

FROST & SULLIVAN

NEWSIGHT IMAGING

2022
TECHNOLOGY
INNOVATION
LEADER

EUROPEAN AUTOMOTIVE
IMAGE SENSORS 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. Newsight Imaging excels in many of the criteria in the automotive image sensors space.

AWARD CRITERIA	
<i>Technology Leverage</i>	<i>Business Impact</i>
Commitment to Innovation	Financial Performance
Commitment to Creativity	Customer Acquisition
Stage Gate Efficiency	Operational Efficiency
Commercialization Success	Growth Potential
Application Diversity	Human Capital

Market Snapshot and Company Profile

Image sensors are integral parts of machine vision cameras. Over the past few years, the image sensor industry has seen significant developments, such as three-dimensional (3-D) imaging, event-based sensing and nonvisible sensing. A 3-D machine vision system usually comprises multiple cameras or laser displacement sensors, allowing for precise measurements of complex 3-D structures. Sensor companies increasingly introduce innovative technologies that enable camera manufacturers to create 3-D imaging applications. With improved object detection, enhanced analysis, monitoring tolerance and accurate component measuring, image sensor technology continues to gain traction across various industries such as food, packaging, automotive and pharmaceutical.

Frost & Sullivan estimates that the European automotive sensor market holds about 21.4% market share and experiences moderate double-digit growth, with a compound annual growth rate of approximately 11.4% from 2019 to 2024¹. Position sensors constitute the predominant segment during the forecast period.

Newsight Imaging is unique in how it leverages its technology to meet its customer’s needs. The company developed complementary metal-oxide-semiconductor (CMOS) image sensors for 3-D machine vision and portable devices for spectral analysis. As a technology leader in automotive image sensors, Newsight Imaging leverages its years of experience in chip design to develop the most complex spectral

¹ Automotive Sensors Market, Forecast to 2024 (Frost & Sullivan December 2019)

and 3-D sensors at a competitive price. Through its wide array of image sensors, the company offers various CMOS sensor chips suitable for use in light detection and ranging (LiDAR) applications, advanced driver assistance systems, and autonomous driving (AD) systems. Frost & Sullivan firmly believes that the company is in an excellent position to capitalize on new growth opportunities, cementing its leadership in automotive image sensors.

A Commitment to Innovation and Creativity

In the last seven years, Newsight Imaging has developed CMOS 3-D technology with the support of world-class experts. The company continuously develops solutions to bridge industry gaps, including within the automotive market, utilizing a holistic approach to image-sensing. Newsight Imaging recently released the eTOF[®] Lidar, an innovative solid-state LiDAR reference design based on the NSI1000 sensor that uses its patent enhanced time-of-flight (eTOF) technology. The company's new sensor is a reference design for 3-D long-range LiDAR, based on five years of joint innovation with partners, including Fraunhofer and Tower-Jazz. This unique patented solution replaces all existing 3-D technologies that rely on capturing depth points. Respectively, instead of capturing only 20 or 30 depth points at a time, the new technology can capture over 32,000 depth points simultaneously. Furthermore, this exceptional image sensor also offers efficient event detection capabilities to prompt real-time responses.

“Newsight Imaging’s core image sensing technology is based on the eTOF principle and allows the sensor to capture the highest depth of all points. This enables advanced real-time image sensing capabilities, which is critical for ensuring the highest precision and safety for automotive applications.”

***- Deexeta Mohankumar
Mobility Research Analyst***

Newsight’s upcoming sensor chip, The NSI9000, provides high resolution (491K pixels) at a significantly lower price than other available products. The sensor also features low power consumption and is easy to integrate, making it an attractive and affordable option for mass-market original equipment manufacturers (OEMs). With its high-resolution, high-speed global shutter at 132 frames per second on full resolution and a depth

accuracy of less than 1%, the new chip offers almost five times the picture resolution of its closest competitor. This technology also can extract a full resolution black-and-white image from the same frame data as a depth image, making system development involving image and depth fusion simpler.

With its proprietary technology, Newsight Imaging offers a unique depth calculating method that requires no heavy calculations or expensive microcontroller units. Additionally, the sensor can detect objects up to 200 meters away. Moreover, the chip uses a standard CMOS image sensor process and requires only 1.8 volts and 3.3 volts of power, making it a low-power, easy to integrate and cost-effective solution. Newsight Imaging’s technology is the only solution with multi-triangulation of 480 ultra-accurate depth points, down to micron accuracy, for close 3-D inspection of production rail objects. By attaching a unique circuit to each pixel, the solution enables event-driven imaging, which broadcasts only lines with pixels that have changed from a previous frame. Thus, this feature is designed explicitly for smart-city-enabled cameras and smart traffic solutions.

In addition to its new product technology development, Newsight Imaging introduced SpectraLIT an artificial intelligence (AI)-based development kit for spectral analysis applications. This technology

enables spectral profiling of substances between 400 and 700 nanometers (nm) in seconds. It also boasts unique features, such as a high frame rate (up to 100,000 frames per second on a single line) and AI-ready multi-set features. Next-generation SpectraLIT can support wavelengths between 400 and 1100 nm. These technological breakthroughs can transform mundane tasks such as water monitoring, at-home virus detection and even remote health monitoring.

