

F R O S T & S U L L I V A N

BEST PRACTICES

AWARDS

F R O S T & S U L L I V A N

2020 BEST PRACTICES AWARD



**2020 NORTH AMERICAN COGNITIVE
ANALYTICS AND ARTIFICIAL INTELLIGENCE
PRODUCT LEADERSHIP AWARD**

Strategic Imperatives

Frost & Sullivan identifies three key strategic imperatives that impact the automation industry: internal challenges, disruptive technologies, and innovative business models. Every company that is competing in the automation space is obligated to address these imperatives proactively; failing to do so will almost certainly lead to stagnation or decline. Successful companies overcome the challenges posed by these imperatives and leverage them to drive innovation and growth. Frost & Sullivan's recognition of SparkCognition is a reflection of how well it is performing against the backdrop of these imperatives.



Best Practices Criteria for World-Class Performance

Frost & Sullivan applies a rigorous analytical process to evaluate multiple nominees for each award category before determining the final award recipient. The process involves a detailed evaluation of best practices criteria across two dimensions for each nominated companies. SparkCognition excels in many of the criteria in the cognitive analytics and artificial intelligence space.

AWARD CRITERIA

<i>Product Portfolio Attributes</i>	<i>Business Impact</i>
Match to Needs	Financial Performance
Reliability and Quality	Customer Acquisition
Product/Service Value	Operational Efficiency
Positioning	Growth Potential
Design	Human Capital

Excelling in the Cognitive Analytics and Artificial Intelligence (AI) Market

Founded in 2013 in Austin, Texas in the United States, SparkCognition swiftly developed an excellent reputation by offering industry-leading artificial intelligence (AI) solutions to customers in the aviation, building, cybersecurity, defense, and other segments worldwide. By leveraging its cutting-edge and high-performance AI technology, the company outpaces its competitors.

Notwithstanding harsh competition and a challenging economy, SparkCognition boosted its cutting-edge AI technology, bringing its solutions to customers worldwide.

“SparkCognition is at the forefront of providing AI-optimized solutions for defense, financial, manufacturing, and other industries, enabling companies to reach higher efficiency and significantly reduce operational and maintenance costs.”

- Maksym Beznosiuk, Best Practices Research Analyst

SparkCognition secured funding from various investors in less than a decade, collectively amounting to \$175 million. In October 2019, SparkCognition received \$100 million from several investors (e.g., March Capital, Temasek, Hearst Ventures, Dalus Capital).¹ Frost & Sullivan recognizes how such financial support allowed the company to expand research and development and boost its AI technology

for industrial applications like oil and gas, defense, aviation, utilities, and financial services.

¹ <https://www.prnewswire.com/news-releases/sparkcognition-announces-100-million-series-c-led-by-march-capital-with-participation-from-temasek-300933671.html>

Since 2013, SparkCognition has entered into several fruitful partnerships with various technology companies worldwide. For instance, in July 2019, SparkCognition collaborated with Hitachi High-Technologies Corporation, the leading Japanese technology company, to deploy SparkCognition's proprietary automated machine learning modeling platform, Darwin™, at Hitachi High-Tech Group's clients in Japan and across the South Asian region.² By adding SparkCognition's Darwin product to its portfolio, the Hitachi High-Tech Group improved its analytics capabilities, boosted process efficiency, and empowered its data scientists and analysts.

Also, in June 2020, SparkCognition worked with Siemens, a world-leading technology company, on a cybersecurity system, DeepArmor Industrial, designed to protect endpoint, or remote, operational technology assets across the energy value chain by leveraging AI to monitor and detect any cyberattacks.³ Specifically, this AI-driven system will provide next-generation threat detection, application control, and attack prevention to endpoint power generation, oil and gas, and transmission and distribution assets, delivering fleet level cybersecurity monitoring and protection capabilities to the energy segment.

