IDC MarketScape

IDC MarketScape: Worldwide General-Purpose Artificial Intelligence Software Platforms 2019 Vendor Assessment

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THIS IDC MARKETSCAPE EXCERPT FEATURES: SAS

IDC MARKETSCAPE FIGURE

FIGURE 1

IDC MarketScape Worldwide General-Purpose Artificial Intelligence Software Platforms Vendor Assessment

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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 General-Purpose Artificial Intelligence Software Platforms 2019 Vendor Assessment (Doc # US43065418). 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

General-purpose artificial intelligence (AI) software platforms are helping organizations with their use in developing predictive and prescriptive applications that offer predictions, recommendations, and advisory opinions. Using general-purpose AI software platforms, organizations are developing and putting into production process and industry applications that automatically learn, discover, and make recommendations or predictions. The disciplines where artificial intelligence/machine learning (ML) algorithms and technologies can significantly impact and organization may span a variety of areas include finance, sales, risk management, R&D, procurement, HR, marketing, and performance management. Anti-money laundering, patient outcomes, telco churn, retail pricing, asset management, and logistics are just some examples of industry applications where AI/ML technologies have proven to be useful.

A number of vendors have developed suites of APIs and microservices covering a wide range of AI/ML capabilities and have made them available to client as on-premises, public cloud, and hybrid cloud offerings. These vendors also have developed tools and frameworks that allow developers to collect and integrate data, do analysis, perform experimentation, develop models, and then test and deploy them into production. This IDC MarketScape is IDC’s effort to identify and evaluate these general-purpose AI software platforms that have been in the market since the beginning of 2018.

In conducting this exercise, we have talked to many vendors and their customers and have learned a great deal about the state of operational AI maturity. Overall, customers are getting excellent value from their AI software platforms and see their vendors as partners in helping develop and put these applications in production as well as providing tools to help measure the effectiveness and return on investment of these applications. Customers are excited about the future of AI/ML applications and most we spoke are looking forward to developing new solutions and capabilities to help their organization in the near future. We hope that readers of this evaluation find it useful and we look forward to future updates on other categories of AI software platforms and on a future version of this category.

IDC MARKETSCAPE VENDOR INCLUSION CRITERIA

This IDC MarketScape evaluated general-purpose artificial intelligence platforms. General-purpose artificial intelligence software platforms provide the functionality to analyze, organize, access, and provide advisory services based on a range of structured and unstructured information. These platforms offer APIs and microservices to build AI applications. These services break down into three primary categories:
▪ **User/data interaction.** The services in this category include speech recognition, natural language processing, image and video analysis and extraction, natural language generation, text to speech, and question and answer processing.

▪ **Knowledge representation.** The services in this category include automated content aggregation, knowledge extraction, knowledge models and ontologies, relationship mining, knowledge base curation, and other similar capabilities.

▪ **Learning.** The services in this category include the tools, models, and algorithms used to build machine learning capabilities using approaches such as supervised and unsupervised machine learning, reinforcement learning, general-purpose neural networks, and adversarial networks.

Vendors offer these services along with the tools and methodologies to incorporate these capabilities into AI applications. For this evaluation, vendors had to offer capabilities in all three categories. In addition to offering these services, vendors had to adhere to the following:

▪ The offering had to be commercially available for use and purchase by customers for at least one year.

▪ It must include APIs or microservices that developers can include in their applications.

▪ It must include APIs or microservices for user-data interaction, knowledge representation, and machine learning (see the Market Definition section).

▪ The product must have at least 10 commercial customers that used this product in 2018.

▪ The product must be offered and available on a worldwide basis.

▪ The offering must include development tools for creating, developing, testing, and operationalizing AI applications and models.

**ADVICE FOR TECHNOLOGY BUYERS**

IDC believes there are several steps organizations can take to get started developing AI applications:

▪ **Start small.** Focus on the automation of processes where your organization has enough data to produce accurate models. For many organizations, finding, organizing, and utilizing that data is a major challenge. For example, to create a predictive maintenance application, the data required includes detailed parts information as well as enough past failure history to develop accurate learning models. An automated customer service agent application needs CRM information about customers, their past purchases, and quality information about the products they're buying. It will also need data from FAQs and other customer-related publications.

▪ **Create an information access and analysis strategy to utilize all important data sources.** It is surprising how few organizations have mapped out an information architecture showing the linkages between individual pieces of data and an organization's overall purpose or mission. This mapping involves understanding how data/information supports a decision to be made, which supports a given business process/function in support of an organization's purpose. With this architecture in place, you can develop an information access plan and strategy and identify whether you have access to all the critical data needed to support more effective decision making.

▪ **Ensure that the AI/ML application that you plan to develop will be able to help achieve the desired business outcome and/or issue that you plan to overcome utilizing AI and ML.** Engage in-house subject matter experts, the right stakeholders, and consulting partners with the
germane skill sets to help develop the use cases that align with the desired business outcome. Make sure to include past project experiences in your design thinking approach, and, if available, include predefined use cases that have been developed for peers within your industry to help develop the optimal use cases for the desired outcome. This process should involve continuous innovation and prototyping until the right use cases have been developed.

- **Short list a set of AI software platform providers and informally discuss with them your plans and proposed outcomes for the AI applications you're developing.** Seek their feedback and determine whether modifying your plans is justified and whether their AI platform provides the services needed to produce the desired outcome.

