Bend, Oregon
December 2018

Ventana Research performed this research and analysis independently. Our goals were to determine the Value Index for Analytics and Business Intelligence and to evaluate vendors and products in accordance with the Ventana Research analytics and business intelligence blueprint. We charged no fees for this research and invited to participate all vendors that are delivering relevant applications to enable analytics and business intelligence. This report includes products generally available as of August 2018.

Our purpose in conducting this research was to evaluate the maturity of software vendors and products and their value for enterprise use in analytics and business intelligence. Nothing in this report of our research is intended to imply that one vendor or product is the right choice for any particular organization. Rather, it provides a baseline of knowledge that organizations can use to evaluate vendors and products to manage and improve analytics and business intelligence. Unlike IT analyst firm reports that use subjective factors to score vendors, our research is based on thorough research-based analysis of customer assurance and product categories that best represent how an organization should evaluate its technology supplier.

The full Value Index report with detailed analysis is available for purchase. We can provide detailed insights on this Value Index and advice on its relevance to an organization through the Ventana On-Demand research and advisory service. Assessment services based on this research also are available.

We certify that Ventana Research performed the research to the best of our ability; that the analysis is a faithful representation of our knowledge of vendors and products; and that the analysis and scoring are our own.
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Analytics and Business Intelligence

Ventana Research provides unique insight into the analytics and business intelligence (BI) industry. This is important, as its processes and technology play an instrumental role in enabling an organization’s business units and IT to utilize its data in both tactical and strategic ways to perform optimally. To accomplish this, organizations must provide technology that can access the data, generate and apply insights from analytics, communicate the results and support collaboration as needed.

Analytics and BI utilize mathematics to create measurements and metrics that enable data to be visualized in whatever form, in whatever tool or application is needed to provide insights and guide decision-making. In today’s data-driven world, organizations must use BI to understand and plan the details of their operations. BI can be used across every department in an organization, across the lines of business and IT, and can guide employees at all levels to understand and act on data. Organizations also use BI to track costs, create staffing plans, assess employee and supplier performance, identify variances and plan corrective actions. BI also helps inform employees and facilitate communication throughout the organization to coordinate actions toward a common mission and specific objectives. Operating without BI would be like flying a plane without an instrument panel.

While BI as a modern business tool dates back some three decades, the elements of business intelligence today have expanded well beyond query, reporting, analysis and publishing. The tools have expanded to include the sourcing and integration of data and the use of analytics for planning and forecasting. They also include dashboards that present analytics in a variety of visualizations. BI today also enables presentation of analytics in the form of natural-language narratives. And the collaborative sharing of insights is helping to reduce the time to take action and make decisions. Recently, artificial intelligence and machine learning have begun to extend BI, enabling it to classify, predict and suggest behaviors that will help improve business operations.

Ventana Research has conducted market research in a spectrum of related areas including Data Preparation, Machine Learning, Data and Analytics in the Cloud, Next-Generation Predictive Analytics and Big Data Analytics and Integration. We have examined the expansion of business intelligence through the use of cloud computing, mobility and advanced analytics as well as how BI products use collaboration capabilities, social media techniques and location-related analytics. The findings of these research undertakings guide our comprehensive approach to our Value Index for Analytics and Business Intelligence.
Self-service analytics continues to be a goal for most organizations and those that can achieve it report greater satisfaction with their use of analytics and BI. Nearly three-quarters (72%) of those who can access analytics without the assistance of IT said they are satisfied while slightly more than half (54%) of those who require the assistance of IT said the same.

Organizations seeking to provide self-service analytics also need to provide self-service data preparation. In many of our research studies, preparing data is reported as the most time-consuming part of the analytics process. However, that preparation, and thus the involvement of IT, appears sometimes to be necessary; our research finds that fewer than half (42%) of organizations are comfortable allowing business users to work with data that has not been integrated or prepared for them by IT.

Interest in advanced analytics, including artificial intelligence and machine learning, continues to grow and its availability is an important consideration in examining analytic platforms. Organizations that analyze their data using machine learning technology state that they gain a competitive advantage, improve customer experiences, increase sales and respond faster to opportunities. In light of these benefits it is no surprise that nearly two-thirds (62%) of organizations report using machine learning today and nearly all (96%) organizations participating in our research said they plan to use machine learning eventually.

We also see a growing interest in – and a growing set of capabilities for – the use of collaboration in conjunction with analytics. Two-thirds of organizations report they are using or plan to use collaboration with analytics. Collaboration provides a way for organizations to derive more value from their analytics by sharing and interacting on the results with others who can put the information to use in the operations of the business. Collaboration also helps
making it easier for individuals to find the information or analyses that they need more quickly.

For analytics to be effective, they need to be available to line-of-business personnel as needed in their normal course of conducting business, which today means providing rich mobile access to analytics to support a mobile workforce seeking to conduct business in any location at any time. Workers today expect these mobile capabilities, which means organizations must make choices to provide analytics and BI platforms that can deliver them.

Many organizations want analytics embedded into their operational systems, which typically requires custom development. Embedded analytics make it easier for line of business workers to access the information they need without having to access a different system and also reduce the need for additional training. Vendors have made significant progress in building out rich APIs that provide access to nearly all the functionality of their products. Ventana Research projects that by 2021 more than half of all analytics will be generated via embedded analytics.

Ventana Research projects that by 2021 more than half of all analytics will be generated via embedded analytics.

Over time, two categories of vendors emerged, those offering interactive visualization and data discovery capabilities and those offering more static query, reporting and dashboarding. Initially these were separate categories, but as organizations realized that both sets of capabilities were important to the process of BI, vendors in each category began expanding their capabilities to include both sets of capabilities. Vendors who came to market with visualization and discovery capabilities have been adding traditional query, reporting and dashboarding. And traditional query, reporting and dashboarding vendors have been adding visualization and discovery of analytics. The challenge for both sets of vendors is to deliver breadth of capabilities while maintaining ease of use. This Value Index takes all of these factors into consideration across the evaluation categories.

The Value Index for Analytics and Business Intelligence uses the Ventana Research methodology, a framework that evaluates application vendors and their products in seven categories of requirements. Five are product-related, assessing usability, manageability, reliability, capability and adaptability, while two quantify the customer assurance issues of vendor validation and total cost of ownership and return on investment (TCO/ROI).
This Value Index report evaluates the following vendors that offer products that deliver analytics and business intelligence as we define it: BOARD International, Domo, Infor, Information Builders, IBM, Looker, Microsoft Corporation, MicroStrategy, Oracle Corporation, Qlik, Salesforce.com, SAP, SAS, Tableau Software and Yellowfin.

We urge organizations to do a thorough job of evaluating analytics and business intelligence systems and tools and offer this Value Index as both the results of our in-depth analysis of these vendors and as an evaluation methodology. The Value Index can be used to evaluate existing suppliers and also provides evaluation criteria for new projects; applying it can shorten the cycle time for an RFP.

Unlike many IT analyst firms that rank vendors from an IT-only perspective or that focus on a specific type of analytics and BI, Ventana Research has designed the Value Index to provide a balanced perspective of vendors and products that is rooted in an understanding of business drivers and needs. This approach not only reduces cost and time but also minimizes the risk of making a decision that is bad for the business. Using the Value Index will enable your organization to achieve the levels of efficiency and effectiveness needed to optimize analytics and business intelligence.

