BARC Score Enterprise BI and Analytics Platforms

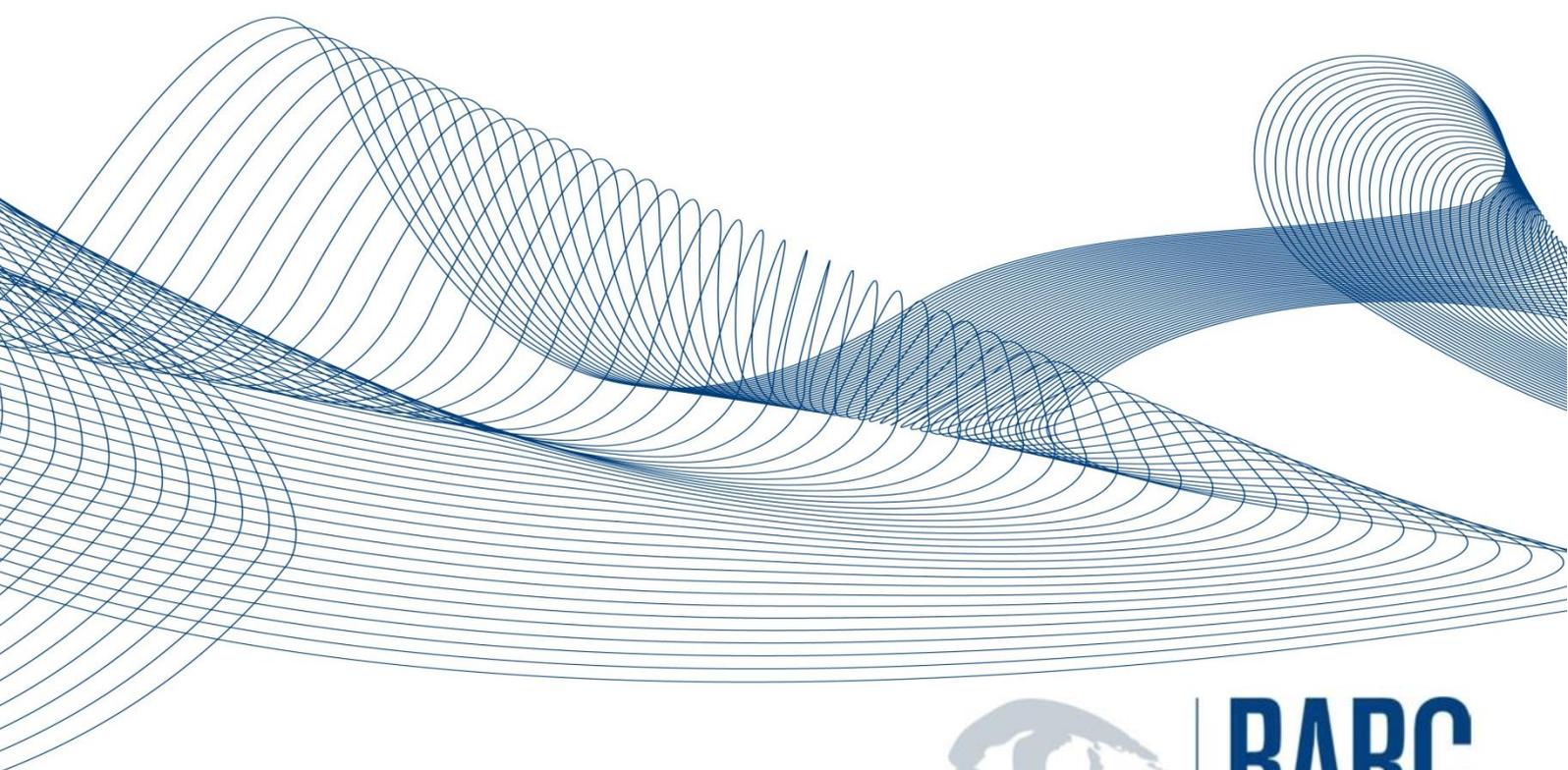Authors: Larissa Baier (Seidler), Christian Fuchs, Patrick Keller, Carsten Bange, Robert Tischler

Publication: July 16th, 2018

Abstract

This BARC document is the fourth edition of our BARC Score business intelligence vendor evaluation and ranking. This BARC Score evaluates enterprise BI and analytics platforms that are able to fulfill a broad set of BI requirements within the enterprise.

Based on countless data points from The BI Survey and many analyst interactions, vendors are rated on a variety of criteria, from product capabilities and architecture to sales and marketing strategy, financial performance and customer feedback.

Table of Contents

Overview

The market for business intelligence (BI) tools is highly competitive, with some large international incumbents, many successful vendors with a track record spanning decades, and countless smaller specialists with alternative and sometimes disruptive approaches to BI.

This report analyzes the strengths and challenges of the leading vendors that offer beneficial value to customers wanting to implement a 'modern' enterprise BI platform.

A modern enterprise BI and analytics platform is able to span traditional and explorative BI and analytics requirements both for standalone data and information applications but also when embedded in operational applications. With the increasing importance of data to not only support management decisions but also increase the efficiency and effectiveness of operational processes - as well as the growing number of products, services and business models being based on data - a modern enterprise BI platform is an indispensable backbone of any enterprise wanting to succeed in adapting to the digitalization of markets.

A modern enterprise BI and analytics platform has to support a broad range of use cases. Therefore, it should provide front-end tools for different types of users based on a suitable infrastructural foundation. The technical infrastructure includes data warehouses and data marts, data integration and data quality components, dictionaries, repositories and many other technologies.

Besides buying a modern enterprise BI and analytics platform, organizations should have a BI strategy that goes well beyond an architecture blueprint to include non-technical and emerging business user-oriented requirements, alignment with corporate strategy, organizational models, outcome-based priority settings and a proper roadmap.

Still, when it comes to kicking off or expanding a business intelligence program, the initial focus almost always lies on the required toolsets. While this may not be the ideal starting point, at some stage a platform or product decision has to be made. This document will help with the selection process by evaluating the most commonly used product sets from the major vendor community.

Inclusion Criteria

There are two separate inclusion criteria categories for this BARC Score: the first is associated with a vendor's products and the other is linked to the financial results relating to those products. To be evaluated in this BARC Score, a vendor has to have a strong focus on providing BI functionality and supply four out of six technologies from the following functional portfolio:

- Formatted and ad hoc reporting

- Dashboards

- Analysis

- Data mining

- Planning

- Self-service BI and data discovery

In addition, the vendor has to generate a minimum of 15 million EUR in license revenue per year with the above product set, spread across at least two separate geographies. Furthermore, the product set must have a significant number of implementations and license revenues across different geographies to be considered as global.

As individual geographies we consider:

- Europe, Middle East and Africa

- North America

- Latin America

- Asia/Pacific

Vendors with an open source business model are evaluated by their total revenue because they do not charge a license fee for their products, but an annual subscription fee.

Evaluation Criteria

Every vendor is evaluated on two dimensions, Portfolio Capabilities and Market Execution, each of which represents an axis on the Score chart and considers sub-criteria which are described in detail below.

Portfolio Capabilities

In this Score, vendors' portfolio capabilities were scored on three major areas:

- Functionality

- Infrastructure

- Portfolio

The weightings for each of the categories and sub-categories are shown in Table 1. Each of the sub-categories also have detailed weightings and criteria.

Category	Criteria	Weighting
Functional Evaluation	Reporting (formatted and ad hoc) Dashboards Analysis Data mining Planning Self-service BI and data discovery	50%
Infrastructure Evaluation	Systems architecture and administration Performance Access to data sources Metadata and semantics Governance and security Information delivery and deployment options	35%
Portfolio Evaluation	Portfolio integration Portfolio maturity Portfolio lifecycle	15%

Table 1: Portfolio Capabilities - Criteria and Weighting

Functional Evaluation

In our functional evaluation we included the following six functional sub-areas.

Reporting

Formatted standard reports are usually page-oriented reports run on regular schedules. These include static reports - which normally appeal to the widest audience in a company because they are simple to use - and prompted reports, which enable users to filter reports based on predefined parameters. Aside from pixel-perfect displays, which provide developers with precise control over how they place report objects and images on a screen, formatted reports also support rich printing options, dynamic page sizing and a WYSIWYG (what you see is what you get) development interface.

Virtually every BI product can provide some type of reports. The importance of page orientation, scheduling and other advanced reporting features, however, varies depending on the customer's requirements.

In many cases, users require more interactivity than they receive from formatted reports. Ad hoc reporting tools are geared to non-professional report developers and provide basic filtering and navigation features (e.g., drill down, ranking and conditional formatting).

Dashboards

Dashboards are also referred to as cockpits, scorecards or BI applications. They provide graphical views of key performance indicators and the ability to drill down to details. Some dashboards offer self-service functions so that end users can create their own layouts without any outside help. Others (especially BI applications with guided navigation) require support from technically savvy business users or programmers. Scorecards often incorporate strategy maps and applications to manage improvement initiatives.

Analysis

Data analysis solutions differ from basic reporting tools in that they are able to probe much more deeply into operational data and generate new information that can be understood and actioned upon by the business. Further analyses can be carried out using mathematical methods. Traditional online analytical processing (OLAP) tools provide dimensional (versus reporting) data views which make it easy for users to drill down, drill across and pivot dimensions as well as apply sophisticated calculations without scripting. Certain analysis tools also offer methods to support set-based, visual or discovery-oriented data analysis.

Data Mining

Data mining represents non-directed, hypothesis-free data analysis. Various algorithms scan the database searching for patterns used for a segmentation, classification or association of data. The methods cover statistical data analysis, neural networks, decision trees, time series and many other algorithms. Users must be well trained in order to use these methods and to gain the expected insights. Data mining tools often contain data integration and analysis process support functionality.

Planning

Planning describes the task of creating data with a future time reference. An essential software requirement here is to write back planning data from planning forms in the front end to a planning data model in a central database. The planning model consists of planning structures (master data), key figures and planning logic, and combines different operational and financial plans. Both the planning forms and planning model are created using a planning solution. The coordination of the various planning activities and planners involved is handled by process control functionality (workflow). Specific planning functionality (e.g., data allocation, simulation and comments) is provided for plan data entry.

