



Magic Quadrant for Business Intelligence and Analytics Platforms

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Summary

The business intelligence and analytics platform market's shift from IT-led reporting to modern business-led analytics is now mainstream. Data and analytics leaders face countless choices: from traditional BI vendors that have closed feature gaps and innovated, to disrupters continuing to execute.

Strategic Planning Assumptions

By 2020, smart, governed, Hadoop/Spark-, search- and visual-based data discovery capabilities will converge into a single set of next-generation data discovery capabilities as components of modern BI and analytics platforms.

By 2021, the number of users of modern BI and analytics platforms that are differentiated by smart data discovery capabilities will grow at twice the rate of those that are not, and will deliver twice the business value.

By 2020, natural-language generation and artificial intelligence will be a standard feature of 90% of modern BI platforms.

By 2020, 50% of analytic queries will be generated using search, natural-language processing or voice, or will be autogenerated.

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

Through 2020, the number of citizen data scientists will grow five times faster than the number of data scientists.

Market Definition/Description

This document was revised on 3 March 2017. The document you are viewing is the corrected version. For more information, see the [Corrections page](#) on [gartner.com](#).

Visual-based data discovery, a defining feature of the modern business intelligence (BI) platform, began in around 2004 and has since transformed the market and new buying trends away from IT-centric system of record (SOR) reporting to business-centric agile analytics. Modern BI and analytics platforms are characterized by easy-to-use tools that support a full range of analytic workflow capabilities and do not require significant involvement from IT in order to predefine data models upfront as a prerequisite to analysis (including at enterprise-scale deployment).

Gartner redesigned the Magic Quadrant for BI and analytics platforms in 2016, to reflect this more than decade-long shift. A year later, in 2017, there is significant evidence to suggest that the BI and analytics platform market's multiyear transition to modern agile business-led analytics is now mainstream. Reduced feature differentiation among a crowded market of players, buyer requirements for larger enterprise deployments, and the emergence pricing pressure are evidence of the maturity of the current market. For their part, buyers want to expand modern BI usage, including for self-service to everyone in the enterprise and beyond. They want users to analyze a more diverse range and more complex combinations of data sources (beyond the data warehouse or data lake) **than ever before — without distinct data preparation tools. Whereas**

the initial modern BI disruption shifted purchasing from IT to the lines of business — where new tools initially landed as point purchases — as these tools have demonstrated value, enterprise buying of these platforms has grown to the point where the purchasing influence is tipping back to include IT and central purchasing groups. This is further evidence of market mainstreaming and has caused buyers to place greater emphasis on enterprise readiness, governance and price/value, in addition to the agility and ease of use demanded by business users. Land-and-expand buying models are still important to demonstrate value and drive expansion, but mechanisms to economically scale deployments across the enterprise have gained in importance.

The crowded BI and analytics market includes everything from longtime, large technology players to startups backed by enormous amounts of venture capital. What is new this year, is that traditional BI vendors that were slow to adjust to the "modern wave of disruption" (such as IBM, SAP, Oracle and MicroStrategy) and struggled to remain relevant during the market transition, have finally matured their modern offerings enough to appeal to many in their installed bases already using these platforms as the standard for enterprise reporting, and that value their enterprise features and the potential to leverage years of investment in data models and analytic content.

Moreover, as the visual-based exploration paradigm has become mainstream, a new innovation wave is emerging that has the potential to be as disruptive as (or more than) visual-based data discovery has been to the previous semantic-layer-based development approach of traditional BI and analytics platforms. While the current visual-based data discovery approach has accelerated data harmonization and the visual identification of patterns in data, as opposed to the previous IT-centric semantic-layer-based approach, the tasks for creating insights are still largely manual and prone to bias. Smart data discovery — introduced by IBM Watson Analytics and BeyondCore (acquired by Salesforce as of September 2016) — leverages machine learning to automate the analytics workflow (from preparing and exploring data to sharing insights and explaining findings). Natural-language processing (NLP), natural-language query (NLQ) and natural-language generation (NLG) for text- and voice-based interaction and narration of the most statistically important findings in the user context are key capabilities of smart data discovery. Consistent with the classic innovator's dilemma, many of the traditional BI vendors (such as IBM and SAP, which were innovators of the semantic-layer-based platform) were slow to adjust to the shift to modern BI. However, they have been ahead of the current modern BI disrupters — Tableau, Qlik and TIBCO Spotfire — now facing their own innovator's dilemma regarding investment in the next smart data discovery market wave.

Views on deployment options are also shifting and having an impact on the market. For the past three years, interest in deploying BI and analytics platforms in the cloud had been hovering around 45% of customer reference survey respondents for this Magic Quadrant — with the greatest interest coming from lines of business. In this year's survey, active and planned cloud BI deployments jumped to more than 51%, with much of this shift in interest coming from IT respondents. Most BI and analytics platform vendors are now responding in a significant way: with a range of cloud deployment and subscription pricing model options, and different degrees of support for leveraging the on-premises investments that buyers have already made.

