ANALYSIS IN BUSINESS INTELLIGENCE

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Abstract: *Business Intelligence is a unique platform that enables entities to uncover new insights and make faster, more informed business decisions by offering agile visual analytics and self-service discovery together with best-in-class enterprise analytics. Instant mobile, highly interactive dashboards, powerful operational reporting, just-in-time alerts, content and metadata search, strategy management, native access to Big Data sources, sophisticated in-memory computing, and streamlined systems management combine to make Business Intelligence a comprehensive solution that reduces the total cost of ownership and increases return on investment for the entire organization. This paper presents an analysis in Business Intelligence Software for three such solutions and the score obtained, showing at the same time product details, including modules, tools, options, plans, prices, and more (cloud).*
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1. Introduction
1.1. Oracle Business Intelligence

It is a complete, open, and architecturally unified business intelligence solution for the enterprise that delivers best-in-class capabilities for reporting, ad hoc query and analysis, OLAP, dashboards, and scorecards. All enterprise data sources—as well as metrics, calculations, definitions, and hierarchies—are managed in a Common Enterprise Information Model, providing users with accurate and consistent insight, regardless of where the information is consumed. Users can access and interact with information in multiple ways, including web-based dashboards, collaboration workspaces, search bars, mobile devices, and MS Office applications.

Business Intelligence architecture components include: presentation services, BI presentation server and catalog, BI server, BI repository, data sources.

Presentation Services include BI Analysis Editor and BI Dashboards are examples of end-user tools that provide access to business intelligence information via a web browser.

- BI Analysis Editor is a set of graphical tools used to build, view, and modify Oracle BI analyses. The analyses are queries against an organization's data.
- BI Dashboards is used to display the results of analyses that are embedded in the dashboard, and other items, such as links to saved analyses, links to websites, Active-X objects, HTML text, and links to documents. Dashboards are typically created by users with administrator permissions. However, dashboards are simple to create via the user-friendly BI interface. After dashboards are created, they can be shared by common groups of users or can be personal (not shared).

BI Presentation Server and Catalog - BI Presentation Server is an extension to an existing web server:

- It receives processing instructions from an BI Presentation Services end-user tool, retrieves the requested information from BI Server, and then renders the information inside the requesting tool.
- It uses the Presentation Catalog to store saved content such as analyses, dashboards, and other BI objects.

BI Server is the core server behind Business Intelligence. It is an optimized query engine that receives analytical requests, intelligently accesses multiple physical data sources, generates SQL to query data in the data sources, and then structures the results to satisfy the requests. It also handles requests from a variety of front ends, including Oracle BI applications as well as third-party tools. BI Server allows a single information request to query multiple data sources, providing information access to members of the enterprise and, in web-based applications, to suppliers, customers, prospects, or any authorized user with web access. BI Server serves as a portal to structured data that resides in one or more data sources: multiple data marts, the BI Data Warehouse, an enterprise data warehouse, an operational data store, transaction system databases, unstructured data, personal databases, and so on. Transparent to both end users and query tools, BI Server functions as the integrating component of a complex decision support system by acting as a layer of abstraction and unification over the underlying databases. This offers users a simplified query environment in which they can ask business questions that span information sources across the enterprise and beyond.

BI Repository - The BI repository stores the metadata used by BI Server - accessed and configured using the BI Administration Tool, which is used by administrators to: Import metadata from databases and other data sources; Simplify and reorganize the metadata into business models; Structure the business model for presentation to analysis and dashboard users

Data Sources contain the business data that users want to analyze. - Accessed by BI Server Can be in any format, such as: Relational databases; Online analytical processing (OLAP) databases; XML for Analysis (XMLA); Flat files; Spreadsheets.
Sample Analysis Processing, involves the following steps (figure 1):

1. User views a dashboard or submits an analysis.
2. BI Presentation Server makes a request to BI Server to retrieve the requested data.
3. Using the repository file, BI Server optimizes functions to request the data from the data sources.
4. BI Server receives the data from the data sources and processes it as necessary.
5. BI Server passes the data to BI Presentation Server.
6. BI Presentation Server formats the data and sends it to the Presentation Services end-user tool.
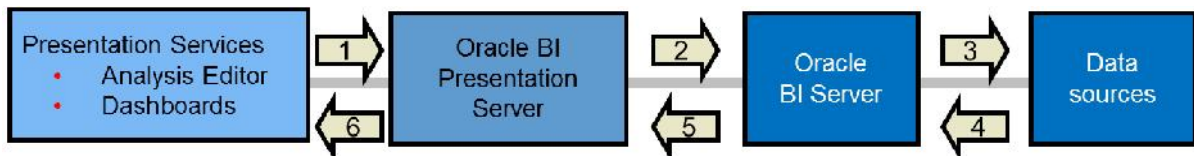