Self-service BI and Data Discovery

Self-service BI and data discovery are major trends in bringing business intelligence to users in companies. A major benefit of these trends is the way they increase flexibility for 'data workers' and provide them with analysis capabilities to gain information from different data sources. However, in many companies, individual data processing, definition of KPIs and publication of individually defined (and layouted) reports and applications has led to a situation where trust in data has been lost and the replication of efforts in individual creation of applications and reports is blatantly inefficient. Therefore we evaluate each product's ability to combine the virtues of a strong software platform for secure, repeatable and broad data services with the provision of self-service and data discovery possibilities for users.

Infrastructure Evaluation

A modern enterprise BI platform must serve multiple usage scenarios and growing user numbers. Therefore it should be designed as an open and adaptable architecture based on micro services that run in different environments and are open for third parties to use or embed into other applications. In terms of infrastructure, we evaluate a broad range of technical criteria including architectural evaluation, openness and ability to integrate different data sources, as well as other technical features such as performance optimization techniques and security settings. We assess connectivity to data sources including standard RDBMS, Hadoop and NoSQL databases but also file formats and options for customers to build their own adapters if needed. In addition, technical features such as support for different platforms as well as overall solution performance and caching mechanisms are considered in this evaluation. The effort needed to maintain the system is considered as well.

Portfolio Evaluation

Here we evaluate each vendor's overall portfolio from a customer perspective. A business intelligence platform should have consistent user interfaces for publishing, consuming and interacting with data and reports. Consistency should not only apply to user interfaces but also to objects used to present and interact with data (e.g., tables and graphs) on a report/output level and to data (e.g., common semantic layer, joint data access standards, reusable objects).

The product's lifecycle and maturity are also assessed. Customers often complain about reliability and stability in early product releases. Early versions are rarely as functionally rich as mature products so they usually do not meet all their customers' functional requirements. And sometimes vendors offer mature products that are no longer being enhanced with innovative, new features. As a consequence they may not fulfill new and emerging requirements.

Criteria Weighting

We do not consider all categories and sub-categories to be equally important in this Score. Our weightings are based on BARC's own view of current user focus and buying patterns.

Market Execution

On the market execution axis, we rate the business intelligence vendors in this Score using the following criteria and their corresponding weighting (see Table 2).

Criteria	Weighting
Product Strategy	High
Customer Satisfaction	High
Financials	Medium
Geographical Coverage	Medium
Ecosystem	Medium
Sales Strategy	Medium
Organizational Strength	Low
Marketing Strategy	Low

Table 2: Market Execution - Criteria and weighting

Product Strategy

This is the most important of all the criteria. Vendors are rated on their product development track record, product roadmap and innovation, as well as the company portfolio's alignment with current market trends and demands.

Customer Satisfaction

In this year's Score we have included the 'Customer Satisfaction' KPI from The BI Survey. This generally considers product satisfaction, vendor support and implementer support ratings reported by customers.

Financials

This criterion covers the financial position of the vendor, from market capitalization, cash position and EBITDA to profitability, burn rate and investment rounds. For vendors that are private companies or do not break out the numbers for individual product lines, estimated figures are used.

Geographical Coverage

Vendors are evaluated on their global presence. We look at the various geographic regions and major countries in which the company conducts business with both a sales and marketing presence as well as development and support functions.

Ecosystem

In this category, we evaluate the extended ecosystem in which the vendor participates. This includes business partner networks, hardware or cloud infrastructure providers, consulting firms and systems integrators, and other technology alliances.

Sales Strategy

To rate a vendor's sales strategy, we look at the various channels through which the company goes to market: with both direct and indirect sales teams, through distributors, value-added resellers (VARs), online channels as well as OEM relationships. We also evaluate the vendor's product pricing and its various sales models, such as perpetual licensing, support subscription, open source and freemium.

Organizational Strength

Vendors are rated on their organizational stability, which is influenced by consistency of corporate strategy, continuity of executive leadership, but also staff turnover, reorganization and layoffs.

Marketing Strategy

A vendor's marketing strategy is evaluated by rating its corporate and product messaging, the company's presence in printed media, advertising and social networks, as well as its ability to run events, such as conferences, seminars, roadshows and webinars.

Score

Calculating the individual ratings for all criteria and all vendors produces two scores per company: the portfolio capabilities score and the market execution score, each being plotted on the corresponding axis and thus resulting in the vendor's dot on the following BARC Score graphic (Figure 1).
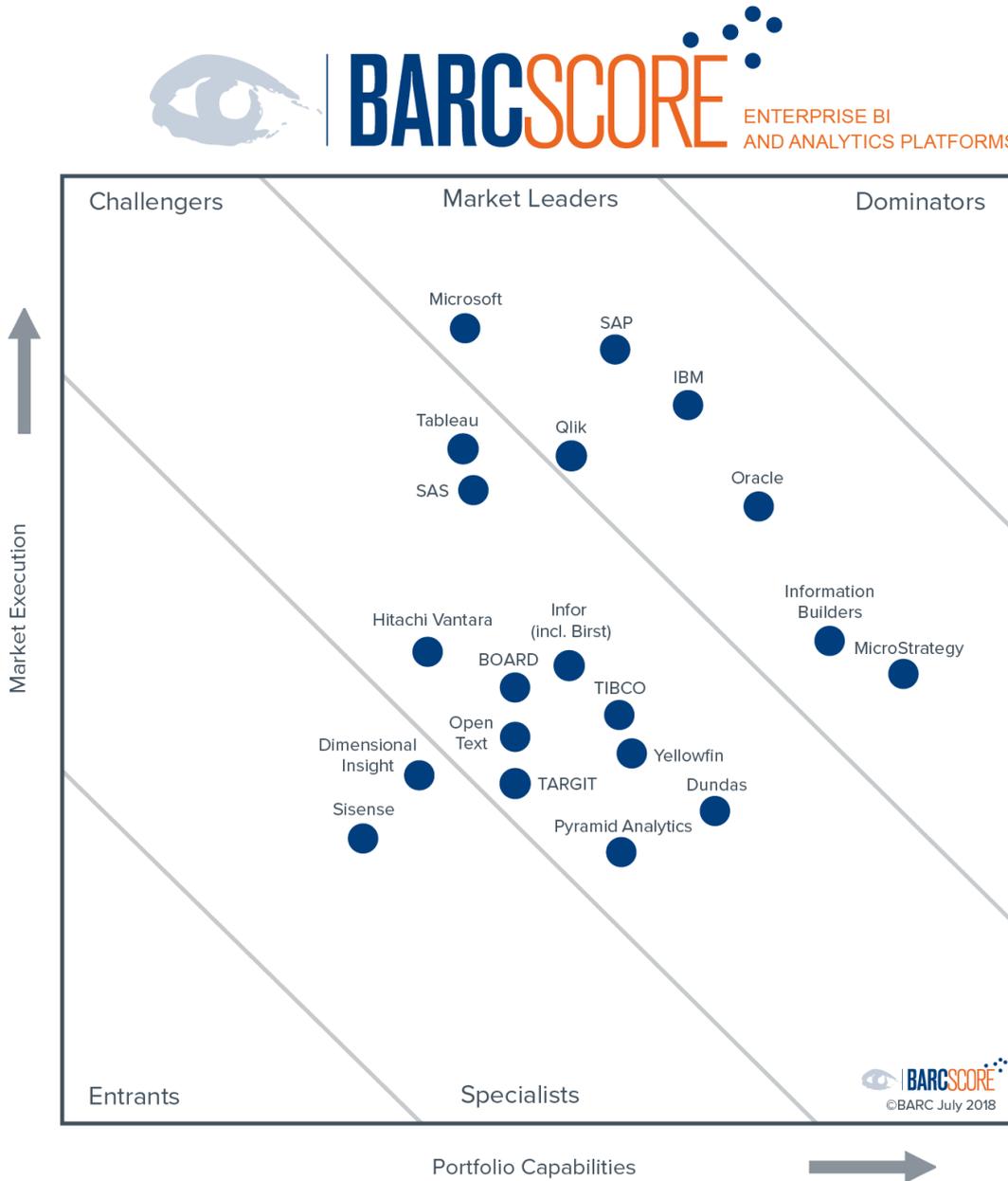
Disclaimer: BARC Score is published by BARC GmbH (BARC). This chart is part of a larger research document, which contains explanations of the methodology and criteria behind the chart, and should be viewed in the context of the full document. BARC does not endorse any of the vendors featured in its research documents, and does not advise readers to select only those vendors with the highest ratings. Vendors appearing in the bottom left corner of this chart are market entrants or specialists and should not be interpreted as inferior. Those vendors in the top right area are not necessarily superior, but have strong portfolio capabilities and market execution.

Figure 1: BARC Score Enterprise BI and Analytics Platforms

Score Regions

Vendors can be positioned in one of five regions, depending on their total score on each of the two axes.

Dominators

Dominators are vendors that drive both technology and market adoption in a highly influential manner. They possess both a broad portfolio of market-leading and dominating products with a strong brand as well as a robust commercial prowess through best-in-class sales and marketing programs, an extensive ecosystem of business partners and alliances, and a rock-solid financial position. Dominators are considered a contender in virtually every planned implementation.

Market Leaders

Market Leaders are well established vendors that drive strong market adoption, supported by technology innovation and strategic acquisitions and by leveraging robust account management and a solid track record. Their portfolio enjoys high brand awareness in the market, covers an extensive range of technologies and services with only few gaps. Market Leaders typically have a large market share, making them a viable contender in almost all implementation scenarios.

Challengers

Challengers come in various shapes and sizes. They can be large vendors tapping into a new market by acquisition and pushing their way in with force, small innovative companies with a promising portfolio but limited sales and marketing resources, or vendors attempting to disrupt a market with a new technology approach or different business model.

Specialists

Specialists are usually smaller vendors with a portfolio focused on a specific market segment. They can be either limited in their technical capabilities by concentrating on certain features and functions, or they may only focus on select geographic regions rather than the global marketplace.

Entrants

Entrants are usually startups with limited reach and visibility in the market. Their product capabilities are incomplete when compared to competitors, and the vendor's long-term market potential is still unproven.