This Magic Quadrant focuses on products that meet the criteria of a modern BI and analytics platform (see "Technology Insight for Modern Business Intelligence and Analytics Platforms"), which are driving the majority of net new mainstream purchases in the market today. Products that do not meet the modern criteria required for inclusion in the Magic Quadrant (because of the upfront requirements for IT to predefine data models, or because they are enterprise-reporting-centric) will be covered in our Market Guide for traditional enterprise reporting platforms (to be published later in 2017). Emerging and next-generation innovative modern BI and analytics platforms that do not yet meet the inclusion criteria for the Magic Quadrant are mentioned in the Appendix to this Magic Quadrant.

Magic Quadrant customer reference survey composite success measures are cited throughout the report. Reference customer survey participants scored vendors on each metric; these are defined in Note 1.

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

We assess and define 15 product capabilities across five use cases as outlined below.

Vendors are assessed for their support of five main use cases:

- **Agile Centralized BI Provisioning.** Supports an agile IT-enabled workflow, from data to centrally delivered and managed analytic content, using the self-contained data management capabilities of the platform.
- **Decentralized Analytics.** Supports a workflow from data to self-service analytics. Includes analytics for individual business units and users.
- **Governed Data Discovery.** Supports a workflow from data to self-service analytics to SOR, IT-managed content with governance, reusability and promotability of user-generated content to certified SOR data and analytics content.
- **OEM or Embedded BI.** 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.

Vendors are assessed according to the following 15 critical capabilities. Changes, additions and deletions from last year's critical capabilities are listed in Note 2. Subcriteria for each capability are listed in Note 3, and detailed functionality requirements are included in a published RFP document (see "Toolkit: BI and Analytics Platform RFP"). How well the platforms of our Magic Quadrant vendors support these critical capabilities is explored in greater detail in "Critical Capabilities for Business Intelligence and Analytics Platforms."

Infrastructure

1. BI Platform Administration, Security and Architecture. Capabilities that enable platform security, administering users, auditing platform access and utilization, optimizing performance and ensuring 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 allow users to connect to structured and unstructured data contained within various types of storage platforms, both on-premises and in the cloud.

Data Management

4. Metadata Management. Tools for enabling users to leverage a common SOR 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 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. Self-Contained Extraction, Transformation and Loading (ETL) and Data Storage. Platform capabilities for accessing, integrating, transforming and loading data into a self-contained performance engine, with the ability to index data and manage data loads and refresh scheduling.
6. Self-Service 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.

Analysis and Content Creation

7. Embedded Advanced Analytics. Enables users to easily access advanced analytics capabilities that are self-contained within the platform itself or through the import and integration of externally developed models.
8. Analytic Dashboards. The ability to create highly interactive dashboards and content with visual exploration and embedded advanced and geospatial analytics to be consumed by others.
9. 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 tools enable users to analyze and manipulate the data by interacting directly with a visual representation of it to display as percentages, bins and groups.

10. Smart 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 NLQ technologies.

11. 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

12. Embedding Analytic Content. Capabilities including a software developer's kit with APIs and support for open standards for creating and modifying analytic content, visualizations and applications, embedding them into 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 BI and analytics with the application architecture will enable users to choose where in the business process the analytics should be embedded.

13. Publish, Share and Collaborate on Analytic Content. Capabilities that allow users to publish, deploy and operationalize analytic content through various output types and distribution methods, with support for content search, scheduling and alerts. Enables users to share, discuss and track information, analysis, analytic content and decisions via discussion threads, chat and annotations.

Overall platform capabilities were also assessed:

14. Platform Capabilities and Workflow. This capability considers the degree to which capabilities are offered in a single, seamless product or across multiple products with little integration.

15. Ease of Use and Visual Appeal. Ease of use to administer and deploy the platform, create content, consume and interact with content, as well as the visual appeal.

Magic Quadrant

Figure 1. Magic Quadrant for Business Intelligence and Analytics Platforms



Source: Gartner (February 2017)

Inclusion and Exclusion Criteria

This year's Magic Quadrant includes 24 vendors that met all our inclusion criteria, as listed below.

Modern BI and Analytics Platform Assessment

This was evaluated by Gartner analysts and was determined by the extent of IT involvement that is considered to be mandatory before the platform can be used by a business analyst/information worker to analyze data, without IT assistance. Products that require significant IT involvement, either internal or external to the platform, in order to load and model data, create a semantic layer, build data structures as a prerequisite to using the BI platform or are IT developer-centric platforms focused on building analytic applications, do not meet the criteria of a modern BI and analytics platform and were not evaluated further for inclusion. Products that met the modern criteria were evaluated for inclusion in the Magic Quadrant based on a funnel methodology where requirements for each tier must be met in order to progress to the next tier. Tiers 1 to 3 are evaluated at the vendor level; Tiers 4 and 5 are evaluated at the product level.

