

## Cool Vendors in AI Core Technologies

Published 11 May 2021 - ID G00745832 - 19 min read

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Initiatives: [Artificial Intelligence](#)

AI technologies are pushing the boundaries of AI applications in the enterprise. Data and analytics leaders can consider these Cool Vendors to address priorities around managing, governing and scaling AI initiatives across different industries.

### Additional Perspectives

- [Summary Translation: Cool Vendors in AI Core Technologies](#)  
(24 May 2021)

## Overview

### Key Findings

- Investigating new technologies is the top artificial intelligence (AI) mandate for asset-centric organizations, whereas developing, operationalizing and maintaining AI solutions is the top mandate for service-centric organizations.
- Scaling of AI initiatives is inhibited by both strategic challenges, such as risk and governance issues, security, ethics, and privacy, and tactical challenges such as finding the right data and integrating with business processes and applications.
- Technical risks, such as understanding underlying technological capabilities offered by vendor solutions, are a major hurdle that organizations face in their adoption of AI.

## Recommendations

- Accelerate the time to realize value from AI initiatives by exploring and leveraging new solutions offered by startup vendors based on your use cases and industry needs.
- Explore the breadth of solutions that address your priorities such as composite AI, deep learning for industrial applications, education, data quality and AI orchestration.
- Orchestrate AI projects by choosing solutions that allow you to measure ROI and be agile, reduce risk and ensure higher model performance.

## Strategic Planning Assumption(s)

By 2022, 70% of organizations will rigorously track data quality levels via metrics, increasing data quality by 60% to significantly reduce operational risks and costs.

By 2022, 60% of organizations will leverage machine-learning-enabled data quality technology for suggestions to reduce manual tasks for data quality improvement.

By YE24, following the COVID-19 pandemic, more than 30% of manufacturers will have changed their business models, compared with just 10% before the crisis.

## Analysis

This research does not constitute an exhaustive list of vendors in any given technology area, but rather is designed to highlight interesting, new and innovative vendors, products and services. Gartner disclaims all warranties, express or implied, with respect to this research, including any warranties of merchantability or fitness for a particular purpose.

## What You Need to Know

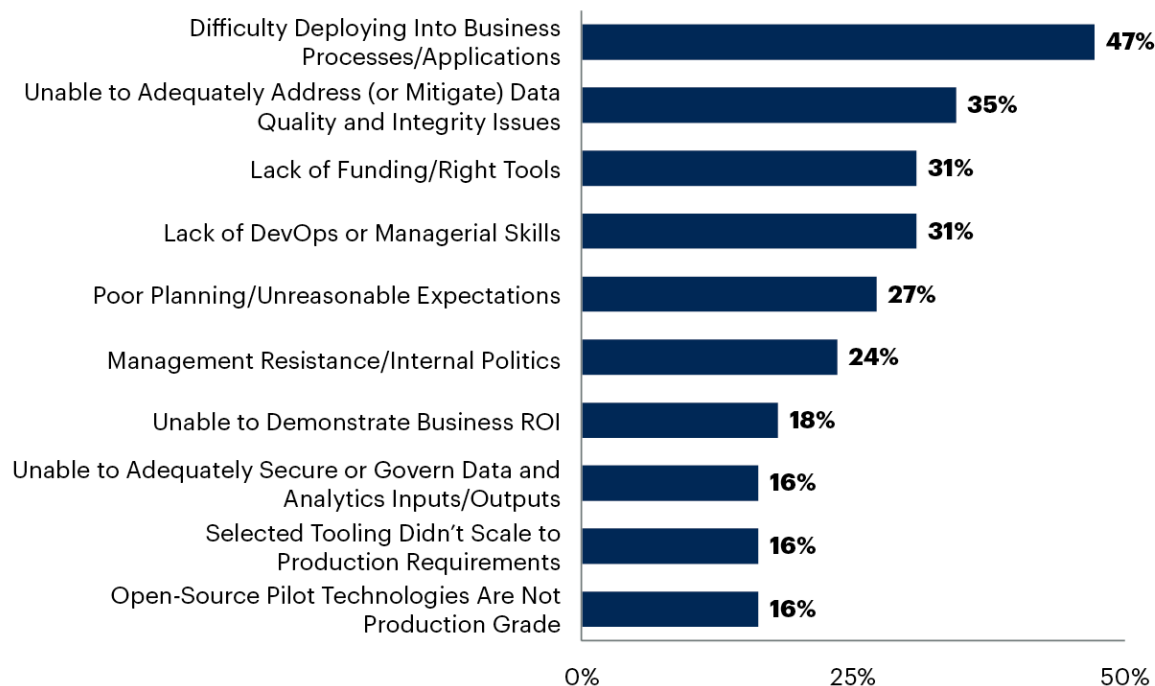
Artificial intelligence (AI) applies advanced analysis and logic-based techniques — including machine learning (ML) — to interpret events, support and automate decisions, and take actions.

