
The Business Intelligence Market

Business Intelligence and Its Market Segments Defined

The Business Intelligence Market

Business Intelligence and Its Market Segments Defined

Business intelligence allows people at all levels of an organization to access, interact with, and analyze data to manage the business, improve performance, discover opportunities, and operate efficiently. It is not a technology you implement and then put in maintenance mode; it is an approach and set of technologies that are continuously evolving and adapting as the business climate changes, the users discover new opportunities to leverage information, and the industry innovates. Given the tough economic conditions, companies are increasingly leveraging business intelligence to identify cost saving opportunities and to improve services and products as a way of beating the competition. When you implement business intelligence tools, the focus of the project is not to finish, but rather, to deliver a certain amount of value and functionality within a predefined period.

There was a time when the BI tools market was synonymous with query and reporting. Then OLAP arrived on the scene in the mid 1990s and analytic applications in the late 1990s (they've both been around longer but called something different). Dashboards, in-memory analytics, and advanced visualization and discovery seem to be the latest buzz. Meanwhile, a number of related technologies such as data warehousing and enterprise information management are now also referred to as BI technologies. Such technologies certainly provide the "plumbing" for business intelligence, but sometimes these semantics only confuse the industry as to what technologies we are discussing! Thus, the front-end components that business users interact with are now generally referred to as BI **tools** or BI **platforms**. If you are evaluating vendor products, it is important to understand which functionality you are looking for and whether or not the vendor has a solution in that space.

The following are segments within the BI market. If you analyze BI market shares, keep in mind that analysts will isolate and/or combine these segments differently. For each segment, the tables list BI vendors currently covered by BIScorecard® and their respective solutions. The tables are not representative of which vendors are leaders in any one segment, but rather allow you to compare vendor offerings across the segments. Note also that BIScorecard® focuses on vendors that provide a complete BI suite or address the full spectrum of users' information and analysis needs. In this respect, there may be a vendor who is a leader in one segment but that does not appear in a segment table, because the vendor does not offer a complete BI solution.

This report lists software modules only and does not comment on strengths and weaknesses of the modules. For a review of the products and a side-by-side comparison, refer to the BIScorecard® Strategic and Product Summary.

Query and Reporting

Query and reporting is the process of querying a data source, then formatting it to create a report, either a production-style report, such as an invoice, or a management-style report. These two market segments go by many names, creating a fair amount of customer confusion.

The needs within production reporting are often different than the needs within business query and reporting. Yet sometimes, the needs blur and the lines cross ... and just as you can use a hammer to get a screw into the wall, you can use a production reporting tool for management reporting. The converse, however, is not true; rarely can you use a business query and reporting tool to develop production reports. A business query tool may not support pixel-perfect layouts, normalized data sources, or programmability that IT developers demand.

With business query and reporting, the data source is more often a data warehouse or data mart (though not always). Whereas IT develops production reports, power users and casual business users develop their own reports with business query tools. The following table compares some additional characteristics that help distinguish production-style reports from business-style reports. These characteristics are by no means absolutes. Neither of these segments is precise. Production reports are not necessarily pixel-perfect, although some are. Reports generated with business query tools can be used individually, departmentally or enterprise-wide.

Characteristic	Production	Business Query & Reporting
Primary author	IT Developer	Power user or business user
Purpose	Document preparation	Decision-making
Report delivery	Paper or e-bill, embedded in an application	Portal, spreadsheet, email
Print quality	Pixel-perfect	Presentation quality
User base	10s of 1000s	100s or 1000s
Data source	OLTP – real time	Data warehouse or mart, occasionally OLTP
Level of data detail	Granular	Aggregated
Scope	Operational	Tactical, strategic
Usage	Often embedded within an OLTP application	BI as a separate application

The characteristics and authors of these two types of queries and reports are distinct. Yet must they be distinct tools? Cognos was the first vendor to launch one product that serves both production style reporting and business query and reporting: ReportNet, launched in September 2003. In reality, though, there are two interfaces within ReportNet and Cognos 8 that fulfill the distinct user needs (Report Studio and Query Studio). MicroStrategy launched Report Services in December 2003. While it can create pixel perfect reporting, rarely is MicroStrategy deployed against an On-line Transaction Processing (OLTP) system. In this respect, I suspect it will be used to create presentation quality documents for management purposes but not for operational purposes. Crystal Reports is one of those products whose sweet spot is production reporting, yet it can also be used for business-style reports that IT develops. Microsoft Reporting Services also has two interfaces – Report Designer within Visual Studio and Report Builder. The report output

and definition created for either is the same, but each interface serves distinct authoring requirements for sophisticated versus casual users.

