

# Magic Quadrant for Analytics and Business Intelligence Platforms

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Modern analytics and BI platforms are now mainstream purchases for which key differentiators are augmented analytics and support for Mode 1 reporting in a single platform. This Magic Quadrant will help data and analytics leaders complement their existing solutions or move to an entirely new vendor.

## Strategic Planning Assumptions

By 2020, augmented analytics will be a dominant driver of new purchases of analytics and business intelligence, data science and machine learning platforms, and embedded analytics.

By 2020, 50% of analytical queries either will be generated via search, natural language processing or voice, or will be automatically generated.

By 2020, organizations that offer users access to a curated catalog of internal and external data will derive twice as much business value from analytics investments as those that do not.

By 2020, the number of data and analytics experts in business units will grow at three times the rate of experts in IT departments, which will force companies to rethink their organizational models and skill sets.

By 2021, natural language processing and conversational analytics will boost analytics and business intelligence adoption from 35% of employees to over 50%, including new classes of users, particularly front-office workers.

## Market Definition/Description

Modern analytics and business intelligence (BI) platforms are characterized by easy-to-use tools that support the full analytic workflow — from data preparation and ingestion to visual exploration and insight generation. They are most differentiated from traditional BI platforms by not requiring significant involvement from IT staff to predefine data models or store data in traditional data warehouses (see “Technology Insight for Modern Analytics and Business Intelligence

Platforms”). The emphasis is on self-service and agility. Most modern analytics and BI platforms also have their own self-contained in-memory columnar engine to ensure fast performance and support rapid prototyping, but many can optionally use existing modeled data sources. The growing use of data lakes and logical data warehouses dovetails with the capabilities of modern analytics and BI platforms that can ingest data from these less-modeled data sources (see “The Practical Logical Data Warehouse: A Strategic Plan for a Modern Data Management Solution for Analytics”).

The crowded analytics and BI market includes everything from long-standing and large technology players to startups backed by venture capital and smaller, privately funded software vendors. Vendors of traditional BI platforms have evolved their capabilities to include modern, visual-based data discovery that also includes governance, and more recently, augmented analytics. Newer vendors continue to evolve the capabilities that once focused primarily on agility, by extending them to enable greater governance and scalability, as well as publishing and sharing. The holy grail is for customers to have both Mode 1 and Mode 2 capabilities (see Note 1) in a single, seamless platform that draws on existing assets but also has emerging best-of-breed capabilities.

As disruptive as visual-based data discovery has been to traditional BI, a third wave of disruption has emerged in the form of augmented analytics, with machine learning (ML) generating insights on increasingly vast amounts of data. Augmented analytics also includes natural language processing (NLP) as a way of querying data and of generating narratives to explain drivers and graphics. Vendors that have augmented analytics as a differentiator are better able to command premium prices for their products (see “Augmented Analytics Is the Future of Data and Analytics”).

This Magic Quadrant focuses on products that meet Gartner’s criteria for a modern analytics and BI platform (see “Technology Insight for Modern Analytics and Business Intelligence Platforms”). It is this type of platform that accounts for the majority of net new mainstream purchases in the analytics and BI platform market. Products that do not meet our criteria for a modern platform — either because of the upfront requirements for IT to predefine data models, or because they are reporting-centric — are covered in our “Market Guide for Traditional Enterprise Reporting Platforms.”

This Magic Quadrant refers throughout to composite measures of success based on a survey of vendors’ reference customers. Reference customers scored vendors on each of the metrics defined in Note 2 (see also the Evidence section). Opinions from Gartner Peer Insights contributors are also factored into our assessments; these contributors are referred to as Gartner Peer Insights reviewers.

# The Five Use Cases and 15 Critical Capabilities of an Analytics and BI Platform

We define and assess product capabilities across the following five use cases:

- Agile, centralized BI provisioning: Supports an agile IT-enabled workflow, from data to centrally delivered and managed analytic content, using the platform's self-contained data management capabilities.
- Decentralized analytics: Supports a workflow from data to self-service analytics, and includes analytics for individual business units and users.
- Governed data discovery: Supports a workflow from data to self-service analytics to system of record (SOR), IT-managed content with governance, reusability and promotability of user-generated content to certified data and analytics content.
- OEM or embedded analytics: Supports a workflow from data to embedded BI content in a process or application.
- Extranet deployment: Supports a workflow similar to agile, centralized BI provisioning for the external customer or, in the public sector, citizen access to analytic content.

We assess vendors on the 15 critical capabilities listed below. (Any changes to the previous year's critical capabilities are listed in Note 3. Subcriteria for each capability are published in "Toolkit: Analytics and BI Platform RFP." How well vendors' platforms support these critical capabilities is explored in greater detail in "Critical Capabilities for Analytics and Business Intelligence Platforms.")

## **Infrastructure**

1. BI platform administration, security and architecture: Capabilities that enable platform security, administering of users, auditing of platform access and utilization, and high availability and disaster recovery.
2. Cloud BI: Platform-as-a-service and analytic-application-as-a-service capabilities for building, deploying and managing analytics and analytic applications in the cloud, based on data both in the cloud and on-premises.
3. Data source connectivity and ingestion: Capabilities that enable users to connect to structured and unstructured data contained within various types of storage platform (relational and nonrelational), both on-premises and in the cloud.

## **Data Management**

4. Metadata management: Tools enabling users to leverage a common semantic model and metadata. These should provide a robust and centralized way for administrators to search, capture, store, reuse and publish metadata objects such as dimensions, hierarchies, measures, performance metrics/key performance

indicators (KPIs), and to report layout objects, parameters and so on. Administrators should have the ability to promote a business-user-defined data mashup and metadata to the SOR metadata.

5. Data storage and loading options: Platform capabilities for accessing, integrating, transforming and loading data into a self-contained performance engine, with the ability to index data, manage data loads and refresh scheduling.
6. Data preparation: “Drag and drop” user-driven data combination of different sources, and the creation of analytic models such as user-defined measures, sets, groups and hierarchies. Advanced capabilities include machine learning-enabled semantic autodiscovery, intelligent joins, intelligent profiling, hierarchy generation, data lineage and data blending on varied data sources, including multistructured data.
7. Scalability and data model complexity: The degree to which the in-memory engine or in-database architecture handles high volumes of data, complex data models, performance optimization and large user deployments.

### **Analysis and Content Creation**

8. Advanced analytics for citizen data scientists: Enables users to easily access advanced analytics capabilities that are self-contained within the platform, through menu-driven options or through the import and integration of externally developed models.
9. Analytic dashboards: The ability to create highly interactive dashboards and content with visual exploration and embedded advanced and geospatial analytics for consumption by others.
10. Interactive visual exploration: Enables the exploration of data via an array of visualization options that go beyond those of basic pie, bar and line charts to include heat and tree maps, geographic maps, scatter plots and other special-purpose visuals. These features enable users to analyze and manipulate data by interacting directly with a visual representation of it, to display it as percentages, bins and groups.
11. Augmented data discovery: Automatically finds, visualizes and narrates important findings such as correlations, exceptions, clusters, links and predictions in data that are relevant to users without requiring them to build models or write algorithms. Users explore data via visualizations, natural-language-generated narration, search and natural language query (NLQ) technologies.
12. Mobile exploration and authoring: Enables organizations to develop and deliver content to mobile devices in a publishing and/or interactive mode, and takes advantage of mobile devices’ native capabilities, such as touchscreen, camera and location awareness.

## **Sharing of Findings**

13. Embedding of analytic content: Capabilities including a software developer kit with APIs and support for open standards for creating and modifying analytic content, visualizations and applications, embedding them in a business process and/or an application or portal. These capabilities can reside outside the application, reusing the analytic infrastructure, but must be easily and seamlessly accessible from inside the application without forcing users to switch between systems. The capabilities for integrating analytics and BI with the application architecture will enable users to choose where in the business process the analytics should be embedded.
14. Publish, share and collaborate on analytic content: Capabilities that enable users to publish, deploy and operationalize analytic content through various output types and distribution methods, with support for content search, scheduling and alerts. These capabilities enable users to share, discuss and track information, analysis, analytic content and decisions via discussion threads, chat and annotations.

## **Overall Platform**

15. Ease of use, visual appeal and workflow integration: The ease of administering and deploying the platform, creating content, and consuming and interacting with content, as well as the degree to which the product is visually appealing. This capability also considers the degree to which capabilities are offered in a single, seamless product and workflow, or across multiple products with little integration.

# Magic Quadrant

Figure 1. Magic Quadrant for Analytics and Business Intelligence Platforms

Source: Gartner (February 2019)



# Vendor Strengths and Cautions

## Birst

Birst provides an end-to-end data warehouse, reporting and visualization platform built for the cloud. Birst was an early cloud-native vendor, but also offers its product as an on-premises appliance running on commodity hardware.

In 2017, Birst was acquired by Infor. It now operates as a stand-alone subdivision within Infor. Infor has been gradually replacing its packaged analytic applications for Infor's business application solutions (previously built with IBM Cognos) with Birst, dubbing the new applications Birst for CloudSuite. The Birst analytics and BI team, meanwhile, has gained a global footprint, additional sales representatives and data science talent. Birst's new Smart Analytics capabilities, powered by Coleman AI, were on limited release in 4Q18.

Birst is a Niche Player in this Magic Quadrant. Birst's reference customers primarily use its platform for agile, centralized BI provisioning (58%). The next most common use is for decentralized analytics (45%).

## Strengths

- Cloud-native support for Mode 1 and Mode 2: Birst provides data preparation, dashboards, visual exploration and formatted, scheduled reports on a single platform. Few other vendors support both usage styles in this way. The networked semantic layer enables business units to create data models that can then be promoted to the enterprise. A new orchestration capability enables this content to be replicated to multiple instances. Birst supports live connectivity to on-premises data sources. However, its rapid creation of a data model and all-in-one data warehouse that can draw on a range of storage options (Microsoft SQL Server Analysis Services, SAP HANA, Amazon Redshift) is a unique selling point. Sixty-one percent of Birst's surveyed reference customers use Birst as their only analytics and BI standard.
- Vertical applications: Birst for CloudSuite now gives Infor ERP customers prebuilt extraction, transformation and loading (ETL), data models, and dashboards that are fully integrated into Infor business applications. For non-Infor data sources, Birst provides solution accelerators for specific domains, such as wealth management, insurance, sales and marketing.
- Global presence: With the acquisition by Infor, Birst has gained access to a global salesforce and additional R&D talent, particularly in the field of data science. It now also has a physical presence in 44 countries, an increase from three in 2016 when Birst was a stand-alone vendor.

## Cautions

- **Workflow and performance:** Although Birst offers a single platform, workflow across the authoring interfaces is not seamless. A large percentage of Birst's reference customers (42%) highlighted poor performance (the highest figure for any vendor in this regard) and 26% complained about absent or weak functionality. Although Coleman AI marks some innovation from Birst, initial tests of the limited release software show a cumbersome workflow, and it rarely finds drivers for key metrics.
- **Poor operations:** Quality and timeliness of support have been perennial problems for Birst, and this has not improved in the past year or under Infor's ownership. Birst's reference customers' scores for support and product quality place it bottom, with 10% considering its operations poor or limited. Gartner Peer Insights reviewers were less negative, however, with Birst being only slightly below average for service and support.
- **Reduced relevance in analytics and BI market:** There has been a decline in Gartner searches and inquiries related to Birst, in comparison with 2017. Reference customers' responses indicate a decline in the product's viability in this market (Birst was the only vendor for which there was negative sentiment in this regard, which suggests that customers do not see Infor's ownership as a net positive). Birst points to double-digit growth in revenue, but it is unclear how much of this growth derives from only the Infor installed base. Birst also had the highest percentage of reference customers considering discontinuing use of its product.

## BOARD International

BOARD International delivers a single, integrated system that provides BI, analytics and financial planning capabilities. The company's stated aim is to provide an "end-to-end decision-making platform." BOARD continues to report strong revenue growth in excess of 50% year over year, with almost 20% of its revenue now coming from outside Europe, where the company originated.

In January 2019, Board announced that private equity firm Nordic Capital will become a majority shareholder. The deal is expected to close in 1Q19.

BOARD is a Niche Player in this Magic Quadrant. It successfully serves a submarket for centralized, single-instance analytics, BI and financial planning and analysis (FP&A) solutions. BOARD has a narrow focus and the market's awareness of this vendor is limited, although its regional adoption is growing. BOARD has successfully transitioned to a cloud/subscription-based model. Its reference customers reported that the most common use cases for BOARD's system are agile, centralized BI provisioning (61%) and decentralized analytics (57%).

## Strengths

- **Unified analytics, BI and FP&A:** BOARD is one of only two vendors offering a modern analytics and BI platform with integrated financial planning and reporting

functionality (the other being SAP, with SAP Analytics Cloud). As such, it is highly differentiated for the relatively small number of buyers looking to close the gap between BI and financial processes. BOARD is also used for read-only analytics and BI deployments, although, in Gartner's view, this is less commonly the case. BOARD's new self-service reporting capabilities strengthen its Mode 1 support.

- Breadth of usage: BOARD ranks in the top third of vendors in this Magic Quadrant for complexity of analysis. Reference customers use BOARD for a wide range of BI tasks — from viewing reports, creating personalized dashboards and doing simple ad hoc analysis, to performing complex queries, undertaking data preparation and using predictive models.
- System integrator ecosystem: For a relatively small vendor, BOARD has a well-established and growing network of system integrator (SI) partners, which are helping to drive its growth, whether as influencers or resellers. BOARD offers them a reliable solution for the niche it operates in. Reference customers identify the main business benefit of using BOARD's platform as the ability to make better decisions faster. Very few indicate that they plan to discontinue use of the product.

## Cautions

- Cube dependency: BOARD's core cube architecture — based on multidimensional online analytical processing (MOLAP) — can become a limiting factor. This is especially true for clients that need to access and analyze diverse data sources, and for those who wish to perform complex types of analysis on diverse data sources.
- Product delivery and vision: BOARD's main software release in 2018, BOARD version 10.3, was minor, adding self-service reporting and exporting to Microsoft Excel — it included little new functionality. The key BOARD 11 release, which will evolve the product beyond its MOLAP legacy, has been delayed by at least nine months. Its roadmap is focused on re-engineering the core calculation and storage engine to take advantage of parallelization and concurrency and to be more flexible in how data is modeled.
- Market awareness: BOARD is less well-known in this market than many of its competitors. Judging from Gartner's interactions with organizations, very few longlist BOARD. It remains a little-known brand and needs to invest in raising its profile in the minds of potential buyers.