Value Index Overview

This report on the Ventana Research Value Index: Analytics and Business Intelligence in 2019 is the distillation of a year of market and product research efforts by Ventana Research, the premier benchmark research and advisory services firm. Built on a foundation of 16 years of business and technology research, this unbiased, fact-based index is the first such industry undertaking to assess the value of software designed specifically for enabling analytics and business intelligence.

This Ventana Research Value Index is an analytic representation of our assessment of how well vendors’ offerings meet buyers’ requirements for software that enables and supports analytics and business intelligence. The Index evaluates the software in seven key categories that are weighted to reflect buyers’ needs based on our expertise and research. Five are product-related: Usability, Manageability, Reliability, Capability and Adaptability. In addition, we consider two customer assurance categories: Vendor Validation and Total Cost of Ownership and Return on Investment (TCO/ROI). To assess
functionality, one of the components of capability, we applied the Ventana Research analytics and business intelligence methodology and blueprint, which links the personas and processes for analytics and business intelligence to an organization’s requirements.

We use our research-based analytics and methodology to generate the Value Index percentages. We then build them into a set of indicators that we present graphically as pie charts that express levels of performance. The extent to which each pie chart is full reflects our assessment of value to you, the potential buyer, on a scale also expressed in percentages. Thus, we present the Value Index in both analytic and graphic form, each depicting the value of a specific vendor’s offering in terms of what it can deliver that is relevant to your analytics and business intelligence needs.

The Value Index is not an abstraction; Ventana Research uses a carefully crafted best practices-based methodology to represent how organizations actually will assess vendors and products. We have designed the Value Index to ensure that it provides objective research and guidance to organizations looking to assess and evaluate their applications for business and IT needs. The structure of the Value Index reflects our understanding that the proper evaluation of vendors and products involves far more than just examining product features or potential revenue or customers generated from marketing and sales. We believe it is important to take this approach, since making the wrong decisions can raise the total cost of ownership, lower the return on investment and hamper an organization’s ability to reach its performance potential. In addition, this approach can reduce the project’s development and deployment time and eliminate the risk of determining a short list of vendors that does not represent a best fit for your organization.

To ensure the accuracy of the information we collected, we required participating vendors to provide evaluation data across the aforementioned seven categories designed to reflect the concerns of a well-crafted RFP. Ventana Research then validated the information, first independently through our database of product information and extensive web-based research, and then in consultation with the vendors. The majority of selected vendors participated in one-on-one consultative sessions, after which we requested them to provide additional documentation to support any new inputs.
The Findings

The Value Index for Analytics and Business Intelligence in 2019 finds Information Builders first on the list with MicroStrategy second and IBM third. Companies that score in the top three in any category earn the designation Value Index Leader. IBM has done so in four of the seven categories; Infor, Information Builders and MicroStrategy are Value Index Leaders in three categories; and BOARD, Domo, SAP and SAS in two categories.

Our Value Index methodology determines the weighting for each of the seven categories to best represent the needs of buyers. The Capability category makes up 20 percent of the Value Index rating. It is designed to assess the product across a broad range of business intelligence capabilities, including data modeling and access, analytic discovery, analytic integration, predictive capabilities, collaboration and support for communicating and acting upon analytics. Ventana Research evaluates more than 500 different function points in 50 different categories to assess capabilities. In this category, MicroStrategy, Information Builders and IBM are Value Index Leaders.

Usability is also critical for meeting the needs of all, including executives, management, managers, workers, analysts and those responsible for administration of analytics and BI. Due to this level of importance the weighting for this category is 20 percent of the Value Index score. Vendors’ products are evaluated in this category on the support they provide for the range of roles in the analytics process – executives, managers, analysts, users and IT administration. Domo, MicroStrategy and SAP are the top three vendors in this category with Yellowfin very close behind. This category had the least variation between the best and poorest performing vendors.

For analytics processes to operate efficiently, the software on which they run must be able to scale and perform reliably on existing architectures; thus
reliability is weighted at 15 percent of the Value Index. MicroStrategy, Infor and Information Builders are the Value Index Leaders in this category. Adaptability is also weighted at 15 percent; this category assesses support for configuration and development and integration across usage, processes, applications and data. Infor, IBM and SAS are the highest-rated vendors in this category.

Manageability, which includes administration, security and licensing, is weighted at 15 percent of this Value Index. Manageability proved to be a challenging category for some – vendors either performed well or struggled to meet business and IT needs for effective installation, deployment and administration. Information Builders, BOARD and SAP are the top three vendors in this category.

In TCO/ROI, a category that evaluates vendor support for buyer investment evaluation through information, tools and services to help with the business case, makes up 10 percent of the Value Index score, leaders Domo, Infor and IBM are well prepared. However, many of the others struggled to provide the tools and information organizations need to make a sound buying decision that is based on the product’s benefits and costs.

The Validation category contributes 5 percent to the overall Value Index score. The leaders here are BOARD, IBM and SAS, but this assessment finds wide variation in the level of detail that vendors provide regarding many areas including services and support. A lack of information about a vendor’s product support is a challenge that no organization looking to evaluate and select an analytics and BI product simply should have to face. After all, a vendor’s success is about not just technology but also its relationship with the customer and the support it provides.

As noted above, this Ventana Research Value Index evaluates the software in seven key categories. The chart below places the product-related and customer assurance scores on the X and Y axes respectively to provide a visual representation of our Value Index scores. Vendors whose products scored higher in aggregate in the five product categories place farther to the right; the combination of scores for the two customer assurance categories determines their placement on the vertical access. In short, vendors that place closer to the upper-right on this chart scored higher than those closer to the lower-left.
We warn that close vendor scores should not be taken to imply that the packages evaluated are functionally identical or equally well suited for use by every organization or for a specific process. Although there is a high degree of commonality in how organizations handle analytics and business intelligence, there are many idiosyncrasies and differences in how they do these functions that can make one vendor’s offering a better fit than another’s with a particular organization’s needs.

After more than a decade of technology advances, all the products we evaluated are feature-rich, but not all the capabilities they offer are equally valuable to users. Moreover, the existence of too many capabilities may be a negative factor for an organization if it introduces unnecessary complexity. Nonetheless, one company may decide that a larger number of options is a plus, especially if some of them match its established practices or better support a new initiative that is driving the purchase of new software.

Other factors besides features and functions or assessments about the vendor can turn out to be a deciding factor. For example, a company may face budget constraints such that the TCO evaluation can tip the balance to one vendor or another. This is where the Value Index methodology and the appropriate weighting can be applied to determine the best fit of vendors and products to your specific needs.
# Products Evaluated

