The Forrester Wave™: AI/ML Platforms, Q3 2022

The 15 Providers That Matter Most And How They Stack Up

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Summary

In our 25-criterion evaluation of AI/ML platform providers, we identified the 15 most significant ones — Amazon Web Services, C3 AI, Cloudera, Databricks, Dataiku, DataRobot, Google, H2O.ai, IBM, Microsoft, Palantir, RapidMiner, RStudio, SAS, and TIBCO Software — and researched, analyzed, and scored them. This report shows how each provider measures up and helps technology executives select the right one for their needs.

Additional resources are available in the online version of this report.

Productivity Tools, Solution Accelerators, And Extensibility Matter Most

As enterprises evolve AI from pilots to an integral part of their tech strategy, the scope of AI expands out from core data science teams to business, software development, enterprise architecture, and IT ops teams. Enterprises need a platform to make extended AI teams more productive, implement more complex use cases, and harness the fast pace of new AI technologies. AI/ML platform vendors are responding to these needs by offering platform capabilities and tools for many roles within an enterprise so that teams can develop, operationalize, and manage a growing portfolio of AI solutions.

As a result of these trends, AI/ML platform customers should look for providers that:

- **Offer a broad set of tools for both data science and extended AI teams.** Enterprises cannot (and don't have to) compromise on tools for their data science teams when choosing an AI/ML platform. Enterprises should first look at an AI/ML platform to satisfy and bump up the productivity of data scientists. Then, consider how the platform helps the extended AI team of data engineers, ML engineers, software development, enterprise architects, IT operations, and business users collaborate with multiple roles across the entire AI lifecycle. Look at the vendor's product roadmap closely because the tooling for extended AI teams is still much less mature than the tooling for data science teams.

- **Have industry-specific solution accelerators.** Enterprises don't always have to start from scratch. AI/ML platform vendors offer varying degrees of solution accelerators that provide a head start in implementing horizontal and/or vertical use cases. Solution accelerators can be in the form of training materials, sample code and/or flows, or more ready-to-use configurable modules. Some vendors build a library of solution accelerators based on their customer implementations and some vendors proactively develop solution accelerators. A small number of vendors in this evaluation offer full-blown ready-to-configure AI applications. Enterprises should look to AI/ML platform vendors that have experience in their industry and/or horizontal uses cases.

- **Take an extensible and interoperable approach to both tools and technologies.** Next-generation enterprise AI projects will not rest on the value of a single ML model. These projects also must better align their data for AI specifically for connected intelligence. Enterprises will need AI solutions that leverage multiple models in conjunction with additional intelligence technologies such as mathematical solvers, engineering models, and knowledge-engineered human