## Domo

Domo offers a cloud-based analytics and BI platform aimed at senior executives and line-of-business users who need intuitive business-facing dashboards. Nearly two-thirds (65%) of its reference customers use Domo for decentralized analytics, and nearly half (48%) for governed data discovery.

Domo went public in 2018, in the process gaining access to equity markets and becoming more transparent about its financial performance. It added new functionality for R and Python integration.

Domo remains a Niche Player. It executes strongly against many measures related to the customer experience, and offers great ease of use. However, it has a narrow sales strategy and a product vision that lags behind those of the Leaders. On the other hand, its roadmap includes new augmented analytics capabilities and automated alerting.

## Strengths

- **Rapid deployment of management-style dashboards:** Domo offers rapid deployment of intuitive dashboards. Its cloud-native approach, aided by an extensive range of prebuilt connectors to cloud-based data sources and applications, feeds Domo Apps, which are out-of-the-box content packs with KPIs and dashboards (available in both free and premium versions). Domo's ability to connect to enterprise applications is a differentiator in that Domo maintains the connectors in the form of API-like connectors that can respond dynamically to changes in source-side schemas.
- **Ease of use:** Domo comes joint top for ease of use, with its reference customers giving it among the top-three scores in this Magic Quadrant for ease of deployment, content development and visual appeal. A search-based insights panel, added in 2018, extends its user-friendly capabilities. Domo was selected by reference customers mainly for its ease of use, followed by its data access and integration capabilities.
- **Business benefits:** Domo's reference customers rated it top for business benefits achieved, giving it the No. 1 rating in five of the seven categories measured. Domo is also in the top third for product quality. Given these findings, it is unsurprising that none of Domo's reference customers plan to discontinue using its product.

## Cautions

- **Narrow usage and low complexity of analysis:** Domo's key strength and most-used capability is the management dashboard: 59% of its surveyed reference customers use the platform for parameterized reports and dashboards. Relatively few (14%) use the product for interactive visual exploration or other types of more complex analysis. This finding is reflected in Domo's below-average score for complexity of analysis, a key driver of current buying requirements.
- **Low standardization rate:** Only 20% of Domo's reference customers consider it their sole enterprise analytics and BI platform standard, and they report that a competing platform is their enterprise standard more often than those of any other vendor. However, this is likely because Domo is often deployed by lines of business — in isolation from IT — for domain-specific analysis in the areas of marketing, finance and supply chain.

- Competitive pressure: In 2017, Domo's reference customers rated its competitive viability as a BI vendor the highest of all vendors. However, reference customers for this year's Magic Quadrant now consider it below-average in this regard. Further, Domo's direct and indirect sales teams have grown little, if at all, and the company is not profitable (with net losses through 3Q18 running at 121% of revenue). Although Domo does dashboards well, this is not a differentiated capability, and low-cost alternatives are putting pressure on the company.

## GoodData

GoodData offers a comprehensive, multitenant, cloud-only platform focused on embedded analytics for use at scale. The GoodData Enterprise Insights Platform includes data integration and data storage capabilities, an analytics engine, integration with a wide variety of data science and ML technologies, and a front-end presentation layer called Analytical Designer. GoodData differentiates itself by its ability to embed analytics directly into customers' business processes or external customer-facing analytic applications.

In November 2018, GoodData announced a partnership with Snowflake, a scalable cloud data warehouse provider. Its surveyed reference customers indicate that they use GoodData's platform primarily for OEM or embedded analytics (62%), while just over one-fifth (21%) use it for an extranet deployment.

GoodData is a Niche Player because of the narrowness of its product roadmap, given its focus on embedded analytics.

## Strengths

- Cloud embeddability with scalability: GoodData enables customers to process terabytes of data across thousands of users and embed cloud-authored analytic content seamlessly into business processes. Almost one-fifth (17%) of its reference customers analyze more than 1 terabyte of data, which is above the average for this Magic Quadrant.
- Operations and flexible pricing: GoodData's reference customers rated it above average in terms of operations, which includes product quality, support and ease of migration. GoodData scored highly for ease of migration, due to its subscription per tenant model, which automatically scales up or down based on usage, so avoiding potential downtime or slow performance. This flexible pricing model enables customers to pay for the appropriate subscription tier each month, regardless of which tier they fell into in prior months.
- Market responsiveness: GoodData estimates its total revenue grew by 34% in 2018, which underlines the viability of its strategy to focus on specific use cases and the ability to handle analytic complexity at scale. A large majority (85%) of its reference customers said they use GoodData's offering as their enterprise-standard analytics and BI tool. GoodData's ability to embed analytics for all audiences is supported by the finding that 35% of its reference customers use its platform in global deployments.

## Cautions

- **Product gaps:** GoodData's platform lacks a data preparation capability for business users. Instead, connecting, integrating and preparing data involves a separate workflow that is IT- or developer-centric. Connections to most data sources are made using generic Java Database Connectivity (JDBC) drivers. In-database processing is not supported. GoodData scored bottom among the vendors in this Magic Quadrant for ease of use: 16% of its reference customers — a figure in the top third for vendors in this Magic Quadrant — identified ease of use for business users as a limitation in relation to greater deployment.
- **Narrow use case:** GoodData focuses heavily on the embedded use case and is not pursuing the broader analytics and BI market. In this regard, it is somewhat to be expected that GoodData ranks bottom among the vendors in this Magic Quadrant for both market understanding and complexity of analysis.
- **Customer experience:** GoodData's reference customers place it in the bottom third of vendors in this Magic Quadrant in terms of the availability of relevant skills in the market. The lack of free online videos, training and a user community presence for the GoodData platform put this vendor last in terms of user enablement.

## IBM

IBM offers Cognos Analytics, a modern analytics and BI platform, newly enhanced with augmented analytics capabilities that previously existed only in IBM Watson Analytics. As Cognos Analytics is also an upgrade from earlier versions of Cognos, it brings formatted production-style reporting for Mode 1, along with visual-based exploration and agility for Mode 2 analytics and BI.

IBM Watson Analytics was removed from IBM's pricelist in 3Q18. IBM Cognos Analytics version 11.1 was released in September 2018, initially only in the cloud; on-premises capabilities followed in November 2018.

Of IBM's reference customers, more than half (59%) use it for agile, centralized BI provisioning. The next most common use is for decentralized analytics (49%).

IBM is a Niche Player as it remains of interest primarily to the Cognos installed base, and innovation has slowed while IBM has focused on building augmented capabilities into Cognos Analytics.

## Strengths

- **Combined reporting and augmented analytics:** Organizations' desire to modernize their traditional BI portfolios has often led them to use multiple BI tools for distinct purposes. IBM Cognos Analytics 11.1 is one of the few offerings that includes enterprise reporting, governed and self-service visual exploration and augmented analytics in a single platform. In addition, as existing IBM Cognos Framework Manager models and reports from earlier versions can be leveraged in the single environment, there is a migration path and the ability to use existing content.

- **Product vision:** In late 2014, IBM became one of the first vendors to release augmented analytics capabilities. Its latest release also includes an artificial intelligence (AI) assistant interface and native natural language generation (NLG). Visionary elements on IBM's roadmap include crowdsourcing of datasets and a separate product, IBM Analytics Catalog Services. This product will enable analysts, data scientists, data engineers and others to discover, access and identify the lineage of enterprise data assets.
- **Global presence:** As a megavendor, IBM has a global physical presence and an expansive network of partners. Reference customers place it in the top third of vendors in this Magic Quadrant in terms of the availability of relevant skills.

## Cautions

- **Immature product with basic gaps:** Although the new Cognos Analytics product is an upgrade from an earlier version, much of it has been redesigned, which has resulted in inconsistencies in platform capabilities across reporting, exploration and augmented analytics. There are also gaps in visual exploration and formatting capabilities. The new product shows limited data scalability and a cumbersome workflow to support multiple fact tables. Reference customers primarily use the product for static or parameterized reports, not for visual exploration and self-service BI, and they place IBM near the bottom of the pack for market understanding.
- **Loss of momentum and perception as innovator:** IBM is no longer acting as a disruptor, but instead playing catch-up. Interest in IBM Cognos from Gartner clients continued to decline in 2018, judging from their inquiries and searches. Many longtime Cognos customers have modernized their portfolios by adding complementary and competitive products, with some decreasing or ceasing usage of IBM's product. Gartner Peer Insights reviewers place IBM in the bottom half of the vendors in this Magic Quadrant in terms of value received. Prebuilt vertical and domain applications, which had been a strength of IBM's earlier version (10.x), are absent from Cognos Analytics, but are being built out across individual domains.
- **Operations:** Reference customers placed IBM in the bottom third of the vendors in this Magic Quadrant for operations, which includes quality of technical support, time to resolution, product quality and ease of migration. Product quality is a particular area of weakness. New augmented analytics capabilities are immature in the newly converged platform. Gartner Peer Insights reviewers put IBM bottom for quality of technical support.

## Information Builders

Information Builders sells the integrated WebFOCUS analytics and BI platform, as well as individual components thereof. WebFOCUS Designer (formerly InfoAssist+) includes components from the WebFOCUS stack that are intended to satisfy modern self-service analytics and BI needs. Over half (56%) the company's reference customers reported that they use the platform for decentralized analytics, and 44% for agile, centralized BI provisioning.

For Information Builders, 2018 was a year of transition as it restructured its management and sales teams and further addressed the ease-of-use weakness that characterized older versions of InfoAssist+. In terms of functionality, 2018 saw Information Builders focus on the user experience (UX), integrated search of existing metadata via keyboard or voice, and the ability to integrate Internet of Things (IoT) data.

Information Builders is a Niche Player because WebFOCUS Designer has little visibility or momentum beyond the company's installed base and is not evaluated in many competitive sales cycles.

## Strengths

- Traditional and modern appeal: WebFOCUS Designer is a combination of visual data discovery, reporting, dashboard creation, interactive publishing, mobile content and in-memory engine. It can be completely decoupled from WebFOCUS Server, to enable easier implementation. A core strength is data connectivity, and the main reasons customers give for selecting the product are data access and integration.
- Prepackaged analytic apps: A long-standing strength for Information Builders, these provide prebuilt assets and customizable data models designed for a variety of vertical and horizontal areas. The vendor estimates that 30% of its customers use these offerings, which now cover the banking, healthcare, insurance, law enforcement, visual warehouse/facilities management, retail, public and higher education sectors.
- External and large-scale deployments: Information Builders is well-known for deploying externally facing analytic applications at scale — sometimes to thousands of users. No reference customer had encountered problems with WebFOCUS Designer's ability to support large user numbers or data volumes. These capabilities, coupled with the vendor's strength in mobile and offline usage, make for a strong offering for data operationalization and monetization.

## Cautions

- Little market momentum: Judging from Information Builders' figures for new customer acquisition and Gartner's customer search and inquiry data, Information Builders has not generated overwhelming interest — especially as it is trying to position WebFOCUS Designer as a modern analytics and BI platform. WebFOCUS Designer is sold primarily to the existing WebFOCUS Server installed base, as part of Information Builders' traditional information application core business. It is not typically sold on a stand-alone basis. Furthermore, the company slightly reduced its head count in 2018.
- Ease of use: Information Builders is rated below average for ease of use, despite much improvement from earlier versions. From version 8.2.02, Information Builders has put a great deal of effort into improving the UX, and this work is paying off. The proportion of reference customers saying the product is difficult to use has halved,

compared with the previous survey, and poor ease of use for business users is no longer seen as a major limitation with regard to wider usage. Version 8.2.05 has further improved usability.

- Internally oriented product vision: One of Information Builders' key aims is to re-create a market-leading company in the analytics and BI market, by modernizing an already robust platform. As such, its development priorities focus on catching up with the market's expectations — hence the prioritization of UX improvement. Its roadmap does include visionary areas like augmented analytics, but its new product leadership aims first to address basic areas such as product release cadence and upgrades. Information Builders' reference customers rate it near the bottom for migration experience.

## Logi Analytics

Logi Analytics focuses solely on embedded analytics. The Logi Analytics Platform offers a set of capabilities to help software product managers and developers build embeddable analytic apps, and a self-service module to help business users create and interact with dashboards and data visualizations. DataHub is used to ingest, blend and enrich data from multiple sources. The majority (61%) of Logi's reference customers use it for OEM or embedded analytics. More than one-fifth (21%) use it for extranet deployment.

In 2018, Logi further developed its functionality for embedded predictive analytics, enhanced its self-service capabilities (such as complex filtering, drilling and associative filtering) and continued to move to a microservices-based architecture.

Logi's position in the Niche Players quadrant reflects how it is used by the majority of its customers. Its long-standing core strength in embedded analytics for developers reflects a "niche" approach.

## Strengths

- OEM or embedded analytics functionality: Logi's marketing leads with the concept of "developer-grade analytics," and Logi scores highly in the embedded use case from a product perspective. It offers a full set of APIs to enable organizations to build sophisticated analytics within apps or websites. This is important to an increasing number of companies: More than three-quarters (78%) of Logi's reference customers stated that Logi provides their sole enterprise analytics and BI platform.
- Predictive analytics vision: The capabilities of Logi Predict — a product released in 4Q17 — go beyond the tendency to deliver only reporting and data visualization features in embedded apps. Logi provides advanced analytics for the citizen data scientists that its partners serve — via functionality to automatically generate models and embed predictive analytics in OEM applications. Significantly, this can enable an OEM's end customers to retrain predictive models on their data in a self-service mode.

- Flexible pricing: Logi is among the top-three vendors among reference customers who identify license cost as a reason for selection. It offers an attractive and flexible core-based pricing model. According to Logi's reference customers, the top reasons for selecting its platform are ease of use for content developers and authors, license cost and software development kits.