<table>
<thead>
<tr>
<th>Vendor</th>
<th>Product Names</th>
<th>Version</th>
<th>Release Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOARD International</td>
<td>Board</td>
<td>10.3</td>
<td>2018</td>
</tr>
<tr>
<td>Domo</td>
<td>Domo</td>
<td>August</td>
<td>2018</td>
</tr>
<tr>
<td>IBM</td>
<td>Cognos Analytics Planning Analytics ILOG CPLEX Optimization Studio SPSS Statistics</td>
<td>11.0.12 2.0.4 12.8 25</td>
<td>2018</td>
</tr>
<tr>
<td>Infor</td>
<td>Birst Enterprise</td>
<td>5.31</td>
<td>2018</td>
</tr>
<tr>
<td>Information Builders</td>
<td>WebFocus iWay Omni-Gen</td>
<td>8.2.04 8.0.1 3.2</td>
<td>2018</td>
</tr>
<tr>
<td>Looker</td>
<td>Looker</td>
<td>5.8</td>
<td>2018</td>
</tr>
<tr>
<td>Microsoft Corporation</td>
<td>PowerBI</td>
<td>2.61.5192.321</td>
<td>2018</td>
</tr>
<tr>
<td>MicroStrategy</td>
<td>MicroStrategy</td>
<td>10.11</td>
<td>2018</td>
</tr>
<tr>
<td>Oracle</td>
<td>Analytics Cloud Business Intelligence Enterprise Edition BI Mobile Version</td>
<td>July 12.2.1.3 20.0.0.2</td>
<td>2018</td>
</tr>
<tr>
<td>Qlik</td>
<td>QlikSense QlikView</td>
<td>June 2018 November</td>
<td>2017</td>
</tr>
<tr>
<td>Salesforce</td>
<td>Einstein Analytics Platform (Includes Sales and Service Analytics) Einstein Discovery</td>
<td>Summer 2018 Summer</td>
<td>2018</td>
</tr>
<tr>
<td>SAP</td>
<td>SAP Analytics Cloud SAP Lumira</td>
<td>Continual 2.1</td>
<td>2018</td>
</tr>
<tr>
<td>SAS</td>
<td>SAS Visual Analytics SAS Visual Data Mining and Machine Learning SAS Enterprise Miner</td>
<td>8.3 8.3 14.3</td>
<td>2018</td>
</tr>
<tr>
<td>Tableau</td>
<td>Tableau Server Tableau Desktop Tableau Online Tableau Prep</td>
<td>2018.2</td>
<td>2018</td>
</tr>
<tr>
<td>Yellowfin</td>
<td>Yellowfin BI</td>
<td>7.4</td>
<td>2018</td>
</tr>
</tbody>
</table>
Value Index Methodology

The Ventana Research Value Index is an analytic assessment of how well vendors’ offerings will address buyers’ requirements for a particular category of software. The Value Index, which we have prepared for more than a decade, is structured to replicate an RFI/RFP process by incorporating all criteria needed to evaluate, select and deploy technology and maintain relationships with vendors. Ventana Research believes that an objective review of specific vendors and products is critical to the establishment of analytics and business intelligence. An organization’s review should include a thorough analysis of both what’s possible and what’s relevant. Our research will help you understand how vendors and products fit into an analytics and business intelligence framework.

To prepare this value index, we drew on our research-related work with organizations over the past 15 years, which has included benchmarking and advising thousands of organizations. Our continuous market research across analytics and data provides the context of the real needs of buyers; this was complemented by our research on technology suppliers, knowledge of the market and expertise in this area.

All vendors that offer relevant products and meet the inclusion requirements are invited to participate in the Value Index evaluation process, at no cost to them. If a vendor does not respond to or declines the invitation, a determination is made whether to include it in our analysis based on our defined set of inclusion criteria. These criteria include vendors’ geographic operations, customer base and revenue as well as all relevant aspects of the products’ fit for the particular category being evaluated. If a vendor is actively marketing, selling and developing a product as reflected on its website that is within the scope of the Value Index, it is automatically evaluated for inclusion. We have adopted this approach because we view it as our responsibility to assess all relevant vendors whether or not they choose to actively participate. This report includes products generally available as of August 2018.

To ensure the accuracy of the information we collect and ensure that the Value Index reflects the concerns of a well-crafted RFP, we require participating vendors to provide evaluation data across all seven categories. Ventana Research then validates the information, first independently through our knowledge base of product information and extensive web-based research, and then in consultation with the vendors.

The Value Index is designed to be independent of the specifics of vendor packaging and pricing and whether the products are priced or sold as part of a suite or bundle or individually. To represent the real-world environment in which businesses operate, we include vendors that offer suites or packages of products, as the relevant individual modules or applications must still be
evaluated by those responsible for those business processes. We take no position on the offering approach of the products or packages; where options exist, organizations using the Value Index will need to decide whether they choose a suite of products or individual applications that best meet their requirements.

Here are the major requirements as they were presented to potential participants:

- A vendor could submit as many products as it wished; each was evaluated to determine individual category compliance as well as ranking in the functionality evaluation.
- Any package of products that was submitted for Value Index consideration also had to be listed on the vendor’s website and be generally available to prospective buyers.
- Vendors were requested to complete a questionnaire detailing the specific functional requirements and capabilities of products submitted.
- Verification of functionality was required through product documentation and/or a demonstration of the actual product.
- Vendors were asked to respond to questions about specific criteria in all of the seven evaluation categories to provide us with information while providing insight into the vendor’s ability to meet specific criteria.

Our knowledge and expertise in the market, drawn from continuously assessing vendors and products, our benchmark research, a Value Index questionnaire, interviews with each vendor and reviews of the products themselves provided the input for this research. Across the seven categories, each response was assessed and reviewed and scores assigned. After validation, we aggregated the scores to determine the vendor’s and the product’s score totals. If a vendor submitted more than one product for evaluation, we included the product with the best score in our capability evaluation. The result is the vendor’s best product fit for our criteria.

To arrive at the overall Analytics and Business Intelligence Value Index for a given vendor, we weighted each category to reflect its relative contribution to the value as realized by an organization. We established the weighting of the evaluation categories at the beginning of the process based on our experience and prioritizations derived from our benchmark research on analytics and business intelligence.

We have made every effort to encompass in this Value Index the functional requirements and capabilities of our analytics and business intelligence blueprint, which we believe reflects what a well-crafted RFP should contain. Even so, there may be additional areas that affect which vendor and products best fit your particular requirements. Therefore, while this research is complete
as it stands, utilizing it in your own organizational context is critical to ensure that products deliver the highest level of support for your projects in this area.
Evaluation Categories

Ventana Research designed the evaluation categories to reflect the breadth of the real-world criteria incorporated in a request for proposal to vendors in analytics and business intelligence, based on our benchmark research. We evaluated vendor submissions for the Ventana Research Value Index for Analytics and Business Intelligence in seven categories, five relevant to the product or package being evaluated and two to the vendor. Each section below presents the analysis and ranking of vendors.

Usability of the Product

The Usability category involves evaluation criteria intended to explore utility for varied levels of business and the diverse ages and competencies of organizations’ employees. The evaluation criteria include the extent to which the product provides the support needed by each of the functional roles involved in enabling analytics and business intelligence – executives (CxO), management (EVP, SVP, VP), managers, directors, analysts and those involved from the IT organization. They also include how sophisticated the product’s support of mobile, Web and voice technologies is and the extent to which the product design enables its use by workers of different generations. The Usability section examines how effectively the vendor has addressed the human interface aspects of the product. The Value Index for Analytics and Business Intelligence in 2019 weights Usability at 20 percent of the overall rating. The analysis finds the Usability Value Index Leaders to be Domo, MicroStrategy and SAP.
**Manageability of the Product**

The Manageability category involves evaluation criteria intended to ensure the products meet business and IT needs for installation, deployment and administration. The evaluation criteria include the support that the product provides for administration by IT and by business. They also include the flexibility of the security provisions built into the application with respect to user identity, role and access, how effective the data security is that the application provides, to what extent it supports auditing and compliance, what the license options are, how use is audited and what investments are required in licensing or subscription and maintenance. The Value Index for Analytics and Business Intelligence in 2019 weights Manageability at 15 percent of the overall rating. The analysis finds the Manageability Value Index Leaders to be Information Builders, BOARD International and SAP.