Production Reporting

Production reporting typically involves querying an OLTP database, then formatting it to create a document, perhaps an invoice, a bank statement, a check, or a list of open orders. When the reporting is not against the transaction system, it may be against an operational data store or detailed data within a data warehouse. Often, production style reporting is done via custom programming as the information needs and report layout may rarely change. One of the challenges with vendors who focus exclusively on production reporting is that users may never know they are using a BI tool; the product is so embedded within the OLTP application that there is little brand awareness for the BI tool. Other key players in this market segment include Actuate and inetSoft.

Vendor	Product
Business Objects, an SAP Company	Crystal Reports (acquired in 2003 from Crystal Decisions) SAP Business Explorer (BEx) Report Designer will be replaced by Crystal Reports
Cognos, an IBM Company	Cognos 8 Report Studio
MicroStrategy	Report Services (launched in 2003)
Microsoft	Reporting Services Report Designer interface within Visual Studio (launched in 2004)
Information Builders	Web Focus Developer Studio
Oracle	Oracle Publisher is the lead product, however Oracle is providing lifetime support for legacy reporting tools that include: Reports for Standard BI Hyperion Production Reporting (SQR)
SAS	NA, although you can write SAS code to create a highly formatted report

Business Query and Reporting

Business query and reporting tools are intended for users who want to author their own reports. These users are less concerned with the precise layout (since they aren't trying to generate an invoice) but do want charts and tables quickly and intuitively. The formatting capabilities vary dramatically in this segment. Tools in this segment are also referred to as "ad hoc" query tools, but often the reports created by business users become standard reports and are not exclusively used for ad hoc business questions.

Vendor	Product
Business Objects, an SAP company	Web Intelligence for Web-based authoring SAP Business Explorer (BEx) Web will be replaced by a combination of Web Intelligence and Pioneer, a future release of Voyager.
Cognos, an IBM company	Cognos 8 Query Studio
MicroStrategy	Desktop for desktop authoring Web for Web-based authoring
Microsoft	Report Builder Smart Client new in SS 2005 ProClarity for Analysis Services data
Information Builders	Web Focus – Analytical Reporter , soon to be replaced by InfoAssist

Oracle	Oracle Answers (from Siebel Analytics acquisition), a Web-based interface within Oracle BI Enterprise Edition; both Discoverer and Hyperion Interactive Reporting (formerly Brio) will continue to be supported but are not the lead products
SAS	Web Report Studio

On Line Analytical Processing (OLAP)

OLAP and its architectures are defined in more depth in the OLAP criteria. Many BI vendors provide both query and reporting solutions as well as an OLAP tool. Some BI vendors provide it via one integrated product; others offer separate products. In its broadest definition, OLAP provides interactive, multidimensional analysis with different dimensions and different levels of detail. In evaluating OLAP tools, it's helpful to distinguish between platform issues and user interface issues. There are a few specialty vendors in this segment such as Panorama Novaview, and Paris Technologies PowerOLAP.

Vendor	OLAP Platform	Architecture	User Interfaces
Business Objects, an SAP Company	Web Intelligence SAP NetWeaver BI (InfoCubes)	DOLAP/ROLAP SAP BI Accelerator for in-memory OLAP	Web Intelligence Voyager
Cognos, an IBM Company	PowerPlay Server TM1 (acquired from Applix in 2007)	MOLAP PowerCubes and TM1, or ROLAP in Cognos 8	Analysis Studio Executive Viewer for TM1
MicroStrategy	Intelligence Server OLAP Services provides OLAP caching	ROLAP	Desktop Web
Microsoft	Analysis Services	MOLAP, HOLAP, ROLAP	Excel Performance Point, Analysis capabilities based on ProClarity
Information Builders	NA		Web Focus Analytical Reporter can access 3 rd party OLAP, soon to be replaced by InfoAssist
Oracle	OLAP Option for the database Hyperion Essbase	OLAP Option is MOLAP stored in the RDBMS but that can be queried with SQL OBI EE is ROLAP Hyperion Essbase is primarily MOLAP but supports HOLAP	OLAP Option supports any SQL-based tools OBBI EE Answers Hyperion Web Analysis will be replaced with Answers in 2009
SAS	OLAP Server	MOLAP/HOLAP	Web Report Studio & Web OLAP Viewer

Dashboards

As web-based business query and OLAP tools have reached a reasonable level of maturity and adoption, dashboards have fast become the next major area of innovation and adoption. There are a number of niche dashboard vendors and new products from BI suite vendors.

