

# Business Intelligence Solutions

## Market Trends

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### Preview

Business intelligence (BI) is a combination of the tools and systems involved in an enterprise's strategic planning that aid in its analysis. These solutions provide a single source through which to analyze a company's disparate data sources, permitting users to execute queries without the assistance of technical staff. Over the past several years, they have evolved from narrowly focused query and reporting tools to comprehensive, enterprise-wide platforms. This report analyzes the current market, identifies the key players and trends, and provides guidance to organizations that are evaluating BI solutions.

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### Executive Summary

Business Intelligence (BI) systems are used to improve an enterprise's decision making by combining tools for gathering, storing, accessing, and analyzing business data. The resulting single source offers not only current, but also historical and predictive views of operations.

Sometimes referred to as decision-support software, BI applications analyze patterns in sales, trends, pricing, and customer behavior to assist in the business decision-making process. The expanded use of data warehouses, e-commerce tools, CRM packages, and other enterprise software has created a proportional need to easily view and use the information stored within these systems.

The continued evolution of this software genre encompasses new trends and ongoing acquisitions that represent a major market consolidation. The major players in the sector range from a dwindling supply of pure-play vendors to enterprise software suppliers that include IBM, Microsoft, Oracle, and SAP.

### Market Dynamics

While applicable to organizations of any size, business intelligence solutions are most relevant to industries with large numbers of customers, high levels of competition (with the resultant need for differentiation), and large volumes of data. Common business intelligence functions include, but are not limited to, the following:

- Analyzing sales trends.
- Tracking customer buying habits.
- Managing finances.
- Evaluating sales and marketing campaign effectiveness.

- Predicting market demand.
- Analyzing vendor relationships.
- Assessing staffing needs and performance.

Non-traditional market segments are also driving the need for enterprise-wide, cross-application business intelligence solutions. The healthcare industry in particular is a key area of focus for software developers. Rather than tracking customer buying habits and other factors that are part of business intelligence for the corporate world, products used within the healthcare sector analyze data on drug studies, enable data on patients to be exchanged in accord with HIPAA privacy regulations, and let patients schedule procedures through self-service modules built into the software. Functions that are not industry-specific, such as managing finances, are performed as well.

Within government agencies, business intelligence software tracks tax revenues and monitors the delivery of public services. For instance, Information Builders reports that NASA's Shuttle Business Office uses the company's solutions to oversee its relationships with the third-party contractors it employs. Prospective users of business intelligence solutions today show a preference for suites that address all business intelligence functions across an organization. Solution providers have responded to this trend by further developing their own software and by executing mergers with one-time rivals.

The significant efforts that leading software companies are making to expand their business intelligence lines, both organically through in-house development and "artificially" through acquisitions, suggests that they see strong demand for the technology. The outcome of these changes is taking shape as a market dominated by companies with complete business intelligence suites. Developers that specialize in a narrow sub-category, such as reporting tools, will likely find themselves squeezed out of many sales opportunities or will be acquired by larger players that are looking to broaden their own suites.

Growth of the business intelligence market has slowed somewhat from previous years, but it continues nonetheless. Estimates of its size vary widely, with some sources placing the size of the BI market at about \$10 billion. Analyst firm Gartner forecasts a continued growth rate in this market of 8.6 percent through 2011. BI ranked high in the plans of many organizations in recent years, and it is reasonable to expect this to continue. Additionally, according to *InformationWeek*, BI success correlates with maturity and breadth of deployment. That publication released the results of a survey in September 2008 in which it polled 358 business technology professionals. More than a fourth of respondents said they centralized BI planning and standardized practices, capabilities, and technologies, but 48 percent reported that their companies were just starting to centralize and standardize BI, and 20 percent responded that their companies have decentralized deployments.

## Market Leaders

As with other aspects of the technology industry, the business intelligence market has long been segmented into two major parts: standalone solutions and products that are part of larger, enterprise suites. However, that is changing as enterprise vendors acquire the standalone ones. In the past couple of years, SAP acquired Business Objects, IBM acquired Cognos, and Oracle acquired Hyperion.

### IBM Cognos

Cognos, around since the 1970s, entered the BI market in the 1990s. In late 2005, Cognos re-architected its BI product and released Cognos 8 BI. The product includes reporting, analysis, scorecarding, dashboards, business event management, data integration, and a strong searching feature. Cognos acquired Applix, a well known vendor of performance analytics, in October 2007. Cognos itself was acquired by IBM in early 2008, allowing IBM its entry into the BI market. IBM stated that the acquisition took place in order to "accelerate its 'Information on Demand' strategy." Now known as IBM Cognos 8, the product was updated to v.8.4 in October 2008, now boasting a self-serve flash-based dashboard and

new mobile and search capabilities, as well as compatibility with devices including BlackBerry, Symbian, and Windows Mobile.