**Reliability of the Product**

The Reliability category involves evaluation criteria intended to ensure that the products can reliably deliver the performance and scalability needed. The evaluation criteria include the nature of the product’s support for an organization’s IT architecture at the level of the enterprise, the network, the server and the data, and the sophistication of its development and customization capabilities. The criteria also include the extent to which it supports access by remote and mobile users, how well and quickly it performs server processing, how well it scales in terms of number of users, volume and complexity of data and server demand, and what investments are required to ensure reliability. The Value Index for Analytics and Business Intelligence in 2019 weights Reliability at 15 percent.
of the overall rating. The analysis finds the Manageability Value Index Leaders to be MicroStrategy, Infor and Information Builders.

**Adaptability of the Product**
The Adaptability category applies evaluation criteria designed to ensure that the products can be configured and customized to meet the needs of a given business. The evaluation criteria include configuration flexibility, development and programming support for customization, and whether it supports integration into mobile and web-based platforms. The criteria also include how well the product operates across data-related process and workflow systems, whether it can interface well with business applications, and what investments are made to enhance adaptability. The Value Index for Analytics and Business Intelligence in 2019 weights Adaptability at 15 percent of the overall rating. The analysis finds the Manageability Value Index Leaders to be Infor, IBM and SAS.

**Capability of the Product**
The Capability category involves criteria to evaluate the fit between the capabilities of the products to support analytics and business intelligence and the needs of various groups within the business – from managers and executives to workers, analysts and administrative and IT personnel. In this research, Ventana Research evaluated more than 500 different function points in 50 different categories to assess the capabilities of vendors’ products. These categories encompass data, analytics and communication capabilities. The data category analysis included defining data models, accessing and integrating various sources of data and managing the quality of the
data. Analytics analysis included discovery, integration and customization, and advanced analytics. Communication analysis included collaboration, dashboards, distribution of information and the ability to recommend actions. The Value Index for Analytics and Business Intelligence in 2019 weights Capability at 20 percent of the overall rating. The analysis finds the Capability Value Index Leaders to be MicroStrategy, Information Builders and IBM.

Customer Assurance: Validation of the Vendor
The Validation category applies evaluation criteria designed to assess the vendor’s commitment to the market segment along with the breadth of its communication of relevant information. The evaluation criteria include the extent to which the vendor is focused on and committed to this product line, how stable the vendor company’s management and financial condition are and what existing customers say about the company and its products. The criteria also include the extent to which the vendor can provide a clear roadmap of the product line’s development and direction, what services it provides to support deployment, and the quality of its product support. The Value Index for Analytics and Business Intelligence in 2019 weights Validation at 5 percent of the overall rating. The analysis finds the Validation Value Index Leaders to be BOARD International, IBM and MicroStrategy.
Customer Assurance: TCO/ROI of the Vendor

The TCO/ROI category applies evaluation criteria designed to assess the value the vendor delivers with its products. The evaluation criteria include the extent to which the vendor is focused on and committed to this product line and how sophisticated it is in demonstrating product value, total cost of ownership and total benefit of ownership. The evaluation criteria also include an evaluation of the tools and documentation it provides to enable customer evaluation of ROI and TCO and what the vendor cites as its investment in optimizing customer TCO and ROI. The Value Index for Analytics and Business Intelligence in 2019 weights TCO/ROI at 10 percent of the overall rating. The analysis finds the TCO and ROI Value Index Leaders to be Domo, Infor and IBM.

### Ventana Research Value Index

<table>
<thead>
<tr>
<th>Vendors</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domo</td>
<td>86.5%</td>
</tr>
<tr>
<td>Infor</td>
<td>79.6%</td>
</tr>
<tr>
<td>IBM</td>
<td>79.1%</td>
</tr>
<tr>
<td>Information Builders</td>
<td>67.7%</td>
</tr>
<tr>
<td>BOARD International</td>
<td>66.6%</td>
</tr>
<tr>
<td>Qlik</td>
<td>65.3%</td>
</tr>
<tr>
<td>SAP</td>
<td>65.2%</td>
</tr>
<tr>
<td>Salesforce.com</td>
<td>62.0%</td>
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<tr>
<td>MicroStrategy</td>
<td>61.1%</td>
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<tr>
<td>Tableau Software</td>
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<tr>
<td>SAS</td>
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<td>Microsoft Corporation</td>
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</tr>
<tr>
<td>Looker</td>
<td>49.2%</td>
</tr>
<tr>
<td>Oracle Corporation</td>
<td>47.8%</td>
</tr>
<tr>
<td>Yellowfin</td>
<td>46.9%</td>
</tr>
</tbody>
</table>

Source: Ventana Research Value Index Analytics and Business Intelligence © Ventana Research 2018; All Rights Reserved
Weighted Scoring of Vendors Across Categories:
The table below presents the Value Index analysis of each of the seven evaluation categories for each participating vendor. The first column shows the overall Value Index rating for each. We urge organizations to identify which of the analytics and business intelligence categories are priorities and then to use the Value Index findings presented in the charts above and this table to identify which vendors are most likely to support their specific needs.

<table>
<thead>
<tr>
<th>Vendors</th>
<th>Overall Rating</th>
<th>Usability</th>
<th>Manageability</th>
<th>Reliability</th>
<th>Adaptability</th>
<th>Capability</th>
<th>Validation</th>
<th>TCO/ROI</th>
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</thead>
<tbody>
<tr>
<td>BOARD International</td>
<td></td>
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Source: Ventana Research Value Index Analytics and Business Intelligence© Ventana Research 2018; All Rights Reserved
How To Use This Value Index

This research on tools and systems can provide you with insight into the value of your existing and new investments and a framework to assess your initiatives and programs. Business and IT improvement efforts should be based on best practices and research that deliver value quickly. Ventana Research recommends that you organize your efforts around our blueprint for this topic and use the Value Index to determine which vendors will best satisfy your needs for analytics and business intelligence.

Be sure to define both business and IT requirements as part of an improvement process based on these research results. We advocate a structured approach such as our DecisionCycle™, an eight-step process for choosing and deploying analytics and business intelligence. You can incorporate these steps into a program document that will both summarize and detail your initiative or project. Then consult the Value Index to ensure you make choices that will yield the results you want.

The DecisionCycle™ steps detailed below provide a framework for assessing the maturity of your business and IT efforts and determining how to align your people, processes and technology investments.

1. **Business Goal and Purpose**
   Define the mission of the business project, the specific goals that you want to accomplish and the desired benefits. In other words, what are you doing, why is it important and what outcome do you want to achieve? The goals should be grounded in your organization’s strategy and plans, including how they link people to key performance indicators. This step will deliver documentation of the mission and goals of the project from a business perspective.

2. **Business Requirements**
   What must be done from a business perspective to achieve these goals? Defining the business requirements clarifies why specific capabilities are required and sets the stage for classifying the user community’s roles. This step will deliver clearly documented business requirements.

3. **User Community and Usage Requirements**
   It is critical to understand functionally the types of users involved. Define your users’ roles in terms of the business goals to be achieved. Every organization will have different user classifications, but typical roles are management, analysts, power users and information consumers. This step will deliver a classification of users and their usage requirements.