Frost & Sullivan sees Newsight Imaging's technology as a ground-breaking, innovative technology. Its strong intellectual property portfolio has led to the release of several advanced sensor chips to the market with high volumes sold to many customers in Europe and globally. Currently, the company has over ten United States and European patents and multiple grants from the Israeli Innovation Authority. Newsight Imaging's core image sensing technology is based on the eTOF principle and allows the sensor to capture the highest depth of all points. This enables advanced real-time image sensing capabilities, which is critical for ensuring the highest precision and safety for automotive applications. Using its imaging sensors range, Newsight Imaging has implemented significant, proven and innovative ideas while also expanding its solution's capabilities to ensure that it meets the stringent demands of customers' targeted applications.

Client Relationships Lead to Expansion Opportunities

Newsight Imaging has a history of designing best-in-class image sensor solutions. The company develops affordable and advanced vehicle sensing technologies for premium and mass-market cars. Unlike other firms, Newsight Imaging does not focus solely on advanced autonomous vehicles; Newsight Imaging makes a difference in improving safety for everyone and plays a vital role in this area.

Newsight Imaging's technology scales to fit automotive industry needs. It offers configurability to support technology and infrastructure revolutionizing the market, which upholds its pioneering technology and adds value relative to its growth potential, thus achieving a key competitive advantage.

Thanks to its 2019 distribution agreement with lead distributors and a local sub company in Shenzhen China, the company has expanded its presence for the past two years in the Asia-Pacific region,

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- Norazah Bachok
Best Practices Research Analyst

including Australia, Greater China, India, , Korea, , New Zealand, Philippines, Singapore, Thailand, and Vietnam. Its strong presence in the region is a testament to its credibility and ability to address customer needs for accurate, reliable and affordable machine vision solutions. Newsight Imaging's robust expansion and continual technological enhancement improves its business performance. As a result, the company is recognized regularly and has built trust with businesses and organizations worldwide.

The company's established partners include Tier 1 suppliers, such as ZKW, and OEMs such as Audi and BMW. Additionally, Newsight Imaging announced a partnership with SSZN, which specializes in developing smart Industry

4.0 solutions for automating production line supervision. As part of the agreement, Newsight Imaging will supply SSZN with the NSI1000 sensor chip, which will enable SSZN to produce advanced industrial sensor lines that will serve SSZN's customers. In 2022, Newsight Imaging signed a memorandum of understanding with LIPS to develop and promote new 3-D vision products. LIPS is a leader in providing 3-D AI solutions, and through this collaboration, the company will incorporate the advanced NSI1000 depth sensors and NSI9000 upcoming depth sensors into LIPS camera and system solutions. As a result, LIPS' advanced technology solutions will offer market participants the opportunity to receive high-end 3-D solutions at a very affordable and mass-volume-oriented price point.

The company's cutting-edge technology provides highly integrated solutions for production supervision, enabling real-time monitoring and maneuverability for any manufacturing process. Frost & Sullivan anticipates rapid, widespread technology adoption. The company's first-mover status strengthens its position on emerging opportunities.

Continuous Sustainable Business Performance Leads to More Growth Opportunities

With its customer-led strategy, Newsight Imaging consistently brings to market best-in-class systems. By continuously satisfying its customers' current and growing demands for accurate, reliable and affordable 3-D machine vision solutions, it has built a sterling reputation among its high-volume customers. Furthermore, Newsight Imaging successfully released several new features and product enhancements in 2021, further serving as a testament to its commitment to technology advancement and business growth.

In May 2020, Newsight Imaging raised \$7 million in a Series A funding round to accelerate market expansion, product technology investment, sales and marketing initiatives. Upon the success of the funding, the company completed a collaborative prototype design with ZKW, a premier automotive lighting company, won several design awards and concluded successful pilots with several industry players in spectral analysis. Furthermore, the company also completed a pilot program in virus detection at home with a leading Israeli medical center. The company has established a joint venture with Sheba medical center called "Virusight Diagnostic" (www.virusight.co.il) which completed successfully recently a clinical test of detecting covid-19 in less than 20 seconds, and is starting its commercialization these days. The company also established a joint venture company with Israel's national water company Mekorot ("Watersight" www.watersight.ai) and intends to launch its first product in few weeks.

While evolving from a technology standpoint, Newsight Imaging never loses sight of its customers' perspective. Its brand maintains its European presence while meeting customer-specific needs. In today's highly competitive automotive image sensors market, Frost & Sullivan believes the company is well-positioned to increase its market share.

Whether it is for automotive safety, robotics, LiDAR or other applications, Newsight Imaging's comprehensive 3-D CMOS image sensor chip is the ideal choice. Subsequently, this innovative 3-D imaging sensor technology has enabled the company to achieve remarkable commercial success.

Conclusion

Technology is a critical success factor for the automotive image sensors industry. Yet, with many options available, market stakeholders need to leverage the most appropriate and best technology-based solutions to optimize their market impact. With its comprehensive 3-D complementary metal-oxide-semiconductor (CMOS) image sensor chip with enhanced time-of-flight technology, Newsight Imaging delivers a superior range of CMOS sensor chips for use in light detection and ranging applications, advanced driver assistance systems and autonomous driving vehicles.

Its depth camera sensors for machine vision are suitable to serve numerous verticals, including robotics, Industry 4.0 and automotive safety. Newsight Imaging stands out from competitors based on its commitment to innovation and creativity while achieving commercial success. Moreover, Newsight Imaging has demonstrated an impressive capacity for developing advanced solutions at an affordable price, building high-volume advanced image sensor products with the industry's best return on investment.

For its strong overall performance, Newsight Imaging is recognized with Frost & Sullivan's 2022 European Technology Innovation Leadership Award in the automotive image sensors industry.

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™.

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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)**