According to industry visualization expert Stephen Few, President of Perceptual Edge, “a dashboard is a visual form of information display, which is used to monitor what’s currently going on in the business at a glance.” Any tool that can display multiple objects from multiple data sources, then, can correctly be referred to as a dashboard. For some vendors, a report can correctly be referred to as a dashboard, and for others, a portal may provide the dashboard capabilities. Better dashboard products, though, go well beyond these two basic criteria.

Ideally, users want to assemble their own dashboards with the information relevant to their job. Not all tools allow this, though, and may force IT to build dashboards in advance. For BIScorecard® to consider something a dashboard, it must enable information from multiple data sources, be highly visual, have a way of highlighting exceptions (traffic lighting or alerts), and have a degree of interactivity.

The following table lists dashboard-specific products. Keep in mind, however, that you may be able to use functionality within the core BI tool to build a basic dashboard. As well, specialty vendors such as QlikTech and iDashboards provide dashboard capabilities.

Vendor	Product
Business Objects	Xcelsius and Dashboard Builder
Cognos	Via documents in Report Studio, with Interactive Dashboards due in the next release
MicroStrategy	Dynamic Enterprise Dashboards (released March 2007)
Microsoft	Dashboard Designer, a rich client product that is part of PerformancePoint builds the dashboards that are deployed via portals in SharePoint.
Information Builders	Visual Discovery (OEM'd from Advizor Solutions)
Oracle	Oracle BI Interactive Dashboard s
SAS	BI Dashboard (released June 2007)

Analytic Applications

Henry Morris of IDC first coined the term “analytic applications” in the mid 1990s, clarifying how they are different from OLAP and BI tools in general. Analytic applications include the logic and processes to extract data from the source systems, a data model for a data mart, and pre-built reports and dashboards. Analytic applications provide businesses a pre-built solution to optimize a functional area (people management for example) or industry vertical (retail analytics, for example).

There are different types of analytic applications including customer, financial, supply chain, production, and human resources applications.

The nuances within analytic applications are greatly influenced by the buy versus build approach. When you “buy” an analytic application, you buy the data model and pre-built cubes or reports with functional metrics. These “buy” applications tell you what’s important, what you should be monitoring, and provide some of the technology to help you get to value faster. For example, with a general BI tool, you determine how and whether to calculate “average sale per store visit” and which reports you want it to appear in. With a pre-built analytic application, this and other metrics are provided for you. With “build” analytic applications, the development environment provides templates and engines that allow you to assemble applications, such as arcplan, IBM DB2 alphablox, or TIBCO Spotfire. There are also numerous niche vendors that provide analytic applications for specific industries or functional areas. One of the challenges for BI teams is when an analytic application introduces another BI tool they have to support, maintain, and customize and that users have to learn.

Vendor	Products	Approach
Business Objects, an SAP company	For buying, packaged applications such as Spend Analytics that include the underlying BI platform. For building, SAP provides best practices in the form of accelerators that are part of a services engagement.	Mix of build and buy
Cognos, an IBM company	For buying, Workforce Performance and Financial Performance Analytics	Buy, also publishes a framework for building called Performance Blueprints
MicroStrategy	Starter kits contain models and reports, but no ETL	Build
Microsoft	Business Solutions for Analytics	Buy
Information Builders	NA	Build
Oracle	Analytic Applications for which OBI EE is a prerequisite.	Buy
SAS	Solutions	Buy

Performance Management

Performance management applications include budgeting and planning and financial consolidation. There have been a number of major acquisitions in this segment as ERP vendors and BI vendors see greater growth opportunities here and believe BI and Performance Management are converging. On the customer buying side, the degree to which customers buy BI and performance management from the same vendor depends not only on product capabilities, but also on the degree to which the CFO and CIO cooperate. It's important to note that budgeting and planning does not apply to financial metrics only, but also to workforce, capital, and so on.