AI core technologies encompass various tools and processes. According to Gartner's Data and Analytics Adoption Survey, 2019, both asset-centric and service-centric (see Note 1) organizations that struggle to move projects into production grapple with difficulties deploying them into business processes or are unable to adequately address data quality/integrity issues (see Figure 1).

Figure 1: Organizations' Specific Barriers

**Organization-Specific Barriers**

Multiple Responses Allowed



n = 55, Those answering "getting data and analytics projects into production" as an internal challenge (Q02), Excluding DK

Q: Thinking about why you selected "getting data and analytics projects into production" as an internal challenge, please identify your organization's specific barriers to moving projects into production.

Source: 2019 Gartner Data and Analytics Adoption Trends

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The Cool Vendors in this research — iGenius, Fast.ai, NNAISENSE, Explorium and ONE LOGIC — demonstrate varied capabilities including composite AI, deep learning at scale, end-to-end AI orchestration and AI for good. These capabilities address a variety of obstacles facing organizations by providing support or solutions throughout the analytics pipeline.

The Cool Vendors in this research help address the following mission-critical priorities of data and analytics leaders across different domains such as machine learning operationalization, data management, IT, upskilling and industries such as manufacturing, chemical, renewable energy and many more:

- **Composite AI:** Composite AI consists of combining different AI techniques to improve the efficiency of learning, to broaden the level of knowledge representations and, ultimately, to solve a wider range of business problems in a more efficient manner (see Note 2 and [What Is Artificial Intelligence? Seeing Through the Hype and Focusing on Business Value](#)).
- **Scalable deep learning:** The many significant advancements in deep learning technology — in the past decade primarily with better infrastructure availability, compute ability and data availability — offer tremendous opportunities for businesses to capitalize on their data using deep neural networks. Vendors are cognizant of this and are now coming up with novel solutions to enable organizations to reengineer their decision-making processes (see [3 Types of Machine Learning for the Enterprise](#)).
- **AI for good:** One of the core virtues of any technology should be to enable mankind to share information and knowledge and pave a path to progress. We included a special category in AI core technologies to recognize the work of organizations that are giving back to society with their efforts (see [Hype Cycle for Artificial Intelligence, 2020](#)).
- **Data for AI:** Obtaining quality training data for AI tasks is cumbersome and, at times, not even an option because the data is scarce, partial, incomplete, difficult to collect or unavailable for a specific business problem. However, vendors are now working to enrich models with external data that can add to more contextual awareness in AI projects (see [Top Trends in Data and Analytics for 2021: From Big to Small and Wide Data](#)).
- **AI orchestration:** Aligning the data, data science and machine learning pipelines alongside the application deployment process is fundamental to the continuous delivery and integration of periodically enhanced ML models in AI-based solutions. Vendors are also helping clients to move to a more production-ready mindset (see [Predicts 2021: Operational AI Infrastructure and Enabling AI Orchestration Platforms](#)).

