THIS IDC MARKETSCAPE EXCERPT FEATURES DATAROBOT

FIGURE 1

IDC MarketScape Worldwide Advance Machine Learning Software Platforms Vendor Assessment

Source: IDC, 2020

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Please see the Appendix for detailed methodology, market definition, and scoring criteria.

IN THIS EXCERPT

The content for this excerpt was taken directly from IDC MarketScape: Worldwide Worldwide Advanced Machine Learning Software Platforms 2020 Vendor Assessment (Doc # US45358820). All or parts of the following sections are included in this excerpt: IDC Opinion, IDC MarketScape Vendor Inclusion Criteria, Essential Guidance, Vendor Summary Profile, Appendix and Learn More. Also included is Figure 1.

IDC OPINION

In this document, IDC has evaluated vendors offering the tools and frameworks for developing advanced machine learning (ML) models and solutions.

To be clear about these topics, it helps understand how IDC defines machine learning and related processes:

- **Machine learning** is a subset of artificial intelligence (AI) techniques that enables computer systems to learn from previous experience (i.e., data observations) and improve their behavior for a given task. It is the process of creating a statistical model from various types of data that performs various functions without having to be programmed by a human.

- **Neural networks** (NNs) or artificial NNs are a subset of ML techniques, loosely inspired by biological neural networks. They are usually described as a collection of connected units, called artificial neurons, organized in layers.

- **Deep learning (DL)** is a subset of NNs that makes the computational multilayer NN feasible. Typical DL architectures are deep neural networks (DNNs), convolutional neural networks (CNNs), recurrent neural networks (RNNs), generative adversarial networks (GAN), and so forth.

Collectively, we define these topics as aspects of advanced machine learning. Advanced machine learning platforms provide a range of ML methods primarily working with structured and semi-structured data to create predictive and prescriptive models that are then used in applications.

Organizations across a variety of industries are using these techniques as a catalyst for business process disruption, digital transformation, and the creation of new economies of scale. There is an increasing influence of machine learning in business applications, with many solutions already implemented and many more being explored. Enterprises are embracing machine learning applications across all lines of business. Implementations vary across a breadth of use cases from intelligent financial closing to sales next best action and from production recommendations to personalized recommendations for learning and career. Large healthcare organizations are examining machine learning to predict illness and treatment to help physicians and payers intervene earlier, predict population health risk by identifying patterns and surfacing high risk markers and model disease progression and more. Application of machine learning in the management of banking risks such as credit risk, market risk, operational risk, and liquidity risk is being explored. For the modern marketing team, ML allows you to uncover predictive knowledge. By harnessing data analyzing ability, your team can use ML to your advantage to engage with hyper-targeted prospects at multiple touchpoints along the sales funnel. These are just a few of the hundreds of use cases that organizations are
beginning to examine as their marketplaces and competition begin to embrace advanced machine learning and deep learning models and applications.

At the same time as these advanced machine learning-enabled applications are beginning to emerge, we are seeing a growing market for machine learning tools and solutions based on open source running in a variety of deployments: on premises, private cloud, public cloud, and even at the edge. A powerful combination of motivated, capable developers; multiple open source community development models and vibrant open source community; and the need and desire for agile just-in-time advanced machine learning software development and execution environments has led to a growing market segment producing advanced machine learning/deep learning software libraries and tools.

**IDC MARKETSCAPE VENDOR INCLUSION CRITERIA**

This IDC MarketScape evaluated advanced machine learning platforms. Advanced machine learning platforms provide a range of ML methods primarily working with structured and semi-structured data to create predictive and prescriptive models that are then used in applications. These platforms facilitate the development of advanced machine learning models and applications. Advanced machine learning platforms can also include development, training, and deployment tools, including pretrained models and automatic machine learning methods that help developers and business users to experiment, automate machine learning, and build and deploy artificial intelligence models into production. The platforms provide functionality to apply a broad range of supervised, unsupervised, reinforcement, and transfer learning methods into models and applications put into production and can be deployed in several ways.