## Information Builders

Information Builders' BI product is called WebFOCUS. It uses Ajax technology, which combines asynchronous JavaScript and XML; WebFOCUS Power Painter uses this technology in a thin-client tool that allows developers to define reports, charts, and compound documents, which are accessible and customizable by other users. The product's Active Reports feature allows the building of interactive reports by remote users without direct access to the WebFOCUS system. Additionally, the platform's mobile capabilities allow remote users data access from such devices as smart phones and PDAs. IWebFOCUS FLEX Enable, released in early 2008, uses Adobe Flex technology to incorporate interactive features, such as animation, into BI dashboards, which Information Builders calls "Flashboards." The company states that the product will work with any current or future version of WebFOCUS. In October 2008 the vendor introduced WebFOCUS InfoAssist, an ad hoc reporting solution built on AJAX technology with a Microsoft Office-like user interface.

## Microsoft

Microsoft's BI product line comprises its database, SQL Server, itself comprising SQL Server Reporting Services, Analysis Services, and Report Builder; Excel, which has long been used in the BI arena; Microsoft Office SharePoint Server 2007; and Office PerformancePoint Server 2007. SQL Server includes key capabilities for large-scale data warehousing and richer information delivery through Microsoft Office. Office SharePoint Server, released in January 2007 as part of Microsoft Office 2007, is a collaboration and content management server that supports all intranet, extranet, and Web applications across an enterprise. Office PerformancePoint Server 2007 is an integrated performance management application that utilizes scorecards, dashboards, and Microsoft Office 2007.

In April 2008 Microsoft announced the completion of its acquisition of Fast Search & Transfer ASA, a provider of enterprise search solutions. Fast calls its solution "business intelligence built on search (BIBOS)," and the company will now operate as a Microsoft subsidiary, stating as its goal the "future delivery of a single enterprise search platform." Also relevant is Microsoft's July 2008 acquisition of DATAlegro Inc., a provider of data warehouse appliances.

## MicroStrategy

Founded in 1989, MicroStrategy's latest BI release is MicroStrategy 9, released in March 2009. The product includes adaptive caching technology called In-memory ROLAP, which utilizes large addressable memory and provides a middle-tier database that can respond directly to data requests from reports, dashboards, and OLAP analyses. Additionally, the MicroStrategy 9 offers SQL generation optimizations to improve performance for queries involving complex metrics.

MicroStrategy prides the new release's suitability for smaller-scale BI systems for departments. The vendor states that departmental BI applications can be quickly set up and users need little to no IT support in creating reports and dashboards and in distributing information among themselves. Further, the product allows easily merging departmental BI applications with into an enterprise-wide application.

## Oracle

Oracle's BI focus is based on its Business Intelligence Suite. This product line comprises Oracle BI Suite Enterprise Edition Plus, Oracle BI Standard Edition One, and Oracle BI Standard Edition. The Oracle BI product line integrates the Oracle database with Fusion middleware and analytics software and also includes analytics software originally from Siebel Systems, another Oracle acquisition. The product family works with both Oracle and non-Oracle environments. Oracle took another step in the direction of BI supremacy with the acquisition in March 2007 of Hyperion System 9 BI+. This product, originally called Hyperion Essbase (derived from Extended Spreadsheet database), was developed by Arbor Software,

which Hyperion acquired in 1998. Oracle has now renamed it Essbase once again. The product includes reporting capabilities, dashboards, and an analysis feature that also can be used in Microsoft Excel. Additionally, it combines its BI functionality with financial applications, making it more of a Business Process Management (BPM) system than “just” BI.

## SAP

Business Objects was acquired by SAP in a “friendly takeover” completed in 2008. At its completion, SAP announced the release of nine packages, combining solutions from both companies in various groupings that are being sold by the sales departments of both companies as well. The packages fall into three categories: performance optimization applications, including Financial Performance Management (FPM) and Governance, Risk, and Compliance (GRC); business intelligence platform packages that include Visualization and Reporting, Enterprise Query, Reporting, and Analysis, Data Integration and Data Quality Management, and Master Data Services; and packages geared to small and midsized companies, including SAP Business All-in-One with BusinessObjects Edge Standard, Crystal Reports Server, and BusinessObjects Edge Series, which now includes integration for SAP Solutions. However, even before its acquisition of Business Objects, SAP began to expand its BI capabilities via acquisition.

