FROST & SULLIVAN

STRADVISION

2022 TECHNOLOGY INNOVATION LEADER

Global
ADAS and AD Perception
Software Industry

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. STRADVISION excels in many of the criteria in the ADAS and AD perception software space.

STRADVISION

Founded in 2014 and headquartered in Seoul, Republic of Korea, STRADVISION provides perception software solutions for advanced driver assistance systems (ADAS) and autonomous driving (AD) applications. STRADVISION bases its product lineups on the core proprietary SVNet technology, which employs deep learning-based perception software for customer applications such as AD, parking, and augmented reality. The company has 160+US patents related to deep neural networks and partnerships with more than 13 original equipment manufacturers (OEMs) for over 50 vehicle models. By offering an optimized solution for each use case, STRADVISION's solutions provide modularity and scalability to all its customers. STRADVISION has been honored with the Gold Award at the 2021 and 2022 AutoSens Awards for Best-in-Class Software for Perception Systems, and the 2020 Autonomous Vehicle Technology ACES Award in Autonomy (Software Category). In addition, STRADVISION's software is certified to ISO 9001:2015 for Quality Management System and ISO 26262 for Automotive Functional Safety. The company has a diverse team of about 300+ employees with offices in Asia-Pacific, North America, and Europe.

Client Needs Drive Rapid Technology Innovation and Comprehensive Portfolio

Automakers are striving to achieve Vision Zero, a global initiative to eliminate traffic-related fatalities and severe injuries, increase safety in mobility, and reduce vehicle emissions. As international regulatory

bodies set higher safety standards and consumers demand more convenience features in their vehicles, automakers need cutting-edge technology solutions for their ADAS and AD applications. Some challenges in developing advanced and failproof ADAS and AD systems include handling critical real-world scenarios, achieving redundancy in system operations, meeting regulatory requirements, and gaining customer acceptance.

STRADVISION recognizes the challenges of AD systems and develops vision perception software for camera systems, which automotive OEMs and tier suppliers utilize to make AD better and safer. The company recently updated its product lineup for different customer applications with modularity and flexibility to increase each product's performance level. Its vision solutions for AD include EntryVision and BasicVision for Society of Automotive Engineers (SAE) Level (L) 0 to L1 applications, such as blind spot information system, reversing information system, forward collision warning, autonomous emergency braking, and lane keeping assist. The lineup also includes CoreVision, a product for L2 to L2+ applications and UltraVision for higher autonomous applications of L3 to L5. All STRADVISION solutions deliver high accuracy for higher autonomous functions in comprehensive operational design domains, such as harsh weather, multiple AD use cases, and corner cases. They are also compatible with low- and high-end system-on-chip (SoC).

> *"STRADVISION's commitment to innovation and creativity enables it to develop optimized solutions that meet client needs and market demands. In addition, its core SVNet technology allows it to stay ahead of the competition by adopting advanced learning algorithms that deliver high efficiency and modularity."*
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> ***– Deexeta Mohankumar, Research Analyst***

In addition, STRADVISION provides solutions for parking applications that range from basic to automated. These include BasicAgent for L0 to L1 parking assistance, AdvancedAgent for L2 to L2+, and ValetAgent for L3 to L5 automated valet parking. To round out its automotive offerings, the company offers ImmersiView to provide positionin and navigation features for AR HUD or in-vehicle display application and an artificial intelligence (AI)/machine learning (ML)-based toolchain called CompliKit for data preparation, model training, validation, and final performance evaluation. STRADVISION's commitment to innovation and creativity enables it to develop optimized solutions that meet client needs and market demands. In addition, its core SVNet technology allows it to stay ahead of the competition by adopting advanced learning algorithms that deliver high efficiency and modularity.

Customer Acquisition and Commercialization Success

STRADVISION's technology solutions are available on more than 18 SoC platforms by leading SoC suppliers such as Texas Instruments, Qualcomm, Nvidia, Ambarella, Samsung (Exynos), and Renesas. Since its solutions are hardware-agnostic and compatible with a wide range of SoCs available in the market, customers can easily integrate them without significant investments or design changes. In general, software development for a new vehicle platform takes about six months, requiring multiple software iterations to reach the pre-production level. However, STRADVISION's technology capabilities in scaling its software solutions allow it to reduce the lead time, which varies by customer, by leveraging software architecture from previously developed platform families.

Unlike conventional technology providers, STRADVISION only provides recognition software, which appeals to customers that want to choose SoC. Its ability to offer optimal performance even with lower-tier SoC allowed STRADVISION to gain many customers and establish value chain partnerships, which provides a competitive advantage among industry peers. Notably, lower-tier SoC solutions require less power and memory consumption, benefitting customers through cost savings.

