

Data Platforms Value Index

Overall Support for Operational and Analytic Needs

2023 Vendor and Product Assessment

VENDOR
REPORT

 VENTANA RESEARCH

Licensed by:

 **ACTIAN**[™]



Bend, Oregon

December 2022

Ventana Research performed this research and analysis independently. Our goals were to determine the Value Index for Data Platforms and to evaluate vendors and products in accordance with the Ventana Research methodology and blueprint. We charged no fees for this research and invited to participate all vendors that are delivering relevant data platform products and services. This report includes products generally available as of September 30, 2022.

Our purpose in conducting this research was to evaluate the maturity of software vendors and products and their value for enterprise use in data platforms. 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 data processes. Unlike IT analyst firm reports that use subjective factors to rate vendors, our findings are drawn from thorough, research-based analysis of customer assurance and product categories that best represent how an organization should evaluate its technology supplier.

The complete Value Index report with detailed analysis is available for purchase. We can provide additional 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.

Ventana Research



VENTANA RESEARCH

Bend, Oregon, USA

541-940-1010



Data Platforms

Data platforms play a fundamental role in enabling businesses to operate efficiently by providing an organized accumulation of data that is stored and accessed electronically. Data platforms support and enable operational applications that are used to run the business, as well as analytic applications that are used to evaluate the business.



Without data platforms organizations would depend on paper records, time-consuming manual processes, and huge libraries of physical files to record, process and store business information.

It is no exaggeration to say that organizations are completely dependent upon operational and analytic data platforms. Without data platforms, organizations would depend on paper records, time-consuming manual processes, and huge libraries of physical files to record, process and store business information. The extent to which that is unthinkable highlights the level to which modern organizations and society as a whole are reliant on data platforms.

At the heart of any data platform is the storage and management of a collection of related data. This is typically provided by a database management system (more commonly referred to simply as a “database”) that provides the data persistence, data management, data processing and data query

functionality that enables access to, and interaction with, the stored data.

Data processing frameworks, such as Apache Spark and Apache Hadoop, although not technically databases, can also form the basis of a data platform by providing this fundamental data persistence, data management, data processing and data query functionality. Meanwhile, adoption of cloud computing environments has led to the adoption of object stores as the underlying data persistence layer for data platforms, with separate cloud products and services providing the data management, processing and query functionality.

Data platforms also provide additional capabilities targeted at employees in multiple roles that depend on and make use of this core persistence, management, processing and query functionality. Specifically, data platforms also offer functionality for database administrators, application developers, data engineers and data architects. These roles are typically part of the technology organization rather than business users or managers, but



data platforms must increasingly support a range of users with differentiated responsibilities and functional requirements.

The data platforms market has been dominated since the 1980s by the relational data model and relational database management systems. However, non-relational data models that pre-date relational such as the hierarchical model remain in use today. Recent decades have also seen the proliferation of non-relational data platforms through the growth in the use of NoSQL databases using key-value, document and graph models, as well as data processing frameworks and object storage.

“Organizations use a variety of data platforms to fulfill the spectrum of requirements for a variety of applications.”

While most data platforms were traditionally deployed on-premises, organizations are increasingly deploying data platforms on cloud infrastructure or consuming data platform functionality via managed cloud services. Our research shows that almost one-half of organizations currently use cloud or SaaS products for analytics and data, and a further one-quarter plan to do so. One approach does not suit all use-cases, however, and organizations use a variety of data platforms to fulfill the spectrum of requirements for a variety of applications. When

selecting a data platform there is one fundamental consideration that comes before all others: Is the workload primarily operational or analytic? The data platforms sector has been segmented between products targeting operational workloads, and those targeting analytic workloads almost since the development of the first database products.

Operational data platforms are designed to store, manage, and process data to support worker-, customer- and partner-facing operational applications across on-premises, hybrid and multi-cloud environments. They support applications used to run the business, including finance, operations and supply chain, sales, human capital management, customer experience and marketing. These platforms include relational and non-relational databases including NoSQL, as well as the increasing convergence of relational and non-relational approaches.

Analytic data platforms are designed to store, manage, process and analyze data, enabling organizations to leverage data to operate with greater efficiency across on-premises, hybrid and multi-cloud environments. These platforms support applications used to analyze the business, including decision support, business intelligence, data science, and



AI/ML. They include real-time analytics data engines, data warehouses and data lakes as well as the increasing convergence of data warehouse, data lake and data-streaming technologies.



The need to protect the performance of the operational workload is precisely why traditional architectures have involved the extraction, transformation and loading of data from the operational data platform into an external analytic data platform.

There have always been general-purpose databases that could be used for both analytic and operational workloads. If both workloads run on the same database concurrently, however, the key challenge is to ensure that the analytic processing does not impact the performance of the operational processing. The need to protect the performance of the operational workload is precisely why traditional architectures have involved the extraction, transformation and loading of data from the operational data platform into an external analytic data platform, enabling the operational and analytic workloads to run concurrently without adversely impacting each other. Over time, dedicated analytic data platforms have also evolved differentiated architectural approaches designed to improve query performance.

At Ventana Research, we continue to believe that, for most use cases, there is a clear, functional requirement for either analytic or operational data platforms. However, an increasing proportion of

operational data platform workloads involve supporting intelligent applications infused with analytic processing such as personalization and artificial intelligence-driven recommendations.