## Cautions

- Simple, dashboard-oriented usage: Logi ranks in the bottom third of vendors in this Magic Quadrant for complexity of analysis. Overall, Logi's reference customers reported that they use its platform mostly for dashboards and least (of all products) for interactive data discovery or visualization tasks. The bulk of Logi users use Logi Info to consume parameterized reports and dashboards. Although Logi offers strong predictive functionality, the reference customers who took part in our survey do not report using it for this capability.
- Customer experience: Logi has been through a significant transition as it pivoted its product offering and go-to-market strategy to solely target those embedding analytics. The turbulence evident among reference customers in 2017 lessened in 2018, and, importantly, reference customers regained a positive view of Logi's viability as an analytics and BI supplier. However, according to reference customers' scores, Logi still ranks in the bottom third for customer experience, being relatively weak in terms of user enablement. They expressed particular concern about the availability of skilled resources in the market.
- Underlying ease-of-use issues: Logi's reference customers rate it below average on all measures of ease of use. The percentage identifying difficulty with implementing this vendor's product was in the top third for this Magic Quadrant. In addition, 13% identified shortcomings in terms of ease of use for developers as a constraint on usage expansion.

## Looker

Looker offers a modern analytics and BI platform that enables users to explore and visualize data using agile data modeling and modern analytic databases. The company received an additional \$103 million in venture capital funding in 2018, bringing its total to \$280.5 million. Looker is primarily deployed in the cloud, but can also be deployed on-premises.

Looker differentiates itself by offering a data platform that, in addition to supporting visualizations and dashboards, enables data engineers to model data and then pass data and calculations on to other applications. Its platform can also be used to build analytical applications. In 2018, Looker added integrations for data science use cases including support for Google BigQuery ML, as well as Action Hub integrations that enable data to be moved to other apps, including TensorFlow. It also released a digital marketing application in 2018, the first of several planned domain analytical applications. Looker 6 was released in November 2018, adding support for MongoDB and dashboard performance improvements.

A large majority of Looker's reference customers use it for decentralized analytics (72%). More than half (56%) use it for agile, centralized BI provisioning.

Looker's position in the Niche Players quadrant reflects its strong momentum and high operations scores, but a relatively narrow product vision and limited market understanding.

## Strengths

- Native cloud support and optimization for analytic databases: Looker's key differentiator is native support for cloud-based analytic databases, particularly Amazon (Redshift, Athena), Google BigQuery and Snowflake. Whereas most competing tools use their own in-memory, columnar storage, Looker always uses the database for processing and mashups. LookML is a browser-based, SQL-like modeling language for power users. Its data scalability is in the top tier, with 36% of Looker's reference customers analyzing more than 1 terabyte of data and a median of 585 million row tables.
- Excellent support: Reference customers' scores place Looker among the highest vendors for satisfaction with operations, including quality of support, time to resolution, and ease of migration. Gartner Peer Insights reviewers similarly rate it the best for service and support. Looker also offers the relatively rare ability to contact support via chat or email directly from within its product.
- Momentum: Looker has continued to increase its presence and head count — to about 600 as of December 2018 (a 47% year-over-year rise). Almost three-quarters (73%) of its reference customers say that Looker is their only enterprise analytics and BI standard — one of the highest percentages for a single standard. Looker's technical partnerships now include IBM as a reseller for part of the IBM Watson Studio (used for building ML models). OEM and "Powered by Looker" business now accounts for 30% of Looker's revenue. Looker launched the Looker for Good charitable program in 2018, pledging 1% of product and service revenue to nonprofit organizations.

## Cautions

- Coding versus point and click: As Looker's data modeling requires coding, business users find its product more difficult to use than point-and-click solutions. A large percentage of its reference customers (40%) said that poor ease of use for business users limits broad deployment — the highest figure for any vendor in this Magic Quadrant. The product lacks key capabilities for visually manipulating data and native mobile apps. Business users may now merge queries from multiple data sources, but there is no mechanism to correct for overstated measures in a many-to-many join.
- Narrow product roadmap: Whereas most other vendors are working on bringing NLP and augmented analytics to all users, Looker is closing basic visualization gaps, such as smart use of color in Looker 6 and custom themes. It continues to build interoperability with data science use cases and actions.

- Limited geographic presence: Looker operates primarily in the U.S. and Europe. Localization of its software for Japanese, French and German markets is planned for 2019.

## Microsoft

Microsoft offers data preparation, visual-based data discovery, interactive dashboards and augmented analytics via a single product, Power BI. It is available as a SaaS option running in the Azure cloud or as an on-premises option in Power BI Report Server. Power BI Desktop can be used as a stand-alone, free personal analysis tool. It is also required when power users are authoring complex data mashups involving on-premises data sources.

Although Power BI started out being used primarily as a self-service analytics and BI tool, Microsoft's reference customers now use it mainly for decentralized analytics (61%) and agile, centralized BI provisioning (54%).

Microsoft is a Leader. It has a comprehensive and visionary product roadmap aimed at globalizing and democratizing Power BI for all analytics use cases. At the same time, it continues to demonstrate strong uptake and global adoption of Power BI, with high levels of customer satisfaction.

## Strengths

- Low-priced incumbent with positive sales experience: Microsoft has put downward pricing pressure on the analytics and BI market with its low per-user, virtual server subscription and embedded capacity-based pricing. Given that many organizations have Microsoft enterprise software agreements, even when Power BI is not yet deployed, it appears on most shortlists by default. License cost was the second most important reason for reference customers to choose Microsoft Power BI: More than 15% of them identified this as a reason for selecting this platform. Reference customers also put Microsoft in the top third of vendors in this Magic Quadrant for sales experience — an improvement on the previous year.
- Ease of use for complex types of analysis: Reference customers continue to recognize Microsoft for its ease of use — they gave it top-third ratings across all aspects of ease of use. Microsoft's "first five-minute experience" (it aims to have users register for a trial and be "wowed" within five minutes) and a robust user community contribute to this result. Power BI supports complex data models with integrated advanced analytics. In an improvement over the previous year, Microsoft came in the top third for the use of its product for complex types of analysis.
- Comprehensive product vision: Microsoft is investing in a broad set of visionary capabilities and integrating them with Power BI. Investments include enhancements to augmented analytics and making new AutoML features available in Azure Machine Learning. Azure cognitive services, such as text, sentiment and image analytics and AI, will also be available through Power BI for use by people with minimal data science skills, among many others. Important roadmap items

include full support for existing Reporting Services reports, a common and open data model, and open data preparation with data flows.

## Cautions

- Differences in on-premises and cloud service with Azure cloud only: Power BI Report Server enables users to share reports (not dashboards) and lacks some of the ML capabilities found in Power BI SaaS. Users also report inconsistencies in the support of different data sources. Microsoft does not give customers flexibility to choose a cloud infrastructure as a service (IaaS) offering, instead running only in Azure.
- Integration of Mode 1 and Mode 2: With Power BI, Microsoft has mainly focused on requirements for Mode 2 (agile, self-service) analytics. On-premises SQL Server Reporting Services meets the needs of Mode 1 (for scheduled, distributed reports). This has resulted in a two-product deployment with different capabilities and different deployment approaches. Reporting Services content authoring and report distribution in Power BI is on the short-term roadmap.
- Multiple products: Although the core of Power BI is a self-contained product, Microsoft's roadmap spans multiple products. For example, more robust conversational analytics is supported through the Cortana personal digital assistant. Data scale-up options require multiple products. Turnkey integration or "unification" is a focus of Microsoft's roadmap and a work in progress.

## MicroStrategy

MicroStrategy offers MicroStrategy 2019, a platform combining data preparation, visual-based and NLQ-based data discovery and exploration, dashboards and mobile capabilities with enterprise analytics and BI. MicroStrategy reference customers report fairly balanced use across agile, centralized BI provisioning (61%), governed data discovery (56%) and decentralized analytics (54%) use cases.

Over the past year, MicroStrategy has continued to improve its platform's usability, deployability and embeddability. Enhancements to its semantic graph provide the foundation for crowdsourced content recommendations, newly added NLQ capabilities and promising investments in augmented analytics. The semantic graph is also core to a new category of content, which the company calls HyperIntelligence. HyperIntelligence overlays and dynamically surfaces predefined insights within existing applications, such as browser-based applications and search results (a related email capability is on the vendor's short-term roadmap). Significantly, MicroStrategy has opened up its semantic layer to other analytics and BI tools.

MicroStrategy is in the Challengers quadrant. It has leading product capability scores, an improved customer and operations experience, and a number of visionary elements on its roadmap. However, its new marketing, sales and customer success initiatives, though promising, are still in the early stages of

execution. Limited market momentum and limited awareness of MicroStrategy outside its installed base hinder wider adoption.

## Strengths

- Strong, integrated product for all use cases: MicroStrategy received among the highest product scores in this Magic Quadrant, both overall and for all evaluated use cases. It offers best-in-class enterprise reporting and mobile capabilities, delivered in a single, fully integrated platform and workflow. This makes MicroStrategy better-suited to large-scale SOR reporting and governed data discovery deployments for large and complex datasets than most other vendors in this Magic Quadrant.
- Focus on customer success: MicroStrategy continues to improve its customer-centric initiatives, which include customer success programs, proactive support and a community portal. These investments are paying off. Reference customers placed MicroStrategy in the top third for product quality, achievement of business benefits and most aspects of user enablement.
- Complex analysis of large data and enterprise deployments: MicroStrategy's reference customers report average deployment and data sizes in the top third for vendors in this Magic Quadrant. It also has top-third ratings for complexity of analysis. Advanced data manipulation, enterprise-grade security and an in-memory columnar data store give business users a highly interactive data exploration experience for very large and complex datasets and models. With enhanced client-side ML libraries, users can build and expose the output of data science and ML models in all MicroStrategy content types.

## Cautions

- Gaps in cloud BI and augmented analytics: MicroStrategy's single-tenant cloud solution lacks packaged domain and vertical content. It is also missing a robust content marketplace for customers and partners. Augmented analytics features such as automated insight generation are lacking in the current product, but are on the roadmap.
- Cost of software: In a market experiencing downward pricing pressure, 27% of MicroStrategy's reference customers identify the cost of its software as a limitation with regard to broader deployment — a percentage in the top third for vendors in this Magic Quadrant.
- Need for IT staff involvement in enterprise deployments: Ease of use for content developers remains below average, according to MicroStrategy's reference customers. The task of streamlining the configuration, administration and migration of enterprise deployments is, however, receiving ongoing investment from MicroStrategy.

## Oracle

Oracle offers a broad range of analytics and BI capabilities, both in the Oracle Cloud and on-premises. The modern components of Oracle Analytics Cloud (OAC) are the focus of this Magic Quadrant. OAC includes integrated data preparation, data discovery (with advanced exploration and augmented analytics) and interactive dashboards. Oracle Data Visualization Desktop is available as a free download for personal use. OAC is primarily deployed by its reference customers for agile, centralized BI provisioning (58%) and decentralized analytics (72%) use cases.

Oracle is in the Niche Players quadrant. It has invested in, and delivered, a number of augmented analytics capabilities earlier than most other vendors. Additional visionary elements are on its product roadmap. However, based on Gartner inquiries and other measures of momentum, Oracle's sales and marketing strategy has yet to translate these advances into wider recognition within this market.

### Strengths

- **Augmented analytics, interactive exploration, dashboards and mobile capabilities:** Augmented analytics features that include NLQ, automated insights and natural language narration differentiate OAC from most other vendors' platforms, as does Day by Day, its mobile app. Oracle has implemented augmented analytics capabilities across its platform. These include understanding of data distribution and correlations, and insight generation for identifying significant segments, clusters, drivers, outliers and anomalies. They also include narration of findings and prescriptive actions. OAC offers an integrated design experience for interactive analysis, reports and dashboards. It also supports advanced exploration, including of custom groups, and drag-and-drop advanced analytic functions, such as forecasting, clustering, trending and outlier detection.
- **Product vision:** Oracle is making significant investments to its augmented analytics, with text and voice for NLP, as well as chatbots. It has also made early investments in virtual reality via its mobile capabilities. Part of this investment includes semantic enrichment in support of augmented analytics. This is used to gather intent and to improve the accuracy and relevancy of its analytics and data inference capabilities.
- **Global cloud presence with optimizations for Oracle applications:** Oracle reference customers report selecting OAC, rather than competing offerings, because of its cloud capabilities. Oracle offers cloud data centers in almost all regions of the world. Additionally, customers value the integration with Oracle enterprise applications. Although on-premises Oracle BI Applications are not sold in OAC, Oracle offers a number of free Oracle E-Business Suite and Oracle SaaS application content packs. These enable rapid deployment of analytic content on Oracle on-premises and cloud application data sources.

## Cautions

- Enterprise features require IT-centric Oracle Business Intelligence: Enterprise features such as data lineage and impact analysis in metadata management require use of the IT-centric BI capabilities of OAC or of Oracle Business Intelligence on-premises. OAC also lacks the ability to combine multiple tables in one data connection in data preparation. These capabilities require either custom SQL or use of Oracle Business Intelligence, either on-premises or in OAC, with the work being done in the model by technical experts. In addition, publish and share capabilities, such as collaboration, discussion threads and content ratings, are not supported. Furthermore, scheduling, alerting, and extensive formatting are not possible without OAC's IT-centric traditional BI capabilities.
- Sales experience and operations: Oracle introduced new pricing and streamlined packaging in late 2017 with the option to “pay as you go” and reallocate subscriptions on demand. However, reference customers gave Oracle the lowest score of any vendor in this Magic Quadrant for sales experience. Regarding operations, reference customers' scores place Oracle in the bottom third for product quality and support, and report a below-average migration experience. Gartner Peer Insights reviewers also rate the service and support in the bottom third.
- Used for less complex types of analysis: Reference customers report using OAC for the less complex types of analysis (despite the product's advanced exploration and augmented analytics features). Also, the workflow for Mode 1 and Mode 2 analytics and reporting is less than seamless.

## Pyramid Analytics

Pyramid Analytics offers an integrated suite for modern analytics and BI. It has a broad range of analytics capabilities, including ad hoc analysis, interactive visualization, analytic dashboards, mobile capabilities and collaboration. It also features an integrated workflow for SOR reporting. Reference customers report using the platform primarily for governed data discovery (74%) and agile, centralized BI provisioning (66%). The highest percentage of reference customers of any vendor use Pyramid's platform for extranet deployment (33%).

Over the past year, Pyramid has continued to mature its rearchitected solution. It has moved from a strictly Microsoft-centric stack to an agnostic Java and HTML5-based one with optimizations for Microsoft. Pyramid has also introduced new competitive, subscription-based, named-user pricing.

Pyramid is a Niche Player due to its challenges with customer experience, limited awareness of Pyramid in the market, and narrow adoption. Early investments in innovation, together with visionary roadmap components after its platform rebuild, also contribute to its position.