For its first series production in 2019, STRADVISION collaborated with a Chinese OEM. Since then, it has completed multiple mass-production projects with several leading European OEMs. By 2026, the company aims to introduce SVNet solutions in 13 million consumer vehicles worldwide. Demonstrating performance effectiveness with SoC-specific software architecture, STRADVISION has distinguished itself as a technology provider that can run deep learning-based vision perception features on leading SoC platforms. In contrast, most competitors still rely on ML-based solutions, which require large data sets, time, and resources to improve accuracy.

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Frost & Sullivan commends STRADVISION for its comprehensive offerings that use various advanced technologies to reduce software development time, capture numerous customers, and offer them cost savings.

Application Diversity

Most AD perception software technology developers find it challenging to develop solutions for diverse applications and manage multiple customer requirements for different hardware and network. In comparison, STRADVISION can extend its proprietary SVNet technology to any commercial and off-road vehicle with some level of autonomous application. For example, STRADVISION provides solutions for blind spot detection and eMirror applications in commercial vehicles such as trucks. It can also apply the solutions to agricultural and unmanned military vehicles.

Positioned for Growth

Frost & Sullivan's research on the global autonomous passenger vehicle market in 2022 indicates the total addressable market for L1 to L4 autonomous vehicles will reach 74.54 million units by 2028, with 59% of the vehicles equipped with an L2 and above ADAS/AD software stack.[1] This presents a vast opportunity for ADAS/AD perception technology developers such as STRADVISION. The ADAS/AD solutions based on the SVNet technology are available in more than 50 vehicle models of 13 OEMs, accounting for over 550,000 consumer vehicles in global markets.[2]

[1] https://store.frost.com/global-advanced-driver-assistance-systems-adas-and-autonomous-driving-ad-industry-outlook-2022.html
[2] https://stradvision.com/sv/en/newsroom/stradvision-unveils-new-company-identity-to-accelerate-global-business

The company's short-term strategies focus on vertical market expansion and maximizing business opportunities using Vision AI technology for passenger vehicle driving, parking, and infotainment applications. This includes extending Vision AI to other areas, such as aviation, logistics, and commercial mobility, in the long term. STRADVISION has partnered with leading tier suppliers, such as ZF and Aptiv, and OEMs in China and Europe to ensure scalability and commercialization in global markets. In August 2022, the company completed its Series C funding, raising $88 million. Its cumulative funding since 2014 is $129 million.[3] Frost & Sullivan believes STRADVISION can drive automotive perception software solutions into their next growth phase, capturing market share and sustaining its leadership in the coming years.

Conclusion

With many technologies available for incorporation, ADAS and AD perception software developers need to leverage the most suitable option to optimize their products' market impact. Using its proprietary deep learning-based SVNet technology, STRADVISION delivers a wide portfolio of vision-based software solutions to make AD better and safer. The company outshines competitors through its commitment to innovation, creativity, and ability to launch new solutions with far-reaching impacts and applications. Over half a million cars worldwide utilize its solutions, indicating the company's potential to achieve exponential growth and earn an excellent reputation in the ADAS and AD perception software industry.

With its strong overall performance, STRADVISION earns Frost & Sullivan's 2022 Global Technology Innovation Leadership Award in the ADAS and AD Perception Software industry.

[3] https://stradvision.com/sv/en/newsroom/stradvision-unveils-new-company-identity-to-accelerate-global-business

What You Need to Know about the Technology Innovation Leadership Recognition

Frost & Sullivan's Technology Innovation Leadership Award recognizes the company that has introduced the best underlying technology for achieving remarkable product and customer success while driving future business value.

Best Practices Award Analysis

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

Technology Leverage

Commitment to Innovation: Continuous emerging technology adoption and creation enables new product development and enhances product performance

Commitment to Creativity: Company leverages technology advancements to push the limits of form and function in the pursuit of white space innovation

Stage Gate Efficiency: Technology adoption enhances the stage gate process for launching new products and solutions

Commercialization Success: Company displays a proven track record of taking new technologies to market with a high success rate

Application Diversity: Company develops and/or integrates technology that serves multiple applications and multiple environments

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™

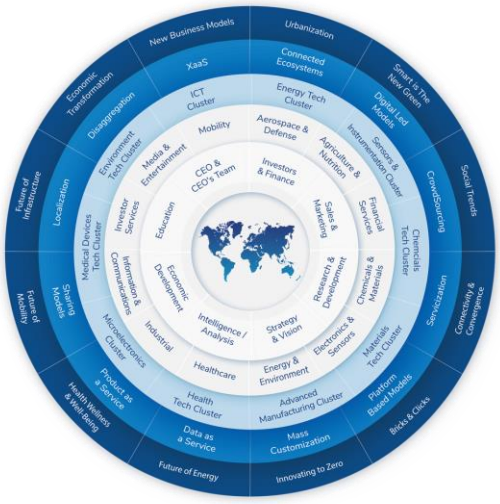
Frost & Sullivan's proprietary model to systematically create ongoing growth opportunities and strategies for our clients is fuelled by the Innovation Generator™.
Learn more.

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 6 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)