NUCLEUS RESEARCH

ANALYTICS TECHNOLOGY VALUE MATRIX 2018

ANALYSTS
Daniel Elman, Barbara Z. Peck

THE BOTTOM LINE

As analytics technology becomes increasingly sophisticated, companies are putting more and more trust in data to gain an edge over the competition. Vendors are responding to the increased user demand and adoption by investing in embedding their technology in other business applications, abandoning on-premise hosting as a primary deployment method in favor of the cloud, and developing artificial intelligence (AI) capabilities to automate processes and augment user intelligence. In particular, Nucleus sees AI being a crucial part of winning strategies to automate repetitive low-value tasks. More generally, vendors are looking to differentiate by delivering contextual analytics within the workflow to enable proactive data and insight discovery.

OVERVIEW

Vendors on the Matrix are positioned based on the relative usability and functionality of their products compared to competitors and the overall market (Nucleus Research s142 – *Understanding the Value Matrix* – September 2018). Advances in computing power and statistical techniques enable rapid development in the analytics space as companies are beginning to embrace data-driven decision making *en masse*. Nucleus sees three main trends driving investment in the Analytics market this year:

- Embedded analytics. Vendors are increasingly moving to embed their analytics technology in third-party purpose-built applications as a way to smoothly integrate analytics into the workflow without users needing to navigate to a separate application or user interface. By embedding in other business applications, vendors can optimize algorithms for their intended use and data types, incorporate pre-built templates and models, and securely connect with data, all of which decreases the time to value for customers and improves overall usability. All Leaders in this Matrix and vendors with Leader potential are demonstrating mature embedding strategies.
- Move to the cloud. More and more often, customers are eschewing on-premise data storage and technology management in favor of the agility and scalability of the cloud. As cloud technology has gotten more reliable and secure, companies are becoming more comfortable turning over their data to cloud providers and eliminating on-premise hardware (and their associated costs). With cloud-based analytics, customers can leverage cloud providers' high-performance computing power to drive advanced technologies like deep learning and real-time data processing. Nucleus found in its market survey, carried out in the first half of 2018, that over 60 percent of business intelligence (BI) deployments are in the cloud, with that number expected to grow (Nucleus Research s116 – *First half 2018 market survey* – August 2018).
- Artificial Intelligence (AI). AI is finally turning a corner from amorphous marketing hype to an increasingly well-defined technology that delivers tangible business value. Vendors are taking advantage of vast data store to enable task automation like automated data preparation and cleaning. Additionally, predictive and prescriptive capabilities are becoming necessities for leading vendors as companies demand explanations for computer-generated insights and look to forward-facing analytics to prevent problems before they occur instead of traditional backwards-facing reporting. Looking forward, conversational AI will allow users to interact naturally with data through natural language processing (NLP) technology, and proactive signals-based intelligence will continue to gain value as a differentiator.

LEADERS

Leaders in the Value Matrix include Information Builders, Microsoft, Salesforce.com, Sisense, Tableau, and Yellowfin.

INFORMATION BUILDERS

Information Builders WebFOCUS is a full-suite, interactive BI and reporting platform that converts business data into actionable insights, using machine learning (ML) with AI capabilities for predictive analytics and Natural Language Queries (NLQ) in addition to

traditional BI. WebFocus is a scalable solution with seamless integrations with multiple platforms such as Office 365. Nucleus found when interviewing end users that WebFOCUS requires reasonably sophisticated IT support and is best-suited to larger enterprise deployments.

Announcements and updates since the last Value Matrix include:

- September 2018: A full re-launch of WebFOCUS with a more responsive UI and intuitive workflows to automate and simplify complex business tasks.
- August 2018: Introduced WebFOCUS Infographics to give businesses the ability to create, automate, and disseminate communication insights without the need for professional designers or sophisticated IT involvement.

WebFOCUS is a highly functional platform with high-performance capabilities, thereby making it a good choice for enterprises with large volumes of data. Customers mentioned a distinct learning curve to become self-sufficient on the platform, which along with the necessary IT support, impacts the usability score. Information Builders is placed in the Leader quadrant of this Matrix for the enterprise-class functionality it delivers. With additional investment in usability, it is poised to improve its positioning in future Matrices.