## Strengths

- Broad range of use cases, including integrated Mode 1 and Mode 2: Pyramid supports agile workflows and governed, report-centric content within a single platform and interface. The solution is well-suited to governed data discovery, with features such as BI content watermarking, reusability and sharing of datasets, metadata management and data lineage. Reports and dashboards support scheduling and distribution, alerting and discussions — Mode 1 reporting capabilities that are often lacking in competing products.
- Optimizations with Microsoft's environment, but platform-agnostic: Pyramid has, as in 2017, a high percentage of deployments on top of Microsoft-based enterprise data warehouses, at 44% of its reference customers. However, this figure is down from 70% in 2017, which shows that its product is platform-agnostic. Nevertheless, Pyramid continues to offer tight and extensive integration with Microsoft's environment. Pyramid should therefore be assessed especially when such integration is a top requirement. It should also be evaluated for multi-infrastructure environments, as the platform has matured its support for other data infrastructure environments, such as SAP HANA and Snowflake.
- Easy to deploy, administer and support in a single workflow: Reference customer scores place Pyramid's platform in the top third in this Magic Quadrant for ease of administration, implementation and deployment and for overall support. They rate the platform above average for integrated workflow — not surprisingly, given the platform's integrated approach that supports all analytics and BI use cases.

## Cautions

- Product vision and innovation remains limited: Pyramid has made early investments in innovation, but more visionary elements are still only on its product roadmap.
- Customer experience: As in the previous two surveys, reference customers' scores place Pyramid in the bottom third of vendors for customer experience, including achievement of business benefits, user enablement and availability of skilled resources from the vendor. For the first time, scores from reference customers surveyed for this Magic Quadrant put Pyramid's product quality and migration experience in the bottom third. This is unsurprising, given that customers are migrating to a completely rebuilt platform.
- Lack of awareness in crowded market: For Pyramid, 2017 and 2018 were "retooling" years. They were years in which modern analytics and BI innovations around visual-based exploration became mainstream. Pyramid was once differentiated by its optimizations for Microsoft environments at a time when Microsoft lacked a compelling offering. However, Pyramid has struggled to communicate its new differentiators in a crowded market.

## Qlik

Qlik delivers governed data discovery and agile analytics and BI via its lead product, Qlik Sense, which is built on the Qlik Analytics Platform. The platform can be used to build customized applications via an extensive set of APIs to support the embedded analytics use case. Qlik's original product, QlikView, accounts for a large portion of the company's installed base, but Qlik Sense now generates more than 67% of its license revenue. According to reference customers, Qlik is used primarily for decentralized analytics (70%) and agile centralized BI provisioning (66%) use cases.

In July 2018, Qlik acquired Podium Data to broaden its data management capabilities. Subsequently, in January 2019, Qlik acquired Crunch Data in order to provide conversational analytics. In 2018, it launched a new pricing model to encourage QlikView customers to move to Qlik Sense, or to add Qlik Sense to their deployments; it offers dual licenses for a nominal fee.

Qlik's position in the Leaders quadrant is partly attributable to its strong product roadmap, geographic reach and market understanding. But its market responsiveness scores are lower than those of other Leaders.

## Strengths

- **Product features and extensibility:** Qlik has added augmented features via its Cognitive Engine. Improved self-service capabilities and Insight Advisor help users find useful insights faster with automatic chart generation, as well as suggested insights that the engine thinks may be important. Qlik Core, added in 2018, is a development platform on which developers can build applications for cloud or edge deployments. Qlik's scalable in-memory engine enables customers to build robust, interactive, visual applications, due to its ability to support multiple data sources, complex data models and complex calculations.
- **Customer experience:** Qlik's active user community is a key contributor to reference customers' high scores for user enablement. These are supported by high scores from Gartner Peer Insights reviewers relating to the quality of the peer user community. Qlik's business-value-based messaging, Data Literacy Project campaigns, and multiple conference series help to influence the market and stimulate demand.
- **Product vision:** Qlik continues to extend and enhance its platform as the market evolves. Qlik was the first to have a vision for multicloud deployments managed in a single interface. Qlik handles big data with its On-Demand App Generation and will expand these capabilities with its new Associative Big Data Index. Qlik continues to execute on its augmented analytics roadmap, as well as improve its data preparation and embedded analytics capabilities.

## Cautions

- Product workflow: QlikView and Qlik Sense require multiple products to accommodate specific pieces of an analytics workflow. Podium Data, now called Qlik Data Catalyst, will become a stand-alone product to deliver data cataloguing and more advanced data preparation. Qlik's NPrinting requires a separate installation to be used for structured Mode 1 reporting.
- Migration experience: Qlik announced a new pricing model in July 2018, with an option for existing QlikView customers to start using Qlik Sense. However, Qlik's reference customers score the vendor below average for operations, with the main contributor being low scores for migration experience. When asked to name limitations with regard to wider deployment, Qlik's reference customers frequently identified functional differences between QlikView and Qlik Sense (product releases subsequent to our survey have aimed to address these differences, specifically in advanced authoring and extension bundles). Gartner Peer Insights reviewers also rate Qlik's service and support as below average.
- Lower momentum: Qlik reduced its head count significantly in 2018. Compared with 2017, there has been a slight decline in interest in Qlik from Gartner clients, judging from Gartner's client inquiry data for 2018 and social media analytics. This was particularly evident for first-time customers evaluating Qlik against other leading vendors in this market.

## Salesforce

Salesforce offers the Einstein Analytics Platform (formerly Wave), Einstein Discovery (augmented analytics), and Einstein Data Insights (AI-automated insights for Salesforce reports). The Einstein Analytics Platform offers point-and-click interactive visualizations, dashboards and analysis with integrated data preparation for Salesforce and non-Salesforce data. Einstein Discovery is newly packaged with Einstein Analytics (Einstein Analytics Plus) and shares the same data model. It is also largely integrated with the Einstein Analytics workflow. Salesforce reference customers report equal use of Einstein Analytics for agile, centralized BI provisioning (35%) and decentralized analytics (35%).

Einstein Discovery's disruptive innovation around augmented analytics is now integrated with Einstein Analytics. This combination, together with strengths in terms of product vision, global presence, partner network, positioning, and marketing and sales execution potential, makes Salesforce a Visionary.

## Strengths

- Lead in augmented analytics: Integration of the AI-driven augmented analytics capabilities in Einstein Discovery with the rest of the Salesforce Analytics portfolio has disrupted the market in a way that other vendors are trying to emulate. Salesforce continues to invest in augmented analytics innovations in the field of data preparation, and in conversational analytics, and proactive alerting is on its

roadmap. To build trust from automatically generated insights, Einstein Analytics exposes the key drivers of insights to users. The underlying model is also open to data scientists to validate. Salesforce is extending these capabilities by adding AI model bias detection and model explainability and accountability features before most other vendors.

- Optimization for Salesforce: Although Salesforce customers increasingly use its platform to analyze both non-Salesforce and Salesforce data, Einstein Analytics is natively integrated with Salesforce business applications. This integration includes security, collaboration, metadata and usage monitoring, and automatic geocoding with simplified access to Salesforce application tables. Users can invoke Salesforce actions from within Einstein Analytics and collaborate using Chatter. Salesforce's integration of MuleSoft (acquired in May 2018) will improve Einstein Analytics' connectivity to a broad range of data sources, without the need for third-party ETL tools.
- Partner ecosystem and developer marketplace: Salesforce's robust partner ecosystem includes ETL, data science and ML vendors, independent software vendors (ISVs) and SIs. They make use of Salesforce's highly rated embedded analytic content capabilities. Salesforce's developer marketplace, AppExchange, provides a platform for ISVs and developers to build and sell custom content (such as datasets, lenses and applications). Notably, Salesforce receives some of the top ratings in the software industry for diversity and desirability as a place to work from Forbes and Fortune. Salesforce reference customers surveyed for this Magic Quadrant gave it high scores for ethics, culture and diversity.

## Cautions

- Cost: Over half (52%) of Salesforce's reference customers identify cost as the main barrier to broader deployment of its software — a higher percentage than for any other vendor in this Magic Quadrant. These customers' cost concerns may have adversely affected their perception of the sales experience (including pricing and contracting), which they rated as below average. Gartner Peer Insights reviewers express similar views about Salesforce's pricing and contract flexibility. It is too early to say whether Salesforce's recent changes to pricing and packaging will fully address these concerns.
- Not the enterprise analytics and BI standard: Einstein Analytics is not used as an enterprise analytics and BI platform by the majority of its customers. Although deployment sizes and the amount of non-Salesforce data analyzed in Einstein Analytics continue to grow, the platform is primarily used for customer-facing analytics by customers with other Salesforce applications.
- Ease of deployment: Reference customers' scores for ease of administration, development and deployment, and for integrated workflow, put Salesforce in the bottom third of vendors in this Magic Quadrant. This finding may relate to concerns expressed by Gartner customers about custom programming still being required for many actions that are often available "out of the box" in other platforms. Salesforce

also received below-average scores from reference customers for the availability of relevant skills, both from the vendor and in market.

## SAP

SAP's lead product for modern analytics and BI is SAP Analytics Cloud. The majority of companies that choose SAP Analytics Cloud already use some SAP business applications.

Reference customers report that SAP Analytics Cloud is most often used for agile, centralized BI provisioning (67%) and decentralized analytics (62%).

SAP is a Visionary, its position in the Magic Quadrant being influenced by product limitations and relative weakness in terms of sales and marketing strategy. SAP still does not have the broad market momentum of the Leaders in this market. Its decision to focus on one product is beginning to improve its competitiveness, however. Reference customers for SAP Analytics Cloud report a much improved view of SAP's viability as a vendor of modern analytics and BI.

## Strengths

- Augmented, cloud-centered, hybrid vision: Smart Insights — new ML-driven functions, including NLP-based search — make SAP Analytics Cloud one of the highest rated platforms for augmented data discovery capability. Further, SAP Analytics Hub is intended to bridge cloud and on-premises deployments, providing a single front end for SAP and partner-originated analytic offerings. This vision is resonating — reference customers for SAP Analytics Cloud showed a bigger improvement in their view of their vendor's viability than any other group of reference customers surveyed for this Magic Quadrant.
- Differentiated closed-loop capability: SAP Analytics Cloud's integrated functionality for planning, analytical and predictive capabilities in a unified, single platform is a differentiator. SAP is one of only two vendors in the Magic Quadrant with such an offering. The associated SAP Digital Boardroom is another differentiator, one particularly attractive to executives because it supports "what if?" analysis and simulations.
- Prepackaged analytic content: Drawing on the business content approach it pioneered with SAP Business Warehouse, SAP offers a library of prebuilt content available online for SAP Analytics Cloud customers. The content covers a range of industries and line-of-business functions. It includes data models, data stories and visualizations, template SAP Digital Boardroom agendas, and guidance on using SAP data sources.

## Cautions

- Functional limitations: Although ease of use has improved with the Fiori-styled UX, SAP Analytics Cloud still lags behind in a number of areas, particularly scalability and model complexity (for which its reference customers reported a median of 72

users and were in the bottom third for data volumes being analyzed). In addition, the SAP-source-dominated data source connectivity and ingestion capability, and the ability to embed analytic content, are relatively weak.

- **Product quality and performance:** SAP's reference customer scores put its product quality in the bottom third of the vendors in this Magic Quadrant. Performance is also an issue: 14% of those using SAP Analytics Cloud say they experienced poor performance (the second-highest percentage for this complaint). Performance is the primary limitation with regard to wider deployment of SAP Analytics Cloud, according to its reference customers. They put SAP's product support — specifically its time to respond to and resolve issues — in the bottom third of vendors in this Magic Quadrant.
- **Cloud-only:** Most organizations now view cloud-based software as part of data and analytic deployments, but a significant minority still do not. For that minority, SAP Analytics Cloud isn't a good fit, although it can connect directly to on-premises SAP resources (SAP BusinessObjects Universes, SAP Business Warehouse and SAP HANA) for live data and to some non-SAP data sources for data ingestion. SAP's alternative on-premises offering, SAP Lumira, will be supported through 2024. Judging from interactions with users of Gartner's client inquiry service, those using SAP Lumira are less positive about it (the few Lumira reference customers we surveyed gave the lowest vendor viability scores and showed the largest decline in this regard). SAP customers requiring fully on-premises deployment of modern analytics and BI are evaluating non-SAP offerings.

## SAS

SAS offers Visual Analytics on SAS Viya. This offering combines reporting, data preparation, visual exploration and dashboards in a single product; it also provides the underpinnings of SAS solutions (prebuilt analytical applications). SAS Visual Analytics is also a component of the company's data science product, SAS Visual Data Mining and Machine Learning. SAS is one of the largest privately held software vendors.

SAS Visual Analytics is primarily deployed on-premises, but is also available through various cloud and hosting options. Reference customers use it mainly for decentralized analytics (56%) and agile, centralized BI provisioning (49%).

In 2018, SAS released augmented analytics capabilities with driver analysis and NLG to explain the importance of each variable for a given metric.

SAS's position as a Visionary reflects its robust product, industry solutions and global presence, as well as the challenges it faces with regard to ease of use, sales experience and migration.

## Strengths

- **Support for Mode 1 and Mode 2 with scalability:** SAS Visual Analytics has some of the highest critical capability ratings for both agile, centralized BI provisioning and

decentralized analytics. As a server-based platform, it provides governance and scalability with an open architecture that includes Hadoop Distributed File System (HDFS) and Direct Network File System (DNFS) for persistence and its own in-memory engine for fast performance. The menu-driven advanced analytics, with open models, remains a competitive differentiator, as does the support for IoT and real-time data.

- Innovative roadmap: SAS is one of only a few vendors in this Magic Quadrant to natively support text analytics, in addition to structured data. With the release of its new automated analysis object, SAS now also offers rich driver and variable analysis. Voice integration with personal digital assistants (such as Amazon Alexa) is supported, and additional chatbot integration is on the roadmap.
- Global vendor: SAS has a physical presence in 47 countries, and reference customers' responses put it in the top third of vendors in this Magic Quadrant for overall support (Gartner Peer Insights reviewers place it in the middle). It has long been a leader in its efforts to recruit and retain a diverse workforce. It has created a unique Data for Good application, GatherIQ, that combines video with data on social projects. Reference customers also put SAS in the top third of the vendors in this Magic Quadrant for overall support.