Vendor-Level Criteria

- Tier 1. Market Presence — A composite metric assessing both the interest of Gartner's client base and that of the broader market, through internet search volume, job postings and trend analysis, was conducted for each vendor.
- Tier 2. Revenue* — For those vendors meeting the market presence criteria (Tier 1), BI and analytics revenue for each vendor was assessed and evaluated. For this assessment, two common license models were assessed and revenue from each was combined (if applicable) and evaluated against the three revenue inclusion levels (shown below) for qualification:
 1. Perpetual License Model — Software license, maintenance and upgrade revenue (excluding hardware and services) for calendar years 2014, 2015 and 2016 (estimated).
 2. SaaS Subscription Model — Annual contract value (ACV) for year-ends 2014, 2015 and projected ACV for year-end 2016, excluding any services included in annual contract. For multiyear contracts, only the contract value for the first 12 months should be used for this calculation.
- Revenue inclusion levels are as follows:
 - \$25 million 2016 (estimated) combined perpetual license revenue + 2016 (estimated) ACV, or
 - \$15 million 2016 (estimated) combined perpetual license revenue + 2016 (estimated) ACV with 50% year-over-year growth, or
 - \$10 million 2016 (estimated) combined perpetual license revenue + 2016 (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. Professional services revenue and hardware revenue are not included in total software revenue (see "Market Share Analysis: Business Intelligence and Analytics Software, 2015").*
- Tier 3. Magic Quadrant Process Participation — Participation in the Magic Quadrant process requires the following input:
 - Completing and providing documentation for an RFP-style questionnaire of detailed critical capabilities.
 - Completing an online questionnaire around market presence, growth, go-to-market strategy and differentiation.
 - Submission of a video up to one-hour long that demonstrates how included products deliver on the predefined analytic scenarios defined by Gartner (we only look at the first hour; anything beyond that is not considered).
 - Verification of final BI and analytics revenue for 2014, 2015 and 2016 (estimated).
 - Providing references for an online customer and OEM survey.
 - Providing a vendor briefing to the Magic Quadrant authors.
 - Providing access to evaluation software.
 - Providing factual review of sections in the Magic Quadrant research.

Product-Level Criteria

- Tier 4. Breadth of Coverage — The vendor must demonstrate breadth across vertical 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 the data collection exercise outlined above. The final step involved narrowing down the field to 24 vendors for inclusion in the Magic Quadrant.
- Gartner has full discretion to include a vendor on the Magic Quadrant regardless of their level of participation in the Magic Quadrant process, if the vendor is deemed important to the market. This discretion was not applied this year as all vendors fully participated in the process.

Evaluation Criteria

Ability to Execute

Vendors are judged on Gartner's view of their ability and success in making their vision a market reality that customers believe is differentiated and that they buy into. Delivering a positive customer experience, including sales experience, support, product quality, user enablement, availability of skills, ease of upgrade/migration, also determines a vendor's Ability to Execute. In addition to the opinions of Gartner's analysts, the ratings and commentary in this report are based on a number of sources: customers' perceptions of each vendor's strengths and challenges, as gleaned from their BI and analytics-related inquiries with Gartner; an online survey of vendors' customers conducted during October 2016 (which yielded 1,931 responses); a questionnaire completed by the vendors; vendors' briefings, including product demonstrations, 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: BI and Analytics Platform RFP"); a prepared video demonstration of how well vendors' BI platforms address the 15 critical capabilities; and analyst access to evaluation software.

Ability to Execute Criteria

** Note: These criteria are scored partly or wholly on the basis of input from the Magic Quadrant customer reference survey.*

- **Product/Service*:** How competitive and successful are the 15 product capabilities offered by the vendor in this market? How integrated is the workflow of the product? How easy to use and visually appealing?
- **Overall Viability:** What is the likelihood of the vendor continuing to invest in products and services for its customers and how do references rate the vendor's relevance in the future? Viability also includes an analyst assessment of the overall organization's financial health, the financial and practical success of the business unit and the likelihood of the individual business unit continuing to invest in the product, offer the product and advance innovation within its product portfolio.
- **Sales Execution*:** 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 and Track Record*:** Does the vendor have momentum and success in the current market and is this momentum broad or confined to one geographic region?
- **Customer Experience*:** How well does the vendor enable its customers through the availability of training, online tutorials, documentation and conferences, and how available are skilled resources (both in the market and from the vendor) with expertise in its product offerings? It also covers the extent to which customers realize tangible business benefits through use of the vendor's software.
- **Operations*:** How well does the vendor support its customers? How trouble-free is the software, and how easy is it to migrate to a newer version?

Table 1. Ability to Execute Evaluation Criteria

Source: Gartner (February 2017)

Completeness of Vision

Vendors are rated on Gartner's view of 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 report are based on the same sources described in the Ability to Execute section.