MICROSOFT

Microsoft PowerBI is a suite of business analytics tools that offer self-service data management, analysis, querying, visualization, and dashboarding tools to business users of all kinds. Microsoft is a global software provider based in Seattle, Washington and its products are designed to be highly usable and scalable from a single user to a full enterprise. The products connect data sources from the Web, databases, and independent software vendors to allow businesses to combine and understand their data from every channel. PowerBI comes as a standalone free desktop application but can also be hosted on the cloud for sharing, schedule refresh, and friendly data consumption experiences, as well as embedded in other tools. The products include Power BI Desktop, Power BI Pro, Power BI Premium, Power BI Mobile, Power BI Embedded, and Power BI Report Server.

Microsoft regularly updates the products each month with additional functionality and continual UI improvements to drive increased usability. These updates are influenced directly by users' feedback and requests. The interface and controls are similar to those of Microsoft Excel, with which many legacy BI users have experience. Recent product updates include:

- In July, Microsoft released an update to Power BI that was focused on improving data preparation capabilities and allowing Power BI to connect to data on third party platforms. Data can be easily shared across Power BI objects to enable easy reuse. The update also facilitates easier collaboration using new integrations with Azure. Analysis carried out in Power BI will be stored in Azure Data Lake Storage, but can also be accessed with Azure Data Factory, Azure Databricks, and Azure Machine

Learning to give users deeper insight to data with specialized tools. SQL Server Analysis Services integration allows Power BI to handle larger amounts of data and connect more easily with third-party BI tools with support for the XMLA protocol. SQL Server Reporting Services paginated reports have been included to enable report creation.

- August feature updates were focused on improving reporting and enabling additional functionality on the platform. Power BI Report URL filters enable users to create shortcuts to pre-filtered reports allowing users to quickly access the information and reports they want. The Power BI Service was updated to include report theming to support custom report creation with corporate branding. A button control was introduced that allows users to design and create custom buttons and configure them to trigger certain actions. Improvements to graphing and data labeling give users additional power to manipulate graph axes and display. Additional formatting, analytics, and data modeling capabilities are supported in the update.

Power BI is a powerful, usable BI option that is integrated with the largest number of third-party data sources on the market. Regular updates to product functionality, including significant investment in edge technologies like AI, computer vision, and natural language processing, and a highly usable interface justify its positioning in the Leaders' quadrant of the Matrix.

SALESFORCE

Salesforce is a global cloud software company based in San Francisco. It offers business applications for sales, marketing, and service with a specialty in customer relationship management (CRM). Einstein is Salesforce's AI engine built on top of its business platform. Einstein Analytics is Salesforce's standalone analytics product which enables full-service analytics from basic reporting and dashboards through advanced and AI-augmented data analysis. Einstein Analytics is natively integrated with customer data and activities in real-time, so it delivers self-service BI functionality within the Salesforce workflow to users. The Einstein engine is also available as a standalone product. Developers can leverage the AI built by Salesforce and create custom applications on the Einstein platform.

Salesforce differentiates its analytics approach in two main ways -- first, AI is integrated with traditional analytics to allow for task automation and a wide breadth of functionality, and second, its analytics technology is embedded within the CRM clouds to support users in making contextualized, data-driven decisions within the workflow.

Salesforce is continuously investing in AI research and deploying product upgrades. A few other announcements about significantly improved functionality in Einstein Analytics include:

- In July, Salesforce announced new Einstein capabilities for Service Cloud. Einstein Next Best Action leverages CRM data to recommend to users what their next action

should be to create a successful outcome for both the customer and the business. Einstein Bots can be created and deployed to automate common service processes by deflecting low-complexity queries to the system instead of to an agent (Nucleus Research s106 – *Salesforce Service Cloud gets smarter with Einstein* – July 2018).

- In September at Dreamforce, Salesforce announced Einstein Voice, an update that includes Einstein Voice Assistant, a new speech UI to interact with Salesforce, and Einstein Voice Bots, a new voice bot platform for customers.
- In October, Salesforce announced Einstein Analytics Plus, its complete AI-augmented analytics platform that is infused in the business application to help companies and business users automatically discover and visualize trends in data and deliver predictive and prescriptive insights to guide user actions. The product includes over 50 pre-built templates to accelerate overall time-to-value by serving various job roles within industries such as financial services, field service, and health sciences.