Our Value Index for Data Platform represents technology vendors and products that provide both analytic and operational capabilities as part of their offering to the market. It is designed to provide a holistic view of a vendor's ability to serve a combination of both operational and analytic workloads with either a single data platform product or set of data platform products. As such the Data Platforms Value Index includes the full breadth of operational and analytic functionality, considering the analytic processing capabilities of operational data platforms, and vice versa. Our assessment also considered whether the functionality in question was available from a vendor in a single offering, or a suite of products or cloud services. Technology vendors that primarily serve and provide only



analytic or operational capabilities are represented in separate Value Index research reports.

Ventana Research believes a methodical approach is essential to maximize competitiveness. To improve the performance of your organization's people, process, information and technology components, it is critical to select the right vendor and product. Many need to improve in this regard. Our research analysis placed fewer than 1 in 5 organizations (18%) at the highest Innovative level of performance in their use of analytics and data. However, caution is appropriate here — technology improvements alone are not enough to improve the use of data in an organization. Doing so requires applying a balanced set of upgrades that also include efforts to improve people skills and processes. The research finds fewer than 1 in 6 organizations (15%) at the highest Innovative level of performance for process in relation to analytics and data, and fewer than 1 in 8 (12%) at the Innovative level of performance for people.

This Value Index report evaluates the following vendors that offer products that address key elements of data platforms to support a combination of both operational and analytic workloads: Actian, Amazon Web Services, Cloudera, EDB, Google, IBM, InterSystems, MariaDB, Microsoft, Oracle, PingCAP, SAP and SingleStore.



Value Index Overview

For almost two decades, Ventana Research has conducted market research in a spectrum of related areas including business planning, data preparation, machine learning, data and analytics in the cloud, natural language processing, and big data analytics and integration. We have also led the establishment of the importance of management and governance of data and the use of collaboration capabilities, social media techniques and location-related analytics. The findings of these research undertakings contribute to our comprehensive approach.

This report on the Data Platforms Value Index is the distillation of over a year of market and product research efforts by Ventana Research. It is an assessment of how well vendors' offerings will address buyers' requirements for data platforms. The index is structured to replicate an RFI/RFP process by incorporating all criteria needed to evaluate, select, utilize and maintain technology, and maintain relationships with vendors.



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.

In this Value Index, Ventana Research evaluates the software in seven key categories that are weighted to reflect buyers' needs based on our expertise and research. Five are product-experience related: Adaptability, Capability, Manageability, Reliability and Usability. In addition, we consider two customer-experience 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 Value Index methodology and blueprint, which links the personas and processes for data platforms to an organization's requirements.

Unlike many IT analyst firms that rank vendors from an IT-only perspective or consider futures or vision

over what is available in the products today, 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 use data platforms to achieve the levels of



organizational efficiency and effectiveness needed for engaging digital experiences to meet your buyer, consumer, customer and partner needs.

We use our research-based analytics and methodology to generate the Value Index ratings. We then build them into a set of indicators that we present in both analytic and graphic form, each depicting the value of a specific vendor's offering to your data platforms needs.



The Value Index is not an abstraction; we use a carefully crafted best practices-based methodology to represent how organizations assess vendors and products.

The Value Index is not an abstraction; we use a carefully crafted best practices-based methodology to represent how organizations assess vendors and products. The Value Index is designed 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 effective evaluation of vendors and products involves far more than just examining product features, potential revenue or customers generated from marketing and sales. We believe it is important to take this comprehensive research-based approach, since making the wrong

choice of a data platform technology can raise the total cost of ownership and lower the return on investment. Our approach reduces the assessment, selection and deployment time, eliminating the risk of having the wrong short list of vendors for your organization.

To ensure the accuracy of the information we collected, we asked participating vendors to provide product and company information across the seven categories that taken together 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. Most selected vendors also participated in one-on-one consultative sessions, after which we requested them to provide additional documentation to support any new input.

Ventana Research believes that an objective review of vendors and products is a critical business strategy for the adoption and implementation of data platform products and services. An organization's review should include a thorough analysis of both what is possible and what is relevant. We urge organizations to do a thorough job of evaluating data platform products and services and offer this Value Index as both the results of our in-depth analysis of these vendors and as an evaluation methodology.



How To Use This Value Index

Evaluating Vendors: The Process

In our view, business improvement efforts should be based on best practices that research indicates deliver value quickly. Our Value Index evaluates data platforms products and services in accordance with that belief.

We advocate using the Value Index as part of a structured approach that begins by incorporating 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 steps listed below provide a framework for a technology-driven business improvement project.

1. Define the business case and goals.
Develop the business case for investment. Define the mission of the business project: What is the purpose, why is it important, what outcome do you want to achieve and how will you measure the project's success? The goals should be grounded in your organization's strategy and plans and should make clear the expected outcomes.
2. Specify the project's business requirements.
What must be done to achieve these goals? Defining the business requirements helps identify what specific capabilities are required with respect to people, processes, information and technology.
3. Assess the required roles and responsibilities.
Identify the individuals required for the project at every level of the organization from executives to front line workers, and determine what each will contribute.
4. Outline the project's critical path.
What needs to be done, in what order and who will do it? This outline should make clear the prior dependencies at each step of the project plan.
5. Develop the technology approach.
Determine the technology approach that most closely aligns to your organization's requirements. Then develop a comprehensive list of potential vendors and products that best fit your needs.
6. Establish technology evaluation criteria.
Define the business and technology criteria that you will use to evaluate vendors. We recommend using the criteria we have developed based on our Benchmark Research and use to build the Value Index: Adaptability, Capability, Manageability, Reliability,



TCO/ROI, Usability and Validation. This step will provide the tools necessary to move from a long list to a short list of vendors and products that you will then evaluate for final selection.

