commitments and taking care of its customers.

- **Geographic presence—global presence for multinational organizations**. A multinational organization needs multinational support, and a vendor with a global presence is well-positioned to handle its global needs.

- **Well-defined product roadmap with milestones and a history of meeting delivery dates**. While some vendors will promise almost anything to close a sale, a vendor that has an established history of publishing product roadmaps and meeting milestone dates is likely to honor current commitments and meet future commitments as well.

INDUSTRY RECOGNITION

- **Awards and other recognition**. Vendors who regularly receive awards and honors are likely to have products and services that stand out from their competitors.

- **Industry analyst evaluation**. Industry analysts such as Forrester, Gartner, and IDC regularly evaluate the different vendors in the BI market and can help advise on the choice of a particular vendor or product based on your projects. Seek out vendors that are consistently rated as industry leaders by industry analysts.

WORLDWIDE SERVICES AND SUPPORT

Successfully deploying a global standard often requires initial services and training from the vendor, at least in the initial phases—and long-term support may be required to ensure the success of projects if problems arise. If yours is an international organization, the availability of local support may be a key determinant. You should also look for vendor track records in the type of BI standardization projects that you're implementing.

- **Professional services organization**. An experienced and knowledgeable professional services team can greatly facilitate your implementation while successfully working with your own people to facilitate knowledge transfer. Look for an organization with a proven implementation methodology and deployment track record.

- **Customer Focus**. While most companies claim to place their customers first, this often is more of a marketing slogan than a reality. In addition to indicators such as customer references and high investments in research and development, other indicators include a user-driven enhancement and update process. Customer-focused vendors demonstrate that customer needs—rather than a salesforce request to gain a new customer—are a major factor in determining additional product enhancements and capabilities. The customer-focused vendor also maintains formal problem-escalation procedures, ensuring that customer problems are formally tracked so that they can be quickly resolved—a good indication that the vendor is truly concerned with customer satisfaction.

- **Worldwide 24/7**. While your people in one office may go home for the evening, there's a good chance they may still be working remotely. Most global organizations use their BI technology on a "round the clock" basis—your vendor should be there to support them when needed.

- **Continued support for prior releases**. Many organizations don't implement new product releases as soon as they become available—it's important that your BI vendor support prior releases so you can implement newer releases according your own schedule.

- **New releases included in maintenance**. A vendor that includes new releases as part of its maintenance agreement is likely to be more cost-effective (and probably care more about its installed base) than a vendor who "nickels and dimes" its customers by charging for new functionality.

- **User training and education options**. A wide variety of training options makes it easier to accommodate the diverse schedules and training needs of an organization's personnel. If a vendor offers web-based training packages that can by customized to your organization's individual needs, consider it a plus. Look for training options that include onsite, training center, web-based, and CD-based self-study.

VENDOR ECOSYSTEM

When selecting your BI vendor, consider not only the services available directly from the vendor, but also the extent of the vendor's network of consulting and training partners, the availability of employees with skills in the BI technology, and the number and reputation of other companies that are using the products. The greater the extent of this ecosystem, the more likely you are to be able to find extra project resources when needed—and the more likely it is the vendor will remain a leader in the future.

- **Partnerships (systems integrators, hardware, complementary software vendors)**. A vendor with strong and meaningful partnerships provides your organization with a broad range of third-party resources that it can draw to meet its specific implementation or platform needs. A company often can be judged by the partnerships it keeps—the presence of well-known and respected vendor partners indicates the vendor's market presence and industry acceptance. A vendor that actively encourages partnerships will likely be able to integrate its technology with your current and future software environments.

- **Active user groups.** While many vendors have user conferences, those that actively encourage the formation of user groups provide a strong vehicle for users to exchange ideas and work together to solve common issues. Although some vendors discourage user groups and even view them as a threat, a vendor that encourages and supports user-group organizations tends to view its customers as business partners rather than just a revenue source.

- **Integration with competitive products from other vendors**. Even if your vendor offers products of its own, it should be able to integrate with the competitive technologies your organization has already invested in. For example, if your vendor offers its own data quality or data integration technology, it should be able to leverage products from Trillium or Informatica if your organization has already invested in one of these.

- **Support for your operational systems**. Choose your BI standard from a vendor who has good partnerships with your existing strategic suppliers such as Microsoft, SAP, Oracle, IBM, or PeopleSoft. Some vendors certify BI products for use with their applications—if so, check to see if your BI solution has been certified.

- **Availability and cost of experienced personnel**. If you need to hire additional employees, choosing a BI platform from a market-leading vendor makes it easier to find experienced personnel without having to pay a premium for their services.

COST-EFFECTIVENESS

As your resources aren't unlimited, you will want to examine the cost-effectiveness and ROI of your BI technology. Many factors are involved, including:

- **Initial acquisition**. While only one component of the overall cost, a high initial acquisition cost can eliminate a vendor from consideration unless the vendor offers options that reduce your initial cash flow. However, before you consider eliminating a vendor due to initial acquisition costs, make sure you look at the potential long-term cost savings and investment returns—which might outweigh those of a less costly, but inferior, solution.