Salesforce continues to demonstrate significant investment in its analytics platform with regular functional upgrades, although it should take care that as more capabilities are added, product usability doesn't suffer. With the addition of Einstein Voice, the product usability is significantly increased as users can interact with Salesforce natively in a non-technical avenue through speech. With high levels of product functionality, including predictive and prescriptive analytics, a user-friendly, code-free interface, and readily available training materials via Trailhead, Salesforce is placed comfortably in the Leaders' quadrant of this Matrix.

SISENSE

Sisense is New York-based company that delivers an end-to-end BI platform that specializes in collaborative dashboards and data visualizations. It is sold as a single tool solution that is equipped to ingest, prepare, analyze, and report on data of all formats and amounts. In addition to being a standalone product, Sisense can be embedded or white-labeled in third-party products, expanding its footprint.

Recent announcements and product upgrades include:

- In January, Sisense released Sisense 7.0, which includes new Intuitive Data Mash-Up to allow easier data navigation and preparation. The update also included upgrades for data governance, improvements to the software's analytics engine with suggestions, increased mobile capabilities, and new connectors to Oracle data sources.
- In June, Sisense decoupled Sisense Boto from the need to user authenticate on the Sisense platform, essentially making the chatbot free to its customers. Users can drag-and-drop a data file into Sisense Boto and it will automatically analyze the data and deliver insights to the user.

- Sisense generated $80M in its most recent funding round, which is primarily to drive its European expansion efforts and finance continued R&D to enhance product capabilities.
- In October, Sisense launched Sisense Hunch Data Cognition Engine which ingests large datasets to rapidly deliver analytical responses to queries. This technology uses a small fraction of the cost and device memory which allows customers to turn their IoT devices into analytics-powered "supercomputers."

In addition to investing in new product features and its growing sales force to drive the business' expansion, Sisense is also aggressively developing cloud infrastructure and additional AI-powered capabilities. Sisense marries advanced functionality with a highly usable interface, justifying its position in the Leaders' quadrant.

TABLEAU

Tableau is a BI provider based out of Seattle, Washington. It specializes in data visualization and dashboarding. The products are integrable with third party tools so that Tableau visualizations are easily embeddable and are known to be easy-to-use, which allows for quick user adoption. Tableau software is available as a desktop application and as a Web application hosted on the cloud. Its products include Tableau Desktop, Tableau Prep, Tableau Server, Tableau Public, and Tableau Online, in addition to its embedded offerings.

In the past months, Tableau has released a number of product upgrades including:

- Tableau Public 10.5 was launched in January 2018 and contained a set of updates focused on delivering additional advanced functionality using low-code mechanics like drag-and-drop. Updates included Viz in Tooltip, which allows users to design their own visualizations and place them in tooltips where the data is uncovered by mouse-ing over. Tableau launched Hyper, its new in-memory data engine which is designed to ingest data and perform advanced, computationally expensive analytics as quickly as possible using high-performance code. Power trendlines have been included to show relationships between data and can be controlled via drag-and-drop.
- In April, Tableau launched Tableau Prep, a self-service desktop tool for data cleansing and preparation. It also rolled out role-based pricing to make its products more accessible to a greater variety of businesses.
- In June, Tableau announced its acquisition of Empirical Systems, a startup that originated out of MIT specialized in automated statistical analysis.
- In October 2018, Tableau announced new collaborative features for Tableau Public. With Activity Feed, users can see the visualizations that users in their curated network are creating. In keeping with the collaborative spirit it intends for its product, it has added an attribution feature which allows users to use other authors' designs and include a link to their page as citation.

Tableau has one of the most mature BI offerings available on the market with one of the largest customer footprints. Its products are highly usable and easily scale from the individual user to the complete enterprise. Functionally, its products focus more on visualization and dashboards than heavy-duty analytics, data manipulation, and next-gen technology like AI; however, it still offers sufficiently advanced functionality to justify its position in the Leaders' quadrant of this Matrix, particularly with recent announcements around upcoming NLP and data modeling capabilities.