7. Evaluate and select the technology properly.

Weight the seven categories of technology evaluation criteria to reflect the organization's priorities. Then evaluate the short list of vendors and products based on your business case, requirements and the technology evaluation criteria for your project.

8. Establish the business initiative team to start the project.

Identify who will lead the project and the members of the team needed to plan and execute it. Have them begin by establishing a timeline and allocating resources.

In addition to evaluating existing suppliers, the Value Index can be used to provide evaluation criteria for new projects. Applying our research can shorten the cycle time when creating an RFP.



Products Evaluated

| Vendor | Product Names | Version | Release Month | Release Year |
|---------------------|---|---|--------------------------------|--------------|
| Actian | Avalanche Cloud Data Platform | Database Engine 6.1.30116 | August | 2022 |
| Amazon Web Services | Amazon Redshift; Amazon Aurora MySQL; Amazon Aurora PostgreSQL | Amazon Redshift Patch 170; Amazon Aurora MySQL 3.02.1; Amazon Aurora PostgreSQL 14 | September | 2022 |
| Cloudera | CDP Private Cloud; CDP Public Cloud; Cloudera Manager | CDP Private Cloud 7.1.8; CDP Public Cloud 7.2.5; Cloudera Manager 7.6.2 | May/August (CDP Private Cloud) | 2022 |
| EDB | EDB Postgres Advanced Server; EDB Postgres Enterprise Manager; EDB Postgres Distributed; EDB Postgres for Kubernetes; EDB BigAnimal | EDB Postgres Advanced Server 14.4; EDB Postgres Enterprise Manager 8.5; EDB Postgres Distributed 4.1.1; EDB Postgres for Kubernetes 1.16; EDB BigAnimal | June/July | 2022 |
| Google | Google BigQuery; Google Cloud Spanner | Google BigQuery 26 September 2022; Google Cloud Spanner 15 September 2022 | September | 2022 |
| IBM | IBM Cloud Pak for Data; IBM Db2; IBM Db2 Warehouse | IBM Cloud Pak for Data 4.5.2; IBM Db2 11.5; IBM Db2 Warehouse 11.5.7 | September | 2022 |
| InterSystems | InterSystems IRIS Data Platform | InterSystems IRIS 2022.1 | January | 2022 |
| MariaDB | MariaDB Enterprise Server; MariaDB Xpand; MariaDB SkySQL | Maria DB Enterprise Server 10.6.9-5; MariaDB Xpand 6.0.5; MariaDB SkySQL 2022-08-02 | August | 2022 |



| | | | | |
|-------------|--|--|------------------|------|
| Microsoft | Azure Synapse Analytics; Azure SQL; Microsoft SQL Server | Azure Synapse Analytics/Azure SQL 28 September 2022; SQL Server 2019 (15.x) | September | 2022 |
| Oracle | Oracle Database; Oracle Autonomous Database | Oracle Database 21C (F31869-09); Autonomous Database September 2022 | August/September | 2022 |
| PingCAP | TiDB; TiDB Cloud | TiDB 6.1; TiDB Cloud 6.1 | April/May | 2022 |
| SAP | SAP HANA Cloud, SAP HANA Database; SAP HANA Platform | SAP HANA Cloud, SAP HANA Database QRC 3/2022; SAP HANA Platform 2.0 Support Package Stack 06 | August/September | 2022 |
| SingleStore | SingleStore DB; SingleStore Cloud | 7.8 | April | 2022 |



The Findings

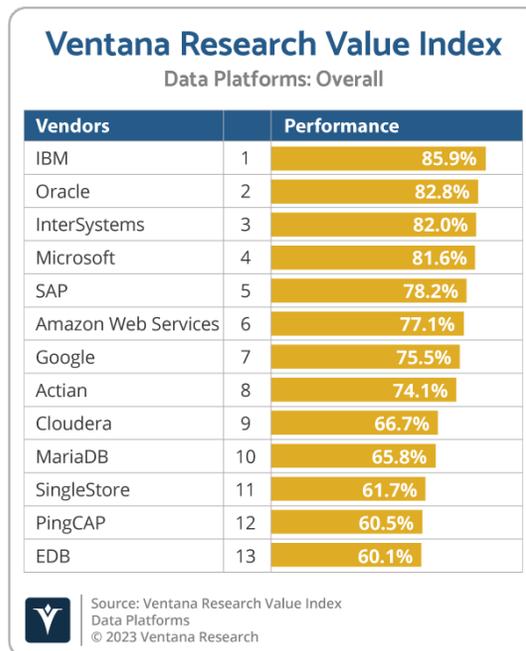
All of the products we evaluated are feature-rich, but not all the capabilities they offer are equally valuable to users or support everything needed across the entire lifecycle of use. Moreover, the existence of too many capabilities may be a negative factor for an organization if it introduces unnecessary complexity. Nonetheless, you may decide that a larger number of functions is a plus, especially if some of them match your organization’s established practices or support an initiative that is driving the purchase of new software.