- **Discounted or included development and testing licenses**. Some vendors require you to acquire additional full-cost licenses for development and testing while others discount them substantially. Make sure that any discounted development and testing licenses also include product support and maintenance.

- **Multiple licensing options**. Multiple licensing options allow you to deploy your BI technology in a cost-effective manner that best conforms to your organization's needs. Options to consider include concurrent or named-user, CPU or server-based, and enterprise licenses. Try to negotiate a contract that lets you change your licensing options if another option becomes more attractive as your usage grows.

- **Deployment options—onsite and on-demand (SaaS)**. On-demand deployments provide a method to utilize BI technology while minimizing upfront investments and ongoing maintenance costs. This can be especially attractive to SMB organizations with limited IT hardware and personnel infrastructure.

- **Frequency of product and platform updates**. Vendors that invest in their technology will continue to evolve their products with product enhancements and new functionality. These updates should occur frequently enough to meet the needs of its installed base—but not so often that the updates disrupt both IT and the user community.

- **Ongoing maintenance costs**. Yearly maintenance fees should be reasonable relative to the initial licensing fees—if they are too high, your organization could be in the position of effectively repurchasing the product every year or two!

- **New releases backward-compatible with prior releases**. When a vendor releases a new release of its product, it should be compatible with the applications and reports you've already developed, in order to minimize, if not eliminate, any migration efforts. In situations where this isn't possible, the vendor should offer migration software and conversion assistance.

CONCLUSION

In order to improve the overall effectiveness and competitive position of your organization, it needs to make the right decisions at the right times. Management and staff have to make the best possible decisions based upon the data available to them. They should be able to access and integrate organizational data regardless of its structure and its source. If their ability to analyze this data and transform it into useful information is improved, the effectiveness of their decisions will improve as well. The use of BI software offers a way for your organization to integrate its data, build a trustworthy foundation, establish a single version of the truth, improve decision-making capabilities, and measure and review its enterprise performance.

However, one of the first decisions you must make is what BI software to deploy. To make a sound and intelligent business intelligence choice, it may be helpful for you to evaluate it against the four main sets of criteria discussed in this white paper—functional capabilities, infrastructure, vendor criteria, and cost-effectiveness.

Ideally, you're looking for a cost-effective, fully integrated, BI platform with a strong set of easy-to-use features and functions that will meet both today's needs and those that may arise in the future. Of course, you want to acquire this from a market-leading, financially strong vendor with a well-earned reputation of placing the customer first. The purpose of this white paper is to offer guidance in your evaluation and help your organization make the best choice for the BI platform that will become its standard. For further information on the benefits of BI standardization, please see the companion white paper entitled "Reduced Costs Through Business Intelligence Standardization."[3]

Remember—while BI is concerned with delivering the right data to the right people at the right time and turning it into useful and meaningful information in order to enhance the organization's decision-making capabilities, it is important that the vendor you choose, and the technology it offers, be there for you tomorrow as well as today.

[3] Business Objects, 2004. Available at
http://www.businessobjects.com/solutions/enterprise_solutions/bistandardization/default.asp

ABOUT MAS STRATEGIES

Michael A. Schiff is the founder and principal analyst of MAS Strategies. MAS Strategies specializes in helping vendors market and position their business intelligence and data warehousing products in today's highly competitive market. He has over 30 years of experience in the information technology industry.

Michael was the vice president of the data warehousing and business intelligence service at Current Analysis, Inc., an industry analyst firm where he provided tactical market intelligence and analysis while managing the company's E-Business analyst team. He was the executive director, Data Warehousing and Advanced Decision Support, for Oracle Corporation's Public Sector Group, and director of Software AG's Data Management program. In 1984, while at Digital Equipment Corporation, he formulated the architecture for one of the first successful data warehouse implementations. In previous positions as IT director and systems and programming manager, he acquired practical, first-hand knowledge of the technical, business, and political realities that must be addressed for any successful systems implementation or product launch.

Michael earned his Bachelor and Master of Science degrees from MIT's Sloan School of Management, where he specialized in operations research as an undergraduate, and in information systems as a graduate.

For further information about MAS Strategies, visit its website at mas-strategies.com.

ABOUT BUSINESS OBJECTS

Business Objects has been a pioneer in business intelligence (BI) since the dawn of the category. Today, as the world's leading BI software company, Business Objects transforms the way the world works through intelligent information. The company helps illuminate understanding and decision-making at more than 44,000 organizations around the globe. Through a combination of innovative technology, global consulting and education services, and the industry's strongest and most diverse partner network, Business Objects enables companies of all sizes to make transformative business decisions based on intelligent, accurate, and timely information.

Business Objects has dual headquarters in San Jose, Calif., and Paris, France. The company's stock is traded on both the Nasdaq (BOBJ) and Euronext Paris (ISIN: FR0004026250 - BOB) stock exchanges. More information about Business Objects can be found at businessobjects.com.

To request a personalized demonstration of our solutions or a response to your Request for Information (RFI), please visit businessobjects.com/rfi.

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