YELLOWFIN

Yellowfin is an Australian BI provider that offers an analytics platform with three main focus areas: dashboarding, visualization, and storyboarding. The platform has additional tools to support data integration and preparation as well as data alerts, a mobile application, and collaborative tools. Customers describe the platform as being very user-friendly with highly accessible online resources and documentation for self-study. The product suffers when compared to more comprehensive end-to-end offerings that have more powerful functionality for data extract-transfer-load (ETL) and continued development is needed to enable support for more reliable analysis of unstructured data.

In July, Yellowfin announced Yellowfin 7.4.6 which contained a number of product improvements. The Assisted Insights feature has been upgraded to include comparisons and explanations for each insight generated. Data visualization is improved with improvements to Time Series manipulation. Responding to some customer issues, the update includes improvements for data preparation and transformation as well as backend performance upgrades to enable more competitive data management functionality.

Altogether, Yellowfin offers a reliable single platform BI tool for companies that don't have extensive data integration or management needs. The product focuses more on visualization and display than on hardcore functionality like predictive and prescriptive analytics, and this focus on usability justifies its positioning in this Matrix.

FACILITATORS

Facilitators in the Matrix include BOARD, Domo, Jinfonet Software, Qlik, and Zoomdata.

BOARD INTERNATIONAL

BOARD International is a software vendor based out of Boston, Massachusetts and Chiasso, Switzerland that offers a single product for corporate performance management, business intelligence, and predictive analytics. The solution can be deployed in a full-cloud or hybrid-cloud environment as well as on-premise. The BOARD platform enables end-to-end BI

functionality including simulations, data exploration and insight discovery, data entry and management, and visualization.

BOARD has not announced any product updates or relevant announcements since the publication of the last Matrix.

Customers describe BOARD's product as highly usable and great for basic data reporting and modeling. Additionally, customers who want to simplify their technology portfolios may opt for BOARD as its solution supports both BI and CPM without needing to stack additional products. That said, the product lacks the functionality of some more advanced offerings, and customers have reported that online resources and documentation are lacking. It is positioned in the Facilitators' quadrant due to the product's high usability but relatively basic functionality for BI.

DOMO

Domo for Business is a cloud-based analytics, visualization, and BI platform with intuitive dashboards that facilitate usability and do not require data scientists or IT for daily use. Users reported that its ease of use and rapid deployments are important factors in their choice of Domo. Domo offers easy data access and self-service analytics to support agility and proactive usage by business users.

Announcements and updates since the last Value Matrix include:

- June 2018: IPO
- June 2018: Released a pre-packaged solution for media publishers with automated reporting and AI to help identify potential opportunities.
- April 2018: A new connector with AWS IoT analytics that gives users greater access to and leverage of machine generated data. It is designed to be implemented without the need for sophisticated IT support.

JINFONET SOFTWARE

Jinfonet's JReport is an embedded analytics solution with customizable reporting, analytics, and dashboards built for enterprise-class scalability and performance. JReport's deployment is available in the cloud, as-a-service, and on-premise, and can be customized to any business application within the context of existing software. Its Self-Service Analytics allows users to build ad-hoc reporting and dashboards from any location and analyze data with or without IT assistance. In the past year, JReport has focused on enhancing usability and its sophisticated feature sets in response to user feedback.

Announcements and updates since the last Value Matrix include:

- November 2017: Quick Start Concept with drag and drop capabilities beginning with single or multiple data sources and the ability to add multiple components.

- July 2018: JReport released the 15.5 update with enhanced pixel perfect web reporting, performance gains with a Smart Query engine that reduces data access times, more embeddable modules available for JavaScript and RESTful APIs, and a new JReport Designer with built-in templates that are extendable and customizable and will work with any data source.

Jinfonet's product is highly functional with feature highlights including its scalable and performant architecture, clustering capabilities, multi-tenancy, and advanced reporting. As an embedded solution, overall usability is limited compared to some mature standalone products; however, with continued success in the market and additional reinvestment in improving its offering, Nucleus believes Jinfonet shows the potential to advance into the Leaders' quadrant in future Matrices.

QLIK

Qlik is a cloud-based self-service analytics and business intelligence solutions provider. Many customers deploy Qlik as an end-to-end BI solution, handling data ingestion and preparation as well as analysis, visualization, and reporting. Its main products include Qlik Sense and QlikView, in addition to a portfolio of add-on products for specialized functionality. A main value differentiator for Qlik is its Associative Engine, an AI-powered tool that indexes relationships between data.