4. **Functional Requirements and Capabilities**
What needs to be done, and who will do it? The functional requirements are the framework that enables individuals to understand and work toward the stated business requirements and goals. This step will deliver a set of priorities and weightings that connect business to IT so that everyone understands what is required for your project to succeed.

5. **Organizational Maturity**
   Evaluate the maturity of your organization in terms of analytics and business intelligence. The organization can progress only as far as the capabilities of top management and key line managers allow. This step will deliver a benchmark of your organizational maturity in analytics and business intelligence.

6. **Technology Approach and Master List**
   Determine the technology approach that most closely aligns to your organization’s requirements, and develop a master list of products and vendors that best fit your needs. Then create a scoring model that will evaluate products. This step will deliver a master list of vendors and products prioritized for further evaluation.

7. **Business and Technology Evaluation Criteria**
   Define the business and technology criteria that you will use to evaluate the vendors, using as a guide those drawn from our benchmark research that we have used to build the Value Index. These criteria should include usability, manageability, reliability, functionality, adaptability, validation and TCO and ROI. This step will deliver the short list of vendors and products to evaluate for final selection.

8. **Evaluate and Select**
   Evaluate the short list of vendors based on your business and technology criteria, and select your preferred vendor for the project. This evaluation should include a proof of concept to assess and validate vendors’ products. This step will determine the vendor that best fits your business project and will be your technology partner in analytics and business intelligence.
Analytics and Business Intelligence Vendors Evaluated in This Value Index

Vendors that participated in the research are highlighted in this section. For each we provide its own description, taken from its website; these do not represent Ventana Research’s assessment, which follows them. The pie charts shown correspond graphically to the percentages at right; together they represent each vendor’s performance on the value scale overall and for each category. “Value Index Leaders” are those vendors that have earned a performance percentage among the top three either overall or in a product or customer assurance category.

BOARD International [https://www.board.com]

Company and Product Profile
“The new era of decision-making; Analyze, simulate, plan and predict in a single platform.”

“BOARD gives you all the freedom to build your own applications in a fraction of time and cost required by traditional solutions. The BOARD offering is enriched by a suite of pre-built applications, which cover a set of key decision-making processes that are standardized across different industries and organization.”

Ventana Research Evaluation
Most BI products are read only. BOARD is one of a five vendors evaluated that offers a combination of planning and simulation capabilities coupled with interactive discovery, reporting and dashboarding. This combination of capabilities helped Board earn an overall ranking of fifth in the Value Index. The product uses an in-memory architecture to support read/write capabilities necessary for planning applications and to enhance performance. The in-memory architecture requires data to be imported into BOARD for analyses. It is available for on-premises deployments or as a cloud-based service.

The company ranked first in Validation with readily available case studies and
customer references. BOARD’s product ranked second in Manageability with good capabilities for both IT administration and business administration of its systems. In Usability, Board ranked fifth with capabilities targeted to specific personas in both lines of business and IT. In the Capability category it is one of five products in the Value Index to offer robust interactive planning analyses.

However, BOARD could improve its product with more predictive analytics capabilities to complement the driver-based analyses it offers; also, more collaboration capabilities would increase the value of those analyses. BOARD’s lowest ranking is Adaptability where it places ninth. Better APIs and customization capabilities would help improve its score in this category.
Domo [https://www.domo.com/]

**Company and Product Profile**

“It started with highly respected, highly frustrated executives who felt locked out of their own business data. And when you get that much talent and experience focused on one problem—making data more accessible to business leaders—you get a phenomenal solution. Now, with more than $500 million in funding, Domo serves executives across every role and across a broad range of industries.”

“Pull from everywhere, integrate everything, connect everyone. Domo changes data from a currency to be banked into the fuel that drives business. Domo puts all of a business’s data to work for employees throughout the company. With 500+ data connectors, you can easily bring in data directly from any 3rd party source—cloud, on-prem, and proprietary systems.”

**Ventana Research Evaluation**

The public cloud offering for analytics and business intelligence by Domo, now a publicly traded company, ranks seventh overall in the Value Index. Its architecture is based on a data model that involves data loaded into Domo’s cloud service with connectors provided for hundreds of cloud and on-premises data sources. The company has continued to broaden the functionality of the product to make it more competitive with category leaders.

Domo’s product ranks first in Usability, which has been a consistent focus of the company. It also ranks first in TCO/ROI with good material to help support the business case for using its products. Domo also excels in the areas of collaboration and communication, supporting analytic business processes that include assigning tasks and tracking their progress to completion.

The company’s lowest rankings are in Reliability and Adaptability, where it ranks 11th and 10th respectively. More metrics that provided visibility into the use of resources and the performance of the system would help organizations better understand and plan their deployments of this product. Also, improved configuration, integration and API capabilities would allow organizations to include Domo in their existing business processes to get more value out of their implementations.
IBM  [https://www.ibm.com](https://www.ibm.com)

**Company and Product Profile**

“Business analytics - insight to action. Fuel creativity, find new opportunities, make confident decisions and drive operational efficiency. IBM Business Analytics can help you mitigate risks and increase operational efficiency in all areas of your business.”

“For the business user who needs to easily create compelling visualizations and dashboards. For the business leader who needs a proven, self-service analytics solution they can trust. For the enterprise that needs the scalability and analytics governance the business demands -- whether on-prem or on cloud -- only IBM Cognos Analytics delivers it all.”

**Ventana Research Evaluation**

IBM offers a comprehensive product line including products for discovery, interactive dashboards, reporting, planning and predictive analytics. It is one of the few vendors we evaluated to offer this breadth of functionality. The architecture of the offerings is based on a combination of data loaded into the system and dynamic queries of data in place. The company continues to integrate its various analytics products and as it advances that integration will make it easier for organizations to take advantage of IBM’s wide range of functionality.

IBM ranks third overall in the Value Index assessment. Because of its breadth of functionality it similarly ranks third in Capability. IBM and its products also performed well in the Adaptability and Validation categories. The products support a wide variety of configurations and can be integrated into various business processes. The company has a large number of references and provides quality case studies to help prospects understand how others use their products. IBM ranks third in TCO/ROI with good information and tools to establish the business case and strategic value of its product.

The company’s lowest ranking is in Reliability where it nonetheless places fifth. Better server scalability and performance would help improve its ranking here. Better integration of the various products in its portfolio would help to improve the product’s performance in the Usability and Manageability categories.
Infor [https://www.infor.com/](https://www.infor.com/)

**Company and Product Profile**

“Birst enterprise BI delivers the speed, self-service, and agility front-line business workers demand, and the scale, security, and control to meet rigorous corporate data standards.”

“Birst’s Networked Analytics and BI platform is a new and disruptive approach to cloud business analytics. Birst is the first platform that combines the best of both worlds: the capability, scale and data governance that IT needs with the agility, speed and usability of consumer-grade desktop tools.”

**Ventana Research Evaluation**

Birst operates as an independent subsidiary of Infor. Infor’s backing provides a global presence and financial support that was not available to Birst prior to its 2017 acquisition. The Birst Enterprise architecture supports cloud or on-premises deployments and the data model is designed to access data from a variety of sources in a networked or virtualized approach. Its flexible deployment options and integration with business processes and applications allow organizations to incorporate analytics into varied line of business activities. Additional advanced analytics and collaboration capabilities would make the product an even stronger offering.