decision logic. A platform architecture designed for extensibility and interoperability will quickly bring new tools and technologies from the vendor itself, open source, and partners. Enterprises should ask AI/ML platform vendors how they would hypothetically add a new open source framework, programming language, and tools created by other vendors to the platform.
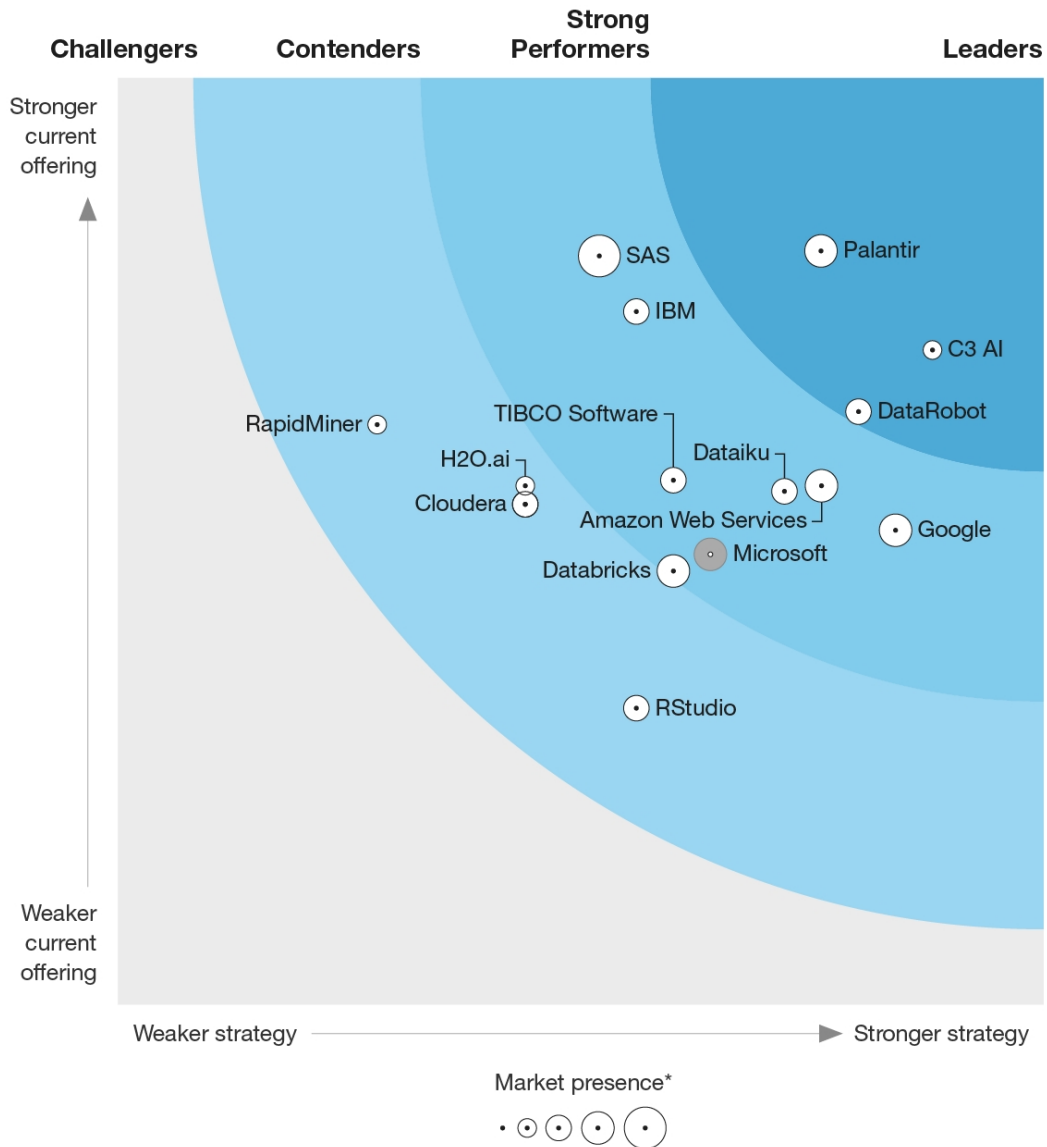
Evaluation Summary

The Forrester Wave™ evaluation highlights Leaders, Strong Performers, Contenders, and Challengers. It's an assessment of the top vendors in the market; it doesn't represent the entire vendor landscape. You'll find more information about this market in the Now Tech: AI/ML Platforms, Q1 2022.

We intend this evaluation to be a starting point only and encourage clients to view product evaluations and adapt criteria weightings using the Excel-based vendor comparison tool (see Figure 1 and see Figure 2). Click the link at the beginning of this report on Forrester.com to download the tool.

Figure 1

Forrester Wave™: AI/ML Platforms, Q3 2022

THE FORRESTER WAVE™
AI/ML Platforms
Q3 2022

Challengers   Contenders   **Strong Performers**   **Leaders**

Stronger current offering

SAS · Palantir · C3 AI · DataRobot · TIBCO Software · Dataiku · Google · RapidMiner · H2O.ai · Cloudera · Amazon Web Services · Microsoft · Databricks · IBM · RStudio

Weaker current offering

Weaker strategy ——→ Stronger strategy

Market presence*

*A gray bubble or open dot indicates a nonparticipating vendor.