Recent news and product updates from Qlik include:

- In July, Qlik acquired Podium Data, a data management platform that houses data and catalogues it with metadata to facilitate expedited analytics and searching. Customers have criticized Qlik for being light in data management functionality, so this move looks to address this perceived weakness (Nucleus Research s123 – *Qlik acquires Podium Data* – July 2018).
- In September, Qlik announced two new big data products, an updated release of the Podium Data product as well as the first-time release of the Qlik Associative Big Data Index. The Podium update contains two key new features, a catalogue module and an intelligent rules engine. New metrics within the data catalogue allow users to "shop" for data as well as identify the most useful insights. The Intelligent Rules Engine analyzes data during ingestion and stores or acts on it based on the analysis. The Associative Big Data Index delivers associative insights on top of large-scale big data sources. Docker containers allow users to analyze big data at its source and remain platform agnostic, and computing upgrades optimize the system to perform on massive amounts of data without a drop-off in performance.

As a standalone analytics and BI provider, Qlik is challenged by the increasing market preference for embedded BI solutions that are built on top of existing business platforms. That said, by entering strategic partnerships with independent software vendors (ISVs) and continuing to invest in delivering increased usability and functionality, Qlik remains poised to be a major player in the BI market in the year to come.

ZOOMDATA

Zoomdata offers an innovative BI solution. The company's high-performance BI engine and visual analytics allow users to discover new opportunities and solve problems that are too big or too complex to solve using conventional BI tools. Zoomdata's interactive dashboards, native modern data connectors, scalable microservices architecture, and innovations such as Zoomdata Data Sharpening make it a natural front-end for big data, live streaming data, and multi-source analysis. Launched in 2014, Zoomdata holds multiple patents related to streaming data delivery and interactivity.

Announcements and updates since the last Value Matrix include:

- October 2018: Announced cross-source filtering that enables users to apply common filters across visualizations from different data sources.
- September 2018: Launched ZAP!, a data visualization and analytics global channel and partner program with dedicated support, advanced training, and timely updates that is deployed with a Quick Start implementation package
- January 2018: Introduced Zoomdata Smart Streaming that connects, stores, and visualizes from any data source, enabling faster time-to-insights with interactive dashboards and visualizations.

Zoomdata differentiates itself with its data handling and streaming capabilities, making it a natural choice for real-time or low-latency analytics. It lacks the advanced AI-powered capabilities of some more comprehensive products, but Zoomdata can easily handle the demands of traditional BI without sacrificing performance or usability and is positioned as a Facilitator in this Matrix.

CORE PROVIDERS

Core providers in the Matrix include Birst, Dundas, Looker, Oracle, and TIBCO.

BIRST

Birst is an enterprise-grade, cloud-based BI and analytics platform that delivers end-to-end capabilities to help organizations analyze complex business processes. It can be deployed on both private and public clouds and supports a variety of data sources, from ERP systems and Big Data platforms to popular cloud applications, spreadsheets and files. Built with patented automation and machine learning technologies, Birst's pioneering Networked BI approach connects centralized and decentralized teams and applications via a trusted network of analytics that share common business rules and definitions, enabling easier data blending and eliminating inefficient siloed structures. Birst is well suited for an organization with a complex mix of enterprise and local data.

Announcements and updates since the last Value Matrix include:

- July 2018: Birst's Summer 2018 release introduced important enhancements to Birst Dashboards and Visualizer, including Data Buckets and Push Down Expressions, new Orchestration capabilities, and additional integrations with Infor applications.
- November 2017: Birst's Fall 2017 release provided businesses with enterprise-grade connectivity, data transformation with best-of-breed extraction-transfer-load (ETL) tools, enhanced networking capabilities, and expanded dashboard and visualization capabilities.

DUNDAS

Dundas BI is a is a browser-based business intelligence and data visualization application that offers interactive custom dashboards, ad-hoc queries, visual reporting tools, and data analytics. It is consistently described by customers as being easy to implement and use. Dundas BI can be deployed as the central data platform for a business or can be embedded into an existing application. Dundas BI security supports multi-tenant scalability SaaS deployments.

