

Beat

Gartner's 2021 Magic Quadrant cites 'glut of innovation' in data science and ML

Louis Columbus

@LouisColumbus

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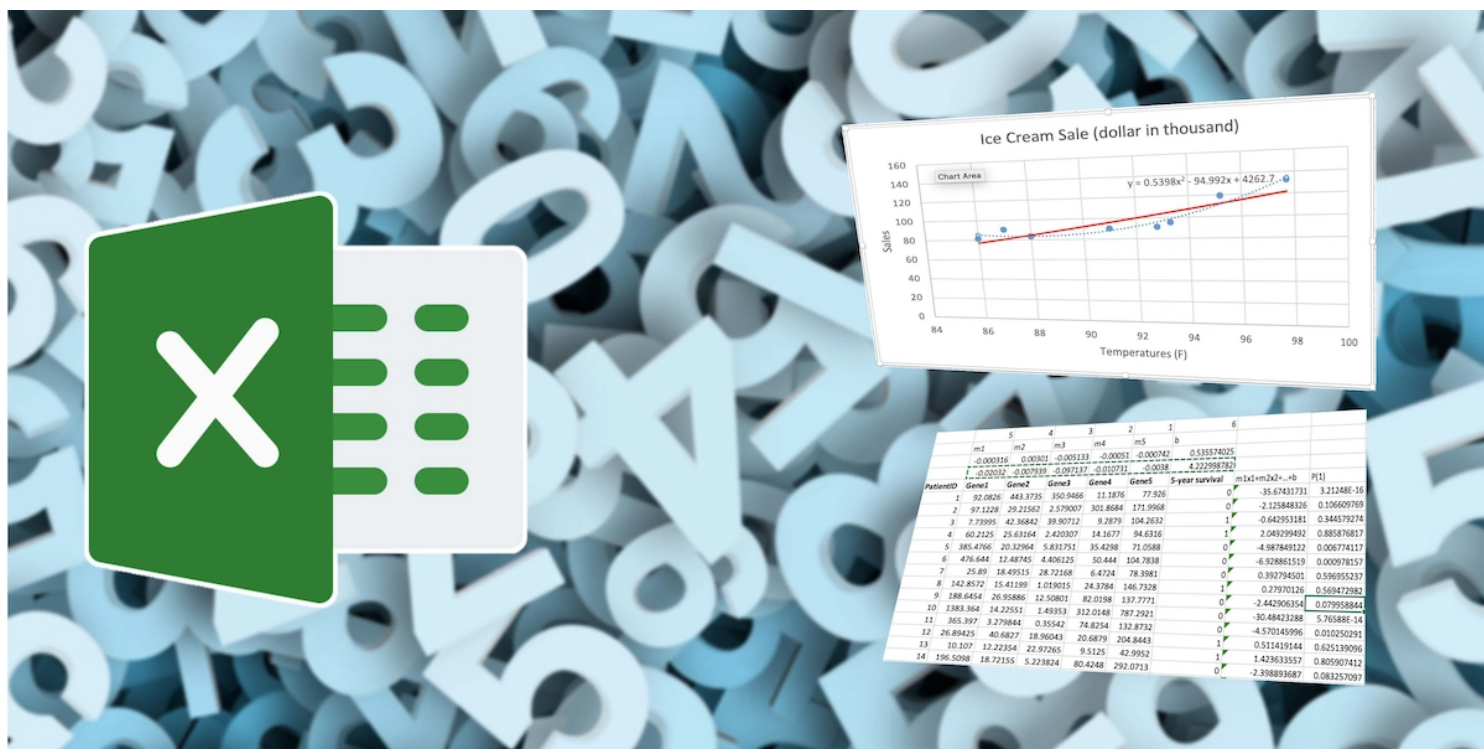


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Gartner's [Magic Quadrant report on data science and machine learning](#) (DSML) platform companies assesses what it says are the top 20 vendors in this fast-growing industry segment.

Data scientists and other technical users rely on these platforms to source data, build models, and use machine learning at a time when building machine learning applications is increasingly becoming a way for companies to differentiate themselves.

investments in DSML more practical. Companies should focus on developing new use cases and applications for DSML — the ones that are visible and deliver business value, Gartner said in the report released last week. Smart companies should build on successful early projects and scale them.

The report evaluates DSML platforms' scope, revenue and growth, customer counts,



- Responsible AI governance, transparency, and addressing model-based biases are the most valuable differentiators in this market, and every listed vendor is making progress in these areas.
- Google and Amazon are finally competing with Microsoft for supremacy in terms of DSML capabilities in the cloud. Amazon wasn't even included in last year's Magic Quadrant because it hadn't shipped its core product by the November 2019 cutoff date. The longest-standing big names in this sector — IBM, MathWorks, and SAS — are still holding their ground and innovating with modern offerings and adaptive strategies.
- Numerous smaller, younger, and mid-size vendors are in sustained periods of hypergrowth. The growing size of the market feeds startups at all phases of the data science lifecycle. Gartner observes that growing at the rate of the market actually means growing slowly.
- Alibaba Cloud, Cloudera, and Samsung DDS are included in the Magic Quadrant for the first time.
- The DSML platform software market grew by 17.5% in 2019, generating \$4 billion in revenue. It is the second-fastest-growing segment of the analytics and business intelligence (BI) software market behind modern BI platforms, which grew 17.9%. Its share of the overall analytics and BI market grew to 16.1% in 2019.
- The most innovative DSML vendors support various types of users collaborating on the same project: data engineers, expert data scientists, citizen data scientists, application developers, and machine learning specialists.