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Figure 2

Forrester Wave™: AI/ML Platforms Scorecard, Q3 2022

	Forrester's weighting	Amazon Web Services	C3 AI	Cloudera	Databricks	Dataiku	DataRobot	Google	H2O.ai
Current offering	50%	2.80	3.53	2.70	2.34	2.77	3.20	2.56	2.80
Data	20%	3.00	3.50	2.50	2.50	4.00	3.00	3.50	2.00
Training	20%	3.00	2.50	2.00	1.50	3.50	4.00	4.00	3.00
Inferencing	20%	4.00	3.00	3.00	3.00	1.00	3.00	2.00	5.00
Applications	20%	1.66	4.32	2.32	1.68	3.00	3.68	1.66	2.34
Architecture	20%	2.32	4.34	3.68	3.00	2.34	2.34	1.66	1.68
Strategy	50%	3.80	4.40	2.20	3.00	3.60	4.00	4.20	2.20
Product vision	20%	3.00	5.00	1.00	1.00	3.00	3.00	3.00	3.00
Market approach	20%	3.00	5.00	3.00	3.00	3.00	5.00	3.00	1.00
Performance	10%	5.00	5.00	3.00	5.00	5.00	5.00	5.00	1.00
Planned enhancements	20%	3.00	3.00	1.00	3.00	5.00	3.00	5.00	3.00
Partner ecosystem	20%	5.00	5.00	3.00	3.00	3.00	5.00	5.00	3.00
Commercial model	10%	5.00	3.00	3.00	5.00	3.00	3.00	5.00	1.00
Market presence	50%	3.20	1.60	2.20	4.00	2.20	2.80	4.00	1.20
Revenue	40%	2.00	2.00	2.00	4.00	2.00	2.00	3.00	1.00
Number of customers	40%	4.00	1.00	2.00	4.00	2.00	3.00	5.00	1.00
Number of employees/engineers	20%	4.00	2.00	3.00	4.00	3.00	4.00	4.00	2.00

All scores are based on a scale of 0 (weak) to 5 (strong).

Source: Forrester Research, Inc. Unauthorized reproduction, citation, or distribution prohibited.

	Forrester's weighting	IBM	Microsoft*	Palantir	RapidMiner	RStudio	SAS	TIBCO Software
Current offering	50%	3.74	2.43	4.07	3.13	1.60	4.04	2.83
Data	20%	4.00	2.50	4.50	3.00	1.00	4.00	3.00
Training	20%	4.00	3.00	3.50	3.00	1.00	4.50	2.50
Inferencing	20%	4.00	2.00	3.00	3.00	2.00	5.00	2.00
Applications	20%	3.68	2.34	5.00	3.00	1.00	3.66	3.66
Architecture	20%	3.02	2.32	4.34	3.66	3.02	3.02	3.00
Strategy	50%	2.80	3.20	3.80	1.40	2.80	2.60	3.00
Product vision	20%	5.00	1.00	5.00	1.00	1.00	3.00	3.00
Market approach	20%	1.00	3.00	5.00	3.00	3.00	1.00	3.00
Performance	10%	1.00	3.00	5.00	1.00	3.00	3.00	3.00
Planned enhancements	20%	5.00	3.00	3.00	1.00	3.00	3.00	3.00
Partner ecosystem	20%	1.00	5.00	3.00	1.00	3.00	3.00	3.00
Commercial model	10%	3.00	5.00	1.00	1.00	5.00	3.00	3.00
Market presence	50%	2.60	3.20	3.40	1.40	2.80	5.00	2.40
Revenue	40%	2.00	3.00	5.00	1.00	1.00	5.00	2.00
Number of customers	40%	3.00	3.00	1.00	2.00	5.00	5.00	3.00
Number of employees/engineers	20%	3.00	4.00	5.00	1.00	2.00	5.00	2.00

All scores are based on a scale of 0 (weak) to 5 (strong).
*Indicates a nonparticipating vendor

Source: Forrester Research, Inc. Unauthorized reproduction, citation, or distribution prohibited.

Vendor Offerings

Forrester included 15 vendors in this assessment: Amazon Web Services (AWS), C3 AI, Cloudera, Databricks, Dataiku, DataRobot, Google, H2O.ai, IBM, Microsoft, Palantir, RapidMiner, RStudio, SAS, and TIBCO Software (see Figure 3).