Evaluated Vendors and Portfolios

The latest versions of the following products are evaluated in this BARC Score:

Vendor	Product(s)
BOARD International	BOARD
Dimensional Insight	Diver Platform DiveTab
Dundas Data Visualization	Dundas BI
IBM	IBM Cognos Analytics IBM Planning Analytics IBM Watson Analytics IBM SPSS IBM DSX
Infor (including Birst)	Infor BI Birst
Information Builders	WebFOCUS
Microsoft	SQL Server Office Power BI Azure ML
MicroStrategy	Analytics Platform
OpenText	OpenText Analytics Suite
Oracle	Oracle BI Oracle Hyperion Planning Oracle Analytics Cloud
Hitachi (Pentaho)	Business Analytics
Pyramid Analytics	BI Office
Qlik	QlikView Qlik Sense Qlik NPrinting Qlik Analytics Platform
SAP	SAP BusinessObjects BI Platform SAP Predictive Analytics SAP Analytics Cloud SAP Business Planning and Consolidation

Vendor	Product(s)
SAS	SAS Enterprise BI Server SAS Visual Analytics SAS Visual Statistics SAS Visual Data Mining and Machine Learning
Sisense	Sisense
Tableau	Tableau Desktop and Tableau Server
TARGIT	TARGIT Decision Suite
TIBCO	Jaspersoft Spotfire Statistica
Yellowfin	Yellowfin BI

Vendor Evaluations

In the following section, we discuss each vendor in the BARC Score and highlight their strengths and weaknesses based on customer surveys and market research by the authors.

BOARD International

Chiasso, Switzerland

www.board.com

BOARD, founded in 1994, today employs approximately 250 people worldwide. Headquartered in Switzerland, the company has 23 offices worldwide and a partner network in over 30 countries. According to the vendor, BOARD implements roughly 50 percent of its projects in planning and 50 percent in the BI area and is used by around 3,500 customers. The company currently has a strong focus on internationalization, especially on strengthening its presence in the United States.

BOARD's product strategy is based on an "all-in-one" philosophy. The goal is to deliver an easy-to-use and technically homogeneous environment in support of BI and enterprise performance management. BOARD's vision is to enable business users to implement solutions without significant IT support, based on an easy-to-use toolkit.

BOARD provides an integrated product consisting of a front end with data stored in a proprietary multidimensional, hybrid in-memory database. Cubes are also modeled and maintained in this proprietary BOARD database, which can be accessed by BOARD only, as it allows only limited access for third-party front ends. BOARD's graphical development environment enables users to create planning, dashboarding, reporting and analysis applications. Users can build and tailor a broad range of applications specifically to their own needs. Its BI features allow the creation of reporting and dashboards applications as well as analysis including an integrated module for predictive analytics called 'BEAM' (BOARD Enterprise Analytics Modeling).

In the past few years BOARD has strongly focused on providing functionality to keep up with several market trends. Besides BEAM, BOARD introduced a cloud offering, based on Microsoft Azure, and self-service capabilities (called Data Fast Track) in 2015. Its HTML5 client still needs improving to become a fully functional copy of the full client. Two further areas of innovation are storytelling and collaboration. BOARD has introduced a storytelling environment which assembles existing screens or allows the user to choose visualizations from existing applications to be presented in a story. Screen sharing capabilities within a chat-like environment have also been added. Finally, BOARD is working on incorporating cognitive capabilities into its system. The company has already introduced the first version of its "Cognitive Search", which creates a visualization based on a question asked or typed by the user. The solution also searches across other existing BOARD applications for further results.

Strengths

- Graphical, business user-oriented development environment for creating complex and flexible BI and planning applications without technical programming skills

- Closed and integrated systems architecture of multidimensional in-memory database and front ends

- Integrated data mining algorithms as part of the solution, resulting from university cooperation

- Self-service dashboard creation for end users through assembly of predefined BI objects

- Company is strongly focused on growth, internationalization and innovation

Challenges

- Limited access to proprietary BOARD database for third-party front ends

- Limited capabilities for formatted and print-oriented reporting, as the vendor focuses on on-screen application delivery

- Limited data mining methods; no integrated support of languages such as R or SAS yet

Dimensional Insight

Burlington, MA, USA

www.dimins.com

Dimensional Insight is a privately held company based in Burlington, MA. Started in 1989, Dimensional Insight set out to build an integrated platform with tools that address the various BI project roles. Its product line has evolved to include solution accelerators and product optimizations that have positioned it to succeed in highly regulated industries, such as healthcare, goods and services, finance and manufacturing. With a capable solution, specialized industry expertise and a strong passion for customer success, Dimensional Insight is set to expand on its customer base and grow its product footprint in EMEA and APAC.

The company's product, Diver Platform, includes ETL, administration, dashboard development, data modeling, analysis and report viewing, as well as columnar database technology for data storage. Users can navigate data in any direction with performance boosted by a proprietary columnar in-memory engine. Based on its Diver Platform, Dimensional Insight offers rich content such as industry-specific adapters and business rules. The company has recently launched Measure Factory, a business rules automation engine designed to give users governed access to measures.

Dimensional Insight is in general very customer-centric and provides three core benefits to its customers:

1) its ability to empower users with fast access to critical measures needed to meet operational performance and compliance requirements; 2) its ability to allow users to "dive" deep into their organization's data in any direction to get the answers to their business-critical questions; and 3) its ability to provide users access to commonly understood, trusted measures through business rules management.

Compared to competitors, Diver's front-end interfaces appear somewhat outdated as they were designed not to distract users from the data. The product offers limited support for some trending BI areas such as advanced analytics and data discovery. Dimensional Insight recently improved the look and feel of its dashboards and introduced collaboration functionality to the platform.

Dimensional Insight also has a mobile BI information delivery platform called DiveTab. It is designed to be run on different devices (mobile, PC) and support the creation of individual (if needed offline) operational applications. DiveTab applications support operational staff with information and analysis/navigation capabilities in data.

Strengths

- Industry expertise and packaged solutions

- In delivering content, ETL, in-memory data storage and front ends, Dimensional Insight focuses on providing an end-to-end solution to its customers

- Strong customer orientation reflected by high levels of customer satisfaction

- New collaboration features incorporated into the solution

- Measure Factory offers predefined governed content for selected industries based on common business rules and logic, which can be customized based on customers' needs

Challenges

- Some front ends, especially ProDiver, lack modern look and feel

- Limited visibility outside core markets

- Planning and performance management are not covered by the vendor out of the box. However, solutions for planning and budgeting are available from partners

Dundas Data Visualization Inc.

Toronto, ON, Canada

www.dundas.com

Founded in 1992, Dundas began building its reputation as an innovator in visualization software with its Chart product based on Microsoft technology. In 2007, Dundas sold the Chart franchise to Microsoft to build a dashboard product, which was launched in 2009. Further expanding its mission, Dundas released Dundas BI in 2014, a full-featured and modern BI platform that launched the vendor into the market for all-in-one BI platforms. Dundas is a privately held company with approximately 100 employees headquartered in Ontario, Canada.

Dundas BI was conceived with an emphasis on ease of use. It was built using .NET and is shipped on-premises or in the cloud. Besides the ability to store data in a SQL Server or PostgreSQL data warehouse, the product supports live data access to different data sources as well as data acquisition into a proprietary in-memory engine. Dundas makes use of modern standards such as HTML5 and has equipped Dundas BI with REST, .NET and JavaScript APIs to support scenarios such as embedding or advanced customizations. The presentation layer is based on two main modules: operational reports and dashboards. The first focuses on the creation of pixel-perfect print-oriented reports by developers, while the second allows power users from business departments (who can also be developers) to create dashboards. Both components offer rich functionality for building individual applications with custom triggers and actions as well as plenty of property panes for the customization of these applications. In embedding scenarios, the whole solution or individual visualizations can be embedded. These use cases are also encouraged by the licensing options. Besides named licenses, customers can buy attractive concurrent and unlimited licenses.

Despite the solution's broad range of functions for the creation of BI applications, Dundas has not lost track of business users. To protect them from the complexity of the dashboard creation environment, customers can individually control the functional features it offers. Furthermore, Dundas BI offers interesting support for data discovery scenarios. The steps for data preparation and visualization are tightly integrated, making it feasible to iteratively analyze and enhance data to gain as much insight as possible. Visualizations are automatically created upon adding data to the canvas and there is an option to automatically change visualization types as more data is added. Calculations can be created quickly and directly from within visualizations. Advanced analytics with guidance and user advisory for business analysts is the only area in which Dundas BI scores lower than competing data discovery vendors.

Strengths

- Dashboard development environment that provides a high level of control over the look, feel and functionality of user applications

- Ability to support operational dashboards through direct connection to source applications

- Clean, modern, responsive graphical interfaces

- Robust administrative capabilities for managing multi-tenant user communities

- Good capabilities for data discovery, especially for data preparation and visual analysis

Challenges

- Advanced analytics functions mostly available through integrated external libraries

- Dundas BI is not a planning application; however, it can be used for reporting, analysis and dashboarding to support planning processes

- Dundas is a rather small vendor with limited geographical presence and a restricted partner network

IBM

Armonk, NY, USA

www.ibm.com

As one of the world's largest vendors of IT hardware, software and services, IBM offers a comprehensive portfolio of business intelligence and performance management solutions. For this BARC Score, we evaluated IBM Cognos Analytics, IBM Planning Analytics, IBM Watson Analytics, IBM SPSS and IBM Data Science Experience (DSX).

IBM Cognos Analytics provides functionality for several categories of BI applications including dashboards, formatted reporting, ad hoc reporting and OLAP analysis in a web-based, integrated user experience. The product is typically used in larger scenarios supporting the needs of many concurrent users as well as large data volumes. With a continuous release development cycle, IBM continues to offer new business user data modeling, dashboarding and reporting functionality on a quarterly basis. Geospatial capabilities have been strengthened with the embedding of new mapping functionality through partnerships with Mapbox and Pitney Bowes.

For advanced analytics and data mining, IBM positions its SPSS offerings, including SPSS Modeler and SPSS Statistics. SPSS offers good support for the creation, test and deployment of individual data mining models. However, the integration of the SPSS data mining solution into Cognos Analytics and Watson Analytics is still ongoing. In addition, IBM has released new data science tools based on notebooks for development in R and Python: Watson Studio for cloud deployments and Data Science Experience Local for on-premises deployments. The SPSS Modeler interface has been embedded in both the new offerings.

IBM Planning Analytics (formerly TM1 and on the market since the early 1980s) is essentially a high-performance, multidimensional in-memory database for planning and (OLAP) analysis. Planning Analytics is aimed at power users who build individual planning and analysis applications. The solution offers both Excel and web front ends and offers capabilities for publishing content on the web. IBM Watson Analytics is a cloud-based product focused on search-oriented, visual, predictive data analysis as well as data discovery. This solution is targeted towards business users and offers good support for data discovery with encapsulated cognitive capabilities.