The strength of Birst’s Enterprise product is its breadth. The company scored well in many of the categories we evaluate and earned an overall ranking of fourth. Birst’s best rating was in Adaptability where it ranked first due to the product’s flexible deployment and configuration options. Birst Enterprise is designed to be easily integrated into the existing infrastructure, applications and processes. The company also ranked second in both Reliability and TCO/ROI. In terms of Capability, Birst Enterprise ranked fifth overall with comprehensive functionality across many of the areas evaluated.

The category in which Birst ranked lowest is Usability where it placed ninth. Some improvements and modernization to the product’s user interface could help improve its performance here. The company can also improve usability for executives and IT personas. In the Capability category, while Birst was ranked highly, Enterprise lags behind other offerings in advanced analytics capabilities as it relies on third-party integration with R for most of these functions.
Information Builders [https://www.informationbuilders.com/](https://www.informationbuilders.com/)

**Company and Product Profile**

“For organizations where data is integral to success, Information Builders provides the industry’s most scalable software solutions for data management and analytics. Our integrated platform for business intelligence (BI), analytics, data integration, and data quality, combined with our proven expertise, delivers value faster, with less risk.”

“The WebFOCUS business intelligence (BI) and analytics platform helps companies use data more strategically across and beyond the enterprise. It provides organizations with everything they need to turn data into actionable insights for real business outcomes. WebFOCUS offers the right user experience for every user.”

**Ventana Research Evaluation**

Information Builders’ products offer one of the most comprehensive sets of capabilities in our Value Index assessment. The company has made recent investments to update the user experience, creating a much more modern user interface. Its products excel in the areas of integration and customization as well as manageability. The architecture used is based on a model of accessing the data directly in a variety of commercial databases and Hadoop distributions. The products support hundreds of different data sources.

Information Builders ranks first overall in the Value Index assessment. It also ranks first in Manageability and second in Capability. The breadth of the product line helps in its rankings here and the company provides deep support across all the Manageability criteria we evaluated. Its products also perform well in Reliability where it ranks third and Adaptability where it ranks fourth.

The lowest rankings for Information Builders are in Usability and Validation where it ranked eighth and seventh respectively. While the user interface has been improved dramatically, more support for collaboration among users would help. And more information and better demonstration of financial growth would improve its Viability ranking.
Looker [https://looker.com/](https://looker.com/)

**Company and Product Profile**

“Data is no longer just a place to find answers. It’s the place where ideas originate. And when everyone in your company is looking at the same numbers, sharing the same truth, they’ll be able to collectively make smarter, more informed decisions.”

“Looker has harnessed the power of SQL to create a uniquely powerful data analytics platform that helps companies get real value from their data. Now anyone can ask sophisticated questions of the data using familiar business terms.”

**Ventana Research Evaluation**

Looker distinguishes itself based on its modeling language, LookML. While the language is flexible and makes the product very extensible, this Value Index’s evaluation criteria favor products that rely more on graphical interfaces to deliver data modeling and analytic functionality as it makes these critical capabilities easier to use. The Looker product is available as a public cloud service but can also be installed and configured on-premises. Its architecture is based on a model of accessing data in-place in a variety of relational databases. The presentation components of the product offer a modern and clean user interface. The product also includes an integrated development environment for creating LookML and analytic applications.

Looker’s strengths are in Manageability, Validation and Reliability. It ranks sixth in Manageability, offering strong support for administration by both business and IT personnel. It also offers a flexible architecture and configuration, ranking seventh in Reliability. The company also offers good case study material and references to validate the value of its products.

Broader functionality would help improve the Looker product’s Capability score, where it ranks last. The criteria in this category include evaluations of various types of advanced analytics – predictive analytics, planning and optimization as well as collaborative decision-making – that Looker either lacks or where it relies heavily on third party integrations. As Looker adds more of these capabilities its Value Index showing can improve. Less reliance on LookML or providing a graphical alternative to LookML would also improve its last-place score in Usability.
Microsoft Corporation [https://www.microsoft.com]

**Company and Product Profile**

“Unleash the power in your data. Reimagine the realm of possibility. Microsoft data platform solutions release the potential hidden in your data—whether it's on-premises, in the cloud, or at the edge—and reveal insights and opportunities to transform your business.”

“Power BI is a suite of business analytics tools that deliver insights throughout your organization. Connect to hundreds of data sources, simplify data prep, and drive ad hoc analysis. Produce beautiful reports, then publish them for your organization to consume on the web and across mobile devices. Everyone can create personalized dashboards with a unique, 360-degree view of their business.”

**Ventana Research Evaluation**

Microsoft PowerBI, a public cloud offering that also is available in a desktop version, provides a broad set of business intelligence and analytics capabilities. It offers functionality across many of the categories we evaluate, but in most instances the current product does not match the best of the competition. Microsoft has an active third-party developer community offering extensions that make its product more useful and capable. The architecture supports loading data into PowerBI or directly querying data in a variety of on-premises or cloud-based commercial databases including distributions of Hadoop.

Overall Microsoft ranks 14th in the Value Index assessment. The product offers an effective user interface for analysts but does not do enough to support other roles, including executives. The company has frequent new releases and has announced significant new functionality for the product, but the Value Index assessment is based primarily on generally available functionality, not early releases or previews.

The other challenge for BI professionals is that Microsoft has such a large product portfolio, it is difficult to find information specific to PowerBI, such as case studies and services information. Consequently, Microsoft ranked no higher than 12th in any of the categories evaluated.
**MicroStrategy** [https://www.microstrategy.com](https://www.microstrategy.com)

**Company and Product Profile**

“We provide powerful software solutions and expert services that empower every individual with actionable intelligence, helping enterprises unleash the full potential of their people and investments. Our analytics and mobility platform delivers high-performance business applications that meet the needs of both business and IT.”

“MicroStrategy's powerful analytical engine, comprehensive toolsets, variety of data connectors, and scalable, open architecture ensure you have everything you need to extend access to analytics across every team and business function.”

**Ventana Research Value Index**

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MicroStrategy’s product offers one of the most complete sets of capabilities in our Value Index assessment. The product line consists of a number of different modules to deliver all this functionality. In recent years the company has reduced the complexity of installing and using these components and has significantly improved the user interface. The architecture is based on a model of direct access to data in a variety of commercial database products including connectivity to Hadoop.

MicroStrategy ranks second overall in the Value Index, with just a fractional percentage separating it from the first-place finisher. The product ranks first in the Capability and Reliability categories and second in Usability. MicroStrategy scores well in many of the categories we assess and is particularly strong in its architecture, flexibility and scalability. It ranks a close second in Usability based not only on the user interface of its products but also because it provides capabilities designed for various roles including lines of business personnel, analysts, managers, executives and IT personnel.

The company’s lowest rankings are for TCO/ROI and Manageability, where it ranks ninth and seventh respectively. In the latter category, the leaders offer slightly better flexibility across both business and IT administration of the system. Leaders also provide somewhat better tools to establish and document the business value of an investment in their products.
Oracle Corporation https://www.oracle.com

Company and Product Profile
“As technology evolves and the amount of data and data sources grow exponentially, you may have little or no time to rethink your analytics initiatives to change with a fast-paced business environment.”

“Oracle Analytics Cloud is a single platform that empowers your entire organization to ask any question of any data in any environment on any device. Easily build a semantic layer or use existing on-premises models to leverage business definitions in all your analytics. Configurable dashboards enable you to quickly analyze and manage activity across the entire system.”