In July 2020, SparkCognition partnered with Cendana Digital, a data science solutions company, to broaden SparkCognition's global presence to deliver industry-leading AI solutions to the Malaysian oil and gas sector. As a result, the companies provide oil and gas intelligent products and solutions that substantially boost operational efficiency and safety, optimize workflows, and advance key assets' advanced operations.⁴

Moreover, SparkCognition recently received 29 new patents for its ground-breaking work focusing on developing AI algorithms and systems, expanding its intellectual property portfolio to 27 awarded patents and 58 pending applications.⁵

Frost & Sullivan recognizes that SparkCognition exceeds its customers' needs and expectations as many clients value the top-performance and business impact of its cognitive analytics and artificial intelligence market:

"SparkCognition's cutting-edge technology has enabled it to solve some of the toughest problems in the world," said Brian Schettler, Managing Director at Boeing HorizonX Ventures.

"The company has seen incredible growth, and we at HorizonX are happy to continue our support of SparkCognition's mission."⁶

- Managing Director, Boeing HorizonX Ventures

² <https://www.hitachi-hightech.com/global/about/news/2019/nr20190703.html>

³ <https://www.prnewswire.com/news-releases/sparkcognition-and-siemens-to-deliver-new-ai-driven-cyber-defense-system-for-endpoint-energy-assets-301074572.html>

⁴ <https://www.prnewswire.com/news-releases/sparkcognition-partners-with-cendana-digital-to-expand-global-reach-301090701.html>

⁵ <https://aithority.com/machine-learning/sparkcognition-advances-the-science-of-artificial-intelligence-with-85-patents/>

⁶ <https://www.prnewswire.com/news-releases/sparkcognition-announces-100-million-series-c-led-by-march-capital-with-participation-from-temasek-300933671.html>

"We are delighted to be able to deliver SparkCognition technology that we have observed thriving in the AI industry. The Hitachi High-Tech Group's data scientists will use Darwin and our cloud service to support our customers to solve problems and enhance business efficiency."⁷

- President, Hitachi High-Tech Solutions

"SparkCognition is building world-leading artificial intelligence systems that are not only improving industrial productivity and operations but are also delivering tremendous value to the industrial market. Adding its solutions to the MindSphere ecosystem will enable both SparkCognition and Siemens to address the critical needs of industrial organizations and further provide value to our customers."

- SVP of Global Partner Ecosystem, Siemens PLM Software

"We strive to bring cutting-edge solutions to our clients to improve their operations and revolutionize their businesses. For that reason, we're excited to work with SparkCognition and further drive innovation for our customers."

- Chief Executive Officer, Cendana Digital

Uniquely Positioned to Offer Versatile AI-based Solutions

Many companies across different industries seek AI-based systems that can help them to evaluate complex data, optimize productivity, and boost decision-making. Specifically, companies seek solutions that can increase their critical assets' production value and defend infrastructure from cyber-attacks. Thus, there is an incremental need for AI-based capabilities that provide functional advantages to overcome the rapidly changing digital landscape limitations and advance business performance with AI capabilities.

SparkCognition is at the forefront of providing such AI-optimized solutions for defense, financial, manufacturing, and other industries, enabling companies to reach higher efficiency and significantly reduce operational and maintenance costs. SparkCognition's portfolio offers products such as Darwin, DeepArmor, DeepNLP, and SparkPredict.

Accelerating Data Science with Darwin™

SparkCognition's Darwin product enables users to move from data to model deployment more quickly than traditional methods while ensuring swift prototyping of all possible scenarios and producing broad analytical insights on critical assets. Specifically, this solution provides the following competitive advantages:

- **Effective Data Evaluation and Processing:** Customers get an opportunity to detect and address any potential problems with their datasets with advice on steps on how to fix them swiftly. Specifically, Darwin's solution enables clients to evaluate data based on its usefulness for the data science processes. Simultaneously, its guided data preparation workflow enables clients to discover and recommend solutions for any potential issues in their data set like any missing information, columns with low variance, and too many categories.

⁷ Ibid

- High Efficiency and Accuracy:** Unlike most automated machine learning solutions that focus on finding the best algorithm to match a relevant data set, Darwin utilizes a whole mix of evolutionary algorithms and deep learning methods, enabling clients across industries to achieve quicker operationalization of the data output by their research teams. To this end, Darwin utilizes the data preparation profile to convert clients' datasets automatically into usable shape for algorithmic development. Hence, this solution enables clients to produce several key features automatically from the acquired clients' information and achieve higher accuracy and efficiency of their critical operational assets. As a result, Darwin custom builds various models to seek the most adequate and optimal solution specifically tailored to customer's data. Hence, customers get an opportunity to fine-tune their data parameters and achieve higher efficiency and accuracy of their data.