Factors beyond features and functions or vendor assessments may become a deciding factor. For example, an organization 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 category weighting can be applied to determine the best fit of vendors and products to your specific needs.

Overall Scoring of Vendors Across Categories

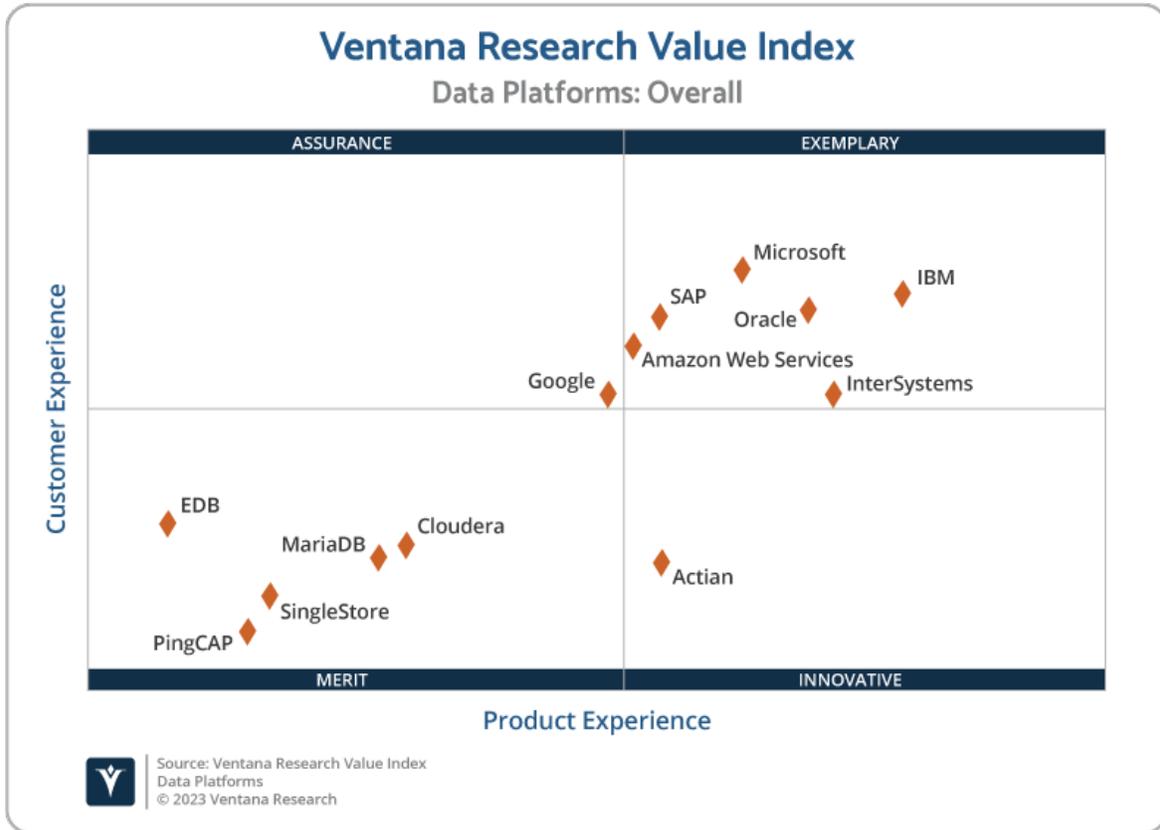
The Value Index for Data Platforms in 2023 finds IBM first on the list with Oracle in second place and InterSystems in third. Companies that place in the top three in any category earn the designation Value Index Leader. IBM has done so in five of the seven categories; Oracle in four; InterSystems in three; Actian, Amazon Web Services, Microsoft and SAP in two; and MariaDB in one category. They are all Value Index Leaders.

The overall representation of the Value Index below places the rating of the Product Experience and Customer Experience on the x and y axes, respectively, to provide a visual representation and classification of the vendors. Those vendors whose Product Experience have a higher weighted performance to the axis in aggregate of the five product categories place farther to the right, while the performance and weighting for the two Customer Experience categories determines their placement on the vertical axis. In short, vendors that place closer to the upper-right on this chart performed better than those closer to the lower-left.





The research places vendors into one of four overall categories: Assurance, Exemplary, Merit or Innovative. This representation classifies vendors overall weighted performance.



Exemplary: The categorization and placement of vendors in Exemplary (upper right) represent those that performed the best in meeting the overall Product and Customer Experience requirements. The vendors awarded Exemplary are: Amazon Web Services, IBM, InterSystems, Microsoft, Oracle and SAP.

Innovative: The categorization and placement of vendors in Innovative (lower right) represent those that performed the best in meeting the overall Product Experience requirements but did not achieve the highest levels of requirements in Customer Experience. The vendor awarded Innovative is: Action.

Assurance: The categorization and placement of vendors in Assurance (upper left) represent those that achieved the highest levels in the overall Customer Experience requirements but did not achieve the highest levels of Product Experience. The vendor awarded Assurance is: Google.