## Cautions

- Less easy to use: Ease of use remains one of the most important buying criteria, impacting both product assessments and market understanding. SAS Visual Analytics ranks in the bottom third of Magic Quadrant vendors for overall ease of use. Reference customers gave it the lowest scores of any vendor in this Magic Quadrant for ease of deployment, ease of content authoring and ease of content consumption. Fifteen percent of SAS reference customers identified difficulty with implementing the product (the second-highest figure for a vendor in this Magic Quadrant). Menu options for routine tasks are not obvious, and sometimes hidden. Almost one-quarter (23%) of SAS reference customers identified its software's limited ease of use for business users as a barrier to wider deployment.
- Sales experience: Reference customers' scores put SAS in the bottom third of the vendors in this Magic Quadrant for sales experience, and Gartner Peer Insights reviewers place SAS near the bottom for price and contract flexibility. In addition, Gartner Peer Insights reviewers put SAS near the bottom for value for money.
- Migration challenges: SAS Viya represented a major redesign of the UX and platform to create a more open environment. However, migration to the latest release has been a challenge, with reference customers' scores putting SAS last for this operational metric by a wide margin among the vendors in this Magic Quadrant. Migration difficulty may be exacerbated by shortcomings in terms of product quality, for which SAS ranks in the bottom third of vendors in this Magic Quadrant.

## Sisense

Sisense offers data preparation, analytics and visual exploration of complex data mashups. The company received an additional \$80 million in venture capital funding in 2018, bringing its total to \$200 million. Although Sisense has historically focused on small and midsize customers, it is increasingly pursuing enterprise accounts.

Sisense's reference customers use it primarily for the OEM or embedded use case (46%), followed by agile, centralized BI provisioning (42%).

Sisense 7.3 was released in November 2018. The Elastic Data Hub now allows more seamless blending of data both in memory and in database, with multiple tables. Sisense Hunch is a newly released AI capability that can be embedded in edge devices. It reduces terabytes of data to a neural network of a few megabytes that can be queried to find patterns and outliers.

Sisense remains a Visionary. The company scored well for most aspects of Ability to Execute, with improved scores for product, market responsiveness and operations, in particular.

## Strengths

- **Complex mashups:** Sisense enables customers to ingest data from a range of data sources, while also cleansing and transforming the data. Data can optionally be left in-database for some high-performing databases, or brought into the Sisense ElastiCube — the vendor's proprietary caching engine that uses both in-memory and in-chip processing for fast performance. It is noteworthy, therefore, that Sisense had the highest percentage of reference customers with no data warehouse (13%).
- **Early innovation:** Sisense has been an early innovator in the emerging fields of automated insight generation, integration with Amazon Alexa and chatbots. Sisense Hunch further reflects this innovation by embedding ML in edge devices, for example, to identify the root causes of quality problems in manufacturing. Sisense's alerting engine, Pulse, now also includes proactive alerting about anomalies.
- **Customer satisfaction, culture and execution:** Sisense's reference customers gave it the highest ratings for customer and sales experience. In addition, Gartner Peer Insights reviewers put Sisense top for value delivered and in the top third for support. Reference customers also consider Sisense one of the top vendors for operations, which includes support, time to resolution, expertise and upgrade experience. Many of these high scores can be attributed to the company's culture and ethics, to which reference customers also gave the highest ratings.

## Cautions

- Gaps in core functionality: Sisense's product lacks visual grouping and menu-driven advanced analytics for citizen data scientists. Additionally, there is no undo function within the dashboard authoring, storytelling and threaded discussion capabilities. Further, the ability to use "drag and drop" to build queries or dashboards is not available to business users accessing embedded content.
- Limited global presence: Sisense operates largely in the U.S. and Israel. It lacks a physical presence in Latin America, and offices in the U.K. and Japan opened only recently. Sisense has historically focused on small and midsize organizations, but has since grown its revenue from enterprise and strategic accounts (these now account for half its revenue). Even so, the median deployment size by number of users is in the bottom third, among the vendors in this Magic Quadrant.
- Less mind share: Sisense's strong focus on the embedded use case, which is one of the smaller segments of the analytics and BI market, has resulted in the market being less aware of this vendor than of competitors. The embedded use case accounts for just over half this vendor's revenue.

## Tableau

Tableau offers an intuitive, interactive, visual-based exploration experience that enables business users to access, prepare, analyze and present findings in their data without technical skills or coding. Tableau's offering is primarily deployed on-premises, either as a stand-alone desktop application or integrated with a server for sharing content; Tableau Online is the cloud-based SaaS offering.

In 2018, Tableau introduced a new, lower-priced Viewer role and now leads with named-user, subscription-based pricing. Tableau Prep was released to improve data preparation and profiling within Tableau Desktop — and more robust server-based scheduling capabilities are in beta testing. Tableau also acquired Empirical Systems in 2018 to broaden its augmented analytics capabilities.

Tableau's reference customers report that they use it primarily for decentralized analytics (70%) and agile, centralized BI provisioning (51%).

Tableau is a Leader, thanks to the popularity of its product, high customer satisfaction scores and strong roadmap.

## Strengths

- Easy visual exploration and data manipulation: Tableau enables users to rapidly ingest data from a broad range of data sources, blend them, and visualize results using best practices in visual perception. Data can be manipulated while visualizing — such as when creating groups, bins and new hierarchies — all with a high degree of ease of use.
- Customers as fans: Customers have a fanlike attitude toward Tableau, as evidenced by the record 17,000 users that attended its 2018 annual user

conference. Reference customers placed Tableau in the top third of Magic Quadrant vendors for customer experience, and gave it high scores for achievement of business benefits. Tableau sets the industry standard for user enablement with Meetup groups, roadshows, online tutorials and availability of skills in the market.

- Momentum: Tableau grew its total revenue to just over \$800 million through 3Q18 — double-digit growth compared with 2017. This was despite moving to subscription-based licensing, which often impairs a vendor's growth. Tableau remains at the top of many customers' shortlists, and continues to expand within its installed base. The Tableau Foundation and Tableau Public have been a force in the Data for Good movement, having recently pledged \$100 million in funding over the next seven years.

## Cautions

- Product gaps: Support for querying multiple fact tables and complex schemas in a single data source is absent from Tableau's product, which is used primarily for Mode 2 use cases. It does not support scheduled, bursted reports in a variety of output formats, or the promotion of content through development, testing and production processes. Support for bursted reports with output to PDF is on the short-term roadmap.
- Support decline: The responses of surveyed reference customers, together with other Gartner research, indicate that the quality of Tableau's product support declined in 2018. In this regard, reference customers' responses put it in the bottom third of vendors in this Magic Quadrant, due partly to more difficult upgrades. Hyper was a major engine replacement to boost performance — one that has not gone as smoothly as previous releases. Further, 12% of Tableau's reference customers say poor performance remains a problem, and 13% say the product cannot handle the required data volumes (both percentages are above the average).
- Sales experience, contracting and cost: Tableau did well to introduce a new, lower-priced viewer license to compete better against Microsoft in particular, but this license is only available with a subscription license. Consequently, perpetual customers have to move to a new named-user and subscription model to be able to buy this new license. These conversions can be a point of friction, which may explain why Tableau's reference customers place it in the bottom third of vendors in this Magic Quadrant for sales experience. Gartner Peer Insights reviewers place it in the bottom third for price and contract flexibility. Over one-third (35%) of Tableau's reference customers identified cost as a limitation with regard to wider deployment (the second-highest figure among vendors in this Magic Quadrant).

## ThoughtSpot

ThoughtSpot differentiates itself on its search-based interface with augmented analytics at scale. The company was founded by former Google executives, and

received an additional round of series D funding in 2018 of \$145 million, bringing its total funding to \$306 million.

ThoughtSpot's software can be deployed in the cloud or as an on-premises appliance on commodity hardware, with data loaded in-memory into a massively parallel processing (MPP) engine and indexed for fast query performance. In 4Q18, ThoughtSpot released SearchIQ to support voice-driven queries from mobile devices. Proactive alerting was also released, by which users are notified of unusual changes in data, as opposed to those that are simply threshold-based. Over three-quarters (78%) of ThoughtSpot's reference customers use its product for decentralized analytics, and 62% for agile, centralized BI provisioning.

ThoughtSpot has moved from the Visionaries quadrant to the Leaders quadrant, thanks to strong execution, high customer satisfaction scores and rapid innovation.

## Strengths

- Search and AI at scale: Using search and NLP as the primary interface for accessing data, ThoughtSpot is bringing data to new classes of user — ones who previously may not have used BI. Questions can be posed by typing or speaking. The types of question supported are analytically complex, such as “Give me sales within 50 miles, comparing products A and B.” SpotIQ, the augmented analytics interface, generates anomalies and correlations with no coding. New integration with R extends the product's advanced analytics capabilities, and DataRobot support is planned for mid-2019. ThoughtSpot ranks in the top third of vendors for complexity of analysis and ease of use, with 34% of its reference customers analyzing more than 1 terabyte of data in memory.
- Sales and operations: Reference customers put ThoughtSpot in the top third of vendors in this Magic Quadrant for operations and sales experience. Gartner Peer Insights reviewers put it in the top third for pricing and contract flexibility. Whereas much of the analytics and BI market focuses on named-user pricing, ThoughtSpot is solely server- and data-volume-based, which enables its product to be deployed for an unlimited number of users.
- Momentum: ThoughtSpot's growth rate, particularly with enterprise customers, is among the fastest in this market: The company now claims to have over 200 customers, along with a large average deal size. The company's head count (an indicator of growth and company health) was 370 at end of 2018, a 60% year-over-year rise. Reference customers put ThoughtSpot in the top third for overall operations, which includes support, product quality and migration experience.

## Cautions

- Gaps in data preparation, visual exploration, dashboards and architecture: ThoughtSpot requires all data to be loaded into its MPP engine, as opposed to using in-database processing or high-performing analytic databases. Data must be prepared and cleansed using third-party tools. The software does not allow users to readily manipulate data into groups or bins, and it lacks important

chart types. Dashboards are basic, without rich mapping. Sixteen percent of ThoughtSpot's reference customers identified missing functionality as a problem (a figure in the top third for this complaint across the vendors in this Magic Quadrant). Over half (56%) of ThoughtSpot's reference customers use its product along with multiple standards (one of the highest percentages for vendors in this Magic Quadrant). This illustrates how it complements other products, but does not fulfill the full spectrum of analytic and BI requirements.

- Small vendor with few partners: ThoughtSpot is one of the smallest vendors in this Magic Quadrant in terms of revenue. Furthermore, it has few partnerships around the world or with large SIs. To date, all deployments have been handled directly by ThoughtSpot itself. Consequently, reference customers' scores put it in the bottom third for availability of skills in the market.
- Absence of prebuilt vertical content: ThoughtSpot's product lacks prebuilt content for specific vertical and functional domains. In this regard, customers must build their own applications for particular functional areas, with no prebuilt content to shorten the time to value in relation to implementation or the sales process. This is a competitive weakness for ThoughtSpot, compared with other Leaders and its chief competitors.

## TIBCO Software

TIBCO Software was an early visual-based data discovery disruptor with Spotfire, which helped shift the market from traditional reporting to modern analytics and BI. Spotfire offers extensive capabilities for analytics dashboards, interactive visualization and data preparation in a single design tool and workflow. It also offers flexible processing options, either in-memory or in-database.

Through acquisitions and OEM relationships, TIBCO has continued to expand its capabilities to include data science, ML and streaming analytics, location intelligence, data cataloging and data virtualization. Its latest release — Spotfire X — adds automated insight generation, NLQ and augmented visual data preparation. It also includes enhancements to real-time analytics and a single, simplified user interface. TIBCO's reference customers use it mainly for decentralized analytics (63%) and agile, centralized BI provisioning (37%) use cases.

TIBCO is a Visionary, thanks to its global presence and differentiated vision. Its Ability to Execute position is due, on the one hand, to strong product scores and improved reference customer ratings for customer and sales experience, and, on the other, to more limited mind share than that of the Leaders.

## Strengths

- Strong overall product suited to all use cases: TIBCO is in the top third for product scores overall, with ratings of excellent or outstanding for the majority of critical capabilities. It has particular strengths in data source connectivity, data storage and loading options, advanced analytics for citizen data scientists, analytic

dashboards and embedded BI. Superior product functionality is the main reason why reference customers selected Spotfire (a higher percentage selected this reason for TIBCO than for any other vendor in this Magic Quadrant).

- Customer and sales experience: Reference customers put TIBCO in the top third for customer experience. Above-average scores for availability of skills from the vendor, and high scores for its ability to help customers achieve business benefits, were the main contributors to this result. TIBCO is also in the top third for sales experience.
- Ease of use for complex types of analysis: An improved user interface and streamlined user workflow contribute to TIBCO's top-third rating for overall ease of use. Spotfire receives the highest rating for complexity of analysis of any product in this Magic Quadrant, now that its streaming capabilities are better integrated. The platform features ML-based data preparation capability for building complex data models. An end-to-end workflow is accomplished in a unified design environment for interactive visualization and for building analytic dashboards. As part of that environment, analysts and citizen data scientists have access to an extensive library of drag-and-drop advanced analytic functions, with some automated insight features. Capabilities from Statistica are fully integrated with Spotfire, along with the existing TIBCO Enterprise Runtime for R (TERR) engine.

## Cautions

- Product gaps: NLG for findings is not native to TIBCO's offering — it is available only via partnerships. In addition, the ability to rate content and use those ratings and user behavior to recommend related content is absent, although planned for a future release. TIBCO has native mobile apps for iOS and Android devices, but users cannot explore content offline on mobile devices.
- Market momentum: Major investments by TIBCO in social media marketing, strategic partnerships and thought leadership programs over the past year have yet to materially improve its market momentum.
- License cost and migration experience: Cost was identified as a barrier to wider deployment by an above-average percentage of TIBCO's reference customers (23%). In addition, reference customers rated their migration experience below-average. Gartner Peer Insights reviewers put TIBCO in the bottom third for service, support and quality of technical support, but reference customers rated these aspects more favorably.

## Yellowfin

Yellowfin began primarily as a vendor of a web-based modern analytics and BI platform, but quickly expanded to include data preparation and augmented analytics.

Yellowfin 8, released in October 2018, includes a new automatic insight generation product called Signals. In addition, a newly released Stories feature is one of the

best examples of how to combine visual exploration with storytelling and infographics. Reference customers frequently use Yellowfin for agile, centralized BI provisioning (43%) and decentralized analytics (34%).