"The Spark's Darwin™ solution enables users to move from data to model deployment more quickly than traditional methods while ensuring swift prototyping of all possible scenarios and producing broad analytical insights on critical assets."

- Maksym Beznosiuk, Best Practices Research Analyst

Offering Unparalleled Security with DeepArmor®

SparkCognition's DeepArmor® product enables users to ensure adequate protection against a wide variety of threats. Specifically, this solution provides the following competitive advantages:

- Versatility and Flexibility:** DeepArmor comes in three packages for small and midsize businesses as well as security providers. Specifically, while the basic package is for non-technical users and is easy to deploy and manage, two other packages are designed for security operations teams and developers who require more advanced AI protection against malicious attacks like Trojans, viruses, and ransomware. At the same time, clients can easily integrate DeepArmor with service and security information and event management platforms with automated application programming interfaces.
- High Security:** DeepArmor's AI-powered malware prevention tools enable clients to counter any malware attacks by examining applications attempting to execute on the endpoint and file-based and fire-less scripts trying to run in the environment. At the same time, clients have access tools to acquire real-time analytics, prioritize threats, and detect and remotely respond to attacks against their infrastructure.

Effectively Optimizing Data with DeepNLP™

SparkCognition's DeepNLP™ product enables users to minimize maintenance costs while also boosting asset availability. Specifically, this solution provides the following competitive advantages:

- Optimization:** DeepNLP utilizes advanced machine learning techniques to help clients automate unstructured workflows within organizations to achieve better efficiency and higher savings. Clients can not only minimize operational costs but also better adapt to functional changes.

- **Full Visibility:** DeepNLP applies a range of tools to identify key data patterns and relationships to achieve valuable insights that can minimize risks of human errors and automate decisions based on the most precise available information.

Revolutionizing Maintenance of Assets with the SparkPredict®

The SparkPredict® product enables users to optimize maintenance while also ensuring substantial cost savings by analyzing sensor data and utilizing machine learning tools to gain insights to avert failures before their arrival. Specifically, this solution provides the following competitive advantages:

- **Asset Performance Improvement:** SparkPredict enables users to improve asset performance by equipping their operations with predictive AI analytics to protect and monitor their critical assets around the clock. Simultaneously, this solution also helps them take swift and informed repair steps based on transparent and explainable failure indicators.
- **High Predictive Accuracy:** SparkPredict's machine learning tools enable clients to accumulate and retain workforce knowledge and maintain predictive accuracy with automatic model retraining that continuously enhances operating models.

Best Practice Example Confirms High-performance and Ultimate Reliability

Frost & Sullivan lauds SparkCognition for the high-quality performance and efficiency of its AI-based solutions as demonstrated by the following use cases:⁸

Best Practice Example 1: SparkCognition provided Darwin product to an exploration and production (E&P) company to help prioritize maintenance tasks to concentrate on the most productive wells. Namely, the client required reliable and automated solutions to assist process engineers in insights and predictions about well performance and pinpoint necessary oil well repairs to make the maintenance processes more effective. The client utilized Darwin, SparkCognition's automated development platform, to develop cognitive models swiftly to predict well-maintenance, production, and events accurately. Darwin aided in preparing the data to detect and extract 40 most appropriate features automatically for static, dynamic, and semi-dynamic variables used in generated models. As a result, Darwin enabled the client's process engineers to predict rod change, workover, and cleaning operations requirements in twelve out of 17 wells across its field with up to 80% accuracy.

Furthermore, the client could reap the direct benefits of enhanced planning and lower operating expenses, which generally led to expensive emergency repairs and maintenance. Additionally, Darwin-generated models helped the client uncover crucial insights about well production potential, enabling customer's process engineers to concentrate their attention on the most prospective wells and maximize financial returns. Also, customers can develop Darwin-based models in a matter of days compared to the typical time investment of weeks or even months for data scientists to produce and implement precise models.