Figure 3

Evaluated Vendors And Product Information

Vendor	Product evaluated	Product version evaluated
Amazon Web Services	Amazon SageMaker	
C3 AI	C3 AI Application Platform, C3 AI Studio, C3 AI Ex Machina	
Cloudera	Cloudera Data Platform, Cloudera Machine Learning Data Service	
Databricks	Databricks Lakehouse Platform	
Dataiku	Dataiku	v10
DataRobot	DataRobot AI Cloud	8.0
Google	Vertex AI	
H2O.ai	H2O AI Cloud	v22.01.3
IBM	IBM Watson Studio on Cloud Pak for Data	v4.x
Microsoft	Azure Machine Learning, Azure Cognitive Services, Azure Open AI Service	
Palantir	Palantir Foundry	
RapidMiner	The RapidMiner Platform (Studio and AI Hub)	9.10
RStudio	RStudio Team (RStudio Workbench, RStudio Connect, RStudio Package Manager)	
SAS	SAS Visual Machine Learning	Viya 4
TIBCO Software	TIBCO Spotfire, TIBCO Data Science Team Studio, TIBCO ModelOps, TIBCO Statistica Expert — Data Science, TIBCO Streaming	

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Vendor Profiles

Our analysis uncovered the following strengths and weaknesses of individual vendors.

Leaders

- **C3 AI has a transformative vision for enterprise AI — from data centers to derricks.** At a time when most vendors focus on tools for data scientists, C3 AI has always envisioned a platform approach to AI. Ahead of its time, C3 AI's strategy is to make AI application-centric by building a growing library of industry solutions, forging deep industry partnerships, running in every cloud, and facilitating extreme reuse through common data models. C3 AI went public in December 2020 and has used the proceeds to strengthen all aspects of the business including R&D, marketing, sales, and partnerships. If the company can accelerate industry partnerships for both solutions and go-to-market, it could become the de facto AI platform standard for the world's most complex industries.

  C3 AI has strengths in data ingestion, preparation, training, deployment, and monitoring. Its C3 "type system" enables solution architects to define a sophisticated data model that represents business use cases that can be reused by multiple projects. Areas of improvement include model evaluation and explainability, additional differentiated algorithmic methods, and more scalable training architecture. Reference customers appreciate the scalability of the platform and its ability to bring together data science, legacy IT, and operational technology to produce AI applications. C3 AI is a solid choice for enterprises that want to both leverage C3 AI's industry solution accelerators and build bespoke solutions.

- **Palantir Technologies forges a resilient platform for complex, critical AI use cases.** Palantir is rooted in building data-driven intelligence applications for complex, high-value government and commercial use cases. The company went public less than two years ago and is aggressively broadening its market appeal across industries. Palantir's AI solution-centric vision makes it an attractive platform for enterprises that wish to implement AI quickly. The company is also expanding both technology and implementation partnerships that will simultaneously accelerate sales while providing implementation scale. Palantir should improve transparency in its pricing for both initial implementation and additional use cases.

  Palantir has strengths in data exploration, preparation, annotation, and training. Its workflow includes tools for business users to define requirements upfront. Areas of improvement include a plug-in framework to enable partners to add platform capabilities. Reference customers appreciate the breadth of capabilities within the

platform, particularly for the security and governance of ML which is critical in many environments. Palantir is a solid choice for companies who have heavy data requirements and want to mix classical ML techniques with deep learning ML techniques to build complex AI solutions.

- **DataRobot rises swiftly to meet enterprise teams where they want to be.**DataRobot's customers appreciate the company's rise from a niche automated machine learning (AutoML) player to a full-lifecycle AI platform in short order through a combination of strategic acquisitions and organic hard work. Equally impressive is its go-to-market approach that has all the bases covered including helping companies just starting with AI to those wishing to accelerate already successful AI initiatives. DataRobot will have to put solid iron behind its recent launch of industry cloud to keep up with its most prominent competitors.

  DataRobot has strengths in its tooling and functionality in data preparation, model evaluation and explanation, ModelOps, and application building. The company has made several acquisitions over the past few years to quickly gain many of these platform capabilities. Areas of improvement include more tooling to augment and enrich data for modelling and a plug-in framework to make it easy for partners to add platform capabilities. Reference customers appreciate the low barrier to entry of adopting the platform and its ease of use, along with the model documentation and explainability. DataRobot is a solid option for enterprises that want a platform that has tooling for extended AI teams while simultaneously providing collaboration and scale to manage existing use cases and crank out new ones.