Merit: The categorization for vendors in Merit (lower left) represent those that did not exceed the median of performance in Customer or Product Experience or surpass the threshold for the other three categories. The vendors awarded Merit are: Cloudera, EDB, MariaDB, PingCAP and SingleStore.



We warn that close vendor placement 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 data, there are many idiosyncrasies and differences in data platform functionality that can make one vendor's offering a better fit than another's for a particular organization's needs.

Occasionally, vendors elect not to participate in our Value Index process even though they meet our criteria for inclusion and are actively marketing their offering to the focus of the Value Index. We assess the vendor and products based on publicly available information, briefings we have received from that vendor, and our direct experience or experience of our clients with the vendor's offering.

We explicitly indicate if a vendor has participated because a lack of information could have a negative impact on our evaluation and therefore the vendor's Value Index rating and classification. With respect to the adequacy of publicly available information to do a thorough evaluation, vendors that limit information about their company and products on their website and through other easily accessible means limit our ability to have the depth otherwise found through active participation. The impact of a vendor not participating hinders organizations' ability to do their own assessment.

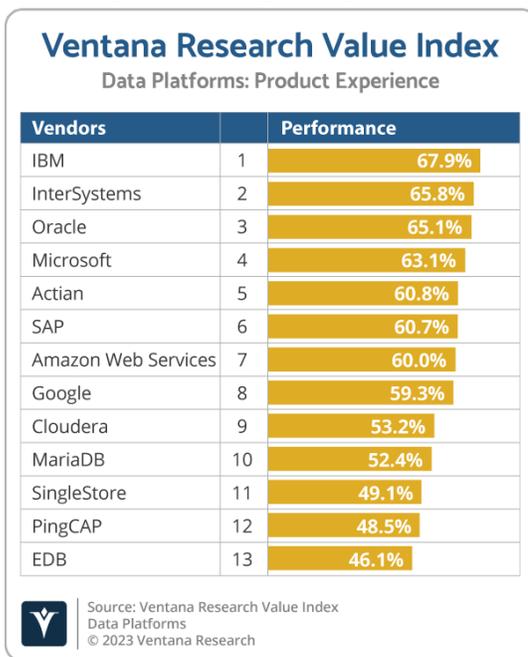
We advise organizations to assess and evaluate vendors based on their requirements and use this research as a reference to their own evaluation of a vendor and products.



Product Experience

The process of researching products to address an organization’s needs should be comprehensive. Our Value Index methodology examines Product Experience and how it aligns with an organization’s lifecycle of onboarding, configuration, operations, usage and maintenance. Too often, vendors are not evaluated for the entirety of the products; instead, they are evaluated on market execution and vision of the future, which are flawed since they do not represent an organization’s requirements but how the vendor operates. As more vendors establish a Chief Products Officer role, it is essential for them to be more engaged in the product experience that they and their organization represent.

The Data Platforms Value Index, based on the methodology of expertise and research, identified the weighting of Product Experience to 80% or four-fifths of the total evaluation. Importance was placed on the categories as follows: Usability (10%), Capability (25%), Reliability (15%), Adaptability (15%) and Manageability (15%). This weighting impacted vendor rankings in Product Experience and the resulting overall rankings in this Value Index. The ranking of IBM, InterSystems and Oracle as Value Index Leaders is a result of their functional maturity and commitment to data platforms technology supporting both operational and analytic use cases. Vendor rankings for Microsoft, Actian and SAP were also found to meet a broader range of enterprise data platform requirements for operational and analytic workloads, followed by Amazon Web Services, Google and Cloudera.



Many organizations will only evaluate data platform capabilities for those in data management and database administration, but the Value Index also identified the criticality of Reliability (15% weighting) as an important factor that should be considered when evaluating data platforms.

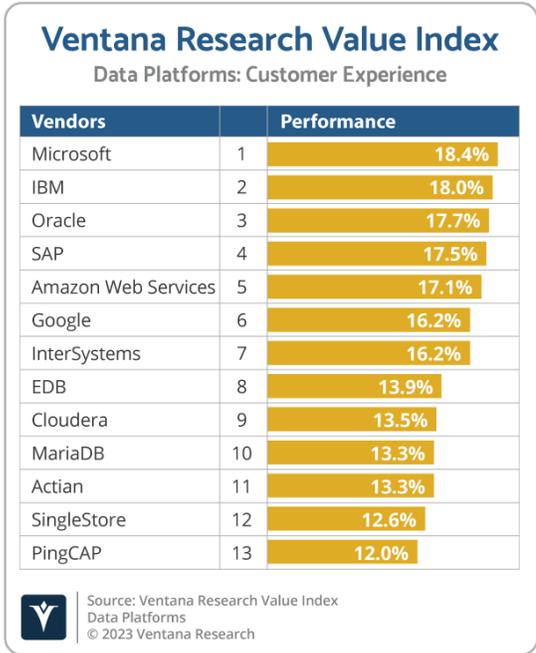


Customer Experience

The importance of a customer relationship with a vendor is essential to the actual success of the products and technology. The advancement of the Customer Experience and the entirety of the journey an organization has with its vendor is critical for ensuring satisfaction in working with a vendor. Thus, a vendor’s offering is not just about technology and should be evaluated using a lens that ensures the proper assessment and selection of a vendor. Technology providers that have Chief Customer Officers are most likely to have greater investments in the customer relationship and a focus to their success. These leaders also need to take responsibility for ensuring the marketing of their commitment is made abundantly clear on their organization’s website and in the buying process and customer journey. Our Value Index methodology examines Customer Experience to 20% or one-fifth, representing the value to the relationship. The two evaluation categories are Validation (10%) and TCO/ROI (10%) and are weighted to represent their importance to the overall Value Index, balanced with the Product Experience.