- **Use the right tools for the job.** Many vendors are developing full AI/ML life-cycle products that can use open source technologies in concert with vendor-supplied technologies and tools to accelerate experimentation, development, and production of AI applications.

- **Develop KPIs to measure the success of your AI applications.** Many organizations never set benchmarks for before and after implementing AI applications, so it’s hard to determine what the return on investment is.

- **Build trust and explainability in from the start.** Given the issues around privacy and transparency, organizations should build digital trust and explainability into their AI applications from the beginning and monitor them to ensure that they stay trustworthy. At some point in the near future, organizations will have to adhere to regulations around their use of AI and developing this now will give them a head start.

**VENDOR SUMMARY PROFILES**

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.

**SAS**

SAS is positioned in the Leaders category in the 2019-2020 IDC MarketScape for general-purpose AI software platforms.

SAS has been delivering software for analytics for decades and the vendor believes that data doesn’t drive an organization, decisions do. SAS believes that for organizations to realize the benefits of digital transformation, they will need to improve the accuracy and velocity of both transactional and strategic decisions.

With the introduction of SAS Viya, its general-purpose AI platform, SAS has combined decisioning, data access, data preparation, AI/ML model building, selection, and experimentation together with capabilities for putting AI applications into production and running them at scale. SAS Viya is available across any cloud platform from AWS, Azure, Google, and Alibaba. Organizations can build artificial intelligence solutions by leveraging machine learning, deep learning, natural language processing (NLP), computer vision, forecasting, and statistics, using a visual interface to do so. In addition, SAS has embraced and incorporated open source languages and tools such as R, Python, and Jupyter Notebooks and integrated them into the SAS Viya product so that AI/ML developers and data scientists can utilize their learning and skills with these open source frameworks and languages.
**Strengths**

Customers liked that they could increase process automation and employee productivity with SAS Viya. SAS offers robust NLP capabilities based on its acquisition of Teragram in 2008 that has been enhanced and integrated into the SAS Viya platform. In addition, in a recent survey of AI software platform users, 46% of the respondents using SAS Viya indicated that they chose the platform due to lower cost. Finally, 61% of those users indicated that they were deploying their SAS AI application in the cloud.

**Challenges**

In a recent survey of AI software platform users, 37% of respondents using SAS Viya indicated that development can be time consuming and 34% found it challenging to get data into the SAS Viya platform. In addition, prebuilt and AutoML models are becoming more popular. Offering pretrained models would open SAS Viya to new types of customers.

**Consider SAS When**

Organizations that are already using SAS for analytics are natural customers for SAS Viya as they already have an ongoing relationship with the company. In addition, for applications that require the building of models that require both structured data and NLP or computer vision, SAS Viya should be considered. Finally, SAS Viya’s visual interface makes it easier for non-data scientists to work with and develop AI/ML models.

**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**

**General-Purpose Artificial Intelligence Software Platforms**

General-purpose artificial intelligence software platforms provide the functionality to analyze, organize, access, and provide advisory services based on a range of structured and unstructured information. These platforms facilitate the development of intelligent, advisory, and AI-enabled applications, including intelligent assistants that may mimic human cognitive abilities. The technology components of AI software platforms include text analytics, rich media analytics (such as audio, video, and image), tagging, searching, machine learning, categorization, clustering, hypothesis generation, question answering, visualization, filtering, alerting, and navigation.

General-purpose artificial intelligence software platforms are a subset of the overall AI software platforms. Other subsets include conversational AI platforms and advanced machine learning platforms. The artificial intelligence (AI) software platforms market has experienced steady growth over the past several years and most recently growing 26.6% to $2.6 billion in calendar year 2018.

General-purpose AI software platforms typically include knowledge representation tools such as knowledge graphs, triple stores, or other types of NoSQL data stores. These platforms also provide for knowledge curation and continuous automatic learning based on tracking past experiences. When these individual technology components are sold standalone, they are accounted for in other software functional markets such as content analytics and search, advanced and predictive analytics, and nonrelational database management systems (NDBMSs).

**LEARN MORE**

**Related Research**


**Synopsis**

This IDC study represents a vendor assessment of the general-purpose artificial intelligence (AI) software platforms market through the IDC MarketScape model. This evaluation does not include more specialized AI software platforms such as conversational AI platforms or advanced machine learning platforms. This assessment discusses both quantitative and qualitative characteristics that provide guidance about general-purpose AI software platform vendors and their offerings. This IDC MarketScape covers a variety of vendors participating in the general-purpose AI 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.

"As the AI software platforms market continues to mature, customers are looking for vendors that offer a wide range of APIs and services as well as tools to help them identify, develop, and productionize AI applications. Success in this rapidly evolving space requires AI software platform vendors to continue to innovate and provide production-ready AI APIs and microservices, tools to help customers accelerate development and deployment as well as continuing to invest in people, skills, IP, and partnerships to remain competitive," says David Schubmehl, research director, AI Software Platforms at IDC. "As more organizations move their use of AI from pilots and POCs to production, customers are increasingly looking for vendors to partner closely with them to ensure AI success," adds Hayley Sutherland, senior research analyst for AI Software Platforms. "This includes vendor capabilities like outcomes-based pricing, co-creation of use cases, and the development of accompanying KPIs and ROI models that reflect a deep understanding of the customer's business."
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