Strong Performers

- **Google's deep experience operationalizes AI but must enable more enterprise users.** Google's AI platform connects its investments in AI research to a scalable public cloud platform. Google was a Leader in The Forrester Wave™: AI Infrastructure, Q4 2021, and Google Vertex AI benefits from that underlying infrastructure. Vertex AI's planned enhancements to enable extended AI team members, not just data scientists, will make this offering even more competitive. Google Cloud Platform's (GCP) growing partner ecosystem will benefit Vertex AI (as well as all of GCP) by increasing the number of ready-to-implement AI solutions.

  Google has strengths in data preparation and world-class deep learning ML that includes AutoML for training models and AI as a service. Areas of improvement include deepening the link between relevant cloud service tools for data exploration and more GUI-based tooling for both model development and application development. Reference customers appreciate the integration with the

broader GCP, which allows it to bring the power of machine learning to applications like BigQuery. Google is a good choice for enterprises that plan to standardize on GCP and leverage Google's scalable infrastructure.

- **SAS has best-in-class tools for AI decisions but lacks momentum.** SAS continues to develop advanced tooling to build machine learning models and implement them into AI systems. SAS has continued to evolve both its offering and market approach to address the needs of users that have evolved radically over the past decade. With a strong vision for responsible and effective AI, as well as an eye toward supporting more niche needs for advanced AI, such as synthetic data, SAS continues to position itself as a thought leader in advanced analytics. However, SAS must provide more application development capabilities to appeal to extended AI teams that include developers, architects, and IT operations.

  SAS has strong capabilities for exploring and augmenting data, with outstanding tools and methods for training and evaluating models. Areas of improvement include platform architecture to increase ease of extensibility, as well as more comprehensive tooling to build applications. Reference customers appreciate SAS's reputation for deep knowledge in analytics and machine learning, along with the platform's performance capabilities. SAS is a good choice for those who want to do advanced data science and work with a vendor with deep research and innovation experience in the space.

- **AWS offers a magnetic AI platform but must integrate complementary services faster.** It's always "Day 1" at the world's largest cloud service provider. And it shows. Launched in 2017 as a humble data science notebook offer, Amazon Web Services (AWS) has continued to invest aggressively to the point where SageMaker is competitive with its cloud rivals (e.g., Azure and GCP) as well as the mainstream AI platform market. Recent additions include a no-code model building tool that addresses extended AI teams. AWS's strategy is ostensibly to make SageMaker so good that customers can happily keep AI projects and workloads on the company's public cloud platform. AWS's vision needs to expand to create another AI umbrella service that unifies the existing platform capabilities. The company also offers AI as a service that can be used by developers with no specific machine learning knowledge to use prebuilt AI as a service for use cases in text-to-speech, speech-to-text, image and video recognition, language translation, and natural language comprehension.

  AWS has strengths in AI as a service for text and image analysis, data annotation tools, inferencing, and security. For enterprises that have standardized on AWS, SageMaker fits the bill for coding data scientists and its new low-code tools extend AI to non-data scientists. Areas for improvement include better integrating other

AWS services for app development, model ops, and plug-in framework to make it easy for partners to add platform capabilities. Reference customers appreciate the breadth of features to build AI applications and the flexibility that being built on AWS provides. AWS is a good choice for existing AWS customers that wish to use data already on AWS to train models for AI applications.

- **IBM has a world-class AI platform, but Watson brand needs refreshing.** IBM launched Watson 22 years ago. Since then, the Watson brand moniker has been used to preface various IBM AI solutions, products, and services, including Watson Studio. The platform is rock-solid, but unfortunately, the promise of Watson was grossly oversold by IBM at the time. The Watson brand never really recovered. The product's vision is strong, focusing on enabling the entire flow of decisions in AI applications, while also keeping a strong keel of ethics and explainability. However, IBM must find a way to refresh or replace the Watson brand to win back hearts and minds to IBM as one of the world's leading names in AI.

  IBM has strengths in data management, tools, solution accelerators, security, and runtime flexibility. IBM's platform benefits from years of innovation and a deep understanding of the AI development lifecycle. Areas of improvement include capabilities for building applications: more integrated tooling and providing a plug-in framework to make it easy for partners to add platform capabilities. Reference customers appreciate the tooling for building customized models and the capability to directly build out business decisions within the platform. IBM is a good choice for enterprises looking for a well-designed platform that can connect data science, machine learning, and business-rules decisions for extended AI teams.