## iGenius

New York, New York, U.S. ([igenius.ai](#))

*Analysis by Erick Brethenoux and Julian Sun*

## Why Cool:

iGenius provides an AI advisor platform. The company combines some of the most innovative usage of AI techniques into a coherent platform. This includes knowledge graph techniques to smartly ingest and augment existing data to be leveraged, machine learning capabilities to detect trends in data, natural language processing techniques to communicate with users, and rules to identify what is important to communicate.

iGenius provides a composite AI capability focused on relevance to help transform the user experience. This emerging “need-to-know” category could transform the way we leverage AI for delivering the right insights (and only the right insights) when and where they are needed, learn from interactions and maximize the relevance of those insights through context.

iGenius’ Crystal could be categorized as a “need-to-know” platform — that is, a technology focused on the user experience with the mandate to apply AI to free users without underestimating their needs and using AI techniques to simplify the user experience while delivering relevant insights. iGenius’ knowledge democratization approach (akin to “Siri for the enterprise”) provides a simpler and efficient experience for business users.

Based on a modern containerized microservices architecture, it provides a high degree of composability and portability of digital services. iGenius’ Crystal platform first extracts and assembles various data sources batch or in real-time into a coherent whole, leveraging natural language processing (NLP) capabilities, organized through a business knowledge graph. The platform then uses machine learning techniques to analyze and classify the information and generate insights and predictions from that new organization. Finally, Crystal also uses NLP capabilities, including conversational agent techniques, to exchange with users its findings, communicate actions to be taken for alerts, answers and contextualized business questions.

## Challenges:

- One of the main challenges of initiating a new software category is the “too-good-to-be-true” argument, which could hamper the momentum of new entrants such as iGenius. Because the company does not fit into any traditional market boxes, its evangelization efforts could be taxing.
- Becoming an industry-agnostic platform might be challenging given that the iGenius platform relies on knowledge-rich techniques such as knowledge graphs and a conversational approach; the company might have to decide on what industries to focus on first.

- iGenius technology and radical thinking could be leveraged through various partners or existing systems — the fact that the experience is based on relevance could actually move the business model toward value-based pricing. These choices have to be made early while the company finds its way through a jungle of “good enough” solutions.

## Who should care:

Any organization that has been leveraging business intelligence techniques and is now focusing on contextualized self-service should consider iGenius’ approach as a natural continuation of its technology development and a path to intelligent self-service.

## Fast.ai

San Francisco, California, U.S. ([fast.ai](https://fast.ai))

*Analysis by Svetlana Sicular, Farhan Choudhary and Sumit Agarwal*

## Why Cool:

Fast.ai is pursuing a noble goal — bringing the power of deep learning to everyone. By pursuing this goal, Fast.ai has developed its own open-source deep learning framework and an increasingly popular free deep neural network (DNN) course “Practical Deep Learning for Coders.” Fast.ai has already educated and transformed the lives of hundreds of thousands of students. This course and framework are iteratively improving in concert with one another toward the goal of a framework that doesn’t require teaching. If this can be achieved, anyone eager to learn could leverage AI to improve both their work and personal lives.

Fast.ai was one of the first vendors to educate students about DNNs in many domains, age brackets and geographies, making a societal impact across the globe. Many students who started from scratch have become winners of ML competitions, received offers from top companies, and published breakthrough research papers. Fast.ai is a natural thought leader in AI ethics and is a cofounder of the Center for Applied Data Ethics.

The Fast.ai framework aims to be approachable and rapidly productive, while also being easy to code and configurable (a rare combination given that similar libraries often force a choice). It is an increasingly popular open-source option with components to derive results in standard deep learning domains: vision, text, tabular and time-series analysis, and collaborative filtering. It is built on top of a hierarchy of lower-level APIs that provide composable building blocks. The high-level components can quickly deliver state-of-the-art results, and low-level components can be mixed and matched to build new approaches. The framework allows developers to migrate data from other libraries such as PyTorch, Ignite, Lightning and Catalyst. Developers can use Fast.ai in conjunction with other libraries. Recently, the creators completely rewrote the framework, making it easier and more accessible and allowing them to teach and deliver course content more efficiently.

Fast.ai generated positive sentiment on its ability to help users gain accuracy in data models with fast and cheap algorithms to train with, while utilizing the Fast.ai's extended statistical analysis tools.