The inclusion criteria are as follows:

- The offering must be commercially available for use as a single product or a suite of services and purchased by customers for at least one year (i.e., calendar year 2019).
- It must have the ability to develop custom advanced machine learning models and APIs or microservices that developers can include in their applications. It should also support third-party recipes.
- The product must have at least 10 commercial customers that used this product in calendar year 2019.
- The product must be offered and available on a worldwide basis.
- The offering must include development tools for creating, developing, testing, and deploying advanced machine learning applications and models into production. The offering should include the following capabilities:
  - Must support data collection/ingestion natively in the platform or through third-party integration
  - Experimentation and feature identification/extraction
  - Building models
  - Training models
  - Model tuning
  - Deploying models
- The vendor must have at least $25 million in software revenue in calendar year 2019.
ADVICE FOR TECHNOLOGY BUYERS

The emergence of tools, frameworks, and libraries that provide services for machine learning and deep learning is setting the stage for a low-cost enabler of machine learning-enabled applications to be built by developers today. Organizations are looking at these services to replace rule- or heuristics-based approaches that must be extensively programmed and maintained today. The combination of high-performance compute resources, tremendous agility to adapt resources to needs, and cloud-based frameworks and libraries for machine learning/deep learning is solving problems and challenges without the need to resort to traditional heuristic programming.

The vendors evaluated and profiled in the sections that follow are being used for an ever-wider array of use cases, from pricing optimization to predictive analytics and product recommendations to intelligent accruals and reconciliations. Machine learning/deep learning is a key component of most AI applications and is also being added to many enterprise applications. Improvements in the variety, efficiency, and reliability of machine learning will make these applications more usable and stable and help increase their popularity.

These vendors offer a very wide array of tools and capabilities for collecting, exploring, and evaluating data for machine learning, identifying features, choosing, and developing algorithms and models as well as testing and deploying models into production. A number of these vendors also offer capabilities as an integrated or standalone offering for creating and determining the explainability and trust of advanced machine learning models. Some of them also support monitoring capabilities to detect model drift and other anomalous results.

IDC believes that the market for AI in general and advanced machine learning platforms in particular is evolving at a very rapid pace and that the next two to four years will be pivotal for these vendors as the techniques and approaches for developing and deploying models advance. Organizations should be aware of this and carefully select a vendor or vendors that they believe will evolve along with the market. Some of the key areas to consider:

- The offering helps you democratize AI — serves the needs of both the advanced machine learning developers/data scientists and the business analysts with intuitive tools and techniques.
- The offering is open and helps you extend the capabilities with the ecosystem of partners/integrators.
- The offering supports natively or through third-party integrations' ability to deploy models at scale from core to edge to cloud, building on and integrating with existing DevOps tools and best practices.
- The offering supports natively or through third-party integrations the foundational elements of trustworthy AI – fairness, explainability, adversarial robustness, data lineage, and transparency to help mitigate associated business risks.
- The offering is optimized for performance and cost to balance the needs of use cases and deployment variances.
This section briefly explains IDC’s key observations resulting in a vendor’s position in the IDC MarketScape. While every vendor is evaluated against each of the criteria outlined in the Appendix, the description here provides a summary of each vendor’s strengths and challenges.

**DataRobot**

DataRobot is positioned in the Leaders category in the 2020 IDC MarketScape for worldwide advanced machine learning software platforms.

DataRobot provides a full suite of enterprise machine learning tools and services. Over the past several years, it has grown organically and via acquisition to provide tools for the full advanced machine learning life cycle. Its enterprise advanced machine learning platform democratizes data science with end-to-end automation for building, deploying, and managing machine learning models.

DataRobot offers two core products for model building, training, and tuning called Automated Machine Learning and Automated Time Series. Both products are aimed at data scientists and citizen data scientist user personas. DataRobot’s automated machine learning and automated time series products automate and optimize feature engineering according to the requirements of each machine learning algorithm and problem type. DataRobot also offers automated feature discovery. DataRobot offers data scientists the flexibility, control, extensibility, and transparency they require. For business analysts, DataRobot offers an interactive user interface, with code-free options for new developers.

Based on its Paxata acquisition, DataRobot has fully integrated data prep capabilities to provide for machine learning data preparation and data engineering. As an integral part of the overall platform, DataRobot Data Prep provides users with the capabilities to explore, profile, clean, enrich, and shape diverse data into training data sets for machine learning model development and deployment. The data preparation process is dramatically accelerated through an intuitive and visual point-and-click interface.

DataRobot includes an enterprise MLOps product for deploying, monitoring, and governing models of all varieties. DataRobot MLOps automatically provisions resources for models, manages zero downtime model replacements, and records a full history of model performance. Every model in DataRobot is versioned, stored, and linked to the training data set that was used to build it.

Its 6.0 release included advancements for visual AI and automated deep learning and MLOps enhancements as well as integration with its ParallelM acquisition for putting machine learning models into production and Paxata for data preparation. The latest 6.1 release includes capabilities for location AI and anomaly detection for time series data as well as capabilities for explainability, trust, and model confidence. DataRobot also offers capabilities for determining and tracking the value of machine learning models based on ROI and other measures.