- **Dataiku connects every persona to AI but needs to balance breadth with depth.** Dataiku's strategy is to make AI creators and consumers out of everyone in an organization. The platform was designed for all of the roles on AI teams starting from the business user right over to IT ops. Every capability in the platform is thoughtfully designed to include collaboration touchpoints for extended teams. By bridging the gap between business intelligence and AI, Dataiku has strongly positioned itself as a platform than can be used by hundreds, if not thousands, of people within an organization. To continue its success, Dataiku's planned enhancements will deepen its appeal for data scientists, ML engineers, and application developers.

  Dataiku has strengths in tooling for data exploration and model development, regardless of preference for code or GUI interfaces. Its thoughtful governance capabilities connect the last mile of AI by allowing collaboration and coordination on model approvals, monitoring, and compliance governance. Areas of

improvement include its native security capabilities, as well as the targets and performance of model inferencing. Reference customers appreciate the tooling that provides self-service and collaboration for many personas across the ML lifecycle. Dataiku is a good choice for enterprises who want to assemble and build AI applications with input and collaboration from every stakeholder, while still being able to manage processes and governance.

- **TIBCO brings streaming and BI to industrial AI but should enable more tech partners.** TIBCO Software has a comprehensive portfolio of platform capabilities that enables AI teams to build both real-time AI applications and gain insights. The company has tight integrations and proven customer implementations of TIBCO Streaming and TIBCO Spotfire working in unison with TIBCO Data Science. TIBCO has a solid partner ecosystem but should redouble its efforts to recruit partners to build industry-specific AI solutions on its platform.

  TIBCO has strengths in tooling, data exploration and preparation, ModelOps, and security. Its tooling includes code, no code, and AutoML and benefits from its rich design expertise in TIBCO Spotfire. Areas of improvement include more tooling and functionality to support performance in model training and in explaining and evaluating models. Reference customers appreciate TIBCO's frictionless integration with Spotfire to create real-time dashboards and its deep experience in high-value AI use cases, such as complex manufacturing and financial services. TIBCO is a good choice for enterprises wishing to build high-value, complex AI solutions that require real-time automation and/or visualization for human decision-makers.

- **Microsoft offers a one-stop-shop cloud solution but must unify its message.** Azure Machine Learning offers tools to build and manage bespoke machine learning projects using managed Jupyter notebooks, Azure Machine Learning Designer (for drag-and-drop ML pipelines), and an automated machine learning UI. Microsoft also offers Azure Cognitive Services that developers can use with no specific machine learning knowledge to use prebuilt AI as a service for use cases in speech, language, vision, and decision. Developers and data scientists can also use Azure's OpenAI Service in preview to experiment with the most sophisticated language model technology in the world. With so many entry points, Microsoft needs to better clarify its product vision to show enterprises how the platform capabilities will be unified.

  Microsoft's current offering has strengths in AI-as-a-service, offering some novel training methods, data annotation tools, inferencing, and security. Areas for improvement include better integrating with other Azure services for app development, data management, and partner plug-ins. AI teams can use Azure's

vast catalog of services to create a unique platform architecture as the basis for AI applications. Azure Machine Learning is a good choice for enterprises that have already made an enterprise decision to standardize on Azure cloud and/or wish to accelerate use cases supported by Azure Cognitive Services. Microsoft declined to participate in the full Forrester Wave evaluation process.

- **Databricks electrifies data-centric workloads but must also empower more personas.** Databricks says that its Lakehouse Platform "unifies data warehousing and AI use cases on a single platform." This makes sense since most AI solutions rely on machine learning models that in turn rely on quality data. Databricks data-centric architecture is attractive to many enterprises because data engineering is often cited as a key challenge. However attractive a unified platform is, enterprises are increasingly demanding more tools for extended AI teams and often make data warehouse/lake decisions independently of AI platform choices, and Databricks' vision must rise to meet that demand.