Yellowfin remains a Niche Player as it specializes in lower-priced analytics and BI, particularly in Asia/Pacific and for OEM use cases. Below-average scores for customer experience and operations contribute to its relatively low position on the Ability to Execute axis.

## Strengths

- **Easy to use for Mode 1 and Mode 2:** Yellowfin's single platform includes one of the broadest ranges of capabilities, spanning data preparation, reporting with scheduled distributions, visual exploration and augmented analytics. Reports, dashboards and administration are all accessed via a browser-based interface, with no desktop components. Data is usually queried live from a relational data source, as caching into the columnar, in-memory engine is optional.
- **Innovation:** Yellowfin was one of the first to bring augmented analytics capabilities to market in 2017, and it expanded them in 2018. Signals brings personalized alerting based on ML algorithms — a clear differentiator as only a few vendors support such a capability. While many vendors integrate NLG capabilities from third parties, Yellowfin provides them natively and in a range of languages. In recognition of the reality that many customers have multiple analytics and BI tools, Stories supports embedding of content from Tableau and Qlik Sense, with an interface inspired by social platforms. Beyond product innovation, Yellowfin has been active in the Data for Good movement and strives to increase workforce diversity in the fields of science, technology, engineering and mathematics.
- **Sales strategy:** Yellowfin has one of the best sales strategies, with a strong partner network and clear, attractive pricing and packaging. Over one-fifth (21%) of Yellowfin's reference customers identified low price as a key reason why they selected its product — a higher percentage than for any other vendor in this Magic Quadrant. Yellowfin sells on a subscription basis (named-user or number of processor cores). There are starter packages for small and midsize deployments, and flexible pricing models for OEMs.

## Cautions

- **Limited scalability and product gaps:** Performance has been a perennial problem for Yellowfin, even though it has added caching and columnar storage as an option. Fourteen percent of its reference customers identified poor performance as a problem, with 9% considering it a barrier to wider deployment (a percentage in the top third for this complaint among vendors in this Magic Quadrant). The product does not readily support complex queries from multiple fact tables in the business views.
- **Weak momentum:** Yellowfin, a privately owned company and one of the smaller vendors in this Magic Quadrant, has grown more slowly than key competitors. This

may be partly due to Yellowfin's lack of venture capital funding. Yellowfin rarely appears on vendor shortlists and is best known in Asia/Pacific. Its employee head count as of December 2018 was 183, a 6% year-over-year increase; this represents modest growth, compared with competitors with more momentum.

- Operations and customer experience: Reference customers' scores put Yellowfin in the bottom third of Magic Quadrant vendors for both customer experience and operations. Product quality has been a continual problem, and 9% of Yellowfin's reference customers identified this as a limitation in relation to wider deployment.

## Vendors Added and Dropped

We review and adjust our inclusion criteria for Magic Quadrants as markets change. As a result of these adjustments, the mix of vendors in any Magic Quadrant may change over time. A vendor's appearance in a Magic Quadrant one year and not the next does not necessarily indicate that we have changed our opinion of that vendor. It may be a reflection of a change in the market and, therefore, changed evaluation criteria, or of a change of focus by that vendor.

### Added

GoodData

### Dropped

None

## Inclusion and Exclusion Criteria

This year's Magic Quadrant includes 21 vendors, which met all the inclusion criteria described below.

### Modern Analytics and BI Platform Assessment

Gartner analysts evaluated whether vendors' platforms qualify as modern analytics and BI platforms, as defined by Gartner. Their answers were determined by the extent of IT involvement that is considered mandatory before a platform can be used by a business analyst or information worker to analyze data without IT assistance.

Products that did not meet our definition of a modern platform required significant IT involvement — internal or external to the platform — to load and model data, create a semantic layer or build data structures as a prerequisite for use.

IT-developer-centric platforms focused on custom coding of analytic applications were also excluded.

Vendors of products that met our definition of a modern analytics and BI platform were evaluated for inclusion in this Magic Quadrant based on a funnel

methodology. In other words, each vendor had to meet the requirements for one tier of inclusion criteria in order to progress to the next tier.

#### Vendor-Level Criteria

- Tier 1. Revenue:\* Modern analytics and BI platform revenue for each vendor was assessed with regard to two common licensing models:
  1. Perpetual license model: Software license, maintenance and upgrade revenue (excluding hardware and services) for the calendar years 2016, 2017 and 2018 (estimated).
  2. SaaS subscription model: Annual contract value (ACV) for year-ends 2016, 2017 and projected ACV for year-end 2018, excluding any services included in annual contracts. For multiyear contracts, only the contract value for the first 12 months was used.
- Revenue from each model (if applicable) was combined and evaluated against three revenue inclusion levels:
  - \$25 million in 2018 (estimated) combined perpetual license revenue and 2018 (estimated) ACV
  - \$15 million in 2018 (estimated) combined perpetual license revenue and 2018 (estimated) ACV with 50% year-over-year growth
  - \$10 million in 2018 (estimated) combined perpetual license revenue and 2018 (estimated) ACV with 100% year-over-year growth
- \* *Gartner defines total software revenue as revenue that is generated from appliances, new licenses, updates, subscriptions and hosting, technical support and maintenance. Revenue from professional services and hardware is not included (see “Market Share Analysis: Analytics and BI Software, 2017”).*
- Tier 2. Market presence: For each vendor meeting the Tier 1 revenue criteria, a composite metric was applied. It assessed the interest in the vendor shown by Gartner’s client base and the broader market, as indicated by internet search volume, job postings and trend analysis, and social media presence. *Note: Vendors were considered for inclusion based on data valid as of August 2018. Vendors whose products were considered merely complementary to analytics and BI platforms were excluded.*
- Tier 3. Magic Quadrant evaluation inputs: Full participation by a vendor in the Magic Quadrant process involved:
  - Completing and providing documentation for an RFP-style questionnaire of detailed critical capabilities.
  - Completing an online questionnaire about market presence, growth, go-to-market strategy and differentiation.
  - Submitting a video of up to one hour in length that demonstrated how included products delivered on the predefined analytic scenarios defined by Gartner.

- Verifying final modern analytics and BI revenue for 2016, 2017 and 2018 (estimated).
- Providing details of reference customers for an online survey of customers and OEMs.
- Providing a vendor briefing to the authors of this Magic Quadrant.
- Providing access to evaluation software.
- Providing factual review of sections of this Magic Quadrant.
- If a vendor declined to participate fully (or at all) and did not respond to requests for supplementary information, Gartner based its analysis on other credible sources. These included previous vendor briefings, customer inquiries, Gartner Peer Insight reviews and other publicly available information.

#### Product-Level Criteria

- Tier 4. Breadth of coverage: Each vendor had to demonstrate breadth across industries and geographic regions, as specified by Gartner.
- Tier 5. Product assessment: Products that progressed to this final tier were assessed by Gartner analysts using the information provided by each vendor in Tier 3. The final step involved narrowing the field to the 21 vendors for inclusion in this Magic Quadrant.

*Note: Gartner has full discretion to include in this Magic Quadrant a vendor (or vendors) which it deems important to the market, regardless of that vendor's level of participation in the Magic Quadrant process. This discretion was not exercised this year, because all vendors participated fully in the process.*

## Honorable Mentions

The following vendors did not fulfill one of the inclusion criteria for this Magic Quadrant.

- Amazon Web Services (AWS): Amazon QuickSight is a cloud-based analytics and BI service for performing ad hoc analysis and publishing interactive dashboards. The platform ingests data from a variety of on-premises and cloud-based data sources into its parallel, in-memory calculation engine, SPICE. AWS offers competitive and flexible pricing for both the embedded use case and usage-based pricing.
- ClearStory Data: This vendor's analytics and BI offering provides augmented data discovery and preparation, data storytelling and collaboration in a single platform that can be run in multiple clouds or on-premises. It uses Spark-based processing to handle large data volumes. ClearStory's smart data inference and Intelligent Data Harmonization use ML to recommend how to cleanse, prepare and blend data.

- Periscope Data: This vendor combines agile data modeling, data science and visual exploration in a single cloud-based platform. Data can be queried directly or modeled and explored to create reusable data models, with data coming from multiple blended data sources. SQL, R and Python scripts can be executed locally and saved as a new dataset.
- Manthan: This vendor offers the Manthan Analytics Platform, an end-to-end, cloud-based, AI-powered BI and advanced analytics platform. The platform uses built-in AI at many layers, including the data management and conversational interface layers. Manthan is better known for its analytics products for retail and consumer-focused business.
- OpenText: This vendor offers two modern analytics and BI products: Analytics Suite and Magellan. The Analytics Suite includes traditional enterprise reporting, platform administration and security, along with the ability to prepare data, blend data sources, perform interactive visual exploration and create analytic dashboards. Magellan expands on the Analytics Suite with a data science notebook for creating and using ML models and text analytics for unstructured data.

## Evaluation Criteria

### Ability to Execute

Gartner assesses each vendor's ability to make its vision a market reality that customers regard as differentiated and that they are prepared to buy into. Gartner also assesses each vendor's success in doing so. A vendor's ability to deliver a positive customer experience — encompassing sales experience, support, product quality, user enablement, availability of skills, and ease of upgrade and migration — also influences its position on the Ability to Execute axis.

In addition to the opinions of Gartner analysts, the analysis in this Magic Quadrant reflects:

- Customers' perceptions of each vendor's strengths and challenges, as gleaned from their analytics and BI-related inquiries with Gartner.
- An online survey of vendors' reference customers.
- A questionnaire completed by the vendors.
- Vendors' briefings, including product demonstrations, and overviews of strategy and operations.
- An extensive RFP questionnaire inquiring how each vendor delivers the specific features that make up our 15 critical capabilities for this market (see "Toolkit: Analytics and BI Platform RFP," which also shows weights for individual subcriteria).

- A prepared video demonstration of how well vendors' analytics and BI platforms address the 15 critical capabilities.
- Analysts' testing of evaluation software.

#### Ability to Execute Criteria

- Product or service: How competitive and successful are the 15 product capabilities offered by the vendor in this market? How integrated is the product's workflow? How easy and visually appealing is it to use?
- Overall viability: What is the likelihood of the vendor continuing to invest in products and services for its customers, and how do reference customers assess the vendor's likely relevance in the future? This criterion includes analyst assessment of the overall organization's financial health, the financial and practical success of the business unit, and the likelihood of that unit continuing to invest in and offer the product and innovate within its product portfolio.
- Sales execution/pricing:\* This covers the vendor's capabilities in all presales activities and the structure that supports them. It also includes deal management, pricing, negotiation and contracting, presales support and the overall effectiveness of the sales channel.
- Market responsiveness/record: Does the vendor have momentum and success in the current market? If it does, is this momentum and success broad or confined to one geographic region? How diverse is the company's workforce? How do customers rate its ethics, culture and diversity? New this year is the incorporation of Gartner Peer Insights reviewers' assessments of value received.
- Customer experience:\* How well does the vendor enable its customers to use its product(s) through training, online tutorials, documentation and conferences? How readily available are resources (both in the market and from the vendor) with expertise in its product(s)? This criterion also covers the extent to which customers realize tangible business benefits from using the vendor's software.
- Operations:\* How well does the vendor support its customers? How trouble-free is the software? How easy is it to migrate to a newer version?

*\* These criteria are scored substantially on the basis of input from the survey of vendors' reference customers conducted for this Magic Quadrant.*

Table 1: Ability to Execute Evaluation Criteria

Enlarge Table

Evaluation Criteria	Weighting
Product or Service	High
Overall Viability	High
Sales Execution/Pricing	High
Market Responsiveness/Record	High
Marketing Execution	Not Rated
Customer Experience	High
Operations	High

Source: Gartner (February 2019)

## Completeness of Vision

Gartner assesses vendors for their understanding of how market forces can be exploited to create value for customers and opportunity for themselves. The Completeness of Vision assessments and commentary in this Magic Quadrant are based on the same sources described in the Ability to Execute section above.

In determining Completeness of Vision for the “offering (product) strategy” criterion, Gartner evaluated vendors’ ability to support key trends that will drive business value in 2019 and beyond. Existing and planned products and functions that contribute to these trends were factored into each vendor’s score for this criterion.

Key themes are as follows, by category:

Infrastructure

- Native access to graph databases or search databases such as Neo4J, Elasticsearch, Kibana, Attivio and Splunk. This is becoming increasingly important as data grows in volume and complexity.
- Support for deployments across multiple clouds: Hybrid connectivity from a cloud deployment to on-premises data sources is to be expected and is evaluated within the critical capabilities. The visionary element is the degree to which a single deployment for analytic content and data storage can span multiple cloud providers (and on-premises) but still be managed as a single deployment from both an administrative and a licensing perspective.
- Edge devices: Specifically the ability for microservices to be run in containers within edge devices.

#### Data Management

- Semantic graph: An IT-created semantic layer is a defining feature of traditional BI platforms. An emerging area of innovation for modern analytics and BI platforms focuses on business semantic models that are crowdsourced and automatically created, based on how data is used. In this way, a business's view of data becomes adaptive, based on the data fabric.
- A curated agile data catalog where business users can search, access, find and rate certified internal data, as well as open and premium external data with workflow — in order to promote harmonized data to certified status. This is becoming crucial to governed modern deployments that leverage complex distributed data with an increasing number of distributed content authors.
- Data harmonization and affinity analysis of additional datasets that improve analysis. These datasets should be recommended automatically using ML, and may extend to external data sources.
- Augmented data preparation on multistructured data. This is a core visionary feature. The need to profile, enrich and infer relationships (to automatically generate a model for analysis), and to make recommendations to improve or enhance insights from data, will stimulate differentiating innovations.
- The ability to automatically promote user-generated models and content to the SOR and to reuse and build on existing variables, calculations, models and content. This is essential for trusted self-service on a large scale.
- Modern push-down processing for big data sources, automating the selection of where best to process a query. This is an important feature for supporting large and complex datasets by using big data processing and minimizing the need to move data.
- Support for preparing, harmonizing and exploiting real-time events and streaming data, and pushing real-time results to a consumption layer in support of a range of use cases. This support is in its infancy, but will become an increasingly important

data management consideration for organizations to adopt and integrate into analytic solutions in order to enhance their value to the business.