Strengths

- Extensive product portfolio includes Cognos Analytics for formatted and ad hoc reporting, OLAP, visual and advanced analysis, and dashboard creation; and Planning Analytics for planning and performance management

- Broad capabilities for data mining and advanced analysis with SPSS and DSX as well as visual business user-oriented data discovery and cognitive BI with IBM Watson Analytics

- Multiple deployment options – cloud, on-premises and hybrid

- Continued investment and innovation in BI, advanced analytics and data management, for IT and business users

- Established and expansive partner community with worldwide product support and knowledge

Challenges

- Limited integration between Cognos Analytics, Planning Analytics, SPSS and Watson Analytics products

- Potential client confusion around product branding/naming, e.g., IBM Cognos BI and Cognos Analytics, IBM Planning Analytics and Cognos TM1

- IBM Watson Analytics is available as a cloud solution only. It extracts data and loads it to the integrated cloud-based storage service (this can cause problems with latency, for example)

Infor (incl. Birst)

New York, NY, USA

www.infor.com

Infor is a global provider of business software, which focuses on providing cloud-based solutions. The company was founded in 2002, has 153 offices in 41 countries and supports over 73,000 customers. In 2017, Infor acquired Birst, a company founded by Siebel Analytics veterans. With this acquisition, Infor has split its portfolio into BI and enterprise performance management (EPM) products. Birst is now positioned to serve BI usage scenarios and Infor BI – Infor's existing BI and EPM product – to serve EPM scenarios. Birst will continue to focus on the standalone BI market. In addition, Birst also plays a central role in Infor's cloud strategy. Birst will be able to connect to Infor's operational systems such as ERP or CRM in one integrated layer which will be exposed to end users. The solution is packaged with Infor's CloudSuite products, consisting of operational systems for various verticals.

Birst is a cloud-based BI platform for formatted and ad hoc reporting, dashboarding and analysis. The vendor calls it a networked BI platform because its focus lies in the support of decentralized usage scenarios in a governed environment, without data or model replication. It offers modeling capabilities to create an individual semantic layer which enables connection to analytics-ready data via Live Access. In addition, through its Automated Data Refinement (ADR) capability, the Birst platform allows data extraction, storage and alignment to analysis-ready structures. To provide flexibility for business users, Birst supports the connection of these central data models with decentralized data, delivering local execution with global governance. On the front-end layer, Birst has several modules to support different BI scenarios such as pixel-perfect formatted reports, dashboards, ad hoc reporting, data mashups, analysis and data discovery.

Infor BI, Infor's existing BI and EPM product, is an integrated application suite for dashboards, reporting, analysis, planning and forecasting with proprietary multidimensional data storage. The suite includes Infor BI Application Studio (for building web-based BI applications), Infor BI Office Plus (an add-in for Excel, Word and PowerPoint), Infor BI Dashboards (for building and administering dashboards for the web and mobile devices), Infor BI OLAP Server and Infor BI Designer (for modeling OLAP cubes). Predefined performance management and financial consolidation applications are also available for various business functions and industries with Infor Dynamic Enterprise Performance Management (d/EPM). All Infor BI components use the Infor BI OLAP Server.

Strengths

- Cloud-based BI platform for formatted and ad hoc reporting, dashboarding and analysis (Birst)

- Modern sematic layer concept to provide both governance and consistency as well as data discovery to support agile development for business users (Birst)

- Integrated flexible application suite for dashboards, reporting, analysis, planning and forecasting with proprietary multidimensional data storage (Infor BI)

- Strong capabilities for ad hoc analysis and planning integrated in Microsoft Excel (Infor BI)

- Predefined analytical, BI and performance management applications with Infor d/EPM

Challenges

- Integration between Infor BI and Birst, as well as between Infor BI components, takes place at data level (components use same data but do not share visualizations)

- Limited built-in functionality for data mining and advanced analysis in Infor BI; integration of some open source libraries such as R is provided

- Birst has less market visibility compared to its competitors in the data discovery area

Information Builders

New York, NY, USA

www.informationbuilders.com

Information Builders is a privately held company, founded in 1975 and with more than 60 offices worldwide. The vendor's flagship BI offering, WebFOCUS, was introduced in 1997. Information Builders also provides the iWay and Omni product lines, which are often used alongside WebFOCUS for data integration and data quality functionality.

To summarize its core competencies and products, Information Builders uses the tagline "Integration. Integrity. Intelligence". This refers to the entire cycle of integrating, managing and analyzing data. The vendor aims to support this process with its software and solutions tailored to customer requirements. Integration and integrity refer to solutions for data management, especially for data integration and data quality. iWay is a set of data integration tools offering more than 300 predefined connectors to different data sources. These tools have been incorporated into the Omni-Gen platform along with other platform technologies. Intelligence stands for the BI front end, WebFOCUS. Although Information Builders strongly focuses on data processing, it does not provide its own data storage components.

The WebFOCUS BI & analytics platform is a web-based BI environment with front ends and decision support tools for formatted reporting, ad hoc reporting, dashboards and analysis, and a custom application development environment. With WebFOCUS, BI applications can be centrally administered and published to a large group of internal and external recipients. In the last year the vendor has been concentrating on developing interfaces that are easier to use and configure for business decision-makers. The solution now incorporates web-based tools, such as InfoAssist+ for ad hoc analysis and self-service data discovery; BI portal designer for designing and managing group portals, dashboards and content management; as well as interactive InfoApps for non-technical consumers (especially in operative scenarios). Supporting operational BI is actually a key strength of WebFOCUS. The solution delivers insights from data coming directly out of production systems. These capabilities have been extended across enterprises to enable analysis across any and all new systems that are engaged, including today's cloud-based infrastructures.

Strengths

- Very flexible and scalable solution for formatted reporting for large user groups and highly-formatted documents, ad hoc reporting, dashboarding, analysis and creating individual BI applications for operational BI

- Support for a wide range of data sources

- InfoAssist+, focused on ad hoc reporting, query and data discovery for business users, provides good capabilities for content export in different formats

- InfoApps and capabilities for the development of predefined interactive applications for business users (operational and strategic/tactical BI)

Challenges

- Technically-oriented development environment (App Studio), not suitable for casual business users

- InfoAssist+ still an emerging product for data discovery

- Limited performance management and no planning solutions. However, write-back functionality - especially for operational use cases - is provided

Microsoft

Redmond, WA, USA

www.microsoft.com

Microsoft, the world's largest software company, was founded in 1975 and has become a household name primarily due to its Windows operating system and Office suite. The vendor has a broad enterprise offering too, ranging from cloud to database to its ERP offering.

Like several competitors, Microsoft focuses heavily on providing cloud-based solutions. Microsoft Azure is already used by many customers as a cloud computing platform and infrastructure. The vendor offers a host of services and applications based on Azure. It can also be seen as a central hub for providing the company's own software in the cloud. The platform is available through a global network of data centers managed by Microsoft and hosted by its partners. Not only Microsoft but also a number of other BI and business software vendors rely on Azure for their cloud infrastructure.

Microsoft has spread its BI capabilities across the Office, SharePoint and SQL Server product lines in the past few years, providing tools for formatted reporting, ad hoc reporting, analysis and dashboards. Microsoft SQL Server consists of multiple products including a relational database management system, data integration and data quality components, Analysis Services as a multidimensional database, and Reporting Services as a solution for formatted reporting. With the incorporation of Revolution R functionality to SQL Server, the product is also particularly interesting for advanced analytics scenarios as well.

In July 2015 Microsoft launched a new generation of its Power BI product line, which was initially introduced in 2013 as a different tool set. Today it is a cloud-based BI product consisting of Microsoft Power BI Desktop (a full client for ad hoc reporting, dashboards and analysis) and Power BI Service (a web client for content publishing and sharing). Power BI is marketed as an interactive tool for data visualization geared at enabling business users to analyze data and share insights predominantly via dashboards. Its pricing and the dominance of Microsoft products on office computers give Power BI huge traction in the market. Power BI is included in the Azure IoT Suite, and as part of Microsoft's data science toolset. Among others, the suite offers Azure ML as a framework for data analytics. Through an integrated development environment called ML Studio, users can build data models using drag-and-drop gestures and simple data flow diagrams.

One unique advantage of Microsoft BI is that customers can leverage the vast knowledge of Microsoft technologies present in most enterprises throughout the world.

Strengths

- Solid product portfolio for formatted reporting, ad hoc reporting, analysis and dashboards

- SQL Server is a well-known database management system consisting of relational data storage, OLAP modeling, spatial support and integrated data mining

- Excel is a well-known and widely used self-service BI and analysis tool

- The business user-oriented data discovery solution Power BI is attractively priced, which makes it easy for organizations and individual users to get started with it

- Extensive business partner network, providing Microsoft competencies around the world

Challenges

- Microsoft BI products are integrated at data level only and lack a central metadata repository

- Some tools have overlapping functionality. This could confuse those who want to evaluate products based on their use cases

- Planning and corporate performance management topics are covered by partner solutions

MicroStrategy

McLean, VA, USA

www.microstrategy.com

MicroStrategy, founded in 1989, is one of the best known vendors in the business intelligence market worldwide. In 2003, it became the first vendor to release a fully integrated product that provides formatted reports, dashboards and interactive analysis in a single solution using the same infrastructure. With its library of statistical and advanced data mining functions, the vendor offers comprehensive analytic capabilities for a wide variety of use cases.

MicroStrategy has one of the best architectures on the market, built from the ground up without acquisitions. The vendor focuses on providing solutions a customer needs to become an "Intelligent Enterprise". The analytics and mobility suite are built as a front end which connects to a variety of data sources using its own semantic layer to create a common and governed business logic layer. The vendor has invested much over the years in supporting new data sources, such as from the web and cloud data, as well as offering native support for Hadoop systems. Besides direct connectivity to source systems, MicroStrategy has used PRIME (Parallel Relational In-Memory Engine) as the core in-memory engine of its analytics platform since version 10. The product is designed to provide high performance to very large numbers of users on very large data sets.

In general, MicroStrategy has always taken market trends seriously. It was among the first vendors to present solutions for mobile devices. The vendor provides a development framework to build individual mobile applications. Offline capabilities and data entry for transactions and operational use cases are supported as well. To fulfil requirements in the area of self-service BI and data discovery, MicroStrategy offers a standalone self-service BI client called MicroStrategy Desktop. A similar web-based data discovery module is available with the MicroStrategy Web product. To provide modernized ways to work with information, MicroStrategy introduced "MicroStrategy Dossiers" as intuitive, interactive applications that organize intelligence in a familiar book-oriented chapter and page structure. Users can navigate through reports and visualizations, share insights and collaborate with colleagues.