  Databricks has strengths in the foundations enabling customers to build AI applications: data exploration and prep, training, performance, and ModelOps. Areas of improvement include solution accelerators, tools, and annotation. Reference customers appreciate the flexibility of the platform to integrate into their existing data pipelines, enabling their customers to scale their ML projects as needed. Databrick is a good option for enterprises that want an AI platform that unifies data and machine learning and/or is based on the very popular open source Apache Spark, Delta Lake, and MLfLow.

Contenders

- **H2O.ai knows the nuances of successful ML but must shift focus to platform buyers.** H2O.ai has been a pioneer in machine learning since the get-go. The company launched open source ML algorithms that leveraged distributed computing architectures and Driverless AI (AutoML) that sophisticated data scientists could use. That's a solid foundation to build an AI platform on. But to be successful in the enterprise AI platform market, H2O.ai must use that foundation to quickly build tooling for extended AI teams and make the platform more attractive to technology partners.

  H2O.ai has strengths in training, inferencing, and ModelOps. AI teams using Driverless AI can be significantly more productive than straight code-first data science teams. Areas of improvement include data management, security, and pluggable architecture for partners. Reference customers appreciate the Driverless AI functionality to accelerate AI projects, and H2O.ai's partnership as a vendor for ensuring success. H2O.ai is a good choice for teams that want to use

world-class AutoML for classification and deep learning that includes sophisticated ModelOps functionality.

- **Cloudera offers a unified data platform but must now do the same for apps.** AI projects rise and fall on the availability of timely, clean, and silo-busting data sets. The Cloudera Data Platform (CDP) offers comprehensive data management tools, governance, and engines that are pre-requisites to creating a repeatable and scalable enterprise AI capability. With CDP as the foundation, Cloudera Machine Learning and Cloudera Data Science Workbench provide code-first data scientists with the tools they need to train, deploy, and manage machine learning models to create AI applications. Cloudera's vision for AI is still data-centric at a time when enterprises are becoming AI application-centric. Potential developments that Cloudera can use to attract new enterprise customers include expanding its planned enhancements to include a pluggable app framework for AI solutions, addressing a broader set of enterprise user personas, and making it easier for potential customers to trial CDP in a self-service fashion.

  Cloudera has strengths in data management, tools for coding-first data scientists, runtime flexibility, and security. AI teams using CDP as a foundation can focus on model building and management without having to worry about any impedance mismatch between the data engineering function and model management. Areas for improvement include filling tooling gaps for no-code AI team members (particularly for augmenting data and building/managing features) and improving ModelOps capabilities. Reference customers appreciate the ease of use of the platform for data engineer/data scientist collaboration, enabling them to leverage the power of the broader Cloudera platform. Cloudera is a solid choice for enterprises that want a unified data platform not only for AI but for other functions such as business intelligence, streaming data, and other analytic applications.

- **RapidMiner pivots to enterprise AI but must catch up.** Since its founding in 2007, RapidMiner has become well-known and well-loved for its ease of use and comprehensive set of analytical methods. However, RapidMiner (and every vendor in this space) faces unprecedented competition from well-funded AI startups. With fewer than 200 employees, RapidMiner now faces rivals with hundreds of employees in R&D, sales, and marketing. The company has created AI Hub and made other changes to focus its go-to-market strategy on its enterprise AI platform, but without additional across-the-board investments, the company will struggle to compete as an enterprise AI platform.

  RapidMiner has one of the strongest capabilities in tools for training models and operationalizing them in production among those in the evaluation. Areas of improvement include more comprehensive tooling for enabling the building of

applications and improving performance potential for model training. Reference customers appreciate how easy the platform is to acquire and implement across multiple environments and the straightforward integrations into other tools. RapidMiner is a good choice for companies who want to quickly get their hands into AI with a straightforward and easy-to-access platform.

- **RStudio is the go-to open source data science IDE but needs more platform capabilities.** RStudio's focus is on bringing the best of open source data science to enterprises that want to safely leverage open source while providing data scientists with the most productive integrated development environment (IDE) for coding. RStudio is not just about the popular data science programming language "R." It also supports Python developers with equal vigor. The company has impressive growth because of its attractive price point and huge base of open source-savvy data scientists. However, the enterprise market is looking for more platform capabilities and tooling that is not necessarily emerging from open source. RStudio needs to push hard to expand its platform pluggability to maintain competitiveness.