#### Analysis and Content Creation

- Augmented data discovery that automates the identification of the patterns, anomalies and clusters hidden in data, which are often missed by analysts manually exploring datasets. This is central to next-generation analytics and BI platforms. Automated identification of insights and findings is key to enabling and expanding access to analytics to more users within an organization and to shortening the time to insight, while reducing bias.
- Augmented alerting. The ability to create alerts above or below a predefined threshold is evaluated as a current critical capability. The visionary aspect is when alerts are based proactively on anomaly detection and use ML algorithms.
- Search and NLP for voice and text. NLQ using searchlike text or voice to query data and ask questions will be a dominant future interface for analytics. In addition, NLG to generate explanations of charts and insights enhances data literacy.
- Conversational analytics change how users interact with data. What is currently mainly a matter of dragging and dropping elements on a page becomes more of a natural language process involving voice conversations. By providing both a query mechanism and interpretation of results, conversational analytics represents the convergence of a number of technologies, including personal digital assistants, mobile, bots and ML.
- Virtual reality and augmented reality are still largely at the concept stage. They promise the ability to digitize images for data input, as well as to integrate virtual- and augmented-reality viewing devices with data and dashboards.
- Support for a broad range of content analytics and text analytics for use on unstructured data. Organizations explore new sources of information to link to, and relate to, analytical insights derived from structured data sources.

#### Sharing of Findings

- The ability to invoke business actions from within the platform, either in a dashboard or embedded in another application. This represents a level of sophistication beyond current mainstream support for conditional alerts and event triggering based on system events.
- Decision management that provides a closed-loop collaborative workflow for capturing insights, actions taken and reasons for particular decisions.
- Crowdsourcing and contextual recommendations for relevant content, based on insights gained from users' collaboration and social interaction. This will largely replace the need to manually share content and findings across an organization. Instead, analytic and BI content will be displayed based on personalization, and most frequently used across workgroups.

- Integrated point-and-click simulation, “what if?” analysis and optimization. These extend the types of analysis that are currently often created using custom calculations.
- Data as a service and benchmarking, which are emerging trends enabled by the rise of cloud-based business applications. Customers opt for their data to be anonymized and aggregated by industry to enable benchmarking for key performance indicators such as order to cash or, in workforce analytics, average retention other recruiting metrics.
- Rendering of analytics content in immersive experiences for different types of user across many touchscreens in boardrooms and operations centers.

## Completeness of Vision Criteria

- Market understanding:\* Does the vendor have the ability to understand buyers’ needs and to translate those needs into products and services? Ease of use, ability to support complex data requirements, and the types and complexity of analysis that users conduct with the platform — all key buying criteria — factor into this rating. In addition, we assess the degree to which a vendor provides, or plans to provide, a converged set of capabilities for both Mode 1 and Mode 2 analytics in a single platform.
- Marketing strategy: Does the vendor have a clear set of messages that communicate its value and differentiation in the market? Is the vendor generating awareness of its differentiation? Are Data for Good initiatives and social responsibility programs part of the company’s overall differentiation?
- Sales strategy:\* Does the vendor have an innovative partner strategy, attractive pricing, flexible and clear product packaging, a strong “land and expand” strategy, and a robust enterprise sales model?
- Offering (product) strategy: Does the vendor’s approach to product development and delivery emphasize differentiation and functionality corresponding to current and future requirements? (This assessment relates to product vision trends described at the beginning of the Completeness of Vision section.)
- Vertical/industry strategy: How well can the vendor meet the needs of various industries, such as financial services, life sciences, manufacturing and retail?
- Innovation: Is the vendor focusing its resources, expertise or capital to address key market requirements for competitive advantage? Is it investing in and delivering unique and in-demand capabilities? Is it setting standards for innovation that others are trying to match?
- Geographic strategy: How well can the vendor meet the needs of locations outside its native country, either directly or via partners?

*\* These criteria are scored partly or wholly on the basis of input from the survey of reference customers conducted for this Magic Quadrant.*

Table 2: Completeness of Vision Evaluation Criteria

Enlarge Table

Evaluation Criteria	Weighting
Market Understanding	High
Marketing Strategy	High
Sales Strategy	High
Offering (Product) Strategy	High
Business Model	Not Rated
Vertical/Industry Strategy	Medium
Innovation	High
Geographic Strategy	Low

Source: Gartner (February 2019)

## Quadrant Descriptions

### Leaders

Leaders demonstrate a solid understanding of the product capabilities and commitment to customer success that buyers in this market demand. They couple this understanding with an easily comprehensible and attractive pricing model that supports proof of value, incremental purchases and enterprise scale. In the modern analytics and BI platform market, buying decisions are being made, or at least heavily influenced, by business users that demand products that are easy to buy and use. They require that these products deliver clear business value and enable

use of powerful analytics by those with limited technical expertise and without upfront involvement from the IT department or technical experts. In a rapidly evolving market with constant innovation, a Leader must also demonstrate that it does not focus only on current execution. It must have a robust roadmap for solidifying its position as a market leader, and thereby for protecting the investments of today's buyers.

## Summary of Leaders' Quadrant Positions

Buying of net new modern analytics and BI platforms is now mainstream. Organizations that have been successful with smaller deployments have expanded their use across the enterprise and are increasingly making their modern analytics and BI platform an enterprise standard — or *the* enterprise standard — within their organization. Agility and ease of use for business users remain crucial motivations for buying. At the same time, the abilities to govern deployments, promote user-generated content to trusted enterprise sources, deal with complex and large datasets, extend and embed analytic content, and support large global deployments have attained new importance for buying decisions.

Four vendors execute sufficiently well on their vision to warrant a position in the Leaders quadrant.

## Challengers

Challengers are well-positioned to succeed in this market. However, they may be limited to specific use cases, technical environments or application domains. Their vision may be hampered by the lack of a coordinated strategy across various products in their platform portfolio. Alternatively, they may fall short of the Leaders in terms of effective marketing, sales channels, geographic presence, industry-specific content and innovation.

## Summary of Challengers' Quadrant Positions

Only one vendor is executing at a level that may challenge the Leaders. However, having less mind share beyond its installed base and being later to deliver a disruptive product roadmap than some Leaders and Visionaries, it risks continued competition and disruption from more broadly focused competitors.

## Visionaries

Visionaries have a strong and unique vision for delivering a modern analytics and BI platform. They offer deep functionality in the areas they address. However, they may have gaps when it comes to fulfilling broader functionality requirements or lower scores for customer experience, operations and sales execution. Visionaries are thought leaders and innovators, but they may be lacking in scale or there may be concerns about their ability to grow and still provide consistent execution.

## Summary of Visionaries' Quadrant Positions

There is a tighter clustering of Visionaries in this edition of the Magic Quadrant, with all of them having improved Ability to Execute. Some Visionaries provide modern product offerings backed by established customer bases, but have emerging or hampered momentum. Other Visionaries have innovative and potentially disruptive product visions, but are restricted either by gaps in their current offerings or a lack of visibility and traction in the market (or both).

## Niche Players

Niche Players do well in a specific segment of the analytics and BI market — such as cloud BI, customer-facing analytics, agile reporting and dashboarding, or embeddability— or have limited ability to surpass other vendors in terms of innovation or performance. They may focus on a specific domain or aspect of analytics and BI, but are likely to lack deep functionality elsewhere. They may also have gaps in terms of broader platform functionality, or have less-than-stellar customer feedback. Alternatively, they may have a reasonably broad analytics and BI platform, but limited implementation and support capabilities or relatively limited customer bases (such as in a specific region or industry). In addition, they may not yet have achieved the necessary scale to solidify their market positions.

### Summary of Niche Players' Quadrant Positions

Just over half the vendors in this Magic Quadrant are Niche Players. All 11 Niche Players have specialized strengths and differentiated capabilities that position them well to meet the rapidly evolving requirements of customers in this market.

## Context

Readers should not use this Magic Quadrant in isolation as a tool for selecting vendors.

In 2016, Gartner dramatically modified and modernized its definition of an analytics and BI platform to reflect the segment of the overall market in which the majority of active net new purchases occur. As a result, we strongly discourage attempts to assess vendors' movements by comparing this Magic Quadrant with Magic Quadrants published before 2016: The change to the definition renders such comparisons invalid.

This Magic Quadrant assesses vendors' capabilities on the basis of their execution in 2018 and future development plans. As vendors and the market evolve, the assessments may only be valid for one particular point in time.

When making tool selection decisions, use this Magic Quadrant in combination with Gartner's "Market Guide for Traditional Enterprise Reporting Platforms," "Critical Capabilities for Analytics and Business Intelligence Platforms," Survey Analysis research, and Strength, Weakness, Opportunity and Threat (SWOT) publications on certain vendors. Also use Gartner's client inquiry service.

Readers should not ascribe their own definitions of Completeness of Vision or Ability to Execute to this Magic Quadrant (they often incorrectly equate these with product vision and market share, respectively). The Magic Quadrant methodology uses a range of criteria to determine a vendor's position, as shown by the extensive Evaluation Criteria section above.

## Market Overview

The modern subsegment of the analytics and BI market continues to expand more rapidly than the overall BI market. The extent to which technical experts are using modern analytics and BI platforms to deliver content in a modern and agile way, as opposed to business users authoring their own content, varies by region, industry and organizational maturity. According to surveyed reference customers, 64% are increasing the numbers of users and the amount of business-authored content. Many vendors in the modern analytics and BI market have double-digit revenue growth, but two factors have slowed this subsegment's revenue growth. The first is the move from primarily perpetual licensing to primarily subscription licensing. Second is the downward pricing pressure exerted by Microsoft and vendors that offer modern capabilities as part of maintenance fees. Consequently, although substantial seat growth continues, it is not necessarily reflected in the high revenue growth exhibited in 2016 when Gartner first segmented the market into traditional BI and modern analytics and BI.

Key trends for this edition of the Magic Quadrant include:

- Single platform for Mode 1 and Mode 2: In the first wave of BI modernization, buyers recognized that, if they wanted agility in relation to analytics, that meant adding smaller vendors and point solutions to their traditional BI platform portfolio (see “Select the Right Analytics and Business Intelligence for the Right User and Use Case” and “Less Is More: Streamlining Your Analytics and BI Tool Portfolio”). However, as users have stretched the capabilities of visual-based data discovery vendors, these vendors have expanded their capabilities for governance, formatted reports and scheduled output — all in support of Mode 1. Conversely, traditional BI platform vendors have expanded to support more agility. Customers would like to use existing report content and governance models; business users would like to scale and share visual explorations with more users, potentially adding governance in the process. Happily, vendors' expansions mean that buyers now have more choice when it comes to getting the best capabilities from a single provider.
- However, the degree to which a platform spans the full range of workflows, and Mode 1 and Mode 2, still varies significantly between vendors. Additionally, some vendors may only have such integrated coverage on their product roadmap, or may continue to focus on only one mode.
- These market dynamics pose challenges for customers deciding when to invest in a new vendor, when to upgrade, or when to discontinue an investment (see again, “Less Is More: Streamlining Your Analytics and BI Tool Portfolio”). Customers may decide on a platform that spans both modes, or may use portal-

like or insight hub technology to provide a single point of access to multiple platforms (such as those of Metrics Insights, Motio, SAP [SAP Analytics Hub], Yellowfin and ZENOPTICS).

- **Augmented analytics:** This technology includes ML-enabled analytics and BI in all phases of the analytics workflow, from data preparation to data modeling and insight generation. Megavendors and startups alike continue to execute on their augmented analytics roadmaps, but at different paces and with differing degrees of sophistication and innovation. For example, augmented alerting and anomaly detection are new trends in augmented analytics, with only a few smaller vendors offering these at present. Although augmented analytics is not yet attracting mainstream buying activity, it remains a transformative differentiator that commands higher prices (see “Augmented Analytics Is the Future of Data and Analytics”). In addition, customers who were early to adopt visual-based discovery now face a proliferation of data and user-created analyses. As they mature their analytics, these customers are anxious to embrace this next wave of disruption. Further, customers who were late to modernize their traditional BI platforms are asking if they can simply skip ahead to augmented analytics.
- **NLP:** This technology is an aspect of augmented analytics, one used both to access data and to interpret findings. With the use of voice- and search-based interfaces, the query process changes from a primarily drag-and-drop query-building process into a more searchlike experience. NLP also includes conversational analytics as vendors integrate chatbots and virtual assistants into the analysis workflow. NLG uses ML to explain findings that may have been either manually or automatically generated.
- **Downward pricing pressure, subscription-based pricing and enterprise license agreements:** Downward pressure on prices continued in 2018, with Tableau introducing a new lower-priced role, Viewer, to compete better with Microsoft’s Power BI (see “Tableau’s New Software Pricing Lowers Costs for Casual Business Analytics Users”). Additionally, Qlik introduced a new dual-use license to enable QlikView users to use Qlik Sense — it substantially lowers the price of the latter product. Some megavendors provide modern analytics and BI capabilities in return for existing maintenance fees. Customers are often willing to pay a premium for differentiating capabilities, particularly new and emerging ones, such as augmented analytics.
- **All but one vendor in this Magic Quadrant now offers subscription-based pricing,** whether their software is deployed in the cloud or on-premises, and 54% of their surveyed reference customers are on this licensing model. The subscription model may lower the entry cost, but it does not lower licensing costs over time (typically beyond the third year). Most buyers look initially at the licensing cost. Gartner, however, continues to recommend that customers look at the total cost of ownership, which includes the costs of deployment, scaling up, varying efforts to author content, and ongoing training and enablement. Pricing flexibility is also

important; pricing may, for example, be metered, user-based, server-based or reflective of “anywhere provisioning.”