Ventana Research Evaluation
Our analysis is based primarily on Oracle Analytics Cloud (OAC), a public cloud service that Oracle says provides “lift and shift” support for Oracle Business Intelligence Enterprise Edition. Oracle has developed a modern user interface for OAC as well as a broad set of capabilities. The product uses a model of importing data but also supports live access to several of the leading relational databases via its Remote Data Connector.

Overall Oracle ranks 11th in the Value Index assessment. Its best rankings are for Usability and Capability where it ranks seventh and ninth respectively. In addition to good capabilities for data access and interactive visualization assessed in the Value Index, the product provides most of the desired advanced analytics capabilities. Better collaborative capabilities would help drive its Usability score higher, as would better integration of the Essbase capabilities into the OAC offering.

Oracle’s lowest rankings are for Validation and TCO/ROI where it ranks last and 14th respectively. With a large portfolio of products it is difficult to find and evaluate information specific to the OAC products such as case studies and services.
Qlik [https://www.qlik.com](https://www.qlik.com)

**Company and Product Profile**

“Qlik® delivers intuitive platform solutions for self-service data visualization, guided analytics applications, embedded analytics and reporting to approximately 48,000 customers worldwide. Companies of all sizes, across all industries and geographies, use Qlik solutions to visualize and explore information, generate insight and make better decisions.”

“Develop, extend, and embed visual analytics in your apps, portals, anywhere - all done within a common governance and security framework. Use a modern analytics development environment to create and reuse data models, security configurations and visualizations to speed time to market.”

**Ventana Research Evaluation**

Qlik offers Qlik Sense and QlikView products with new developments generally appearing first in the Qlik Sense product line, an offering designed for cloud-based deployments. Qlik uses an in-memory architecture for highly responsive interactive analyses and the products can also be configured for live access to data sources in place. Combined, the products offer a broad range of capabilities for both ad hoc and preconfigured analyses such as dashboards and reports.

The best ranking for Qlik is sixth in the TCO/ROI category. The company does a good job providing tools and documentation to support an TCO/ROI analysis on the benefits of using its products. Its highest rating is in Manageability, where it provides to analysts the means to manage its products from discovery to dashboards. The next highest rating is in Usability, where it performed well in terms of specific usage of its analytics.

The Qlik product line does not offer as much forecasting, planning and predictive analytics as some of the other products we assess here and would benefit from more collaborative capabilities. It also lags in the Adaptability and Reliability categories compared to the other vendors assessed in the Value Index. Better capabilities to integrate Qlik into business processes and other applications would improve its Adaptability score; better metrics and configurability to support scalability across users and data would help improve performance in the Reliability category.
Salesforce.com [https://www.salesforce.com](https://www.salesforce.com)

**Company and Product Profile**

“We believe everyone can be a Trailblazer, and we’re building the technology to make it happen. The Fourth Industrial Revolution is changing the way people work, using robotics, AI, the Internet of Things, and more. By making these innovations easier and more accessible, we’re helping create a future with greater opportunity and equality for all.”

“Get the best tools for sales with Sales Cloud Einstein: Work smarter with AI apps. Save time with email productivity. Uncover trends and insights with advanced analytics. Leverage your own sales history to win more deals. Einstein Lead and Opportunity Scoring analyzes your data, predicts which leads and opportunities are most likely to convert, and displays intuitive factors behind the scores.”

**Ventana Research Evaluation**

Salesforce Einstein Analytics is a public cloud service. The “Einstein” name was adopted when Salesforce introduced AI features into its product. While the breadth of AI capabilities is limited, the company does a good job embedding and delivering those capabilities in a way that makes it easy for line of business personnel to take advantage of them. The architecture is based on accessing Salesforce data and loading other data into the Salesforce platform.

Salesforce Einstein Analytics performed best in Adaptability where it ranks sixth, exhibiting good capabilities for integration into business processes and other applications. The company also continues to be a leader with some of its collaboration features. In addition, Salesforce provides some interesting interactive tools for TCO/ROI analysis to help justify investments in its products.

The company has continued to expand its analytics capabilities and is becoming more competitive in this market, but still lacks some of the advanced analytics and communication capabilities we sought in this Value Index. Better data modeling and data access would help improve its Capability score.
Company and Product Profile
“SAP is the world leader in enterprise applications in terms of software and software-related service revenue. Based on market capitalization, we are the world’s third largest independent software manufacturer.”

“SAP Analytics Cloud. Discover, analyze, plan, predict, and collaborate in one integrated experience designed expressly for the cloud. Access all data and embed analytics directly into business processes to turn instant insight into quick action. Cloud deployment, Real-time analytics, Ad-hoc queries, Collaboration tools.”

Ventana Research Evaluation
Earlier this year SAP announced it was focusing on SAP Analytics Cloud, a public cloud service, as the primary solution for data discovery and presented a roadmap that combines SAP Analytics Cloud and SAP BusinessObjects Enterprise into a single hybrid solution. Consequently, our analysis is based primarily on SAP Analytics Cloud. Our analysis reveals a broad set of capabilities that supports its move to consolidate around a single product. It uses a model of importing data into the system, but also supports with some limitations live data connections to underlying data via SAP HANA and some other mechanisms.

Overall SAP ranks sixth in the Value Index. Its best rankings were third in Usability and Manageability. The product offers good support for a variety of personas ranging from IT to executives and managers. It provides a modern and clean user interface as well as robust administration and security capabilities.

The product has strong planning, forecasting and predictive analytics as well as some nice collaboration features but needs broader functionality to match the Capability leaders. In particular, better data access and integration and better communication of the outcome of the analytics process would improve its rankings. More performance metrics and configuration options would help improve its Reliability ranking.
**Company and Product Profile**

“Your inherent need to understand the world around you continually propels you forward. SAS speeds your journey toward discovery. Analytics is our story because it can redefine yours. We’ve been applying analytics to the toughest business problems for decades. With SAS, you get solutions built on a powerful analytics platform – and millions of lessons learned.”

“An analytics platform is a software foundation that's engineered to generate insights from your data in any computing environment. Built on a strategy of using analytical insights to drive business actions, this platform supports every phase of the analytics life cycle – from data, to discovery, to deployment. Scalable software based on 40-plus years of addressing the diverse needs of enterprise analytics. Trusted by the world’s top organizations to produce results that make a difference.”

**Ventana Research Evaluation**

SAS products offer both broad and deep analytics capabilities. They excel at some of the more advanced analytics we measure such as forecasting and predictive analytics. The products have a highly scalable architecture and can be configured to load data into a SAS database or can access data directly from several high-performance commercial database products.

The company’s highest rankings are in the Adaptability and Reliability categories, where it ranks third and fifth respectively. The products offer a number of development and configuration options. They are also adaptable to many corporate processes and systems. SAS provides good information to assess performance and manage the scalability of its implementations. SAS’s highest rating in Validation is due to its long standing in the market and its overall focus on analytics.

The company has recently been investing in improving usability for the Visual Analytics portion of its product line, but other portions of the product still lag in this important area. Better collaboration support would also help improve its Capability score.
Tableau Software [https://www.tableau.com/](https://www.tableau.com/)

**Company and Product Profile**

“When it comes to elevating people with the power of data, only Tableau combines a laser focus on how people see and understand data with the kind of robust, scalable platform you need to run even the world’s largest organizations.”