  RStudio has strengths in their tooling for code-first data scientists, and in their design and runtime options for insights and applications. Areas of improvement include tooling for more enterprise personas and stronger performance for training and inferencing. Reference customers appreciate being able to easily bridge the gap from data science to production applications while remaining in an open source environment with enterprise support. RStudio is a good choice for enterprises building on top of open source tools that want to keep using those tools with enterprise-level execution.

Evaluation Overview

We evaluated vendors against 25 criteria, which we grouped into three high-level categories:

- **Current offering.** Each vendor's position on the vertical axis of the Forrester Wave graphic indicates the strength of its current offering. Key criteria for these solutions include data, training, inferencing, applications, and architecture.

- **Strategy.** Placement on the horizontal axis indicates the strength of the vendors' strategies. We evaluated product vision, market approach, performance, planned enhancements, partner ecosystem, and commercial model.

- **Market presence.** Represented by the size of the markers on the graphic, our market presence scores reflect each vendor's revenue, number of customers, and number of employees/engineers.

Vendor Inclusion Criteria

Forrester included 15 vendors in the assessment: Amazon Web Services (AWS), C3 AI, Cloudera, Databricks, Dataiku, DataRobot, Google, H2O.ai, IBM, Microsoft, Palantir, RapidMiner, RStudio, SAS, and TIBCO Software. Each of these vendors has:

- **A comprehensive, differentiated AI/ML platform solution.** Vendors must offer a platform that provides tools and capabilities for AI teams to build, deploy, orchestrate, and manage ML models that are the nuggets of intelligence needed to build AI applications.

- **Actively marketed as an AI/ML platform for enterprise customers.** Vendors offer solutions that are specifically marketed to target enterprise customers shopping for an AI/ML platform to build custom AI solutions for the broadest number of use cases.

- **Install base and revenue requirements.** The vendor must have at least 10 paying, named enterprise customers using the version of the AI/ML platform that we evaluated. The vendor must also have provided Forrester with three customer references that were willing to fill out a confidential survey. Included vendors must also have proven revenue generated by customer adoption of the vendor's AI/ML platform.

- **Sparked client inquiries and/or has market momentum.** Forrester clients have discussed the vendors and products through inquiries; alternatively, the vendor may, in Forrester's judgment, warrant inclusion or exclusion in this evaluation because of technology trends, market presence, or lack of client interest.

Supplemental Material

Online Resource

We publish all our Forrester Wave scores and weightings in an Excel file that provides detailed product evaluations and customizable rankings; download this tool by clicking the link at the beginning of this report on Forrester.com. We intend these scores and default weightings to serve only as a starting point and encourage readers to adapt the weightings to fit their individual needs.

The Forrester Wave Methodology

A Forrester Wave is a guide for buyers considering their purchasing options in a technology marketplace. To offer an equitable process for all participants, Forrester follows The Forrester Wave™ Methodology Guide to evaluate participating vendors.

In our review, we conduct primary research to develop a list of vendors to consider for the evaluation. From that initial pool of vendors, we narrow our final list based on the inclusion criteria. We then gather details of product and strategy through a detailed questionnaire, demos/briefings, and customer reference surveys/interviews. We use those inputs, along with the analyst's experience and expertise in the marketplace, to score vendors, using a relative rating system that compares each vendor against the others in the evaluation.

We include the Forrester Wave publishing date (quarter and year) clearly in the title of each Forrester Wave report. We evaluated the vendors participating in this Forrester Wave using materials they provided to us by April 26, 2022, and did not allow additional information after that point. We encourage readers to evaluate how the market and vendor offerings change over time.

In accordance with The Forrester Wave™ And New Wave™ Vendor Review Policy, Forrester asks vendors to review our findings prior to publishing to check for accuracy. Vendors marked as nonparticipating vendors in the Forrester Wave graphic met our defined inclusion criteria but declined to participate in or contributed only partially to the evaluation. We score these vendors in accordance with The Forrester Wave™ And The Forrester New Wave™ Nonparticipating And Incomplete Participation Vendor Policy and publish their positioning along with those of the participating vendors.

Integrity Policy

We conduct all our research, including Forrester Wave evaluations, in accordance with the Integrity Policy posted on our website.

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