- **Data scalability and model complexity:** These aspects of analytics and BI platforms are under increased pressure as data storage options shift from single, relational storage to more varied, nonrelational storage. Also, as data literacy improves, users are asking more sophisticated questions that relate to multiple data sources and menu-driven advanced analytics. Additionally, the rise of data lakes as part of overall information architectures forces analytics and BI teams to decide how best to model data and where. Should data be replicated in the in-memory engine of the analytics and BI platform? Are the downsides associated with data replication worth the improved performance? Products continue to differ substantially in terms of these capabilities.
- **Data storytelling, data literacy and user enablement:** These are distinct trends but interrelated. Data storytelling requires a more data-literate workforce to be able to present data in a way that offers insights faster, improves memory retention and leads to desired actions. Technical features within a platform can facilitate this by automatically applying best practices in visual perception, presenting findings in a storylike sequence, and combining rich formatting and infographics. Turning IT report developers and data experts into communicators requires new levels of communication technique and training. There are services firms that specialize in providing education on data literacy and data storytelling. In addition, some analytics and BI platform vendors are bringing their user enablement programs to bear, particularly with e-learning and communities. As some platform features are less differentiated, user enablement and turning customers into fans may prove to be the next competitive battleground.
- **Privacy:** Multiple jurisdictions around the world are maturing their privacy legislation. Examples are the General Data Protection Regulation (GDPR) in the EU and the Lei Geral de Proteção de Dados (LGDP) in Brazil. Others are in the making, such as a data protection and privacy framework for India and various concurrent efforts in the U.S. at both state and federal level. The financial and reputational damage that can follow failure to protect the data of individuals — employees, citizens and consumers — effectively forces data and analytics leaders to ensure that their analytics and BI platform is not a weak link. Unfortunately, though, it often *is* a weak link, as vendors’ offerings often fall woefully short. Most platforms, for example, provide no mechanism for identifying or classifying privacy-sensitive personal data elements, and no way to purge such elements from reports, dashboards and cached results. Only a handful of products enable BI administrators to prevent tagged personal data from being exported into risky and hard-to-control formats such as PDF or spreadsheet.
- **Embedded analytics and BI and developer enablement:** Embedded analytics and BI remains an important use case because customers want to create extranet applications, monetize data, and provide analytics and BI as part of overall business applications. These applications may reach beyond internal stakeholders to include customers, suppliers and citizens. ISVs also consider embedded

analytics and BI capabilities important (see “5 Best Practices for Choosing an Embedded Analytics Platform Provider”). For some vendors, the embedded use case represents their primary market; this is the case with GoodData and Logi Analytics, for example, as well as with smaller vendors such as Exago and Izenda. For other vendors, it is a smaller focus, but represents a new battleground requiring special pricing and improved APIs. Customers most often buy products with embedded analytics and BI features due to a desire for specific capabilities to support the developer community and address the needs of product managers.

- Data for Good, social responsibility and diversity: Vendors participating in the Data for Good and AI for Good movements donate money, software, data and services in support of efforts to improve society and deepen community relationships (see “How to Use Data for Good to Improve Society”). Such participation has also become a means of differentiation when recruiting from a limited pool of talent in the technology sector, especially when it comes to data and analytics. Participation in Data for Good and/or AI for Good is just one reflection of an organization’s culture and ethics, which, for 72% of the surveyed reference customers, weighed heavily during the buying process. In addition, a diverse workforce correlates with higher innovation and a greater ability to capture new markets (see “Diversity and Inclusion in Data and Analytics Fuels Innovation on the Path to Digital Transformation”).
- Cloud adoption and innovation: Having past a tipping point in 2017, adoption of cloud analytics and BI continued in 2018. Most net new deployments originating in the cloud, and the majority of the reference customers surveyed for this Magic Quadrant, are already using various forms of cloud deployment.
- A number of innovations are developing in the cloud first — and sometimes only in the cloud. Although neither Amazon nor Google qualified for inclusion in this Magic Quadrant, they remain new entrants to the market and important vendors to watch for their IaaS, database options, and analytic and BI platforms. Similarly, Workday, a provider of cloud business applications, has continued to expand its analytic capabilities, most recently by acquiring Stories, an augmented analytics vendor.
- A “multicloud” approach, whereby customers can choose to run an application in, and spanning, multiple cloud IaaS offerings (such as those of AWS and Microsoft Azure) is in its infancy. Qlik and SAP are among the first vendors to pursue this approach.
- In addition, some vendors now offer a single license encompassing both on-premises and cloud users. Microsoft was the first, with Power BI Premium. Qlik and SAP are developing such options.
- While a single, comprehensive license is an ideal starting point, customers also want the ability to manage and administer content and users across deployment models (on-premises and cloud). As yet, though, most vendors do not support such comprehensive deployment.
- Although the level of cloud deployment is high among the reference customers surveyed for this Magic Quadrant, 34% plan to keep data warehouse and data lake

deployments on-premises. This shows the need for analytics and BI vendors to support hybrid connectivity.

## Acronym Key and Glossary Terms

ACV	annual contract value
AI	artificial intelligence
API	application programming interface
AWS	Amazon Web Services
BI	business intelligence
DNFS	Direct Network File System
ETL	extraction, transformation and loading
FP&A	financial planning and analysis
HDFS	Hadoop Distributed File System
IoT	Internet of Things
JDBC	Java Database Connectivity
JSON	JavaScript Object Notation

ISV	independent software vendor
KPI	key performance indicator
ML	machine learning
MOLAP	multidimensional online analytical processing
MPP	massively parallel processing
NLG	natural language generation
NLP	natural language processing
NLQ	natural language query
OAC	Oracle Analytics Cloud
SI	system integrator
SOR	system of record
UX	user experience

## Evidence

Gartner's analysis in this Magic Quadrant is based on a number of sources:

- Customers' perceptions of each vendor's strengths and challenges, as gleaned from their analytics and BI-related inquiries to Gartner.
- An online survey of vendors' reference customers.

- A questionnaire completed by the vendors.
- Vendors' briefings, including product demonstrations, and discussions of strategy and operations.
- An extensive RFP questionnaire inquiring about how each vendor delivers the specific features that make up our 15 critical capabilities (see "Toolkit: Analytics and BI Platform RFP").
- Video demonstrations of how well vendors' analytics and BI platforms address specific functionality requirements across the 15 critical capabilities.
- Access to evaluation software from each vendor.

#### Online Survey for This Magic Quadrant

An online survey was developed and hosted by Gartner as part of its research for this Magic Quadrant. Vendor-identified reference customers — end-user customers and OEMs — and respondents from the previous year's survey provided data.

The survey was conducted from 6 September 2018 through 5 October 2018.

The survey results used in this document derive from 1,639 responses as follows:

- Vendor-identified reference customers (1,220 or 74%)
- Reference customers from the previous year's survey who also participated in this year's survey (168 or 10%)
- OEM reference customers (251 or 15%).

Although these represent a substantial pool of responses for drawing directional inferences, reference customer data is not representative of the total analytics and BI platform market. Rather, it is representative of the customers who elected to participate in the survey.

The number of qualified responses by vendor is as follows:

- Birst, 38
- BOARD International, 44
- Domo, 31
- GoodData, 34
- IBM, 83
- Information Builders, 68
- Logi Analytics, 33
- Looker, 43

- Microsoft, 90
- MicroStrategy, 94
- Oracle, 65
- Pyramid Analytics, 58
- Qlik, 315
- Salesforce, 60
- SAP, 52
- SAS, 77
- Sisense, 67
- Tableau, 67
- ThoughtSpot, 55
- TIBCO Software, 54
- Yellowfin, 70

#### Peer Insights

Gartner Peer Insights reviews were evaluated for anecdotal commentary and evaluation metrics related to operations (service and support, quality of technical support), sales experience (pricing and contract flexibility), and market responsiveness (value received). Those who made these reviews are referred to as “Gartner Peer Insights reviewers” throughout this Magic Quadrant. We considered reviews for modern analytics and BI posted from 1 January 2018 through 12 October 2018.

The number of Gartner Peer Insights reviewers by vendor is as follows (in cases where a vendor has fewer than 25 reviewers, their comments should be taken as directional):

- Birst, 31
- BOARD International, 27
- Domo, 83
- GoodData, 8
- IBM, 39
- Information Builders, 5
- Logi Analytics, 2
- Looker, 21

- Microsoft, 452
- MicroStrategy, 45
- Oracle, 20
- Pyramid Analytics, 5
- Qlik, 288
- Salesforce, 41
- SAP, 36
- SAS, 51
- Sisense, 178
- Tableau, 747
- ThoughtSpot, 20
- TIBCO Software, 60
- Yellowfin, 9

## Note 1 Definitions of Mode 1 and Mode 2

A bimodal approach is the practice of managing two separate but coherent styles of work — one focused on predictability, the other on exploration:

- Mode 1 focuses on predictability and has a goal of stability. It is best used where requirements are well-understood in advance and can be identified by a process of analysis. It includes the necessary investment to renovate and open up the “legacy” environment for the digital world.
- Mode 2 is exploratory, involving experimentation to solve new problems, and optimized for areas of uncertainty. In this case, requirements are not well-understood in advance. Mode 2 is best suited to areas in which an organization cannot make an accurate and detailed predefined plan because not enough is known. Mode 2 efforts don’t presume to predict the future, but allow the future to reveal itself in small pieces. Work often begins with a hypothesis that proves true, proves false or evolves during a process that typically involves short iterations or projects.

Work that spans both modes forces development teams to manage dependencies involving speed of delivery, which is also impacted by the architecture and design of the applications involved. The ability to effectively integrate the more predictable evolution of products and technologies (Mode 1) with the new and innovative (Mode 2) is the essence of a mature bimodal capability.

# Note 2 Customer Survey Metrics Referenced in This Magic Quadrant

This Magic Quadrant refers throughout to composite metrics based wholly or partly on the responses of reference customers to our survey. The metrics were as follows:

- Customer experience: The score for this metric combines ratings for achievement of business benefits, availability of skills and user enablement (which includes scores for training, online videos, online communities and documentation). It is based entirely on responses to the survey of reference customers.
- Operations: The score for this metric combines ratings for product quality, support and ease of migration. It is based entirely on responses to the survey of reference customers.
- Sales experience: The score for this metric is based on reference customers' ratings of their satisfaction with presales, contracting, pricing and account management.
- Market understanding: The score for this metric is composite. It is based partly on Gartner analysts' opinions about the complexity of data that vendors' platforms can handle and vendors' ability or plans to support Mode 1 and Mode 2 in a single platform. It is also based on reference customers' scores for ease of use for consumers, ease of use for developers, visual appeal, ease of use for administration and deployment, and complexity of analysis (as described below).
- Complexity of analysis: The score for this metric is composite. It consists partly of a rating, based on Gartner analyst opinion, of how well a platform handles complex data needs. It also includes a survey-based weighted average score based on the percentage of responding reference customers who reported use of the platform for the types of analysis that users conduct with it. More interactive and advanced types of analysis result in a higher score than static or parameterized reporting.
- The analyst opinion rating is based on assessment of:
  - Diversity of data source connectivity
  - Ability to combine multiple data sources
  - Support for streaming data
  - Multipass SQL capabilities
  - Ability to federate data
- Activities are weighted as follows:
  - Viewing of static reports = 1
  - Use of parameterized reports and dashboards = 1

- Data integration and preparation = 2
- Performing simple ad hoc analysis = 3
- Using predictive analytics and/or data mining models = 3
- Interactive exploration and analysis of data = 4
- Performing moderately complex to complex ad hoc analysis = 5
- User enablement: The score for this metric is composite. It consists of individual ratings for documentation, online tutorials for content authors, online tutorials for consumers, online communities, conferences, training, e-learning, and availability of skills from the vendor and in the market overall.
- Business benefits: The score for this metric is an average derived from the following benefits:
  - Increased revenue
  - Better, faster decisions
  - Improved customer satisfaction
  - Reduced IT head count
  - Reduced external IT costs
  - Reduced non-IT costs
  - Expansion of types of analysis
  - Availability of better insights to more people
  - Linking of KPIs to corporate objectives
  - Monetization of data

## Note 3 Changes in Critical Capabilities

- “Self-service data preparation” has been renamed “data preparation.”
- “Self-contained ETL and data storage” has been renamed “data storage and loading options.”

### Evaluation Criteria Definitions

#### Ability to Execute

Product/Service: Core goods and services offered by the vendor for the defined market. This includes current product/service capabilities, quality, feature sets, skills and so on, whether offered natively or through OEM agreements/partnerships as defined in the market definition and detailed in the subcriteria.

**Overall Viability:** Viability includes an assessment of the overall organization's financial health, the financial and practical success of the business unit, and the likelihood that the individual business unit will continue investing in the product, will continue offering the product and will advance the state of the art within the organization's portfolio of products.

**Sales Execution/Pricing:** The vendor's capabilities in all presales activities and the structure that supports them. This includes deal management, pricing and negotiation, presales support, and the overall effectiveness of the sales channel.

**Market Responsiveness/Record:** Ability to respond, change direction, be flexible and achieve competitive success as opportunities develop, competitors act, customer needs evolve and market dynamics change. This criterion also considers the vendor's history of responsiveness.

**Marketing Execution:** The clarity, quality, creativity and efficacy of programs designed to deliver the organization's message to influence the market, promote the brand and business, increase awareness of the products, and establish a positive identification with the product/brand and organization in the minds of buyers. This "mind share" can be driven by a combination of publicity, promotional initiatives, thought leadership, word of mouth and sales activities.

**Customer Experience:** Relationships, products and services/programs that enable clients to be successful with the products evaluated. Specifically, this includes the ways customers receive technical support or account support. This can also include ancillary tools, customer support programs (and the quality thereof), availability of user groups, service-level agreements and so on.

**Operations:** The ability of the organization to meet its goals and commitments. Factors include the quality of the organizational structure, including skills, experiences, programs, systems and other vehicles that enable the organization to operate effectively and efficiently on an ongoing basis.

## Completeness of Vision

**Market Understanding:** Ability of the vendor to understand buyers' wants and needs and to translate those into products and services. Vendors that show the highest degree of vision listen to and understand buyers' wants and needs, and can shape or enhance those with their added vision.

**Marketing Strategy:** A clear, differentiated set of messages consistently communicated throughout the organization and externalized through the website, advertising, customer programs and positioning statements.

**Sales Strategy:** The strategy for selling products that uses the appropriate network of direct and indirect sales, marketing, service, and communication affiliates that extend the scope and depth of market reach, skills, expertise, technologies, services and the customer base.

Offering (Product) Strategy: The vendor's approach to product development and delivery that emphasizes differentiation, functionality, methodology and feature sets as they map to current and future requirements.

Business Model: The soundness and logic of the vendor's underlying business proposition.

Vertical/Industry Strategy: The vendor's strategy to direct resources, skills and offerings to meet the specific needs of individual market segments, including vertical markets.

Innovation: Direct, related, complementary and synergistic layouts of resources, expertise or capital for investment, consolidation, defensive or pre-emptive purposes.

Geographic Strategy: The vendor's strategy to direct resources, skills and offerings to meet the specific needs of geographies outside the "home" or native geography, either directly or through partners, channels and subsidiaries as appropriate for that geography and market.