## Challenges:

Fast.ai mostly challenges itself. It is moving toward the goal of having a framework that won't require people to code. Currently, some Python experience is needed, which only somewhat restricts what they need to teach. Meanwhile, the first three lessons of the course are designed for people without a coding background.

Fast.ai's point of view that deep learning should be accessible to everybody is controversial in the data science circles, as it debunks an attitude that deep learning belongs only to highly educated people with advanced degrees. Fast.ai has proven that it can reach all kinds of brilliant people who solve difficult problems in resourceful ways.

Fast.ai's open-source tools and education could be available to many more people, but as a nonprofit research institution, it does not have sales and marketing. Fast.ai gains its growing recognition through word of mouth, which is quite remarkable.

## Who Should Care:

- Anybody who wants to take advantage of AI in their lives or lines of business.
- Any organization that wants to upskill its personnel, including nontechnical people.

- Organizations that are in search of an easily accessible deep learning framework with a large community.

## NNAISENSE

Lugano, Switzerland (<https://www.nnaisense.com>)

*Analysis by Farhan Choudhary*

### Why Cool:

NNAISENSE is cool because it provides AI-enabled automation solutions for clients in multiple industries such as manufacturing, chemical, medical, automotive, renewable energy, and healthcare using neural networks at scale. Its AI solutions use supervised learning, reinforcement learning and evolutionary algorithms to support intelligence and automation for engineering teams with quick time to production and scaling up.

NNAISENSE focuses on use cases for asset performance optimization using anomaly detection and classification and predictive maintenance. It also focuses on process modelling and digital twinning in engineering heavy workflows where neural networks trained on actual sensor data provide predictions on future process behavior or act as a simulator to learn better control. The process modelling use case also allows decision augmentation by forecasting alternate strategies and next best action for plant operators using process data. One of the most niche capabilities that NNAISENSE offers is using reinforcement learning and continuous learning on the digital twin. In such cases, the neural network controller is trained to optimize user-specified performance criteria that impact business KPIs, such as cost reduction, employee efficiency, quality maximization and operational optimization (see [Predicts 2020: Resilience in Industrie 4.0 for Advanced Manufacturing Builds on Data and Collaboration Models](#)). Once a model is fully trained and optimized on the digital twin, the lessons can be transferred to the actual process for deployment, which reduces adoption risks for mission-critical operations.

Some of the capabilities that NNAISENSE has are assisting in additive manufacturing for mass customization, predicting faults in wind turbines, enabling robots with reinforcement learning, establishing digital twins for simulations, decision augmentation and automation in engineering processes (see [Manufacturing Digital Transformation and Innovation Primer for 2021](#)). NNAISENSE provides customized services to its clients across use cases including evaluating data, resource requirements, training and deployment (on-premises/cloud) with transferring foreground IP to client at the end of the engagement.



An analysis of social media conversations highlights that the utilization of Deep Learning technology by NNAISENSE provides better accuracy by learning what features matter directly from the client's data and what can be deployed in a cost-effective manner.

## Challenges:

1. NNAISENSE needs to shift focus from academic-oriented pitches to business-oriented ones by investing in sales and marketing efforts and promoting case studies from customers showcasing benefits from adoption of AI.
2. Deep neural nets are still met with some skepticism, being black box in nature. NNAISENSE should also focus on adding more interpretability and explainability features that allow for swift collaboration and communication between IT and process teams.

## Who Should Care:

1. Moving forward, customization and technology utilization will drive competitive differentiation in Industry 4.0. Data and analytics leaders and manufacturing CIOs should evaluate some of the highly commoditized and impactful use cases such as using AI for asset performance optimization and move toward decision augmentation.
2. Organizations with engineering focus that don't have the resources to leverage deep learning solutions, but want to, can consider the capabilities offered by NNAISENSE.
3. Organizations in manufacturing, chemical, medical, automotive, renewable energy and healthcare that want to utilize cutting edge deep learning methods to increase operational efficiency.