Figure 1. Analysis processing

Signing In to Presentation Services. Signing in to Presentation Services authenticates you as a user. When you sign in to Presentation Services, you are by default a member of the Authenticated User role. The permissions and privileges that you have are determined by your role.

Business Intelligence Analysis. An analysis is a query against an organization's data that provides answers to business questions. A query contains the underlying SQL statements that are issued to the BI Server. Analyses let you explore and interact with information by visually presenting data in tables, graphs, pivot tables, and so on. We can save, organize, and share the results of analyses. Analyses that we create can be saved in

the BI Presentation Catalog and integrated into any BI EE dashboard. Analyses can be enhanced through features such as graphs, result layout, calculated items, and drilling.

1.2. MicroStrategy

MicroStrategy develops outstanding business intelligence software application that allows companies to analyze internal and external business data in order to perform better-informed business decisions as well as to develop mobile apps. The company's proprietary software can be deployed as cloud services or the data centers of companies. MicroStrategy develops and provides business intelligence, cloud-based, and mobile software, services. The company's software does analytics on a wide range of data, including sales figures, payroll data, and inventory to help inform the business decisions of business users. Its social intelligence platform offers a good number of applications that can help enterprises effectively harness the power of major social networks for their marketing and e-commerce purposes, as well as a suite of free consumer apps that tap MicroStrategy's enterprise technologies.

The MicroStrategy Cloud platform combines MicroStrategy with third-party hardware, software, and services to allow cost-effective and rapid development of hosted business intelligence, mobile, and social applications. The MicroStrategy platform uses a single common metadata for consistency and streamlined maintenance. Metrics and attributes are created once and used across different types of reports. Changes are made in one place and all related reports are automatically updated. Similarly, security permissions are granted in one place, reducing administration costs.

2. Comparative study - Oracle BI vs. MicroStrategy

Business Intelligence Software is a class of computer applications that process and analyze corporate data to produce quality insights, and help understand the health of your business. BI software uses a variety of formulas and metrics to measure, compare, and relate business indicators, and makes it possible to distinguish the strengths and weaknesses of every company. The main functions of these systems are data discovery, data management, and reporting, but some of them also evaluate functionality and employees' performance.

The goal of business intelligence programs is to allow for the easy and deeper interpretation of large volumes of business data. Finding out opportunities to grow and adopting effective strategies based on these deep, analytical insights can provide businesses a huge competitive market edge over competitors, aside from long-term stability. In addition, business intelligence software programs can provide businesses historical, current, and predictive online views of various operations of their business.

Whatever the objective for using such a software solution, it is most efficient when it combines business data obtained from the market (known as external data) with the data considered internal to the operations, including financial (known as internal data). With its capacity to combine two extremely different data sets, the best Business Intelligence software can give you a more comprehensive overview of the business.

Business Intelligence Apps and systems are designed to analyze and transform big data into operable business intelligence, which is especially beneficial for large businesses with complex structure and organization. They need robust and well-integrated solutions that will reveal the whole picture of how their business is doing, in particular such that detect important trends and opportunities, and reveal risk on an early stage to help them avoid severe financial damage.

Business intelligence programs can be deployed in different ways. These include:

- ***On-premise deployment***: In-house product installation using equipment owned or leased by the company. The advantage is you are assured of data security.
- ***Cloud implementation***: Public cloud, private cloud, or a hybrid cloud. The benefits are we don't have to download any software, or worry about upgrades and maintenance.

Data Management Tools. Include the following features:

- *Data quality management* – Helps companies maintain clean, error-free, and standardized data. Standardization is essential for BI implementations that include data from multiple sources.
- *Extract, transform and load (ETL)* – Gathers data from outside sources, changes it, and then loads it into the target system (a warehouse or database).