Vendor	Planning / Financial Reporting / Consolidation
Business Objects	Lead product for planning: SAP Business Planning and Consolidation (acquired by SAP from OutlookSoft in 2007) For consolidations: Business Objects Financial Consolidations (acquired from Cartesis in 2007) and SAP Business Planning and Consolidation (from OutlookSoft)
Cognos	Controller, Planning
MicroStrategy	NA
Microsoft	PerformancePoint, Planning capabilities
Information Builders	NA
Oracle	Hyperion Financial Manager, Hyperion Planning
SAS	SAS Financial Management

Scorecards

Whereas dashboards present multiple numbers in different ways, a scorecard focuses on a given metric and compares it to target. In analyzing performance versus the target, a scorecard may provide a root cause analysis and track accountability. Scorecard products are often certified by the [Balanced Scorecard Collaborative](#). Scorecards contain agreed-upon metrics or key performance indicators aligned with the company's strategy. These kinds of strategic scorecards are sometimes included as part of a total performance management solution and certain industry analysts will count scorecards as part of the performance management industry. Key performance indicators may also be an option within a dashboard product. While KPIs within a dashboard may provide a snapshot of a KPI, within strategic scorecards, the KPIs are at a higher level, allowing you to assign accountability and track root causes via strategy maps.

Vendor	Product
Business Objects, an SAP Company	Lead product: SAP Strategy Management (acquired from Pilot Software in 2007)
Cognos, an IBM Company	Metrics Studio
MicroStrategy	NA
Microsoft	PerformancePoint, monitoring capabilities (based on earlier Business Scorecard Manager)
Information Builders	Performance Management Framework
Oracle	Hyperion Performance Scorecard
SAS	Strategic Performance Management

Predictive Analytics and Data Mining

Data mining is a particular kind of analysis that reveals patterns in data using various algorithms. Whereas standard query and reporting tools require you to ask a specific question, a data mining tool will help users discover relationships or show patterns in a more exploratory fashion. Predictive analytics allow users to create a model, test the model based on actual data, and then project future results. Data mining is used in predictive analysis, fraud detection, customer segmentation, and market basket analysis. Although data mining is one segment of the BI market, it continues to be an application reserved for specialist users with SAS, SPSS, and Angoss leading the market. Each vendor has a different approach in where the analytics should be done. In the past, statisticians have largely extracted data from source systems and data warehouses to perform analyses outside of the BI environment. In 2008, SAS and Teradata entered into a joint technology agreement where more of the processing is pushed to the database. SPSS and Business Objects, meanwhile, entered an agreement where the Business Objects universe becomes a data source within SPSS Clementine, providing real-time data access.

In an effort to make BI more actionable, some BI vendors are incorporating data mining and predictive analytics into their BI suite. This does not mean that predictive analytics will become “mainstream”, but rather, that the results of such analysis can be readily incorporated into every day reports and decision-making.

Vendor	Product
Business Objects, an SAP Company	BusinessObjects Predictive Workbench (based on SPSS Clementine)
Cognos, an IBM Company	NA, although IBM offers Intelligent Miner for DB2 databases
MicroStrategy	Data Mining Services (clustering, association, linear regression embedded within. MicroStrategy 8); one of the few that can access predictive models using PMML created in 3 rd party data mining software.
Microsoft	SQL Server 2000 and 2005, decision trees and clustering. Data Mining add-ins in Excel 2007 leverage Analysis Services
Information Builders	Predictive Analysis (released Q3 2006)
Oracle	Data Mining option for the database or for Essbase
SAS	Enterprise Miner, plus stored processes exposed to Web Report Studio

Advanced Visualization and Discovery

Advanced visualizations are increasingly appearing in dashboard products from BI vendors, but for the most part, better capabilities exist in niche products. Advanced visualization and discovery tools often use an in-memory architecture to allow users to interact with the data in a highly visual, interactive way. The difference in these tools versus most dashboard products is usually in:

1. the degree of sophisticated analysis and visualization types such as small multiples, spark lines, heat maps, histograms, waterfall charts, bullet graphs, and so on.
2. adherence to best practices according to the visualization community
3. degree of interactivity and visual discovery versus creating a chart on a tabular data display

Key players in this market segment include:

- TIBCO Spotfire
- SAS JMP
- Tableau Software (which Oracle Hyperion OEMs as Visual Explorer)
- Advizor Solutions (which Information Builders OEMs)

While Business Objects Xcelsius and Dundas (of which Microsoft acquired some of the code base) both provide visualizations, they do not meet the three differentiating criteria listed above so are not listed in the following table.

Vendor	Product
Business Objects, an SAP Company	NA
Cognos, an IBM Company	NA
MicroStrategy	Advanced visualizations are available in Dynamic Enterprise Dashboards and allows users to create their own widgets
Microsoft	NA
Information Builders	Visual Discovery (OEM'd from Advizor Solutions)
Oracle	Visual Explorer (OEM'd from Tableau Software)
SAS	JMP