

FROST & SULLIVAN

UNDERSTAND.AI

2022
MARKET
LEADER

EUROPEAN
AD ANNOTATION SOLUTIONS

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 company. Understand.ai excels in many of the criteria in the AD annotation solutions space.

AWARD CRITERIA	
Growth Strategy Excellence	Technology Leverage
Implementation Excellence	Price/Performance Value
Brand Strength	Customer Purchase Experience
Product Quality	Customer Ownership Experience
Product Differentiation	Customer Service Experience

A Robust Solution for Automating Annotations

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**- Steven Lopez,
Best Practices Research Analyst**

The automotive industry encountered a significant hit during the beginning of the COVID-19 pandemic. Notable challenges that arose included decreasing vehicle sales, which led to a delay in supplies, new technology introduction, and a change in consumer preferences. As a result, original equipment manufacturers (OEM) and value chain partners began reevaluating their development strategies and overall product timelines.¹ Frost & Sullivan’s research finds that OEMs and Tier 1 suppliers will invest in in-house

autonomous driving (AD) software development to meet the industry shift.² As a result, OEMs and Tier 1 suppliers will need enhanced annotation software tools.

Founded in 2017 and headquartered in Karlsruhe, Germany, Understand.ai is a leading software tool developer specializing in automated annotations using artificial intelligence (AI), and in 2019, was

¹ Global Advanced Driver Assistance Systems (ADAS) and Autonomous Driving (AD) Industry, Outlook 2022 (Frost & Sullivan, May 2022)

² Ibid.

acquired by dSPACE, a leader in developing and providing software tools for simulation and validation. Since then, its robust AI-driven data annotation suite, with the support of dSPACE, helps the company gain trust among existing and new customers. The company's solutions focus on addressing the challenges in the transportation industry and allows it to build deeper expertise with a stronger team. Frost & Sullivan recognizes the rapid growth of Understand.ai and its ability to make AI-accessible automated annotated solutions for real-world applications in the advanced driver assistance systems (ADAS)/AD market.

Building upon a Strong Foundation

Understand.ai is one of the world's top providers that develops AI-driven data annotation solutions for the AD industry. It takes the power of AI and makes it accessible for real-world AD applications to label (annotate) large amounts of data. It does this by delivering annotated data from perception algorithms. Understand.ai has about 70 employees globally working with clients in Europe, North America, and Asia-Pacific. Its customers include world-renowned automotive companies such as Mercedes-Benz and Volkswagen, including leading technology and engineering companies like BOSCH, Denso, EnBW, SensaGrate, and many others. Clients benefit from its software tools designed for manual and automated annotation. The first is UAI Annotator; this robust solution uses the company's trademarked Zero-Touch Annotation technology that provides deep neural network AI-powered technology. UAI Annotator offers various two-dimensional and three-dimensional labeling types such as bounding boxes, semantic segmentation, and polylines.

In addition, UAI Annotator ignites detection capabilities for object seeding, post-processing (removing false positives for tracking and cleaning, and temporal fusion during scene completions), box regression, and attribute settings. With these benefits, UAI Annotator becomes the automation engine for data annotation that helps cut costs and increase training and testing for ADAS/AD technology projects. A notable and successful case study was with Mercedes-Benz, which launched in November 2020. The luxury car company wanted a provider that could support high-volume and superior-quality ADAS annotations. UAI Annotator took center stage and provided Mercedes-Benz with 1.2 million objects annotated at 99% quality within a month.³

The second solution is Scenario Generation, which offers functions such as identification (uncovering real-world scenarios), extraction (creating a digital twin), and fuzzing (producing realistic and significant variation). These offerings allow customers to generate variations with edge-case settings directly from recording. Lastly, the third product is the UAI Anonymizer, that anonymizes 99% of identifiable faces and license plates using AI and provides compliance with the European General Data Protection Regulation, Californian Consumer Privacy Act, Chinese Cyber Security Law, and Japanese Act on the Protection of Personal Information regulations.⁴ Understand.ai is addressing an unmet AD market need not easily replicated by competitors. Frost & Sullivan commends the company on its steadfast approach towards focusing on providing robust core annotation products backed by machine learning and AI expertise.