Data Discovery Applications. Features include:

- *Data mining* – Sifts through vast amounts of data to identify new patterns.
- *Online analytical processing* (OLAP) – Enables users to speedily evaluate multidimensional data from various perspectives.
- *Predictive analytics* – Evaluates current and historical data to make forecasts about future opportunities and risks.
- *Semantic and text analytics* – Extracts and interprets huge volumes of text to spot patterns, sentiment, and relationships.

Reporting Tools. Features include:

- *Visualizations* – Helps users create sophisticated graphical representations of data using simple user interfaces.
- *Dashboards* – Dashboards highlight key performance indicators (KPIs) that help managers focus on important metrics.
- *Report writers* – Allows users to design and create custom reports.
- *Scorecarding* – Scorecards give a numerical weight to performance and help to map progress towards objectives.

Key Features of Business Intelligence Software. The most typical features of a business intelligence program include:

- Experimenting to look at previous decisions (A/B testing or multivariate testing)
- Forecasting future business results (predictive modeling or predictive analytics)
- Extrapolating business data to see new patterns and relationships (data mining)
- Explaining the causes why a result or outcome has happened (statistical analysis or quantitative analysis)

Business Intelligence solutions are generally defined with extensive functionality and capabilities. If you are considering purchasing a business intelligence software program for your company, consider the following features before buying one:
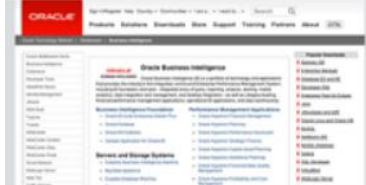
Data management: A major consideration when selecting business intelligence programs is to check how capable a tool is in giving complex business data relevant meaning and context for your business to understand the entire situation. It means the tool you should choose should be able to make the raw and unstructured business data "analytic-ready" with its data manipulation, extraction, query, as well as business logic features.

Reporting: When choosing business intelligence, check out their reporting features as claimed by the solution's vendor or provider. Can the tool really create and distribute business data in visually informative charts, tables, and in a specified or desired page layout. Check how the tool visualizes the business data. Features such as associative relationship displays, three dimensional images, and pivot-like, easy-to-configure interfaces should be some of the top considerations in your mind.

Architecture: If the business has a huge number of data sets that are at the same time complicated, you might consider buying a program that can effectively handle them

and scales to large numbers of data sets (tool support scalable methods for diverse and complex data sets). Check if the tool is designed using a single code base or if it offers solutions compiled from various products that are developed independently. Check if the tool has a quick development cycle, provides your business tightly integrated solutions, and offers amazing user experience.

Tabel nr. 1. Scores

Software	MicroStrategy	Oracle
Customer experience Total score		
Pricing	$600	By quote
Overview	MicroStrategy is committed to innovation, building on its core competence – Analytics. Put the ideal analytics platform to work for your business.	A business suite designed to provide users with the industry's first integrated, end-to-end Enterprise Performance Management System.
Vendor Email	info@microstrategy.com	oraclesales_us@oracle.com
Supported Integrations	Microsoft Office	No information available.
List of Features	• Advanced and predictive analytics • Business intelligence • Cloud • Easy to use and maintain • High-performance business intelligence • Self-service analytics • Big data solutions • Software as a service (SaaS) • Real-time WYSIWYG report design • Scorecards and dashboards • Agile analytics • Enterprise reporting • Mobile	• Business Intelligence Foundation • Performance Management Applications • Servers and Storage Systems • Data Warehousing • BI Applications • Performance Management Applications
Available Devices	Windows Linux Android iPhone/iPad Mac	Windows Linux Mac

Oracle BI provides businesses with timely and accurate information presented in very detailed and clever ways that allows users to run their operations smoothly and easily. Highly valuable data derived from meaningful analytics and delivered quickly allows businesses to create and deploy effective business strategies that would result to the accomplishment of their business goals.

3. Conclusions

If we want to have a easy way to learn which Business Intelligence Software product is better, our proprietary system gives Oracle BI a score of 8.9 and MicroStrategy a score of 8.0 for total quality and performance. Moreover, Oracle BI is rated at 98%, while MicroStrategy is rated 97% for their user satisfaction level. We can also examine their product details, including modules, tools, options, plans, prices, and more. See if the application allows you to customize at least part of its funnels to ensure the app fits the own business procedures.

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