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

When determining Completeness of Vision for the Offering (Product) Strategy criterion, Gartner evaluated vendors' ability to support the key trends that will drive business value in 2017, and beyond. Existing and planned products and functions that contribute to the above trends were factored in to each vendor's score for the Offering (Product) Strategy criterion (listed below for Completeness of Vision). These key themes (by category) are as follows:

Infrastructure

- Support for a marketplace (buyers and sellers) where organizations, customers and partners can buy and sell custom-built analytic applications, aggregated data sources, custom visualizations and algorithms that integrate with the BI and analytics platform is beginning to form in the market, but is limited to a subset of vendors.

- Native access to a range of Hadoop, Spark, other NoSQL data sources, graph databases or search databases such as Elasticsearch and Kibana, Attivio or Splunk is becoming increasingly important as data grows in both volume and complexity.
- Support for hybrid deployments across on-premises and the cloud. This ranges from hybrid data support for being able to query on-premises data from the cloud, without first moving it to the cloud, to fully integrated and seamless hybrid on-premises and cloud deployments with a single point of administration, consumption and content authoring.

Data Management

- 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 — is becoming key to governed modern deployments leveraging complex distributed data with an increasing number of distributed content authors.
- Smart data preparation on multistructured data is a core visionary feature in this category, because the need to automatically profile, enrich and infer relationships (to automatically generate a model for analysis), and to make recommendations to improve or enhance insights from the data, will be an area of innovation that will differentiate vendors in the future.
- The ability to automatically promote user-generated models and content to the SOR and reuse and build on existing variables, calculations, models and content is critical to large-scale trusted self-service.
- Modern push-down processing to big data sources, automating the selection of where to best process a query, is an important feature going forward in order to support large and complex datasets by leveraging big data processing and minimizing the need to move data.
- Support for preparing, harmonizing and leveraging real-time events and streaming data, and pushing real-time results to a consumption layer in support of a range of use cases, 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

- Smart, automated pattern detection capabilities that automate the identification of the patterns and clusters hidden in data that are often missed by analysts manually exploring datasets, is core to next-generation BI and analytics platforms. The automated identification of findings is the key to enabling and expanding access to analytics to more users within the organization and to speeding the time to insight while reducing bias.

- NLP for voice and text to support the concept of a personal analytics assistant that can generate natural-language queries and explain its findings to users using NLG will be a dominant future interface for analytics.
- Support for a broad range of content analytics and text analytics against unstructured data as organizations explore new sources of information to link to, and relate to, the analytical insights derived from structured data sources. NLQ is an important exploration paradigm.

Sharing of Findings

- The ability to invoke business actions from within the platform either in a dashboard or embedded in another application represents a level of sophistication beyond current mainstream support for conditional alerts and event triggering based on system events.
- NLG or narration of insights is the next phase in the evolution from standard reporting to storytelling with descriptive text to augment the visually depicted content.
- Contextual recommendations for relevant content — based on insight gained from collaboration and social interaction by users — will largely replace the need to manually share content and findings across the organization.
- Integrated point-and-click simulation, what-if analysis and optimization extend the types of analysis users need that are today often created using custom calculations.
- Increasingly, organizations need to render analytics content in immersive experiences for different types of users across many touchscreens.

Completeness of Vision Criteria

** Note: These criteria are scored partly or wholly on the basis of input from the Magic Quadrant customer reference survey.*

- **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 users conduct with the platform — all key buying criteria — factor into this rating.
- **Marketing Strategy:** Does the vendor have a clear set of messages that communicate its value and differentiation in the market? Is the vendor generating differentiated awareness?
- **Sales Strategy*:** Does the vendor have an innovative partner strategy, attractive pricing, flexible and clear product packaging, and a strong land-and-expand and enterprise sales model?

- **Offering (Product) Strategy:** Does the vendor's approach to product development and delivery emphasize differentiation and functionality that map to current and future requirements, based on the product vision criteria that are summarized by the key 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 the vendor investing in and delivering truly unique and in-demand capabilities? Is the vendor setting standards for innovation that others try to match?
- **Geographic Strategy:** How well can the vendor meet the needs of locations outside its native country, either directly or through partners?

Table 2. Completeness of Vision Evaluation Criteria

Source: Gartner (February 2017)

Quadrant Descriptions

Leaders

Leaders are vendors that demonstrate a solid understanding of the product capabilities and commitment to customer success that buyers demand in the current market, coupled with an easily understandable and

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

attractive pricing model that supports proof of value, incremental purchases and enterprise scale. In the case

of the modern BI and analytics platform market, buying decisions are now being made by, or at least heavily influenced by, business users that demand easy-to-use and easy-to-buy products that deliver clear business value and enable powerful analytics with limited technical expertise and without the requirement for upfront involvement from IT. In a rapidly evolving market, with innovation being introduced constantly, a Leader must also demonstrate that it is not focused only on current execution but has a robust roadmap to solidify its position as a future market leader, thus protecting the investment of today's buyers.