MicroStrategy has been working for several years to modernize its suite and started in 2018 to open up its architecture by providing access to its governed semantic layer to third party tools for instance. It has also rebuilt its platform into a more visually appealing product. The vendor is now working on redesigning its UIs and switching the product from Flash to HTML5 although Flash output is still supported.

Strengths

- Single integrated platform for formatted and ad hoc reporting, dashboarding, analysis and BI application building with good performance in large and complex environments

- Visual analysis solution for self-service BI scenarios included in the platform

- Cloud platform with incorporated data integration capabilities (Informatica OEM) based on AWS

- Web-based clients for ad hoc reporting, query creation and analysis

- Comprehensive library of statistical functions for use by developers

Challenges

- No dedicated solution/platform for predictive analysis and data mining available. However, a broad statistical library as well as import and export of PMML and R integration are offered

- Limited performance management and no planning solutions; however, write-back functionality, especially for operational use cases, is provided

- Collaboration on content has improved. However, collaboration on content creation, especially for integrating sandbox data into governed environments (e.g., via workflows), could be better

OpenText

Waterloo, ON, Canada

www.opentext.com

OpenText, is a global provider of enterprise information management (EIM), especially known for its enterprise content management (ECM) and business process management (BPM) solutions. In January 2015, OpenText acquired Actuate. Actuate was one of the earliest providers of business intelligence software. The company was founded in 1993 and based in San Mateo, California, with about 600 employees worldwide. Actuate launched the open source BIRT (Business Intelligence and Reporting Tool) project in 2004. To complement its portfolio with a solution for predictive analysis, Actuate acquired Quiterian in 2012. The former Quiterian product is now known as OpenText Big Data Analytics.

Today, OpenText offers a business intelligence package called OpenText Analytics Suite and, in 2017, it introduced OpenText Magellan.

OpenText Analytics Suite consists of Hub (iHub), which is available as an open source and a commercial version, and OpenText Big Data Analytics. iHub is a front end that connects to various data sources and consists of modules for formatted reporting, ad hoc reporting, dashboarding and analysis. Development of applications and reports as well as access to data sources takes place in OpenText Analytics Designer. End users work with web-based modules for ad hoc reporting, simple data navigation, OLAP analysis and dashboarding. Due to the fact that iHub is equipped with open APIs, the solution is well known in open source and embedding scenarios. Customers seeking solutions that can be adapted to their needs using APIs and programming often consider iHub. OpenText Big Data Analytics is a combination of in-memory and columnar-based data storage with a web-based front end for visual data mining and predictive analysis. Data required for data mining and analysis is integrated using a built-in ETL module. The solution is aimed at data scientists from business departments and offers predefined data mining algorithms and analysis methods such as forecasting, clustering, venn diagrams, pivot tables, bubble charts and so on. It is available as an on-premises or cloud-based version.

Magellan is a flexible artificial intelligence (AI) and analytics platform which extends the OpenText Analytics Suite to combine machine learning, advanced analytics and business intelligence with the ability to acquire, merge, manage and analyze structured and unstructured big data.

Strengths

- Good capabilities for developing pixel-perfect reports

- Ad hoc reporting and data navigation suitable for business users

- OpenText Big Data Analytics as a business user-oriented solution for predictive analysis

- Strong orientation towards product integration/embedding and provision of a good set of APIs for individual development

- Joined the AI and machine learning market with Magellan, which uses open source components

Challenges

- OpenText Big Data Analytics is limited to predefined analysis and data mining methods; no integration of programming languages for data mining such as R or SAS. However, other products such as OpenText Magellan and OpenText Analytics Suite can integrate with other libraries such as R and MLlib

- Limited reporting features for business users: Studio (OpenText's ad hoc reporting component) has less functionality than some competitors

- Collaboration features in the Analytics Suite are also rather limited compared to some competitors

Oracle

Redwood Shores, CA, USA

www.oracle.com

Oracle is a global provider of enterprise cloud computing, offering software as a service, platform as a service, infrastructure as a service, and data as a service capabilities. In 2014, Oracle changed its general release strategy to "Cloud First" and now has a major strategic focus on enhancing its cloud-based portfolio. The cloud portfolio is packaged as Oracle Planning and Budgeting Cloud Service (PBCS) and Oracle Analytics Cloud (OAC), Oracle's flagship product for BI and Analytics. OAC incorporates data preparation, data visualization, enterprise business intelligence and scenario management capabilities. In the area of enterprise BI, it offers modules for developing and deploying dashboards, formatted reporting, ad hoc reporting and analysis. Essbase Cloud, a module of OAC, is a front end tied to multidimensional storage which can be used for scenario modeling, OLAP analysis and the creation of Excel-based applications.

OAC provides business user-oriented solutions for data visualization and data preparation focused on explorative data analysis (data discovery) and data enrichment. Users can integrate different data sources and create individual data models for analysis purposes. Data visualization and data preparation functionality is available in the cloud, on-premises and as a standalone desktop tool.

Machine learning algorithms are delivered out of the box with OAC. R and Python scripts can be embedded in Oracle Analytics Cloud for custom advanced analytic capabilities.

Strengths

- Cloud and web-based tool portfolio for formatted and ad hoc reporting, analysis, visualization, data preparation, dashboarding and scorecarding in one suite

- Powerful ROLAP engine including the capability to generate multiple SQL statements to answer a single user query

- Action framework for triggering external events and navigation within dashboards

- Oracle Planning and Budgeting Cloud Service (PBCS) as a strong planning solution suitable for large scenarios, as well as Oracle Essbase Cloud for scenario planning and what-if capabilities

Challenges

- Integration between product lines, such as OAC and Oracle PBCS, is at data level leveraging data models and structures. However, product lines are not integrated at report/visualization level

- Limited collaboration and annotation features in OAC compared to some competitors

- While some advanced analysis capabilities are delivered natively in OAC, others require R and Python scripting for company-specific use cases

Hitachi Vantara (Pentaho)

Santa Clara, CA, USA

www.hitachivantara.com

Pentaho was founded in 2004 to "revolutionize BI" through an open source business model. Pentaho was acquired by Hitachi Data Systems (HDS) in 2015. In September 2017, HDS and Pentaho merged with Hitachi Insight Group to form a net-new legal entity: Hitachi Vantara.

Hitachi Vantara's Pentaho product strategy is strongly focused on helping customers address the growing challenges they experience with 'classic' data and big data. Pentaho is currently investing heavily in improving its product line for handling growing varieties and volumes of data to support the creation of an 'analytics data pipeline'. For big data use cases, the product provides native connectivity to Hadoop clusters, NoSQL data stores and unstructured data sources for instance. Recent improvements have centered around support for MGCP, MQTT and JMS steps protocols. The central software part of this strategy is Pentaho Business Analytics, which consists of the ETL tool Pentaho Data Integration (PDI) with its Pentaho engine for processing data and additional front-end tools. PDI was designed for users to engineer and prepare data. To support data preparation processes, Pentaho recently introduced some visuals in the ETL tool. The data pipeline flow is complemented by an analytics module for dashboards, reporting, OLAP analysis and data mining. It also features a graphical, business user-oriented environment for creating simple reports. Its web-based components in particular have been updated with a modernized look and feel in recent releases. Furthermore, dashboard capabilities have recently been improved and third-party visualization libraries such as D3 are supported. However, due to Hitachi Vantara's strong focus on data integration, it does not tend to follow every trend immediately. For instance, demand from business users in the area of data discovery has not been addressed by the vendor yet.

In general, Pentaho Business Analytics is an embeddable analytics platform with a commercial open source business model. Hitachi Vantara also offers a free, open source Community Edition. However, most of its revenue comes from subscriptions to Pentaho Enterprise Edition, which includes technical support, extensive Q&A, bug fixes, security and performance enhancements, as well as rich analytic tools unavailable in the Community Edition.

Strengths

- Flexible, integrated platform that includes data integration and front-end tools for dashboards, reporting, analysis and data mining

- Graphical, business user-oriented environment for creating complex reports

- Large open source community tests and improves the software

- Access and concept to handle big data sources such as Hadoop, NoSQL and other analytical databases

- Advanced analytics are provided through integration of Python, R or MLlib in PDI as well as through integration with the open source project Weka

Challenges

- Platform customization and administration requires IT skills

- No planning and limited capabilities for data discovery

- Limited capabilities for collaboration (e.g., sharing report comments between business users) compared to rival products

Pyramid Analytics

Amsterdam, Netherlands

www.pyramidanalytics.com

Founded in Israel in 2009, Pyramid Analytics is a privately held software company with more than 175 employees. Its first BI product, BI Office, was launched in 2012. The company is now headquartered in the Netherlands and has offices in the United States and the United Kingdom. With backing from Viola Group and Sequoia Capital, the company continues to grow and now boasts more than 750 customers.

Pyramid Analytics released a newly architected and revamped product – Pyramid 2018 – in Q3 of 2017. The new product is no longer dependent on the Microsoft platform and was based on modern standards. It was designed as a BI and Analytics Platform which makes stronger use of AI and machine learning with the aim of becoming an analytics operating system (OS) for companies.

Pyramid 2018 uses HTML5 so is platform and device agnostic with no need to download or install it. Furthermore, it offers and supports REST APIs to support additional scenarios such as embedding. The platform can access different data sources using ANSI SQL or MDX. Data can also be stored in Pyramid's own in-memory engine. Pyramid 2018 offers improved data preparation and modeling features to support data integration and processing. The open architecture also means the software can be deployed in different environments or containers. For AI and machine learning, the vendor offers R, Python, MLIB, Weka and TensorFlow integrations.

In terms of usage scenarios and modules offered, Pyramid 2018, like its predecessor, is an integrated platform for dashboarding, data discovery, analysis and reporting. The vendor aims to bridge the gap between self-service and IT-driven BI with a product that provides agility for end users while IT retains centralized control and fosters greater collaboration through sharing of business logic, content and commentary.

Despite a more open and modern architecture, Pyramid Analytics retains its strong support for Microsoft SQL Server. Therefore, the solution offers particularly good support for cube-based analysis. MDX queries can be generated, which developers tune and run against SQL Server Analysis Services (multidimensional and in-memory models). Pyramid Analytics supplements SQL Server Analysis Services with an in-memory cache called Large Query Engine (LQE) for managing complex analytics.