Announcements and updates since the last Value Matrix include:

- October 2018: Announced kick-off of Dundas BI Beta 6 that will offer better visualizations, simplified building of complex data models, and additional connectors.
- July 2018: Released e-learning portal in Beta to enable users to gain greater proficiencies.
- January 2018: Dundas BI 5 release introduced advanced predictive analytics, visual detection of hidden relationships, mapping enhancements, and simplified data preparation with improved visibility.

LOOKER

Looker software is a new addition to the Analytics Value Matrix. Looker is a big data vendor that that uses SQL to access and manipulate data, allowing users to explore, integrate, and visualize data in real-time using a browser. It is primary deployed in the cloud but can be deployed on-premise. Looker connects to any relational database and automatically generates a data model from the information that can be customized to a company's specific needs. Looker offers an embedded option as well as a standalone application and uses LookML language to build SQL queries against a specific database. Customers have described Looker as being a data scientist-driven application, but it has expanded its self-service exploration capabilities and is usable for non-technical users as well with training. This past year Looker has focused its development on functionality, which may limit its deployments to those businesses with more sophisticated IT resources or BI teams.

Announcements and updates include:

- July 2018: Looker announced integration with Google Cloud's BigQueryMLadding functionality to data science workflows, enabling data scientists to complete all their work without leaving the Looker site.

ORACLE

Oracle is a leading provider of Cloud solutions founded in 1977 and based out of Redwood Shores, California. Oracle provides Cloud solutions for all major business functions like CRM, ERP, BI, and HCM. Oracle helps customers develop roadmaps, migrate to the cloud, and take advantage of emerging technologies from any point: new cloud deployments on-premise environments, and hybrid implementations. Oracle's approach makes it easy for companies to get started in the cloud and even easier to expand as business grows. Its analytics and BI product, called Oracle Analytics Cloud can perform all major BI tasks such as visualization, self-service reporting, data preparation, scenario and what-if analysis, and advanced analytics. Keeping pace with market progress, Oracle also offers two cloud models, Oracle Analytics Cloud and Oracle Business Intelligence Cloud Service.

Relevant announcements and updates since the publication of the last Matrix include:

- In March, Oracle announced the release of the Oracle Autonomous Data Warehouse Cloud. It is a self-managing, self-securing, and self-repairing cloud database that uses machine learning to deliver these capabilities without human intervention.
- At OpenWorld in October, Oracle co-founder Larry Ellison launched Oracle Fusion Analytics Warehouse, a complete analytics platform for business users, developers, and IT professionals that is built on Oracle Analytics and Autonomous Data Warehouse. Oracle Fusion Analytics Warehouse is optimized for all Oracle Fusion Cloud Applications to enable rapid deployment and business value. Customers can use the fully extensible and customizable solution to also bring in data from other SaaS and on-premise sources.

With a long history in the software business, first as a database company, Oracle has an established customer base and the industry experience to deliver great value. However, Oracle on-premise products are unwieldy to integrate with third-party products, and customers have said that it only makes sense to choose Oracle for BI and analytics for companies already using the Oracle E-Business Suite due to the high cost and difficult integration. Although the product itself is powerful for traditional BI tasks, Nucleus positions Oracle in the Core Provider quadrant of the Matrix due to the difficulty of integrating with other tools and the fact that customers feel that it is a feasible choice only if the rest of the business runs on Oracle too.

TIBCO

JasperSoft by TIBCO offers an interactive, embedded dashboard and reporting solution with broad flexibility for data visualizations and reporting. JasperSoft delivers actionable insights with self-service for users to identify data they need inside their exiting application. It is scalable and can connect directly with big data such as with native reporting and analytics in real-time.

Announcements and updates since the last Value Matrix include:

- May 2018: JasperSoft 7 streamlines workflows, additional enhancements to design interactive data visualizations, and simplifies deployments. A new ad-hoc viewer BI component simplifies the process of delivering high quality visualization. JasperSoft 7 introduced the ability to leverage TIBCO Spotfire data for additional predictive analytics that can be reported in Jaspersoft.
- October 2018: JasperReports IOis a scalable microservice to generate pixel-perfect multiple reports and interactive data visualizations. The initial release is available with additional features to be added in the near future.

EXPERTS

Experts in the Value Matrix include GoodData, IBM, Logi Analytics, MicroStrategy, SAP, and SAS.