Summary of Leaders Quadrant Positions

Consistent with any maturing technology market, net new buying of modern BI platforms is becoming mainstream as organizations that have been successful with smaller deployments are now looking to expand this use across the enterprise and are increasingly making the modern BI platform one of, if not the enterprise standard in their organization. Agility and ease of use for business users are still critical buying drivers, but the ability to govern deployments, promote user-generated content to trusted enterprise sources, deal with complex large datasets, extend and embed analytic content and support large global deployments have taken on new importance in the buying decision. There are currently three vendors sufficiently executing on their vision to warrant a position in the Leaders quadrant. However, many of the traditional BI vendors and newer vendors still in the Visionaries quadrant this year are gaining momentum in their installed bases, because of the maturation of their modern BI components and renewed investments in next-generation smart innovation, and are beginning to pressure and challenge the current market leaders. If this trend continues, we could see either a more crowded Leaders quadrant or new Challengers in future Magic Quadrants.

Challengers

Challengers are well-positioned to succeed in the 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 the various products in their platform portfolios, or they may lack the marketing efforts, sales channel, geographic presence, industry-specific content and awareness of the vendors in the Leaders quadrant.

Summary of Challengers Quadrant Positions

There are currently no vendors executing at a level that would challenge the market leaders, leaving the Challengers quadrant empty this year. However, traditional BI and analytics vendors are gaining traction and putting increased pressure on the market leaders with modern offerings coupled with early investment in next-generation smart data discovery capabilities. If they continue this momentum, we could see these and possibly other vendors in this quadrant next year.

Visionaries

Visionaries have a strong and unique vision for delivering a modern BI and analytics platform. They offer depth of functionality in the areas they address; however, they may have gaps relating to broader functionality requirements. 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 are two main sets of vendors in the Visionaries quadrant, separated largely by their Ability to Execute. The first set of vendors provide a modern product offering backed by an established customer base, but have emerging or hampered momentum. The second set of vendors provide an innovative and potentially disruptive product vision, but either have gaps in their current offerings or a lack of visibility and traction in the current market (or a combination of both).

Niche Players

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

Summary of Niche Players Quadrant Positions

Half of the vendors in this Magic Quadrant are included in the Niche Players quadrant this year. All 12 vendors represented in the Niche Players quadrant have specialized strengths and differentiated capabilities that position them well to meet the rapidly evolving customer requirements of this market.

Context

Readers should not use this Magic Quadrant in isolation as a tool for vendor selection. This year, Gartner has dramatically modified and modernized the underlying BI and analytics platform definition in order to reflect the segment of the overall market where the majority of active net new buying is taking place. As a result of this change, historical comparison with Magic Quadrants from previous years (to assess vendor movement) is irrelevant and is strongly discouraged. Consider this Magic Quadrant to be more of a summary of Gartner's research on this market, with a particular focus on modern BI platforms. When making specific tool selection

decisions, use it in combination with our Market Guide for traditional enterprise reporting platforms, Critical Capabilities, Survey Analysis research, and Strength, Weakness, Opportunity and Threat (SWOT) analysis publications, as well as our analyst inquiry service. Moreover, readers should be careful not to ascribe their own definitions of Completeness of Vision or Ability to Execute to this Magic Quadrant, which often map narrowly to product vision and market share, respectively. The Magic Quadrant methodology factors in a range of criteria in determining position, as defined in the extensive Evaluation Criteria section.

Market Overview

Overall, the BI and analytics market is expected to continue to grow 7.9% (adjusted for constant currency) through 2020 — as reflected in Gartner's current estimate of the compound annual growth rate for the sector (see "Forecast: Enterprise Software Markets, Worldwide, 2013-2020, 4Q16 Update"). The modern subsegment of the BI and analytics market segment continues to expand much more rapidly than the overall market — offsetting declines in traditional BI spending — but is expected to decelerate from 63.6% growth in 2015 to a projected 30% in 2016, and to further decelerate to 19% (in constant currency) by 2020. This expected lower rate of growth reflects the mainstreaming of a market that is growing in terms of seat expansion, but will be hampered by pricing pressure. Purchasing decisions continue to be heavily influenced by business executives and users who want more agility and the option for small personal and departmental deployments to prove success. This means that the land-and-expand model still dominates sales, but as enterprises expand deployments and enterprise readiness and enterprise-friendly buying models have become more critical to successful deployments, IT is now regaining some of its lost influence on the decision. The primary drivers of new growth in this rapidly evolving market are being influenced by the following dynamics:

- **Modern BI at scale will dominate new buying.** The increased need for governance at enterprise scale will serve as the catalyst for renewed IT engagement as business-user-led deployments expand. Business users initially flocked to the modern tools because they could use them without IT assistance — that was their main attraction. As deployments have grown over time, both in terms of number of users and in complexity of data and use cases, so IT must be more engaged with the business in order to develop agile processes that support the rapidly expanding universe of business-user-generated content and distributed content authors — to ensure responsible use and decisions based on trusted data and analysis. Modern BI tools that can support greater accessibility, agility and analytical insight while also maintaining ease of use (but at enterprise scale and trust for complex and large datasets) will drive and dominate new buying.
- **New and innovative vendors as well as established vendors will drive the next wave of market disruption that has begun.** As the once-disruptive visual-based exploration experience becomes mainstream and widely available, from large and small vendors alike, the market is on the cusp of the next disruptive wave, which will drive a new surge of buying — because of its potential value to reduce time to insights from advanced analytics and deliver them to a broader set of people across the enterprise. Smart data discovery capabilities automatically find hidden patterns in large, complex and increasingly multistructured datasets,

without building models or writing algorithms or queries. It reduces the manual and bias-prone nature of the current visual-based exploration paradigm by highlighting, visualizing and narrating important findings, correlations, clusters, predictions, outliers, anomalies, linkages or trends in data that are relevant to the user without build models themselves. The ability to query and explore through natural language and embedding actionable insights in applications will also expand usage and value from analytics. Smart data discovery complements data science platforms by automated exploration and feature selection that can be further explored and validated by specialist data scientists. While this wave is in part driven by new innovative startups, traditional BI vendors that were slow to adjust to the current "modern wave of disruption" have been early to respond this time and are in some cases (such as IBM and Salesforce) driving the next "smart" wave.

- **The need for complex datasets drives investments in data preparation.** Business users want to analyze a diversity of often large and complex combinations of data sources and data models, beyond the data warehouse and data lake and including streaming data, faster than ever before. The ability to rapidly prepare, clean, enrich and find trusted, multistructured datasets becomes an important enabler of expanded use.
- **Extensibility and embeddability will be key drivers of expanded use and value.** Organizations can expand use through either offering business people, both internal users and customers, more automated tools or by embedding analytics in the applications they use — or some combination of both. The ability to embed and extend analytics content in the user context will be a key enabler of more pervasive adoption of, and value from, analytics.
- **Supporting real-time events and streaming data and analysis will expand use cases.** Organizations will increasingly want to leverage the streaming data generated by devices, sensors and people in a connected world in order to make faster decisions. The players in the BI and analytics market will need to invest in similar capabilities — in order to offer buyers a single platform on which to combine real-time events and streaming data with other types of source data, and to develop a new breed of high-impact analytic applications that leverage the power of real-time actionable insight.
- **Marketplaces for content, data and algorithms will expand and mature, creating new opportunities for organizations to buy and sell analytic capabilities and speed time to insight.** The availability of active marketplaces where buyers and sellers converge to exchange analytic applications, curated data sources, custom visualizations and algorithms are likely to grow in the BI and analytics space and contribute to its future growth. An established marketplace also provides BI vendors with a new channel — where solutions built on top of their platforms can be sold into their customer channel or partner networks. The main beneficiary of a mature marketplace is the end-user organization, which will gain access to a virtually limitless array of capabilities that can be leveraged in their own internally developed solutions and processes.

- **Interest in cloud deployments will continue to grow.** Cloud deployments have the potential to reduce cost of ownership and speed the time to deployment; however, the "data gravity" that still tilts toward the majority of enterprise data residing on-premises has been, and continues to be, a major inhibitor to adoption — particularly with IT buyers. That reticence is slowly abating. In 2016, 46% of all reference survey customers said they either have deployed or were planning to deploy their BI and analytics platform in the cloud, with line-of-business respondents expressing much higher cloud intentions than IT respondents. In 2017, that proportion has increased to 51%, with the largest percentage increase in intention coming from IT respondents. We expect this trend to continue, with the majority of new license buying (more than half) likely to be for cloud deployments by 2020.
- **With the next wave of market disruption, new and innovative vendors will continue to emerge, but this change should be considered as part of an overall strategy.** During the next several years, buyers will benefit from significant market investment in innovation from large vendors as well as from venture capital investment in innovative startups. The downside of having a plethora of innovative products to pilot, and vendors to engage in proofs of concept (POCs) with, is the tendency for organizations to incur technical debt over time — as multiple stand-alone solutions that demonstrate business value quickly (and often hastily) turn into production deployments without adequate attention being paid to design, implementation and support. In this rapidly evolving BI market, organizations should be careful to limit their technical debt, by developing a formal strategy and reference architecture to work within when evaluating their options; thus avoiding major rework and redesign efforts in the future.