Strengths

- Well-integrated product for reporting, dashboards and analysis
- Self-service data discovery targeted at business users
- Well thought-out capabilities for dynamic text for storytelling
- Content lifecycle tracking and sharing
- Provision of platform features such as governance, security, lineage

Challenges

- Pyramid 2018 is not a planning application; however, it can be used for reporting, analysis and dashboarding to support planning processes
- Data discovery (especially visual analysis) capabilities still new and limited compared to competitors' solutions
- Pyramid 2018 is a young solution which must assert its position in the market

Qlik

Radnor, PA, USA

www.qlik.com

Qlik, originally founded in 1993 in Lund, Sweden, moved its headquarters to the United States in 2005 after raising funds from several venture capital firms. QlikView, the company's virtually unknown product at the time, was very aggressively marketed after the VC investment. This created enormous attention and traction, and in 2010 Qlik went public on NASDAQ. In 2016, Qlik was acquired by the private equity company Thoma Bravo and delisted from the stock exchange.

Until the general availability of Qlik Sense in 2014, Qlik was a one-product company. Today, the vendor provides a portfolio of visual analytics offerings. Qlik focuses on integrating different data sources and empowering data governance (data), supporting people with its platform (people) and supporting analysis using its associative model (ideas).

Qlik's platform consists of several components including Qlik Sense Enterprise and Qlik Sense Cloud, as well as the Qlik Analytics Platform for developers, QlikView and Qlik NPrinting, acquired with Vizubi in 2015 for enhanced printing and page-based layout. Qlik DataMarket is a market for sourcing external data for analyses such as weather or currency information. In 2017 Qlik acquired its Swedish partner Idevio (now Qlik GeoAnalytics) to provide advanced features in the area of spatial analysis.

Qlik Sense is positioned as a self-service data visualization and data discovery solution providing immediate analysis results. It is powered by Qlik's associative engine QIX, and gives flexible access to data sets stored in-memory. Qlik has significantly improved the business user-friendliness of its data preparation module by adding visual preparation and profiling where scripting was previously mandatory. These improvements enhance the productivity of data preparation for developers and also make data preparation accessible for less technically oriented users.

Qlik NPrinting is a report generation, distribution and scheduling application which can be used to create reports based on Qlik Sense or QlikView content. It enables organizations to create reports in a variety of popular formats including Office and pixel-perfect PDF files.

QlikView is a dashboard and analysis product based on in-memory technology targeted at business users. However, while QlikView addresses the common challenges that business users see in IT-run BI systems, the potentially high amount of scripting in complex QlikView installations (compared to Qlik Sense for instance) requires trained staff to produce scalable and high-performance solutions.

Strengths

- Business-oriented platform for reporting, dashboarding, analysis and creation of individual applications, and also for embedded scenarios using Qlik Sense APIs

- Good 'associative' and set-based navigation in data with search in content available

- Good formatting and charting features

- Responsive in-memory processing

- Data market to augment analysis with curated and ready-to-use external data

Challenges

- No planning capabilities as part of the solution portfolio

- Limited built-in functionality for data governance to align the definitions for KPIs across distinct applications

- Complex QlikView and Qlik Sense implementations and data integration require scripting, although recent versions of Qlik Sense have reduced this need

SAP

Walldorf, Germany

www.sap.com

SAP was founded in 1972 as a business applications company. It significantly increased its footprint in the business intelligence and analytics market with the acquisition of BusinessObjects in 2007 (now called SAP BusinessObjects Business Intelligence Platform).

The portfolio of BI and analytics solutions from SAP encompasses on-premises and cloud-based solutions for business intelligence, predictive analytics and planning.

BI capabilities in the SAP Analytics portfolio are available via SAP Analytics Cloud for cloud and SAP BusinessObjects Enterprise for on-premises deployments. SAP Analytics Cloud is designed specifically for the cloud with the option of serving hybrid cloud scenarios (with data on-premises) and combines the traditionally separate processes of data modeling, planning, reporting, visualization and predictive analytics into one solution aimed at business users. In addition, SAP Digital Boardroom is a corporate management cockpit solution that aims to transform boardroom and steering meetings into a real-time digital enterprise experience. Both SAP Analytics Cloud and SAP Digital Boardroom are built on the SAP Cloud Platform. In early 2018, SAP announced plans to focus its data discovery offering on SAP Analytics Cloud. SAP Lumira Discovery will receive functional updates throughout 2018 and will be supported, like SAP BusinessObjects Enterprise Suite, beyond 2024.

SAP BusinessObjects Enterprise Suite is the on-premises BI offering from SAP which incorporates various end-user tools with a moderate level of integration. The suite contains strong individual products as well as several clients for various types of analysis and capabilities for building custom guided BI applications that can be published to the web or mobile devices. The suite currently consists of the following products: SAP Crystal Reports (pixel-perfect reports), SAP BusinessObjects Web Intelligence (standard and ad hoc reporting), SAP Lumira (data discovery and application building) and SAP Analysis (MS Office Integration). Some products leverage the central Universe semantic layer to access data sources while others access data sources directly.

SAP Predictive Analytics, based on a mixture of SAP-developed technology and the acquired KXEN product portfolio, is a combined on-premises solution for data mining and statistical analysis. SAP Business Planning and Consolidation (BPC), the on-premises planning product in SAP's performance management portfolio is integrated in the BW landscape and SAP ERP (S/4HANA).

Strengths

- Extensive BI platform for formatted and ad hoc reporting, analysis, dashboarding and custom application development, suitable for medium and large deployments (SAP BusinessObjects Enterprise) with strong publishing features

- Business-user-friendly experience for ad hoc reporting, analysis and visual analysis

- Strong data mining and predictive analytics capabilities

- Connectivity and pre-built content available for SAP's own data sources and applications

- SAP Analytics Hub as single access point for analytics (SAP and non-SAP)

Challenges

- SAP Analytics Cloud is available in the cloud only and is still a young solution with limitations in data discovery, reporting and BI application creation

- SAP's BusinessObjects Enterprise Suite maintenance announcement caused confusion and uncertainty for customers

- Portfolio integration still not as strong as from some competitors

SAS

Cary, NC, USA

www.sas.com

SAS, founded in 1976, is a privately held company and a well-known brand in the business intelligence and analytics market. The vendor has been a specialist in business intelligence, data management, and advanced analytics for decades.

SAS's traditional BI offering, SAS Enterprise BI Server, which is marketed as part of SAS Platform, covers dashboarding, OLAP and reporting, through clients such as SAS Web Report Studio and SAS Enterprise Guide. SAS also offers a variety of analytic applications to address different industries and application domains. Currently, the bulk of these applications are based on the SAS 9 architecture.

To target business users, SAS released SAS Visual Analytics back in 2012, which was complemented by SAS Visual Statistics in 2014. In 2016 SAS introduced SAS Viya, a new open and cloud-ready platform for analytics. SAS Viya extends SAS 9 to serve all types of customers' analytical needs. Viya was designed as a massively parallel, distributed multi-OS environment which connects to different data sources and can be run on-premises or in different cloud infrastructures. In addition, SAS has made a point of creating an open architecture which not only supports SAS code but also languages such as R, Python, Java and Lua directly or through APIs. Technically SAS Viya consists of a set of micro services and a new in-memory engine called SAS Cloud Analytics Services (CAS) for execution in a single-machine or distributed mode.

SAS Visual Analytics 7.4 was the last release on SAS 9 architecture and was replaced by SAS Visual Analytics 8.1 (released in 2017), which is completely SAS Viya-based and uses the new CAS in-memory engine. This product line focuses on visual data exploration, dashboarding, ad hoc reporting and analysis. SAS recently improved the data preparation module (SAS Data Preparation) available in SAS Visual Analytics. Data Preparation is targeted to business users loading data into the internal Viya in-memory engine (CAS) for fast and scalable analysis. Add-on products such as SAS Visual Statistics and SAS Visual Data Mining and Machine Learning are also available on SAS Viya.

Strengths

- SAS Visual Analytics as a business user-oriented ad hoc analysis, reporting, visual data exploration and dashboarding solution

- Strong analytics and data mining capabilities and leading advanced analytics capabilities for data discovery through seamless integration with SAS Visual Statistics and SAS Visual Data Mining and Machine Learning

- Solid data management abilities with metadata support in the platform

- SAS includes a flexible and powerful programming language

- Viya's in-memory engine CAS was designed as a scalable architecture for substantial amounts of data and large numbers of concurrent users

Challenges

- Integration between the software stacks SAS 9.4 and SAS Viya at data level; integration at report level is not available due to different technologies

- SAS Visual products are modernized and target different types of users, especially from line of business; however the traditional SAS BI portfolio focuses on IT and BI specialists and therefore requires technical expertise

- SAS Visual Analytics includes interactive and self-service style analysis and dashboards. It has limited functionality in the area of formatted reporting compared to most competitors

Sisense

New York, NY, USA

www.sisense.com

Headquartered in New York City, Sisense is a growing BI and analytics vendor offering a modern BI and analytics product suited for dashboards and analysis as well as more explorative use cases on a single platform. The company sells to medium and large enterprises across the globe.

Marketed as a "single-stack" product that tries to simplify analytics for complex data, Sisense provides an easy-to-use dashboard environment where users have the option to start with predefined dashboards for selected data sources or data modeling and integration tools for querying disparate data sources. Sisense can consume data from spreadsheets, Hadoop, web applications and relational databases and loads it into its integrated ElastiCube data stores without pre-aggregation or pre-calculation. ElastiCube, despite its name, is not based on a cube engine but on a columnar MonetDB. Query performance is enhanced in Sisense by increasingly leveraging CPU caches and vector instructions for calculations.

Although mandatory, upfront modeling for building ElastiCubes is simple and very flexible as it is intentionally reduced to a required minimum. Business users are offered good connectivity options and most data transformations can be made while visually analyzing data. The ElastiCube Manager, Sisense's modeling environment, has recently been migrated to a modern web client which currently lacks the full connectivity of the fat client it is intended to supersede.

The introduction of natural language queries in the "BI Bot" shows Sisense's aspiration to be recognized as an innovative vendor in the BI and analytics market with a core focus on pervasive analytics by lowering the entry barrier for users. Sisense focuses on providing business users with BI and analytics functionality in one product but does not cater for usage scenarios such as formatted reporting and planning as some competitors do.