In February 2007 the vendor acquired Pilot Software, a privately held company specializing in strategy management software, and its flagship product, PilotWorks. SAP has integrated PilotWorks with its own applications. Additionally, the company continues to market another BI product line. SAP's Business Intelligence software package is a component of the company's NetWeaver platform, which also includes an enterprise portal, tools for integrating SAP software with barcode readers and Bluetooth devices, and data management software, as well as tools for custom application development. The Business Intelligence component offers a full line of extraction, analysis, and reporting tools with the capability to publish information to an intranet portal or mobile device.

## SAS

The vendor's solution, called SAS Enterprise BI Server, includes both BI tools and a BI architecture. Its features include Web and desktop reporting interfaces, self-service query interfaces, a Web-based interface, OLAP data storage, and a suite of graphic data presentation options, and a centralized management framework. Additionally, the vendor offers a variety of specific industry solutions, including three geared for financial services, two aimed at manufacturing, three intended for retail, and two for telecommunications.

In April 2007 SAS announced its Visual BI software that allows the creation of what the vendor calls “data movies” by manipulating a motion-enabled, graphical environment. The product includes a graphics library for presentations and customizable graphics generation accessible through a dashboard that displays all content in a customizable environment. It is powered by SAS' JMP statistical discovery software. JMP, developed by SAS in-house, can dynamically link statistics with graphics on the desktop, allowing what the vendor bills as interactive data exploration.

## Market Trends

### Consolidation

Probably the biggest trend in BI right now is the market consolidation that happens when enterprise vendors acquire best-of-breed, smaller vendors. An example of what is sometimes called Big Fish-Little Fish, whereby large companies gobble up smaller ones, only to be gobbled up themselves by even larger companies, began in late 2007 when Cognos acquired performance analytics firm Applix, and then was itself acquired by IBM several months later. IBM isn't alone; many of the major enterprise vendors have been busy acquiring smaller ones to increase their BI portfolio. Microsoft, Oracle, and SAP all have acquired former best-of-breed BI vendors as well. Analyst firm Gartner stated that in less than one year,

those three vendors—along with IBM—increased their market share from about 25 percent of the market to over two-thirds.

The trend to acquisitions is not a new one. It can be traced back over the years, but one of the first of major importance was when Business Objects acquired Crystal Decisions, a specialist in reporting tools, in December 2003. Likewise, Hyperion acquired Brio to integrate the latter's reporting technology software into its own product suite.

Other activity of note included Business Objects' acquisition of Firstlogic and Hyperion's acquisition of Upstream Software. Many acquisitions occurred in 2006: Oracle acquired Siebel Systems, best known for its customer relationship management (CRM) products; Microsoft acquired ProClarity; and Business Objects acquired Firstlogic, Inc., a provider of enterprise data quality software, and Nsite, a "software-as-a-service" (SaaS) provider.

In 2007 the previously mentioned Cognos and Applix acquisition happened, SAP acquired Pilot Software, and Oracle continued its buying frenzy by acquiring a major BI vendor, Hyperion Solutions. In 2008 SAP acquired Business Objects, IBM acquired Cognos, and Microsoft acquired Fast Search & Transfer ASA and DATAlegro.

## Software as a Service

Often referred to by the acronym "SaaS," this software application delivery model was previously called "hosting." A vendor offers an application for use by customers over the Internet, and charges customers for its use, precluding the need for them to buy a similar application. Most BI vendors—particularly those courting the mid-size market—now support some type of on demand service. For example, Business Objects, now an SAP company, specifically acquired a SaaS provider, Nsite, in November 2006 in order to offer a stronger on-demand service.

In 2007 Microsoft introduced its idea of "software plus services," defined as a blended model that includes desktop software, the Internet, and data and applications on servers that can be delivered as services. Microsoft's point is to ensure that its Office suite can be used as a front end to other SaaS applications. In spite of the trend of major vendors to offer their own SaaS solutions, interest continues in business intelligence and data warehousing services offered through third-party ASPs. Hosted services are particularly attractive to small and mid-size firms, who were traditionally shut out of the business intelligence market, since data-analysis capabilities can be delivered without the time and cost associated with client-based implementations.

## Search Functionality

Vendors have begun adding to their BI products the ability to search throughout corporate data sources, including financial and operational reports, by anyone within an organization. Cognos, now owned by IBM, first added its own search capability, called Cognos Go! Search Service; shortly thereafter, the vendor announced an alliance with Google, where searching was made even easier via Google technology.