The vendors that rank the highest overall in the aggregated and weighted Customer Experience categories are Value Index Leaders Microsoft, IBM and Oracle. The category leaders in Customer Experience provided an impressive level of information to communicate their commitment and dedication to customer needs for data platform technology. Vendors such as SAP, Amazon Web Services, Google and InterSystems were not Overall Leaders, but have a high level of commitment to Customer Experience.

There were many vendors that have not made this a priority, and provide little to no information through their website, presentations and in our evaluation. Many have customer case studies to promote their success but lacked the depth on what they do to support organizations as they adopt new data platforms. This makes it increasingly difficult for organizations to evaluate vendors on the merits of their commitment to customer success. As a result, many of the vendors did not rank as well in Customer Experience though it does not mean their products will not support operational and analytic data platform use cases. As the commitment to a vendor is a continuous investment, the importance of supporting customer experience in a holistic evaluation should not be underestimated.



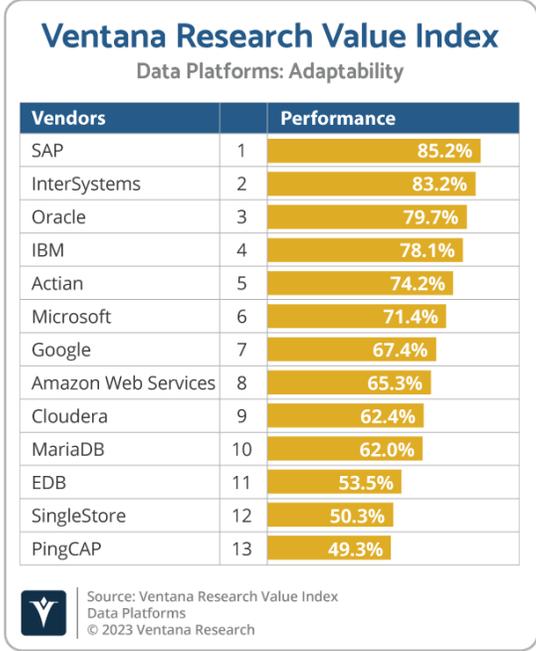


Adaptability of the Product

This category assesses the degree to which products and technology can be adapted to an organization’s specifications via configurability and customization while still maintaining integrity of integration across the worker, device, business, processes, application and data. Adaptability is also related to the ability to readily integrate with other internal and external systems — for example, with enterprise operational applications, as well as analytics and data science tools and platforms — and support bidirectional data flows to enable synchronization and migration. It also examines the investment by the vendor in resources and improvements.

The Value Index for Data Platforms in 2023 weights Adaptability at 15% of the overall rating. SAP, InterSystems and Oracle are the Value Index Leaders in this category. Each of the leaders that have invested in supporting Adaptability have exploited the varying facets in providing the integration needed.

The majority of established vendors performed quite well in providing depth for the Adaptability category and are highly competitive in the rankings. Enabling the processing of product data across business processes, workflows and applications as they operate is critical to preparing and using product information for optimizing business execution. Emerging vendors did not perform as well, highlighting that a focus on Adaptability often follows the initial development of core functionality required for data platforms.





Capability of the Product

The Capability criteria is designed to assess the products and features across a broad range of data platform capabilities that support core data processing, as well as data administrator, data architect, data engineer and developer requirements. Specifically, support for data persistence, transaction and query processing was assessed, along with monitoring, security, backup and recovery, and developer tooling. The Capability support for on-premises, cloud and hybrid deployment was also assessed.

The Value Index for Data Platforms in 2023 weights Capability at 25% of the overall rating. In this category, IBM, Oracle and InterSystems are Value Index Leaders. Six of the 13 vendors were between 80% and 90% of performance, demonstrating the small separation of sophistication amongst the vendors and products, especially amongst the most mature offerings.

| Vendors | | Performance |
|---------------------|----|-------------|
| IBM | 1 | 89.5% |
| Oracle | 2 | 87.3% |
| InterSystems | 3 | 87.0% |
| Microsoft | 4 | 84.5% |
| Action | 5 | 80.6% |
| SAP | 6 | 80.3% |
| Google | 7 | 78.9% |
| Amazon Web Services | 8 | 77.9% |
| Cloudera | 9 | 74.2% |
| PingCAP | 10 | 69.2% |
| MariaDB | 11 | 69.1% |
| SingleStore | 12 | 63.7% |
| EDB | 13 | 62.1% |

Source: Ventana Research Value Index
Data Platforms
© 2023 Ventana Research

This Value Index has a significant, in-depth capability evaluation framework for data platforms, thus providing a more substantive challenge for many vendors. Vendors that have more breadth and depth and support the entire set of needs fared better than others. Vendors in the earlier stage of development did not perform as well as the others. While there remain functional differences in terms of execution, it is our observation that all data platform vendors — including traditional incumbents and new and emerging providers — offer functionality that addresses core database persistence and query requirements. The greatest disparity between products lies in addressing advanced data platform capabilities.