Strengths

- Integrated product for data discovery and dashboarding use cases on an integrated stack. Easy to use for business users

- Internal columnar data store is mature and fast, combined with proprietary In-Chip technology for performance acceleration

- APIs and JavaScript library for embedding purposes

- Business-user-oriented data integration and modeling capabilities

- HTML5-based dashboards and interactive visualizations targeted at business users

Challenges

- No predefined functionality for planning; only when used as an analysis and dashboarding product in performance management and planning processes

- Limited capabilities in the area of print-oriented reporting and report distribution compared to some competitors in this area

- Local presence limited outside the United States and Israel, although the vendor is currently expanding into other territories

Tableau

Seattle, WA, USA

www.tableau.com

Tableau Software emerged from scientific research at Stanford University and was founded in 2003. The vendor follows a strategy of delivering software that requires little training and allows business users to interpret their own data mostly by means of interactive visualization. In 2018 Tableau introduced the concept of an analytics platform to underline its capabilities, which are packaged into the Tableau Desktop, Tableau Server, Tableau Online and Tableau Prep products. These are sold as bundles in new subscription offerings: Creator, Explorer and Viewer, which are all available on-premises, in the public cloud or via SaaS.

Tableau is a user-friendly visual analysis and data discovery platform that provides a lean architecture consisting of a desktop and web client used for development and authoring and a server for central deployment, sharing and collaboration. The intuitive user interface, built-in intelligence and memory utilization to optimize performance contribute to the popularity of this solution for visual analysis, dashboarding and data discovery scenarios.

Tableau's openness to different data sources is one of its strengths. The solution allows users to combine and analyze data from over 65 different data sources. Data preparation in Tableau Desktop can be quick as many manipulations can be made directly while analyzing data, enabling a truly iterative approach to data discovery. With the release of Tableau Prep in version 2018.1, data preparation has been enhanced with deeper functionality and a more visual approach with recommendations for data shaping, profiling and enhanced traceability. Tableau introduced Hyper (acquired in 2016) in version 10.5 as a new engine for data query and storage.

Lately, Tableau has strongly focused on improving and growing its self-service analytics platform into a modern enterprise BI platform. Functions such as data source certification, data source recommendation and a feature called Tableau Bridge have been added in recent releases. Tableau Bridge aims to connect from Tableau Online to on-premises data sources in order to support hybrid cloud scenarios. Moreover, the vendor has begun to broaden its analytical spectrum by integrating Python and MATLAB next to R. ClearGraph joined Tableau in 2017 and started to complement the solution with its Natural Language Query (NLQ) and Processing (NLP) capabilities. In 2018 Empirical Systems, a startup specializing in automated statistics was acquired by Tableau to complement its portfolio with further analytics features.

Strengths

- Easy-to-use user interface and therefore potentially high user acceptance

- Visual analysis with built-in intelligence and high interactivity suitable for business users

- Data preparation and analysis capabilities for users with access to different data sources including capabilities for cross-database joins and smart join recommendations powered by machine learning

- Several interactive visualization options with visualization recommendations

- Offline reporting and analysis capabilities (desktop client)

Challenges

- Predefined functions for planning and budgeting are not available; however, Tableau can be used as an analysis and dashboarding solution to support planning processes

- Risk of report "explosion" when using the solution without proper governance concepts

- Tableau Prep as a distinct client for data prep requires users to switch tools during iterative discovery

TARGIT

Hjørring, Denmark

www.targit.com

TARGIT was founded in 1986 and is a privately owned software provider based in Denmark. The company has about 5,400 customers, most of whom are located in Europe and North America, while one-third are distributed across the rest of the world.

TARGIT is positioned well for mid-size companies requiring an all-integrated BI platform. The TARGIT Decision Suite offers integrated data discovery/self-service analysis, ad hoc reporting and dashboards with capabilities for batch reporting, mobility, storyboards and data mashups. Recent releases support a range of innovative features including speech recognition for natural language queries, alerting and notification, an intelligent wizard that finds relevant content as the user types, an in-memory data mashup tool, support for creating custom gauges, and a Java-based client for embedding the Decision Suite on any device.

TARGIT has made significant inroads particularly among Microsoft Dynamics customers. The company offers a number of vertical solutions, the most prominent being those for manufacturing and retail, while niche solutions for heavy machinery, waste management, fleet management, medical billing, fashion design and apparel are showing traction as well. Providing not only a BI solution but also knowledge in the software remains a strong focus of the vendor. TARGIT plans to add more verticals and predefined content to its portfolio.

For several years the vendor has invested heavily in modernizing the solution. Firstly it began to reduce its Microsoft dependency by enabling customers to access additional data sources other than Microsoft SQL Server. Now it has also introduced the option to use its own in-memory store.

Furthermore, TARGIT is still working to enhance the enterprise features of its product by improving the deployment process and optimizing the UI/UX experience to enable designers to create dashboards, analyses and reports that are ready for easy consumption on large enterprise portals with better support for an improved cross platform experience.

Strengths

- Business-user-oriented BI platform for data discovery/self-service analysis, ad hoc reporting and dashboards

- Enterprise functionality for data governance, reporting, distribution, deployment and logging

- Self-service BI capabilities which complement the governed experience

- Agents for monitoring data and alerting

- Accelerators and predefined content for Microsoft Dynamics NAV, AX, CRM and GP

Challenges

- No predefined functionality for planning; only when used as an analysis and dashboarding product in performance management and planning processes

- Lack of marketing and limited overall visibility in BI markets

- Microsoft-centric approach with Windows dependencies, which makes TARGIT less interesting for organizations with a Linux platform focus

TIBCO

Palo Alto, CA, USA

www.tibco.com

TIBCO is a software vendor best known for its analytics and infrastructure offerings. From APIs and systems to devices and people, TIBCO aims to interconnect everything, by capturing data in real time wherever it is, and to augment the intelligence of businesses through analytical insights. To strengthen its data integration and interconnect capabilities, TIBCO acquired Cisco's data virtualization business (formerly Composite Software) in 2018 and the data integration-as-a-service specialist Scribesoft.

TIBCO's analytics portfolio provides comprehensive capabilities to support a wide range of analytical scenarios. The vendor began its analytics journey back in 2007 with the acquisition of Spotfire, a Swedish software vendor specializing in interactive visual analysis. In 2014, the open source vendor Jaspersoft was purchased to add embedded BI capabilities.

TIBCO Spotfire is a comprehensive business intelligence solution strongly focused on visual and advanced statistical analysis as well as the design of interactive dashboard applications. Spotfire applications are optimized to deliver good performance through its in-memory data engine, through direct data source queries or combinations thereof. TIBCO Spotfire offers capabilities to support collaboration through built-in functions. Aside from a full-featured desktop client primarily targeted at trained analysts and statisticians, TIBCO also offers web and mobile clients for Spotfire content consumers. By embedding complex statistical methods and models, data scientists can perform predictive analyses, leveraging capabilities offered by the S+ and R programming languages. In 2017, TIBCO acquired data science vendor Statistica and AlpineData, a project management and collaboration platform for data science projects, to further augment its analytics portfolio.

TIBCO Jaspersoft rounds out the vendor's BI portfolio with embedded reporting and dashboarding as well as data integration functionality. The Jaspersoft suite primarily targets product managers and developers who want to embed BI into their commercial applications. End-users of Jaspersoft include non-technical business people who use the applications into which Jaspersoft is embedded. Jaspersoft is also popular among the developer community due to its open source heritage and embedding flexibility.

Strengths

- In-memory solution Spotfire is designed to support business users with different types of analysis: visual, geo, streaming and advanced statistical analytics (including execution of S+, R, SAS and Matlab models)

- Comprehensive capabilities for visualizing data and support for unrestricted, visual data navigation in Spotfire

- Flexible environment for developing interactive on-screen dashboards and applications for reporting and analysis in Spotfire

- Highly formatted and ad hoc reporting as well as analysis of big data sources in Jaspersoft

- Coverage of embedding scenarios through a JavaScript API and visualize.js, which allows for seamless integration of analytics into web applications

Challenges

- Rich but complex portfolio for analytics based on acquisitions with weaknesses in integration between some products (especially when sharing visualizations) and overlapping features in product lines

- Basic data preparation capabilities in TIBCO Spotfire Business Analyst; the client interface is a bit overloaded, making it less intuitive for inexperienced users to use the tool efficiently

- Different data access types between fat client and server in Spotfire

Yellowfin

Melbourne, Vic, Australia

www.yellowfinbi.com

Yellowfin, founded in Melbourne in 2003, is a BI software company that set out to change the general BI approach because the founders felt that traditional BI had become more complicated and expensive than it had to be. Yellowfin sells its solutions directly or via its network of more than 600 partners worldwide. While promoting Yellowfin as a one stop shop for analytics, the vendor also focuses on embedding white labeled BI and analytics capabilities into other solutions, significantly expanding the brand's reach.

Yellowfin is a mature, user-friendly BI and analytics platform that has evolved from a successful reporting and dashboard product to support an emerging style of analytics characterized by governed data discovery and collaboration. Besides engaging visualization, and the company's focus on making BI content consumption as easy as possible, Yellowfin has put emphasis on providing collaboration features. The extent of features offered in this area is a major differentiator as collaboration is vital to enabling the quick distribution of insight to relevant recipients. Yellowfin has added features such as Timeline to track content and collaboration in a social networking manner, as well as workflow functionality to support content creation and collaboration between different user types – such as IT and business.

The vendor's "author once, consume anywhere" approach enables users to deploy dashboard content easily on mobile devices. Yellowfin has enhanced its mobile experience with collaboration features to support annotations, discussions and content sharing. Data preparation functionality has also improved. Data profiling information is presented to the user, showing the distribution and outliers in columns as well as alerts about possible errors in the data and steps to rectify these. To speed up the time to insight, Yellowfin recently introduced "Smart Analysis" and "Auto Analyze" to compare metrics and analyze data sets behind the scenes and provide users with ranked and commented (NLG) insight. Further advanced analytics functions are only available by integrating R, PMML or H2O.

Strengths

- A broad range of innovative features including collaboration and storyboarding

- Support of embedded BI usage scenarios

- Ease of use for business users, also for report designers

- Simple pricing model

- Broad data preparation functionality with good guidance and profiling features

Challenges

- Highly formatted (pixel-perfect) reporting is not available with the solution; however, it does support the integration of BIRT and JasperReport reports which are pixel-perfect

- No planning functionality (i.e., write-back, data allocation and planning functions). The solution, however, can be used to support performance management or planning tasks with its dashboarding, analysis and reporting functionality

- Yellowfin does not have a dedicated solution targeted at data scientists in its portfolio. However, it has improved its advanced analytics capabilities, especially in the area of data preparation, and Smart Analysis is a starting point for business users to find simple patterns

Other Vendors

There are many other established vendors in the business intelligence market that provide mature and very useful technology, which may be ideal for organizations looking for a BI solution. However, due to the inclusion criteria applied in this report, those vendors are not evaluated in detail. To provide a broader market overview, we list some of them here.