Appendix

Other Modern BI and Analytics Platform Vendors

A number of interesting vendors participated in the Magic Quadrant process (with most identifying reference customers and providing information), but did not meet all of the criteria for inclusion in the Magic Quadrant. These vendors fall into the following categories:

- Embedded
- Graph-based data discovery
- Search-based data discovery
- Smart data discovery and natural-language generation (NLG)
- Streaming
- Other modern BI platform vendors

Acronym Key and Glossary Terms

ACV	annual contract value
AI	artificial intelligence
AWS	Amazon Web Services
BI	business intelligence
CPM	corporate performance management
ETL	extraction, transformation and loading
HDFS	Hadoop Distributed File System
IoT	Internet of Things
KPI	key performance indicator
NLG	natural-language generation
NLP	natural-language processing
NLQ	natural-language query
SDK	software development kit
SOR	system of record
TCO	total cost of ownership

Evidence

Gartner defines total software revenue as revenue that is generated from appliances, new licenses, updates, subscriptions and hosting, technical support and maintenance. Professional services are not included in total software revenue (see "Market Share Analysis: Business Intelligence and Analytics Software, 2015"). Gartner's analysis and the ratings and commentary in this report are based on a number of sources: customers' perceptions of each vendor's strengths and challenges (as gleaned from their BI-related inquiries to Gartner); an online survey of vendors' reference customers (which was conducted during October 2016 and yielded 1,931 responses); a questionnaire completed by the vendors; vendors' briefings (including product demonstrations, 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: BI and Analytics Platform RFP"); a prepared video demonstration of how well vendor BI platforms address specific functionality requirements across the 15 critical capabilities; and access to evaluation software from each vendor.

Note 1

Customer Survey Metrics Referenced in This Report

Magic Quadrant customer survey composite success measures are referenced throughout the report. Reference customer survey participants scored vendors on each metric; these metrics were calculated as follows:

- **Customer Experience:** This is a combined score consisting of ratings for achievement of business benefits, availability of skills and user enablement (which includes scores for training, online videos, online communities and documentation), and is based entirely on survey reference responses.
- **Operations:** This is a combined score consisting of rating for product quality, support and ease of migration and is based entirely on survey reference responses.
- **Sales Experience:** Customers rate their satisfaction with presales, contracting, pricing and account management.
- **Market Understanding:** This is a composite measure of ease of use for consumers, ease of use for developers, visual appeal, and ease of use for administration and deployment; and complexity of analysis (described below). We believe these two measures map to current buying requirements.
- **Complexity of Analysis:** This is a combined score consisting of an analyst opinion rating of how well the platform handles complex data needs, and a survey-based weighted average score based on the score for percentage of respondents reporting use of the platform for the types of analysis users conduct with the platform; more interactive and advanced types of analysis result in a higher score than static or parameterized reporting.

Activities are weighted as follows:

- Viewing static reports = 1
 - Using parameterized reports and dashboards = 1
 - 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
 - Data integration and preparation = 5
- Analysts' opinion of how well the platform handles complex data needs were also evaluated, based on an assessment of:
 - Diversity of data source connectivity
 - Ability to combine multiple data sources
 - Support for streaming data
 - Multipass SQL capabilities
 - Ability to federate data
 - **User Enablement:** This is a composite score consisting of individual ratings for documentation, online tutorials for content authors, online tutorials for consumers, online communities, training, availability of skills and user conferences.
 - **Business Benefits:** The business benefits score is a score average taken from 10 different benefit areas, as follows:
 - Increased revenue
 - Better, faster decisions
 - Improved customer satisfaction
 - Reduce IT head count
 - Reduce external IT costs
 - Reduce non-IT costs
 - Expand types of analysis
 - Make better insights available to more people
 - Link KPIs to corporate objectives
 - Monetize data

Note 2

Change in Critical Capabilities From Last Year

Critical Capabilities Dropped or Changed:

- Combined BI Platform Administration with Security and User Administration
- Modified Data Source Connectivity to Data Source Connectivity and Ingestion
- Combined Publish Analytics Content and Collaboration and Social BI to Publish, Share and Collaborate on Analytic Content
- Added Visual Appeal to Ease of Use

Capabilities Added:

- Smart Data Discovery
- Platform Capabilities Workflow Integration

Note 3

Detailed Subcriteria

Infrastructure BI Platform Administration, Security and Architecture: Capabilities that enable platform security, administering users, auditing platform access and utilization, optimizing performance and ensuring high availability and disaster recovery:

Cloud BI: Platform as a service and analytic application as a service capabilities for building, deploying and

- Authentication
- Authorization
- User Administration
- Application Support
- Auditing
- Usage Monitoring
- Vulnerability
- Encryption
- Architecture
- High Availability and Disaster Recovery
- Scalability and Performance

managing analytics and analytic applications in the cloud based on data both in the cloud and on-premises:.

- Direct Connect for both Cloud and On-Premises Data Sources (Hybrid)
- Cloud Data Storage

- Packaged Content
 - Self-Service Administration
 - Cloud Authoring
 - Self-Service Elasticity
 - Marketplace
 - Multitenancy
- **Data Source Connectivity and Ingestion:** Capabilities that allow users to connect to structured and unstructured data contained within various types of storage platforms, both on-premises and in the cloud:
 - OLAP Connectivity
 - Personal and Web Data
 - Unstructured and Semistructured Data
 - Out-of-the-Box Enterprise Application Connectivity Both Cloud and On-Premises
 - Relational Query Access
 - Hadoop/NoSQL Sources