## Explorium

Tel Aviv, Israel, (<https://www.explorium.ai>)

*Analysis by Svetlana Sicular*

## Why Cool:

Explorium is an external data platform with an innovative approach to data that increases the predictive power of models. It can automatically discover the relevant data signals from thousands of external data sources, and if a customer wishes, from internal sources as well. Customers have the choice to use Explorium only as a data enrichment platform, or as a full AutoML platform for data science. Explorium can tangibly improve existing ML models by enriching the data that was used for training with either additional relevant data sources or features engineered from these sources.

The Explorium platform includes a feature store that allows customers to integrate disparate data sources via a single API. Explorium's ML engine can automatically discover and rank features for the models that customers are already using, or for new models customers are building. For building a new model, Explorium surfaces the right data from the customer's internal data sources and adds pertinent external data for a given problem. For example, if a customer enriches data about a small business in a postal code with foot traffic, reviews, population density and average income, it increases the model's predictive power. This capability became even more valuable during the pandemic when many models failed due to the abrupt changes in data.

A big part of the company's effort is "data hunting," — that is, searching for data, keeping the data fresh and creating derived data that can't be found elsewhere. Every week, customers get new data and can automatically explore all data sources. Explorium suggests necessary datasets and lets customers control what data is used. For example, they can block sources or eliminate features. Explorium provides built-in model recipes for regulations like personally identifiable information (PII) and provides model transparency for regulatory audits. Additional data sources also benefit explainability: When customers have limited data, their models end up being complex. But with more attributes, it becomes clearer what a model is learning, and customers can build simpler, more transparent models that are easier to explain.

## Challenges:

Feature stores became visible in the ML landscape within the past year. Explorium could face competition from notable feature stores like Iguazio, Tecton or open-source FEAST that came from Google. All large cloud providers are also pursuing feature stores, and they have a greater staffing to catch up with Explorium. However, currently, Explorium has a unique advantage of being an end-to-end platform with external data discovery, matching and monitoring with automatic feature generation and selection.

As a young company, Explorium still has a lot to add to its platform. Currently, the vendor supports only supervised ML and advanced analytics. The platform has bugs, but customers report that the company is extremely responsive and usually fixes problems within a day. Explorium's customers praise its data science service and report that it helps them to build models with fast and accurate results even outside the expected scope.

## Who Should Care:

- Data is one of the main topics of AI. Thus, organizations that look for additional or just the right data sources will benefit from Explorium's ability to automatically connect customers to thousands of data sources and distill the most impactful signals for their decision making. Explorium's data enrichment benefits not just AI or ML, but also business analytics.
- Data science teams that need feature stores and access to external data.
- Organizations interested in AutoML platforms can find what they look for in Explorium's capability to deliver accurate models with considerations of robustness and explainability that are rooted in its data enrichment.
- Companies in the financial industry should consider Explorium for improving their fraud detection and risk models.
- Companies in the CPG industry should consider Explorium for identifying the right partners and optimizing field sales operations.
- Marketing leaders should consider Explorium for more accurate customer segmentation and targeting. One of the Explorium's customers reported that it was able to more precisely find people for online ads, which led to a 12% purchase increase.

## ONE LOGIC

Passau, Germany (<https://onelogic.de>)

*Analysis by Chirag Dekate, Farhan Choudhary, Soyeb Barot and Erick Brethenoux*

**Why Cool:** ONE LOGIC's strategy is centered on industrializing applied data science, machine learning and AI through an open end-to-end platform called ONE DATA that facilitates reusability and standardization of data, ML and AI, and software artifacts. The platform also provides standardized extensions for a variety of use cases such as forecasting engine, root cause analysis, anomaly detection, process analytics, digital twins, financial planning and many more. A key and unique feature of the ONE DATA platform is the Data Cartograph that enables graphical exploration of data, underlying structures and relationships in form of a map. ONE DATA is focused on moving data-driven projects from AI pilots into production. ONE LOGIC claims specialization in three core segments:

- **DataOps:** Curating a data foundation by standardizing data ingest across diverse sources, improving data quality, and modeling. ONE LOGIC's ONE DATA Platform focuses on enabling a core data foundation needed to develop sustainable AI practices.
- **Model and service Ops:** Curating a model engineering lab that supports model training, experimentation and monitoring. ONE LOGIC's modeling environments are supported with a complementary set of services focused on governance and management. The modeling environment also integrates with existing Python, Spark and R libraries and enhances them with enterprise-grade capabilities.
- **ApplicationOps and deployment services:** Focused set of services targeted to deploy trained models into production across data and service endpoints. ONE DATA pipelines can consume external models deployed to ONE DATA as docker containers. ONE LOGIC also offers API management, CI/CD integration through GitOps and more.