Additionally, even before its acquisition, another alliance with IBM allowed users of Cognos Go! Search Service and those of WebSphere Information Integrator OmniFind Edition (a key component of the IBM WebSphere Content Discovery platform) to locate and analyze information by including Cognos BI information as part of IBM enterprise search results.

In addition, Information Builders also announced an Intelligent Search capability that uses its subsidiary IWay's connectivity capability to link WebFOCUS with Google's Search Appliance. Microsoft joined in on the belief in the importance of enterprise searching capabilities. In 2008 Microsoft acquired Fast Search & Transfer ASA, a provider of enterprise search solutions. The company, which now operates as a Microsoft subsidiary, refers to the solution as "business intelligence built on search (BIBOS)."

## Dashboards

Dashboards, which have fallen in and out of favor several times in the information technology world over the past 15 years or so, are another trend to impact the BI market. These snapshots of data, resplendent with graphs, charts, and gauges, have changed since the days when they were intended for executive use only and the information they presented was static. Now they are quickly created, with no programming expertise necessary.

Data is updated in real time, delivered to workers throughout the enterprise who can then drill down and analyze metrics as needed. Furthermore, today's dashboards are laden with drag-and-drop personalization features that assure pertinence to anyone's role. Virtually all of the standalone BI vendors offer some dashboard capabilities as part of their product suites, and an entire industry of add-on dashboard software products has sprung up as well.

## Business Activity Monitoring

Similar in some respects to dashboards because it also captures data and process events, Business Activity Monitoring (BAM) allows the real-time monitoring of business processes. It compares and combines them into business metrics. Then it displays the real-time status of those metrics. An enterprise solution primarily intended for use by operations managers and upper management. BAM is being integrated into many of the top BI packages.

## Mobile Access

Some companies are building wireless access and alerting into their products in order to allow the growing numbers of mobile workers to keep abreast of critical business issues from their handheld devices. BusinessObjects Mobile, for example, allows viewing and manipulating reports from BusinessObjects XI via mobile devices such as Blackberry or Windows Mobile. Cognos Go! Mobile offers wireless access to Cognos BI data via a mobile client. SAP's offering includes the capability to publish information to an intranet portal or mobile device. And Microsoft is touting mobile device support to its BI products by third parties.

## Enterprise Information Portals

Increasingly, information from disparate and disconnected systems is being accumulated and presented through enterprise portals, which are accessible via ordinary desktop browsers. A portal can provide decision makers with a real-time, customized view of the business, thereby providing the ability to manage key processes. Delivery over a Web interface improves ease-of-use, which is a significant decision criterion for organizations that are evaluating business intelligence solutions.

# Strategic Planning Implications

In many cases, organizations considering the implementation of a business intelligence solution will already have in place a business intelligence platform, such as an Oracle database. Adding business intelligence capabilities to an existing platform could significantly minimize learning curves, implementation difficulties, and costs. The alternative would be to patch-on a third-party product.

Enterprise-wide solutions from database vendors are not the best option in all situations, however, and other considerations weigh in favor of the best-of-breed approach. For example, BI vendors are looking to expand into smaller and mid-sized businesses (SMB); for this segment, a standalone BI product, rather than an enterprise solution, is probably a smarter choice. In theory, a business intelligence tool with complex analytic and reporting tools offers the most value to an organization; in practice, however, an application with a narrowly defined set of functions may prove the most beneficial. Business intelligence tools can be narrowly defined by focusing on only one area of decision-making, such as product

development, or by being delivered to a limited group of users as opposed to an entire organization. Although the prevailing trend is toward solutions that provide access to business intelligence information across an entire enterprise, to executive and end-users alike, department-level solutions remain a viable option in many circumstances.

Business intelligence solutions aim to reduce the confusion produced by maintaining data in disparate systems across multiple departments. Often the tools only add to the confusion, however, creating an additional layer of complexity for users. As a result, solution providers are spending significant development resources to ensure that their tools can deliver effective printed reports and can integrate well with common applications such as Microsoft Excel. Ultimately, the primary consideration in selecting a business intelligence solution is whether it will provide information that is useful in making strategic decisions; information will be useful only to the extent that it can be easily and quickly accessed.

## Web Links

DATAlegro: <http://www.datallegro.com/>

IBM Cognos: <http://www.cognos.com/>

Information Builders: <http://www.informationbuilders.com/>

Microsoft: <http://www.microsoft.com/>

MicroStrategy: <http://www.microstrategy.com/>

Oracle: <http://www.oracle.com/>

SAP: <http://www.sap.com/>

SAS: <http://www.sas.com/>