Data Management

- **Metadata Management:** Tools for enabling users to leverage the same system-of-record semantic model and metadata. They 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 report layout objects, parameters and so on. Administrators should have the ability to promote a business-user-defined data mashup and metadata to the system-of-record metadata:
 - Data Lineage and Impact Analysis
 - Data Modeling
 - Metadata Layer Capabilities

- **Self-Contained ETL and Data Storage:** Platform capabilities for accessing, integrating, transforming and loading data into a self-contained storage layer with the ability to index data, manage data loads and refresh scheduling:
 - Built-In Data Integration Capabilities
 - Built-In Data Storage Capabilities
 - In-Database Processing
 - Search or NLP Index Management
 - Data Loading
 - Load Scheduling and Monitoring
- **Self-Service 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 semantic autodiscovery, intelligent joins, intelligent profiling, hierarchy generation and data lineage and data blending on varied data sources, including multistructured data:
 - Business User Data Lineage
 - Business User Data Mashup and Modeling
 - Business User Joins
 - Business User Data Inference
 - Business User Data Enrichment
 - Watermarks
 - Business User Data Masking
 - Promotability
 - Reuse
 - Business User Data Profiling

Analysis and Content Creation

- **Embedded Advanced Analytics:** Enables users to easily access advanced analytics capabilities that are self-contained within the platform itself or through the import and integration of externally developed models:
 - Advanced Algorithms
 - Analytical Functions
 - Open Standards
 - Real-Time Scoring
 - Statistical Functions

- **Analytic Dashboards:** The ability to create highly interactive dashboards and content, with visual exploration and embedded advanced and geospatial analytics, to be consumed by others:
 - Search-Based Discovery
 - Content Authoring
 - Chart Types Supported for Design
 - Chart Formatting Options
 - Consistent Chart Types and Interactivity
 - Ability to Display Very Large Datasets
 - Animation and Playback
 - Disconnected Exploration
 - Mapping and Auto-Geocoding
 - Out-of-the-Box Distance Calculations for Location Intelligence
 - Formatting and Layout
 - Reusable Dashboard Templates

Interactive Visual Exploration: Enables the exploration of data via the manipulation of chart images, with the color, brightness, size, shape and motion of visual objects representing aspects of the dataset being analyzed. This includes an array of visualization options that go beyond those of pie, bar and line charts, including heat and tree maps, geographic maps, scatter plots and other special-purpose visuals. These tools enable users to analyze the data by interacting directly with a visual representation of it:

Smart Data Discovery: Automatically finds, visualizes and narrates important findings such as correlations,

- Consumer Interactivity and Exploration
- Custom Groupings
- Global Filters
- Bins
- Chart Types Supported for Analysis
- Display as Percentages
- Visualizations Linking
- Conditional Formatting
- Information Visualizations
- Natural-Language Q&A
- Automatic Chart Selection and Optimal Display
- Tutorials and Online Information

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 technologies:

- Automatic Advanced Analytics Visualizations
- Automatic Insight Generation
- Open Models
- Natural-Language Generation
- Operationalizing Models
- **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, location awareness and natural-language query:
 - Touchscreen Experience
 - Mobile Device Support
 - Device-Based Security
 - Offline Exploration
 - Interactive Manipulation
 - Responsive Design
 - Mobile Content Creation
 - GPS Integration

Share Findings

- **Embed Analytic Content:** Capabilities including a software developer's kit with APIs and support for open standards for creating and modifying analytic content, visualizations and applications, embedding them into 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 BI and analytics with the application architecture will enable users to choose where in the business process the analytics should be embedded:
 - SDK for Printing and Parameterization
 - SDK Create, Copy and Delete Capabilities
 - Security SDK Capabilities
 - SDK for Building Workflow
 - SDK for Building Connectors
 - SDK for Custom Visualizations/Analytic Web Applications
 - SDK for Administration
 - SDK Data Load Capabilities
 - White-Labeling
 - Portal Integration
 - Embeddability/Extensibility

- **Publish, Share and Collaborate on Analytic Content:** Capabilities that allow users to publish, deploy and operationalize analytic content through various output types and distribution methods with support for content search, scheduling and alerts. Enables users to share and discuss information, analysis, analytic content and decisions via discussion threads, chat and annotations:

- Output Format
- Content Search
- Infographics
- Scheduling
- Event-Based Scheduling
- Conditional Alerts
- Mobile Distribution
- Printing
- Content Posting
- Storytelling
- Discussion Threads
- Integration with Social Platforms
- Real-Time Collaboration
- Mobile Collaboration
- Timelines
- Rating and Recommendations

User Experience

- **Platform Capabilities Workflow Integration:** How many products are needed to deliver the critical capabilities and the degree of seamless integration and workflow between capabilities/components.
- **Ease of Use and Visual Appeal:** Overall platform ease of use to install, administer and manage the platform and create and consume analytic content:
 - Ease of Use for Consumers
 - Ease of Use for Content Authors
 - Ease of Use to Implement and Administer the Platform
 - Visual Appeal

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.

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