In addition to the above, ONE LOGIC enables enterprise-grade capabilities comprising security (authentication and authorization), personally identifiable information (PII) governance, analytics governance and explainability.

Customer reference conversations cite fast time to solution and deployment, resulting in accelerated value realization.

## Challenges:

ONE LOGIC predominantly targets advanced data scientists and AI communities, and its offering lacks features that beginners might consider essential. Many peers enable AutoML capabilities designed to optimize and focus the ML model design space exploration. Lack of these features might make ONE DATA less accessible to a citizen data scientist or users with limited AI skills.

Further, support for advanced capabilities including feature stores, model stores, and data and model lineage are unclear. Enterprises that rely on these core capabilities might want to explore the architectural details before deep engagements with the vendor.

### Who Should Care:

- Enterprises that are seeking operative data models delivered in accelerated timescales should explore ONE LOGIC Solutions.
- Data science teams that are looking for an end-to-end platform that offers comprehensive DataOps, ModelOps and application API capabilities should actively explore proofs of concept with ONE LOGIC.

## Evidence

Gartner's Data and Analytics Adoption Survey, 2019: This study was conducted to learn how organizations use data and analytics.

The research was conducted online during November through December 2019 among 272 respondents from North America, Western Europe and APAC regions. Companies from different industries were screened for having annual revenue less than \$100 million.

Respondents were required to be at manager or above and should have a primary involvement and responsibility for organization's data and analytics solutions, including purchase and investments.

The study was developed collaboratively by Gartner analysts and the primary research team, who follow data and analytics management.

Disclaimer: Results of this study do not represent global findings or the market as a whole but reflect the sentiment of the respondents and companies surveyed.

## Note 1: Asset-Centric vs. Service-Centric Organizations

Asset Centric Organizations: Manufacturing, Retail, Energy and Utilities, Transportation, Telecommunications, Information Technology

Service Centric Organizations: Insurance, Financial Services, Media, Education Provider, Government, Customer Services

## Note 2: Composite AI

Composite AI refers to the combined application of different AI techniques to improve the efficiency of learning, and ultimately to much more efficiently solve a wider range of business problems. Composite AI is currently mostly about combining “connectionist” AI approaches like deep learning, with “symbolic” and other AI approaches like rule-based reasoning, graph analysis, agent-based modeling or optimization techniques. The ideas behind composite AI are not new, but are only recently truly materializing. The goal is to enable AI solutions that require less data and energy to learn. In addition, composite AI recognizes that neither deep learning nor graph analytics nor more “classical” AI techniques are silver bullets. Each approach has its strengths and weaknesses; none is able to resolve all possible AI challenges.

## Note 3: Social Media Analytics Methodology

Gartner conducts social listening analysis leveraging third-party data tools to complement or supplement the other fact bases presented in this document. Due to its qualitative and organic nature, the results should not be used separately from the rest of this research. No conclusions should be drawn from this data alone as it may not be entirely market representative. Social Media data in reference is from 10 February 2019 to 11 February 2021 in all geographies (except China) and recognized languages.

Additionally, research inputs were provided by The Social Media Analytics Team.

## Document Revision History

[Cool Vendors in AI Core Technologies - 8 April 2020](#)

[Cool Vendors in AI Core Technologies - 16 May 2019](#)

[Cool Vendors in AI Core Technologies - 14 May 2018](#)

[Cool Vendors in AI Core Technologies, 2017 - 16 May 2017](#)

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[Top Strategic Technology Trends for 2021: AI Engineering](#)

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