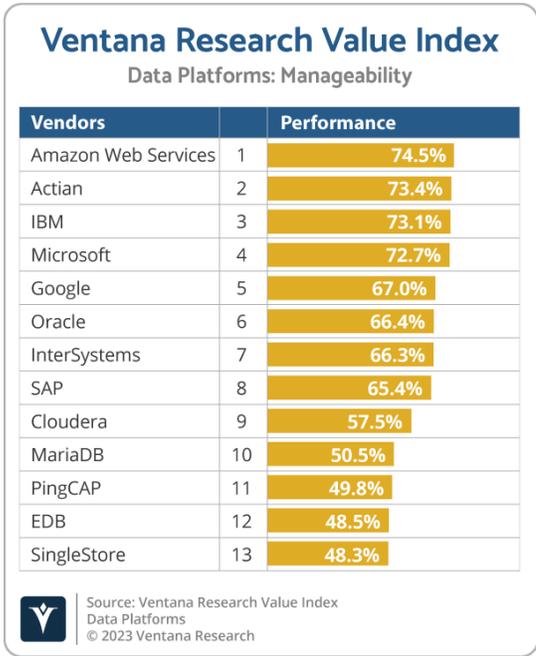


Manageability of the Product

Manageability is evaluated by how well the products can be managed technologically and by business, and governed, secured, licensed and supported in a service level agreement (SLA). Also important is the flexibility of the privacy and security provisions built into the technology with respect to user identity, role and access, how effective that security is, to what extent it supports auditing and compliance, and what licensing or subscription is available from the vendor. It also examines the investment by the vendor in resources and improvements.

The Value Index for Data Platforms in 2023 weights Manageability at 15% of the overall rating. Amazon Web Services, Actian and IBM are the top three vendors in this category. Microsoft came in a very close fourth, followed by Google.

The vendors' performance was spread out quite significantly due to the depth of evaluation criteria examining business and technology administration. In addition, some had challenges in providing the depth in privacy and security of their product and related information that is part of organizations' enterprise requirements. The importance of information security is essential with the insights and knowledge of an organization being available in the data within these systems. The growing importance of simplifying manageability is critical for evaluation and should be a priority for all organization's vendor evaluations.



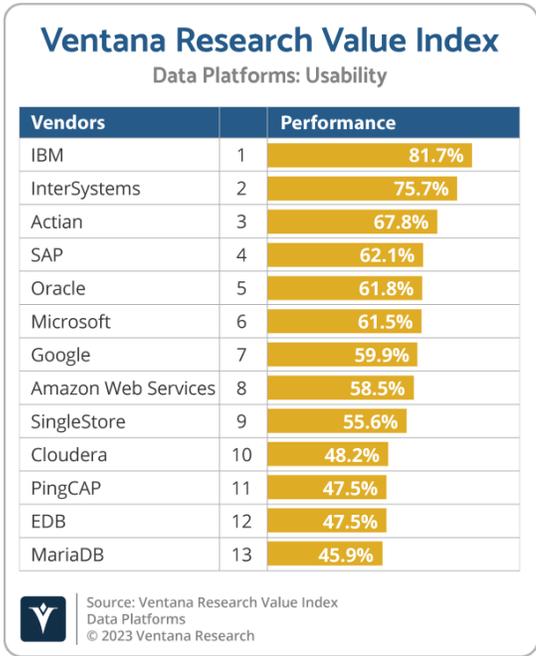


Usability of the Product

Usability is necessary for meeting the varying business needs of executives, management, workers and analysts, along with IT and others involved in data platforms. Products are evaluated on the intelligence in the Usability across user experience, the use of AI/ML, and adapting to the diverse competencies of an organization's workers. Usability criteria also include the sophistication of the product's support of mobile and web technologies, and the extent to which the product design enables its use by workers of varied skill levels, including conversational experiences using chat and voice. It also examines the investment by the vendor in resources and improvements.

The Value Index for Data Platforms in 2023 weights Usability at 10% of the overall rating. Value Index Leaders IBM, InterSystems and Actian are the top three vendors in this category.

The importance of Usability and the digital experience in software utilization has been increasing and is evident in our market research over the last decade. The requirements to meet a broad set of roles and responsibilities across an organization's cohorts and personas should be a priority for all vendors. Many technological advancements in applying ML and natural language processing are available to provide a universal, intuitive experience of being able to hear, read and talk to systems. Most vendors are not fully embracing the value of Usability as a critical element in product experience, and as a result, they did not perform as well in our assessment. Many of the vendors have not addressed Usability for all roles and have not invested in areas to meet the needs of human challenges and skills.





Actian

Company and Product Profile

“Actian is helping businesses build a bridge to a data-defined future. We’re doing this by delivering scalable cloud technologies while protecting customers’ investments in existing platforms. Our patented technology has enabled us to maintain a 10-20x performance edge against competitors large and small in the mission-critical data management market. The most data-intensive enterprises in financial services, retail, telecommunications, media, healthcare and manufacturing trust Actian to solve their toughest data challenges.”

“The Avalanche Cloud Data Platform transforms business by simplifying how people connect, manage, and analyze data, improving the time-to-value for your data. The Avalanche Cloud Data Platform works with all your analytical applications to support the needs of users with a wide range of technical skills. Business analysts, data experts, and business users can use their tools of choice to access and query data without sacrificing performance.”