Adaptive Insights

Palo Alto, CA, USA

www.adaptiveinsights.com

Adaptive Insights offers a cloud-based business intelligence and corporate performance management suite called Adaptive Suite for planning, consolidation, analytics and reporting.

ADVIZOR Solutions

Downers Grove, IL, USA

www.advizorsolutions.com

ADVIZOR offers interactive analysis with lots of different chart types for visual discovery as well as predictive analytics based on a patented in-memory data model.

Altair

Troy, MI, USA

www.altair.com

Carriots Analytics is a business intelligence solution focused on data discovery and data visualization.

Alteryx

Irvine, CA, USA

www.alteryx.com

Alteryx Analytics provides analysts with a workflow-based approach to data integration, modeling and advanced analytics that leads to deeper insights into data. It is especially geared to supporting users in the area of data preparation as one of the important steps in a data discovery process.

Anaplan

San Francisco, CA, USA

www.anaplan.com

A flexible, cloud-based planning product with additional functionality for reporting and analysis. Planning applications for miscellaneous topics are available.

Antivia

Leeds, UK

www.antivia.com

Antivia DecisionPoint is a tool for creating interactive dashboards, reports and BI applications for mobile devices and the desktop.

Bilander

Gdynia, Poland

www.bilandergroup.com

Integrated BI tool for ad hoc reporting, advanced analysis, planning, dashboarding and balanced scorecarding with comprehensive chart functionality.

Bissantz

Nuremberg, Germany

www.bissantz.de

Bissantz's DeltaMaster software enables users to create custom solutions for analysis, planning and reporting, featuring patented visualization capabilities.

Bitam

Roswell, GA, USA

www.bitam.com

Bitam is a global provider of business intelligence and enterprise performance management software solutions.

Chartio

San Francisco, CA, USA

www.chartio.com

Interactive charts and dashboards created through an intuitive drag-and-drop interface. Customers can connect their databases directly to Chartio to visualize data in real-time.

ClearStory Data

Menlo Park, CA, USA

www.clearstorydata.com

Fast data access, iterative analysis and active collaboration based on an integrated Spark-based data processing platform.

Cubeware

Rosenheim, Germany

www.cubeware.de

BI offering consisting of a front end for reporting, analysis, dashboarding and planning with a data integration tool to create various multidimensional models.

Comma Soft

Bonn, Germany

www.comma-soft.com

In-memory based BI solution targeted at business users. Includes advanced analytics and data science functionality as well as capabilities for dashboading, ad hoc analysis, reporting, set-oriented analysis and visual navigation in data.

Connexica

Stafford, UK

www.connexica.com

Connexica's CXAIR is a search-based analytics tool for querying structured and unstructured data.

Cyberscience

Centennial, CO, USA

www.cyberscience.com

An ad hoc query and production reporting system that allows users to create simple queries, business graphics and crosstab reports as well as production reports.

Datameer

San Francisco, CA, USA

www.datameer.com

A big data analytics environment on top of Hadoop. Datameer combines self-service data integration, analytics and visualization functionality.

Datawatch

Chelmsford, MA, USA

www.datawatch.com

Datawatch offers data preparation and visual analysis products for accessing structured and unstructured data and exploring it with visual analytics to identify trends, spot outliers and identify opportunities.

Decisyon

Stamford, CT, USA

www.decisyon.com

A collaborative business intelligence and performance management software solution that integrates analysis, planning and execution.

Domo

American Fork, UT, USA

www.domo.com

Fast-growing American business intelligence vendor focused on data visualization, dashboards and reporting while offering the ability to discover, mash up, visualize and present data.

Entrinsik

Raleigh, NC, USA

www.entrinsik.com

Entrinsik Informer includes a browser-based drag-and-drop, point-and-click interface designed to encourage self-service BI. It is heavily used by mid-sized companies in specific industries.

GoodData

San Francisco, CA, USA

www.gooddata.com

GoodData offers a cloud analytics platform to help organizations creating and distributing data products. The product offers analytics functionality such as dashboards, data discovery and visualization.

Halo BI

San Diego, CA, USA

Browser-based BI platform for creating dashboards, analysis and reports and to perform predictive analytics and data mining with support for mobile devices.

iDashboards

Troy, MI, USA

www.idashboards.com

Interactive dashboarding software that displays data from databases, data warehouses, spreadsheets, XML and other data sources in real time.

InetSoft

Piscataway, NJ, USA

www.inetsoft.com

InetSoft offers various applications that focus on operational BI, enterprise reporting, data visualization and embeddable reporting.

Jedox

Freiburg, Germany

www.jedox.de

A flexible BI solution for planning, reporting and analysis that runs on the company's own multidimensional database. The underlying philosophy of Jedox Suite is to extend the familiar Excel environment with specific BI functionality.

Jinfonet Software

Rockville, MD, USA

www.jinfonet.com

JReport provides interactive data visualization with customizable ad hoc reporting and dashboards that empower end users through the web and mobile devices.

Knowage

Rome, Italy

www.knowage-suite.com

An open source business intelligence suite for ad hoc reporting, interactive cockpits, multidimensional (OLAP) analysis and data mining.

Lavastorm Analytics

Boston, MA, USA

www.lavastorm.com

Agile analytic environment that combines ETL and data integration, data analysis and data visualization capabilities based on the Lavastorm Analytics Engine.

Logi Analytics

McLean, VA, USA

www.logianalytics.com

Logi Suite is a tool set primarily focused on embedded BI and operational BI scenarios needing dashboarding, reporting and analysis capabilities.

Longview (including arcplan)

Markham, ON, Canada

www.longview.com

Longview Solutions is a Canadian CPM and tax solution specialist that merged with arcplan, a German BI specialist, in 2015. The Longview portfolio now offers the following products: Longview, Longview Tax, Longview CPM and Longview Analytics (formerly arcplan) as well as Tidemark.

Looker

Santa Cruz, CA, USA

www.looker.com

Web-based data discovery platform accessible on any browser as well as on mobile devices. Looker operates inside underlying databases, such as Amazon Redshift, Greenplum and Teradata Aster.

Palantir Technologies

Palo Alto, CA, USA

www.palantir.com

Palantir offers solutions for integrating, visualizing and analyzing massive amounts of information. Palantir's software is deployed at public institutions and private enterprises, and also in the non-profit sector, for example, in defense, anti-fraud and disease response.

Panorama Software

Toronto, ON, Canada

www.panorama.com

Collaborative business intelligence tool focused on dashboarding and analysis and based on visual infographics.

Phocas

Coventry, UK

www.phocassoftware.com

Phocas offers a mature self-service tool that enables users to perform their own analysis and reporting with IT support needed only for data provisioning. Phocas offers a good range of functionality to support ad hoc querying, standard reporting, dashboarding and data discovery.

Platfora

San Mateo, CA, USA

www.platfora.com

An interactive big data analytics platform for multi-structured data operating natively on Hadoop and Spark.

Prevero (Unit4)

Munich, Germany

www.prevero.com

Prevero targets business users with a flexible development environment for building individual BI applications for planning, reporting and analysis with the help of wizards.

Prognoz

Perm, Russia

www.prognoz.com

Prognoz is a Russian specialist offering a platform containing several components for formatted and ad hoc reporting, dashboarding and analysis.

Salesforce (including BeyondCore)

San Francisco, CA, USA

www.salesforce.com

Salesforce, already well known for its CRM solution, has entered the BI market with an internally developed product called Wave Analytics. In 2016, Salesforce also acquired BeyondCore, a data discovery solution targeted at business users.

Salient

Vancouver, BC, Canada

www.salientbi.com

Salient's Collaborative Intelligence Suite offers analytics, interactive dashboards and collaborative knowledge management all within one integrated business intelligence/performance management tool.

ThoughtSpot

Palo Alto, CA, USA

www.thoughtspot.com

A search-based BI solution for visual exploration and data discovery with integrated machine learning algorithms.

Zoomdata

Reston, VA, USA

www.zoomdata.com

A big data exploration, visualization and analytics platform for stream processing data including cloud, Hadoop/HDFS, social media and proprietary databases to create real-time visualizations.

Related Research Documents

The following BARC and CXP Group documents complement BARC Score Business Intelligence:

- **The BI Survey**

The world's largest vendor-independent survey of BI end-users analyzes the latest trends and reveals how real-world end users currently rate their BI vendors and products.

http://www.bi-survey.com/

- **Vendor Performance Summaries**

Product reviews with detailed insights into more than 30 business intelligence solutions, covering all the major players in the BI space.

http://www.barc-research.com/research/business-intelligence/bi-product-reviews/

- **BI Trend Monitor**

An annual report examining the trends currently shaping the business intelligence and data management market.

http://www.barc-research.com/research/bi-trend-monitor/

- **The PAC SITSI Research Platform**

Market and vendor analyses for analytics and many other topics.

https://www.pac-online.com/sitsi

BARC Score Consulting Services

BARC has many years of experience in helping organizations to choose the right business intelligence software to meet their business requirements. Hire us to support your BI tool selection project and guide you through each step of the process.

What's included	BARC Score Inquiry	MyScore Workshop	MyScore Short List
	990 EUR	3,900 EUR	11,900 EUR

• BARC Score Paper
  o Score methodology
  o Score graphic
  o Page per vendor with
    ▪ Vendor and product description
    ▪ Strengths and weaknesses
	✓	✓	✓

• Analyst inquiry time (connect directly with BARC analysts)	One hour	During the workshop	During the workshop
• Explanation of the BARC Score concept		✓	✓
• Overviews of the BI vendors rated in BARC Score as well as other interesting players		✓	✓
• Requirements discussion and weighting		During the workshop	Dedicated requirements analysis workshop
• Verbal tool recommendation		✓	✓
• Presentation of short list (including filters, exclusion criteria and explanation per excluded vendor)			✓

Business Application Research Center – BARC GmbH

Germany
BARC GmbH
Berliner Platz 7
D-97080 Würzburg
+49 931 880651-0
www.barc.de

Austria
BARC GmbH
Goldschlagstr. 172 / Stiege 4 / 2.OG
A-1140 Wien
+43 1 8901203-451

Switzerland
BARC Schweiz GmbH
Täfernstr. 22a
CH-5405 Baden-Dättwil
+41 76 3403516

France
BARC France (Le CXP)
8 Ave. des Ternes
FR-75017 Paris
+33 1 530505 53

Rest of the World
+44 1536 772 451
www.barc-research.com