GOODDATA

GoodData is an end-to-end cloud-based predictive analytics platform that delivers insights in context at the point of work. The platform is secure and scalable with multi-tenant distribution and is also offered as a fully managed service. GoodData continues its focus on enhancing usability and reducing the need for extensive IT resources. Users can build insightful reports and visualizations that support better business decision and benefit from GoodData's expertise in consolidating, transforming, and distributing actionable data.

Announcements and updates since the last Value Matrix include:

- September 2018: Release of global international features with access to eight languages, region specific formats for numbers and currency, custom time zones, and geocodes.
- May 2018: Announced compliance with GDPR and ISO 27001 requirements.
- May 2018: Introduced GoodData Spectrum with three new capabilities: GoodDataUI for customizable apps and no code visualizations, key performance indicator (KPI) dashboards to track KPI changes over time, and Analytics Designer for pre-packaged

and custom visualizations with automated actions to explore datasets and discover new insights

- February 2018: GoodData was awarded a US patent for its multi-tenant platform

The GoodData platform is proven to deliver value, as GoodData deployments have been recognized in Nucleus' annual ROI Awards for the exceptional returns that customers received. With this and its recent investments in automation and other usability improvements, GoodData keeps pace with the market in terms of functionality and advances on the usability axis in the Expert quadrant of this year's Matrix. With continued investment to further develop product capabilities and increase its market presence, Nucleus expects GoodData to advance to the Leaders' quadrant in upcoming Matrices.

IBM

IBM is a global enterprise software and hardware provider that was founded in 1911 and is based out of Armonk, New York. IBM offers several products in the data analytics and BI space, so this report will focus IBM Cognos, its traditional enterprise-scale BI platform. Cognos tends to be used in composite with other analytics tools; however, its maturity, reliability, and relatively large user ecosystem makes it a reliable choice for customers seeking traditional large-scale BI.

Recent product announcements and updates include:

- In September, IBM launched a host of industry-specific pretrained AI applications for advertising, agriculture, automotive, building management, customer service, human resources, manufacturing, marketing, and supply chain. The applications are trained before being deployed, allowing customers to start receiving insights out of the box.
- Also in September, IBM announced an update to IBM Cognos. The update includes an AI Assistant that leverages natural language processing to allow users to ask questions and receive answers in natural language. The update also includes improvements to the analytical capabilities such as pattern recognition. Cognos now supports automated visualizations and a new storytelling feature that allows users to create sequences of media and visualizations that convey a high-level message.

Nucleus has been quick to level criticism at IBM before for being slow to reflect market trends and for confusing messaging around its products and capabilities. Nucleus has found Cognos to be highly functional and deliver legitimate value to users; however, some customers we interviewed did not understand which IBM product to use, impacting IBM's overall footprint in the space. With these most recent product updates along with a branding correction that clearly positions Cognos as the enterprise BI tool to use, IBM is demonstrating its recognition of market demand for integrated intelligence within BI tools and vertical-specific solutions, and is creating a legitimate roadmap to achieving positive ROI. Cognos delivers full-service BI capabilities at enterprise scale and, as usability continues to improve with future investment, Nucleus expects IBM to advance in the Matrix.

LOGI ANALYTICS

Logi Analytics is an embedded visual and predictive analytics platform focused on application teams, specifically product managers and developers. Logi enables companies to match their data analytics reporting and visualizations to their existing user interfaces (UIs). Logi connects to all relational databases, BigData, and company files and delivers security protections within the embedded application. In the past year, Logi has gone through multiple changes including changing its focus to exclusively embedding its analytics technology, whether in the commercial software market (OEMs, ISVs) or for custom enterprise applications. Additionally, in late 2017 Logi was acquired by Marlin Equity Partners. Logi's analytics development platform delivers extensive functionality in the areas of predictive analytics, security, connectivity, and architecture, all designed for application teams.

Announcements and updates since the last Value Matrix include:

- September 2018: Introduced LogiPredict, a predictive analytics solution specifically designed for embedded applications.

Logi focuses on giving customers control of their analytics by integrating with their data, customizing with their branding, and deploying on their hardware. It scales well without demanding exorbitant compute power, a key value point for embedding in third-party software, and can be easily governed. Recent investments have been in the deployment process and machine learning capabilities to empower non-data scientist users. Logi is positioned in the Experts' quadrant of this Matrix because it delivers highly customizable and advanced analytics capabilities, but it does require a development team to configure and deploy.