Ventana Research Evaluation

Actian has origins back to the early years of relational database technology and the development of its Ingres transactional database in the late 1970s and early 1980s. Now wholly owned by HCLSoftware, the company’s primary offering is the Actian Avalanche Cloud Data Platform, which enables organizations to ingest, transform, analyze and store data across public cloud, hybrid or on-premises environments.

Actian was categorized as an Innovative Vendor, ranking eighth overall in this Value Index evaluation. It ranked fifth in Product Experience where it was designated as a Value Index Leader in Manageability and Usability. Its overall performance was impacted by its lower ranking in Customer Experience.

Actian could perform better in the area of Validation to demonstrate its commitment to customer experience. In TCO/ROI, where it ranked eighth, Actian has the opportunity to leverage its relationship with HCLSoftware to deliver additional services to help customers measure and deliver value from their investment.





Appendix: Vendor Inclusion

All vendors that offer relevant data platform products and meet the inclusion requirements were invited to actively 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 using our inclusion criteria. We assessed all vendors with geographic operations, customer base and revenue, and products' fit for the Value Index.

For inclusion in the Ventana Research Data Platforms Value Index for 2023, a vendor must be in good standing financially and ethically, have at least \$100 million in annual or projected revenue or at least 200 customers, and sell products and provide support on at least two continents. The principal source of the relevant business unit's revenue must be software-related and there must have been at least one major software release in the last 18 months. The vendor should offer a product or products to serve a combination of both operational and analytic workloads. The primary use case for the data platform(s) should be to support worker- and customer-facing operational applications (such as financial, resource planning, human resources, customer management/experience, ecommerce, or supply chain) and analytics workloads (business intelligence or data science). The product(s) should specifically be marketed as a data platform, database, database management system, data warehouse, data lake or data lakehouse.

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.

Three of the 13 suppliers responded positively to our requests for information and provided completed questionnaires and demonstrations, while two suppliers provided more limited information for the research. Technology vendors that actively brief and update on their company, product and customer efforts were used as input to the analysis in the Value Index. Online material that was generally available was used for the analysis, along with briefings and any information the vendor did provide.

Vendors that meet our inclusion criteria and that do not participate in our Value Index are assessed on publicly available information and this could have significant impact to their Value Index classification and rating.



Vendors of Note

We did not include vendors that, as a result of our research and analysis, did not satisfy the criteria for inclusion in the Value Index, or were not included because they have not actively engaged with our firm on the topic of the Value Index. These are listed below as “Vendors of Note” so organizations utilizing this assessment guide can be assured of our exhaustive review. Inclusion criteria validation was completed to the best of our ability using information publicly available or through our research.

| Vendor | Product | Revenue (\$100m) or Customers (200+) | Geographies (Two) | Mixed Use Case | Overall Data Platform |
|---------------------------|---|--------------------------------------|-------------------|----------------|-----------------------|
| Aerospike | Aerospike Real-Time Data Platform, AeroSpike Cloud | No | Yes | Yes | Yes |
| Percona | Percona Platform | No | Yes | Yes | Yes |
| VMware | WMSquare SQL, VMware Greenplum | No | Yes | Yes | Yes |
| Yugabyte | YugabyteDB, YugabyteDB Anywhere, YugabyteDB Managed | No | Yes | Yes | Yes |



About Ventana Research

Ventana Research is the most authoritative and respected benchmark business technology research and advisory services firm. We provide insight and expert guidance on mainstream and disruptive technologies through a unique set of research-based offerings including Benchmark Research and technology evaluation assessments, education workshops and our research and advisory services, Ventana On-Demand. Our unparalleled understanding of the role of technology in optimizing business processes and performance and our best practices guidance are rooted in our rigorous research-based benchmarking of people, processes, information and technology across business and IT functions in every industry. This Benchmark Research plus our market coverage and in-depth knowledge of hundreds of technology providers means we can deliver education and expertise to our clients to increase the value they derive from technology investments while reducing time, cost and risk.

Ventana Research provides the most comprehensive analyst and research coverage in the industry; business and IT professionals worldwide are members of our community and 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](#).

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.



What We Offer

Ventana Research provides 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 BI 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 provide Ventana On-Demand (VOD) 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 <https://www.ventanaresearch.com/> to gain access to our weekly insights and learn about upcoming educational and collaboration events, including webinars, conferences and opportunities for social collaboration on the Internet.

We offer the following membership levels for business and IT professionals:

Individual membership: For business and IT professionals interested in full access to our website and analysts 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 website and analysts for a five-member team. 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, and use of Ventana Research materials for business purposes.

Business membership: For business and IT professionals interested in full access to our website and analysts 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 analysts 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.

[Additional services](#) are available for solution providers, software vendors, consultants and systems integrators.

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.

© 2023 Ventana Research. Reproduction or distribution of this research in any form without prior written permission is forbidden. The research is based on information obtained from sources believed to be reliable, which can include communications from the technology supplier and information made available publicly on the Internet. Ventana Research is not liable for any inaccuracies in the information supplied.

All product and company names are trademarks™ or registered® trademarks of their respective holders. Use of them does not imply any affiliation with or endorsement by Ventana Research.