³ <https://hub.understand.ai/adas-annotation-done-right> (Accessed October 2022)

⁴ <https://understand.ai/UAI-anonymizer.html> (Accessed October 2022)

Strong Brand Leads to Continuous Growth Opportunities

Understand.ai is a known entity with a strong market reputation after being acquired by dSPACE. dSPACE brings a strong customer and distributor clientele list in the automotive, aerospace, and manufacturing industries. Understand.ai leverages dSPACE's presence to develop a new customer base in addition to serving its existing clients like OEMs, Tier 1, sensor developers, perception developers, and engineering

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companies. With the combined global footprint from dSPACE, Understand.ai serves clients across various industry verticals, including mining, agriculture, fleets, trucks, and passenger vehicles in 16 countries. In addition, the company maintains strategic partnerships with industry leaders in the space.

For example, Understand.ai collaborated with L&T Technology Services (LTTS), a global leader in engineering and research and development services, to empower the largest car makers in autonomous driving providers. The company's solution raised LTTS' annotation efficiency by 50%.⁵

Moreover, the company provides excellent 24/7 customer service through its dedicated team of client success experts that support customers across Europe. In addition, Understand.ai opened a business development and sales office in California as its main hub for software development serving North America. Furthermore, the company offers customers essential resources, including blogs, enabling clients to subscribe to get the latest updates and news regarding data annotation, AD, machine learning, and Scenario Generation.

“Understand.ai is not only software, you also get a dedicated team that is knowledgeable and confident to exchange competencies and creative solution-oriented approaches, which definitely enriched our work.”

-Dr. Peter Schlicht, Project Manager AI-Technologies for AD, Volkswagen⁶

“Highly accurate annotation is an indispensable prerequisite for supervised machine learning. We rely on the labeling service and tools from Understand.ai.”

- Dr. Florian Faion, Research Scientist LiDAR Perception, BOSCH⁷

Understand.ai uses client feedback, combined with industry trend monitoring by working with mobility companies, annotation service providers, and research institutes, to guide its product roadmap and continuously evolve its products to maintain its innovative edge.

⁵ <https://understand.ai/blog/annotation/autonomous-driving/2021/02/04/large-scale-annotation-future-of-autonomous-driving.html> (Accessed October 2022)

⁶ <https://understand.ai/testimonials.html> (Accessed October 2022)

⁷ Ibid.

Understand.ai identified the simulation and validation benefits behind building a vertically integrated annotation tool by combining the expertise from dSPACE. With its annotation-specific solution, customers can overcome significant product adoption roadblocks (increased costs or lack of scalability). To achieve success and boost its reputation further, Understand.ai incorporated a business model by taking a software-as-a-service approach that includes its base software, custom software functionality, and consulting to enhance customer value, hence, satisfaction. Frost & Sullivan applauds Understand.ai for its dedication in leveraging the power of AI and making it more feasible through annotation in AD.

Conclusion

A company does not become a market leader overnight. It takes dedication to develop growth strategies paired with excellent implementation. A market leader must earn and maintain customers' trust while impacting and improving the overall market. Understand.ai embodies Frost & Sullivan's definition of a market leader by working with innovative and globally known technology companies, much like with dSPACE. In addition, Understand.ai focuses primarily on delivering automated annotation solutions, which allowed the company to create a niche for itself and dive even deeper into the needs for data labeling, cutting costs, and feasible access for training and validation autonomous driving (AD) technology. Due to these reasons and more, the company is respected, recognized, and remembered, elevating it to a market leader position.

For its strong overall performance, Understand.ai is recognized with Frost & Sullivan's 2022 European Market Leadership Award in the AD annotation solutions market.

What You Need to Know about the Market Leadership Recognition

Frost & Sullivan's Market Leadership Award recognizes the company that achieved the greatest market share resulting from outstanding performance, products, and services.

Best Practices Award Analysis

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

Growth Strategy Excellence: Company demonstrates an ability to consistently identify, prioritize, and pursue emerging growth opportunities

Implementation Excellence: Company processes support efficient and consistent implementation of tactics designed to support the strategy

Brand Strength: Company is respected, recognized, and remembered

Product Quality: Products or services receive high marks for performance, functionality, and reliability at every stage of the life cycle

Product Differentiation: Products or services carve out a market niche based on price, quality, or uniqueness (or some combination of the three) that other companies cannot easily replicate

Technology Leverage: Company is committed to incorporating leading-edge technologies into product offerings to enhance product performance and value

Price/Performance Value: Products or services provide the best value for the price compared to similar market offerings

Customer Purchase Experience: Quality of the purchase experience assures customers that they are buying the optimal solution for addressing their unique needs and constraints

Customer Ownership Experience: Customers are proud to own the company's product or service, and have a positive experience throughout the life of the product or service

Customer Service Experience: Customer service is accessible, fast, stress-free, and of high quality