MICROSTRATEGY

MicroStrategy offers a mature BI solution with end-to-end capabilities for data ingestion and management through to visualization and dashboarding. MicroStrategy is a well-established BI provider with strong capabilities in reporting, dashboarding, and data analysis. It is traditionally deployed on-premise although it has expanded to offer cloud hosting as well. The product is built on a complex infrastructure that can pose usability challenges to customers, particularly those without technical training, as the product is light on self-service features.

Recent announcements and product upgrades include:

- In April, MicroStrategy launched MicroStrategy 10.11 which contained support for geospatial analytics with Mapbox, new out-of-box data visualizations, intelligent recommendations, and a smartphone app.

- Before the end of 2018, the company plans to release Version 11.0 and Version 11.1 of the platform which is promised to be the most feature-rich version of the product while still containing the most out-of-box functionality yet.

The company has added 196 new employees over the last year and is continuing to invest in developing its technology. With successful releases of Version 11, MicroStrategy is poised to advance in the next Matrix. The significant functional improvements in the past year are reflected in the positioning on this year's Matrix.

SAP

SAP was founded in 1972 in Walldorf, Germany. It is historically a major player in enterprise software, offering solutions for the full range of business functions such as ERP, CRM, and BI. It maintains an expansive legacy user base with large-scale on-premise deployments but also offers fully cloud-based and hybrid cloud solutions. Its products for BI and analytics include SAP Analytics Cloud, SAP Predictive Analytics, SAP Analytics Hub, and SAP Leonardo Machine Learning.

Recent announcements and upgrades since the publication of the last Matrix include:

- In October at SAP TechEd, SAP announced plans to enable new capabilities for Leonardo, its machine learning product such as scene text recognition, customizable image segmentation, customizable text feature extraction, cloud text-to-speech by Google, and cloud speech-to-text by Google.
- SAP Analytics cloud was upgraded with new "smart capabilities" for advanced scripting, content standardization, and new extensions through SDKs and APIs.
- Other Analytics Cloud updates track user activity and offer smart recommendations, enable one-click forecasting, risk and correlation detection, and autonomous dashboard creation.

SAP products are diverse and mature, ensuring deep functionality for a wide range of use cases and an experienced user community. Usability has always been a weak point with users consistently mentioning a steep learning curve and the need for extensive internal IT support. Data governance and integration issues also can come into play with the wide range of separate modules that are offered. SAP is best-suited for enterprise-scale deployments where the full business can be outfitted with SAP products that integrate at the backend, but it may struggle to remain competitive against vendors offering more easy-to-use products and where customers are choosing point solutions or embedded analytics.

SAS

The SAS suite was developed by the SAS Institute, a global software company based out of Cary, North Carolina that was incorporated in 1976. It offers a suite of data management and analytics solutions that can mine, alter, manage, retrieve, and analyze data. Its primary

focus area is customer intelligence; however, other products handle a variety of specialized use cases including: fraud detection, risk assessment, IT management, and KPI monitoring. Additionally, it offers industry-specific solutions for government, retail, telecommunications, aerospace, marketing automation, and high-performance computing.

Recent announcements and product updates since the publication of the last Matrix include:

- In April, at the SAS Global Forum conference, the company announced new AI-powered capabilities for the SAS platform and Viya, its visual analytics software to automate data preparation tasks such as data cleansing, formatting and transformation.
- In March, SAS and Data Republic, a data governance provider, partnered to offer public and private sector companies a method to securely share anonymized data. With the platform, companies can govern data requests, track access, and manage analytics projects on dedicated Web-based workflows.

Stemming from its many decades in the market, SAS retains a significant legacy user base. It is widely recognized as the leading platform for advanced statistical analysis due to its comprehensive functionality. Additionally, SAS is used in academia for research and education, which ensures that there is a steady flow of trained users on the platform. Due to its complex product list and the steep learning curve needed to become competent with the software, SAS is better suited for large enterprise customers with the resources and knowledge base to maximize the value of the investment. Nucleus positions SAS in the Experts' quadrant of this matrix due to its market-leading functionality and involved onboarding process.