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There remains a “glut of compelling innovations” and visionary roadmaps, Gartner says.



differentiation, rather than pure execution. Gartner said key areas of differentiation include UI, augmented DSML (AutoML), MLOps, performance and scalability, hybrid and multicloud support, XAI, and cutting-edge use cases and techniques (such as deep learning, large-scale IoT, and reinforcement learning).



Above: Gartner Magic Quadrant for Data Science and Machine Learning Platforms. (Source: Gartner, March 2021)

Image Credit: Dataiku

Data science and machine learning in 2021 and beyond



For most enterprises, the challenge is to keep up with the rapid pace of change in their industries, driven by how fast their competitors, suppliers, and channel partners are digitally transforming their businesses.

- **CIOs and senior management teams want to understand the specifics of how data science and machine learning models work.** A top priority for IT executives working with DSML technologies is understanding bias mitigation and how DSML technologies can control for biases on a per-model basis. Designing transparency should start with model and data repositories, providing greater visibility across an entire DSML platform.
- **Enterprises continue to struggle with moving more AI models from pilot to production.** According to the [2020 Gartner AI in Organizations Survey](#), just 53% of machine learning prototypes are eventually deployed to production. Yield rates from the initial model to production deployment show room for improvement. Look for DSML vendors to step up their efforts to deliver modeling apps and platforms that can accept smaller datasets and still deliver accurate results.
- **Open source software (OSS) is a de facto standard with DSML vendors.** OSS provides enterprises the opportunity to get DSML projects up and running with little upfront spending. OSS adoption has become so pervasive that most DSML vendors rely on OSS, starting with Python, the most commonly used language. DSML platform providers also help optimize and curate OSS distributions.
- **For any enterprise to invest in a DSML platform, integration and connectivity are essential.** DSML vendors are adopting components for their platform architectures because components are more extensible and can be tailored to an enterprise's specific needs. Packaged models that integrate into a DSML platform using APIs help enterprises customize machine learning models for specific industry challenges they're facing.
- **Designing more intuitive interfaces and workflows reduces the learning curve for lines of business and data analysts.** Improvements in augmented data science and ML help offload all the data science and modeling work from experienced data scientists to business analysts who prefer to iterate models on their own, often changing constraints based on market conditions.
- **Organizations rely on free and low-cost open source, combined with public cloud providers to reduce costs while experimenting with DSML initiatives.** They are then likely to adopt commercial software to tackle broader use cases and requirements for team collaboration and to move models into production.



Which vendors are leading – and why

Here are some company-specific insights included in this year's Magic Quadrant:

- **SAS Visual Data Mining and Machine Learning (VDMML) is the market leader, having dominated the Leader quadrant for years in this specific Magic Quadrant.** Gartner gives SAS credit for its cloud-native architecture, automated feature engineering and modeling, and domain expertise reflected in its advanced prototyping and production refinement use cases. SAS is often seen as a legacy vendor that's expensive to implement and support. The customer loyalty SAS has accrued in global enterprises and the priority its development teams place on DSML helps the company maintain dominance in this market.
- **IBM's Watson Studio ascended into the Leader quadrant this year, up from being considered a Challenger in 2020.** Gartner believes the company's completeness of vision (horizontal axis of the quadrant) has improved since last year, moving it into the Leader quadrant. This is mainly due to IBM Watson Studio's multi-persona support, depth of responsible AI and governance, and component structure proving effective for decision modeling. Building on several years of reinventing itself, IBM can deliver an enterprise-class DSML that will successfully progress beyond the pilot or proof-of-concept phase. Gartner gives [IBM](#) credit for capitalizing on previous successes of SPSS, ILOG CPLEX Optimization Studio, earlier analytics products, and the continual stream of innovations from IBM Research.
- **Alteryx's strong momentum in the market isn't reflected in its shift from the Leader quadrant to Challenger.** [Alteryx powered through last year's uncertainty](#), reporting a 19% year-over-year increase in revenue for 2020, reaching \$495.3 million. Annual recurring revenue grew 32% year over year to reach \$492.6 million. Gartner gives Alteryx credit for supporting multiple personas, a proven go-to-market strategy, and delivering excellent customer service and support. Alteryx has proven to be innovative, despite having that attribute mentioned as a caution in the Magic Quadrant.
- **Amazon SageMaker's market momentum is formidable, further strengthened by its pace of innovation.** In February, Amazon Web Services (AWS) announced it has designed and will produce its own [machine learning training chip](#). AWS Trainium is designed to deliver the most teraflops of any machine learning training instance in the cloud. AWS also announced Trainium would support all major frameworks (including TensorFlow, PyTorch, and MXnet). Trainium will use the same Neuron SDK used by AWS Inferentia (an AWS-designed chip for machine learning inference acceleration), making it easy for customers to get started training quickly with AWS Trainium. AWS



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- **Google will launch its unified AI Platform in the first quarter of 2021.** This is after the cutoff date for evaluation in this Magic Quadrant. It will release key features like AutoML tables, XAI, AI platform pipelines, and other MLOps services.

The challenges for DSML platform vendors today begin with balancing the needs for greater transparency [and bias mitigation](#) while developing and delivering innovative new features at a predictable cadence. The Magic Quadrant reflects current market reality after updating with four new cloud vendors, one with an extensive ecosystem and proven market momentum.

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One thing to consider after looking at the Magic Quadrant is that there will be some mergers or acquisitions on the horizon. Look for BI vendors to either acquire or merge with DSML platform providers as the BI market's direction moves toward augmented analytics and away from visualization. Further fueling potential M&A activity is the fact that DSML platforms could use enhanced data transformation and discovery support at the model level, which is a long-standing strength of BI platforms.

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