Best Practice Example 2: SparkCognition deployed its SparkPredict® product to an E&P company to improve the stability of a multi-phase pump on an unmanned platform to meet production rate

⁸ <https://www.sparkcognition.com/resources/?keyword=&type%5B%5D=case-studies&industry%5B%5D> , accessed 8 November 2020

objectives. The customer required a solution that could boost its offshore production while lowering production costs. Namely, the customer needed a solution that could effectively utilize data and analytics to make informed maintenance decisions that advance offshore production assets' availability. The client's remote operations center could utilize its solution to detect unexpected deviations in a pressure differential variable in the filter system and alert operators to pinpoint the areas requiring immediate attention. As a result, the client could save over \$5M since the start of the SparkPredict application.

Conclusion

Today, there is an immediate and unprecedented need for companies to embrace new technologies while also improving their reliability and efficiency and increasing market penetration and growth. With the accelerating Internet of Things and artificial intelligence (AI) application and digitalization, customers require secure and interactive tools to ensure large data volumes transfer, advanced data privacy, and monitoring of their most crucial assets. SparkCognition is at the forefront of providing such industry-leading AI solutions for companies across defense, aviation, building, and other segments enabling customers to reach higher efficiency and reduce their operational and maintenance costs significantly. With its strong commitment to developing innovative solutions and a customer-centric approach, SparkCognition earns Frost & Sullivan's 2020 North America Product Leadership award in the cognitive analytics and artificial intelligence market.

What You Need to Know about the Product Leadership Recognition

Frost & Sullivan's Product Leadership Award recognizes the company that offers a product or solution with attributes that deliver the best quality, reliability, and performance in the industry.

Best Practices Award Analysis

For the Product Leadership Award, Frost & Sullivan analysts independently evaluated the criteria listed below.

Product Portfolio Attributes

Match to Needs: Customer needs directly influence and inspire the product portfolio's design and positioning

Reliability and Quality: Products consistently meet or exceed customer expectations for performance and length of service

Product/Service Value: Products or services offer the best value for the price compared to similar market offerings

Positioning: Products serve a unique, unmet need that competitors cannot easily replicate

Design: Products feature innovative designs, enhancing both visual appeal and ease of use

Business Impact

Financial Performance: Strong overall financial performance is achieved in terms of revenues, revenue growth, operating margin, and other key financial metrics

Customer Acquisition: Customer-facing processes support efficient and consistent new customer acquisition while enhancing customer retention

Operational Efficiency: Company staff performs assigned tasks productively, quickly, and to a high-quality standard

Growth Potential: Growth is fostered by a strong customer focus that strengthens the brand and reinforces customer loyalty

Human Capital: Commitment to quality and to customers characterize the company culture, which in turn enhances employee morale and retention

About Frost & Sullivan

Frost & Sullivan is the Growth Pipeline Company™. We power our clients to a future shaped by growth. Our Growth Pipeline as a Service™ provides the CEO and the CEO's growth team with a continuous and rigorous platform of growth opportunities, ensuring long-term success. To achieve positive outcomes, our team leverages over 60 years of experience, coaching organizations of all types and sizes across 6 continents with our proven best practices. To power your Growth Pipeline future, visit Frost & Sullivan at <http://www.frost.com>.

The Growth Pipeline Engine™

Frost & Sullivan's proprietary model to systematically create on-going growth opportunities and strategies for our clients is fuelled by the Innovation Generator™.

Key Impacts:

- **Growth Pipeline:** Continuous flow of Growth opportunities
- **Growth Strategies:** Proven Best Practices
- **Innovation Culture:** Optimized Customer Experience
- **ROI & Margin:** Implementation Excellence
- **Transformational Growth:** Industry Leadership



The Innovation Generator™

Our six analytical perspectives are crucial in capturing the broadest range of innovative growth opportunities, most of which occur at the points of these perspectives.

Analytical Perspectives:

- **Mega Trend (MT)**
- **Business Model (BM)**
- **Technology (TE)**
- **Industries (IN)**
- **Customer (CU)**
- **Geographies (GE)**