“Extend the value of your data across your entire organization with Tableau Server. Empower your business with the freedom to explore data in a trusted environment—without limiting them to pre-defined questions, wizards, or chart types. Have the peace of mind that both your data and your analytics are governed, secure, and accurate. IT organizations love Tableau for its ease of deployment, robust integration, simplicity of scalability, and excellent reliability.”

**Ventana Research Evaluation**

Tableau Software’s products use an in-memory architecture that delivers highly interactive analyses with good performance. To achieve this performance, data is generally loaded into an in-memory database that the product manages. There is also an option to access data directly in third-party/commercial databases. The product is available on premises and as a public cloud service. The company recently added data preparation capabilities to its product line.

Tableau’s products performed best in the Capability and Reliability categories, in both of which it ranks eighth. Tableau is known for its user interface and excels at interactive analyses, including interactive visualization for use by analysts. More capabilities to communicate information in fixed formats (which are often easier for novice users to consume) and more collaboration capabilities would improve its overall ranking in our assessment.

Also, the interactive nature of Tableau makes it less adaptable to other business processes; better integration capabilities would help improve its rankings in this category. The assessment also finds that Tableau has scant information readily available to validate the value of its products such as case studies and information on services.
Yellowfin [https://www.yellowfinbi.com/](https://www.yellowfinbi.com/)

**Company and Product Profile**

“Any BI can tell you what happened. Yellowfin tells you Why. Faster. We love data. We live for developing the world’s best BI and analytics platform that helps our clients increase their business performance. We connect people and their data.”

“Yellowfin delivers a complete enterprise analytics solution. Knowing where to find insights within your data is hard enough — having to also find time to build your own reports and dashboards makes it worse. Yellowfin uses machine learning to automate and expedite analysis with a single click so you never wait for a data analyst again.”

**Ventana Research Evaluation**

Yellowfin BI’s product has a clean, flexible user interface that supports a wide variety of roles within the organization, adapting well to both novice and expert users. The data architecture relies on third-party / commercial databases to hold the data being analyzed, which provides the power of the underlying database and doesn’t require moving the data to another data store. It has enterprise capabilities built into the platform, such as built-in approval processes as new data is brought into the system.

The product offers good support for a variety of personas ranging from IT to executives and managers, resulting in a fourth-place rank in the Usability category. Yellowfin provides a broad set of functionality across most of the areas evaluated in the Value Index, earning it a ranking of fourth in Capability. Yellowfin BI also has embedded collaboration features directly into the product including discussions among users and approval processes before content can be published.

Yellowfin did not provide as much information or tools as other vendors to support TCO/ROI analyses. Additional case studies and services information would help improve its ranking in Validation and better notification support for security violations would help improve its Manageability ranking.
Appendix: Vendor Inclusion

All vendors that offer relevant analytics and business intelligence products and meet the inclusion requirements were invited to participate in the Value Index evaluation process, at no cost to them. If a vendor did not respond to or declined the invitation, a determination was made whether to include it in our analysis based on our defined set of inclusion criteria. These criteria are designed to ensure we include in our evaluation vendors’ geographic operations, customer base and revenue as well as all relevant aspects of the products’ fit for the particular category being evaluated. If a vendor is actively marketing, selling and developing a product as reflected on its website that is within the scope of the Value Index, it is automatically evaluated for inclusion. We have adopted this approach because we view it as our responsibility to assess all relevant vendors whether or not they choose to actively participate.

Eleven of the 15 suppliers responded positively to our requests for information and provided completed questionnaires and demonstrations to help in our analysis of their analytics and business intelligence products. The following vendors declined to participate or did not respond to our invitation: Microsoft, Oracle, Qlik and Tableau. To organizations evaluating these vendors, we recommend extra scrutiny as part of the software assessment because they did not make their technology available for the Value Index evaluation process; all online material that was generally available was used for the analysis along with briefings and information provided. This report includes products generally available as of August 2018.

We did not include a number of other vendors in this Value Index evaluation because they did not satisfy the criteria that our methodology for this research requires.
About Ventana Research

Ventana Research is the leading benchmark research and business technology advisory services firm. We provide insight and expert guidance on trends and mainstream and disruptive technologies. Our unparalleled insights and best practices guidance are based on our rigorous research-based benchmarking of people, processes, information and technology across business and IT functions worldwide. The combination we offer of benchmark research, market coverage and in-depth knowledge of hundreds of technology providers means we can deliver business and technology education and expertise to our clients where and when needed to reduce the time requirements, cost and risk of technology investments. The Ventana Research Indexes – the Value Index and the Benchmark Index family – have redefined the research industry by providing accessible, easy-to-use research-based business and technology guidance to businesses. Ventana Research provides the most comprehensive analyst and research coverage in the industry; the many business and IT professionals worldwide who are members of our community benefit from Ventana Research’s insights, as do highly regarded media and association partners around the globe. Our views and analyses are distributed daily through blogs and social media channels including Twitter, Facebook and LinkedIn. Ventana Research was ranked the #1 analyst firm you can trust in enterprise software for 2009 for its relevance to the industry. To learn how Ventana Research advances the maturity of organizations use of information and technology through benchmark research, education and advisory services, visit www.ventanaresearch.com.

We offer a variety of customizable services to meet your specific needs including workshops, assessments and advisory services. Our education service, led by analysts with more than 20 years of experience, provides a great starting point to learn about important business and technology topics from compliance to business intelligence to building a strategy and driving adoption of best practices. We also offer tailored Value Index Assessment Services to help you define your strategy, build a business case and connect the business and technology phases of your project. And we can provide Ventana On-Demand access to our analysts on an as-needed basis to help you keep up with market trends, technologies and best practices.

Everything at Ventana Research begins with our focused research, of which this Value Index is a part. We work with thousands of organizations worldwide, conducting research and analyzing market trends, best practices and technologies to help our clients improve the efficiency and effectiveness of their organizations.

Through the Ventana Research community we also provide opportunities for professionals to share challenges, best practices and methodologies. Sign up for Individual membership at www.ventanaresearch.com to gain access to our
weekly insights and learn about upcoming educational and collaboration events – webinars, conferences and opportunities for social collaboration on the Internet. We offer the following membership levels:

**Individual membership:** For business and IT professionals* interested in full access to our website and analyst team for themselves. The membership includes access to our library of hundreds of white papers and research notes, briefings and telephone or email consulting sessions to provide input and feedback.

**Team membership:** For business and IT professionals* interested in full access to our Web site and analysts for a five-member team. The membership includes access to our library of hundreds of white papers and research notes, briefings, telephone/e-mail consulting sessions to provide input and feedback and the use of Ventana Research materials for business purposes.

**Business membership:** For business and IT professionals* interested in full access to our website and analyst team for their larger team or small business unit. The membership includes access to our library of hundreds of white papers and research notes, briefings, telephone or email consulting sessions to provide input and feedback, use of Ventana Research materials for business purposes and additional analyst availability.

**Business Plus membership:** For business and IT professionals* interested in full access to our website and analyst team for larger numbers of company employees. The membership includes access to our library of hundreds of white papers and research notes, briefings, telephone or email consulting sessions to provide input and feedback, quotes and validation for media, use of Ventana Research materials for business purposes, additional analyst availability and access to our team for scheduled strategy consulting sessions.

This Value Index report is one of a series that are available for purchase. Also available are any of our extensive library of Benchmark Research reports. To purchase a report or learn more about Ventana Research services – including workshops, assessments and advice – please contact sales@ventanaresearch.com.

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