**Strengths**

Many organizations that are using DataRobot have indicated that they selected it due to a successful proof of concept as a starting point. In addition, its range of capabilities, community, and corporate support were all cited as reasons that customers chose DataRobot as their preferred provider. DataRobot provides a range of services that make it easier for both data scientists and machine learning developers to work with their data and discover features and algorithms that work best for their models. Experimentation and testing are simple to do, and the platform provides a full set of tools.
for deployment and production. DataRobot focuses on companies that are serious about realizing a return on their AI investments, and many see value ranging from tens of millions to up to hundreds of millions.

**Challenges**

While DataRobot offers a full suite of features and capabilities for building advanced machine learning applications, there are gaps. Some customers have indicated that while they liked the platform overall, some of their challenges using it included difficulties iterating and testing machine learning models. They also identified that the cost of development and production could be a concern though recent (2020) changes to its pricing model have made the platform accessible to more users. As DataRobot has grown through acquisition, integration of the various tools and IP from the acquired companies needs to continue to create a seamless experience for developers and data scientists.

**Consider DataRobot When**

Organizations should consider DataRobot when they are looking for a full advanced machine learning life-cycle service that provides tools and assistance from the data collection through to production and deployment. DataRobot offers international support, services, and assistance to their customers and has seen significant growth over the past several years.

**APPENDIX**

**Reading an IDC MarketScape Graph**

For the purposes of this analysis, IDC divided potential key measures for success into two primary categories: capabilities and strategies.

Positioning on the y-axis reflects the vendor’s current capabilities and menu of services and how well aligned the vendor is to customer needs. The capabilities category focuses on the capabilities of the company and product today, here and now. Under this category, IDC analysts will look at how well a vendor is building/delivering capabilities that enable it to execute its chosen strategy in the market.

Positioning on the x-axis, or strategies axis, indicates how well the vendor’s future strategy aligns with what customers will require in three to five years. The strategies category focuses on high-level decisions and underlying assumptions about offerings, customer segments, and business and go-to-market plans for the next three to five years.

The size of the individual vendor markers in the IDC MarketScape represents the market share of each individual vendor within the specific market segment being assessed.

**IDC MarketScape Methodology**

IDC MarketScape criteria selection, weightings, and vendor scores represent well-researched IDC judgment about the market and specific vendors. IDC analysts tailor the range of standard characteristics by which vendors are measured through structured discussions, surveys, and interviews with market leaders, participants, and end users. Market weightings are based on user interviews, buyer surveys, and the input of IDC experts in each market. IDC analysts base individual vendor scores, and ultimately vendor positions on the IDC MarketScape, on detailed surveys and interviews with the vendors, publicly available information, and end-user experiences in an effort to
provide an accurate and consistent assessment of each vendor's characteristics, behavior, and capability.

**Market Definition**

**Advanced Machine Learning Software Platforms**

Advanced machine learning platforms are a segment of the AI software platforms market. Advanced machine learning platforms provide a range of ML methods primarily working with structured and semi-structured data to create predictive and prescriptive models that are then used in applications. These platforms facilitate the development of advanced machine learning models and applications. Advanced machine learning platforms can also include development, training, and deployment tools, including pretrained models and automatic machine learning methods that help developers and business users to experiment, automate machine learning, and build and deploy artificial intelligence models into production. The platforms provide functionality to apply a broad range of supervised, unsupervised, reinforcement, and transfer learning methods into models and applications put into production and can be deployed in several ways.

**Related Research**


**Synopsis**

This IDC study represents a vendor assessment of the advanced machine learning software platforms market through the IDC MarketScape model. This assessment discusses both quantitative and qualitative characteristics that provide guidance about advanced machine learning software platform vendors and their offerings. This IDC MarketScape covers a variety of vendors participating in the advanced machine learning software platforms market. The evaluation is based on a comprehensive and rigorous framework that assesses vendors relative to the criteria and to one another and highlights the factors expected to be the most influential for success in the market in both the short term and the long term.
"Success in the rapidly evolving AI software platforms market requires advanced machine learning software platform vendors to continue to innovate and provide tools to help customers accelerate development and deployment and monitoring of machine learning models," says David Schubmehl, research director, AI Software Platforms at IDC.

"AI adoption is past the tipping point. The rapid rise of digital transformation has pushed AI to the top of the corporate agenda and machine learning infusion is ubiquitous across all business processes," adds Ritu Jyoti, program vice president for AI Research. "However, as we accelerate into the mainstream, organizations will need to embrace innovative machine learning platforms to realize AI/ML at scale and enjoy sustainable competitive advantage."
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