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Automotive Lidar Market – Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Application (Semi-Autonomous Vehicle and Autonomous Vehicle), By Technology (Mechanical LiDAR and Solid-state LiDAR), By Range (Short- & Mid-range and Long Range), By Vehicle Type (Internal Combustion Engine (ICE) and Electric & Hybrid), By Region & Competition, 2021-2031F

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Abstracts

The Global Automotive Lidar Market is anticipated to expand from USD 0.64 billion in 2025 to USD 3.05 billion by 2031, reflecting a compound annual growth rate of 29.72%. Light Detection and Ranging (Lidar) is an advanced sensing technology that uses laser pulses to calculate distances and create accurate three-dimensional maps of a vehicle's surroundings, enabling real-time object identification and classification. This market expansion is largely fueled by the rising need for Advanced Driver-Assistance Systems and autonomous driving features, coupled with stricter international vehicle safety standards that require superior perception technologies to prevent accidents.

Despite this positive outlook, the widespread growth of the market is hindered by the high expense of Lidar sensors, limiting their adoption in mass-market vehicle categories. Data from the European Automobile Manufacturers' Association (ACEA) indicates that global car manufacturing hit 78.7 million units in 2025, marking a 4.2% rise. This highlights a massive potential market for Lidar systems as their integration into modern vehicles progressively advances.

Market Driver

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The growing implementation of advanced driver-assistance systems (ADAS) and autonomous driving innovations serves as a major driver for the global automotive Lidar market. These sensors are vital to such systems, delivering the accurate three-dimensional mapping required for object recognition, classification, and route planning in intricate driving environments. As higher-level autonomous capabilities are continuously developed and deployed, they require the strong perception strengths of Lidar to supplement other sensors like cameras and radar. For instance, Mercedes-Benz reported that in December 2024, its upgraded DRIVE PILOT system was approved by the German Federal Motor Transport Authority for early 2025 sales, allowing conditionally automated driving at speeds up to 95 km/h in Germany. As the fastest certified SAE Level 3 system in a production car, this demonstrates Lidar's importance in progressing hands-free, eyes-off driving and improving vehicle safety.

Another crucial driver is the falling cost and enhanced production scalability of Lidar sensors, which overcomes a primary obstacle to broader market acceptance. In the past, the steep prices of Lidar devices confined their application to luxury models and experimental self-driving cars. Today, innovations in solid-state Lidar and refined manufacturing techniques are drastically cutting unit expenses and facilitating mass production. Innoviz Technologies, for example, launched its InnovizThree LiDAR sensor in January 2026, dropping costs by more than 35% relative to the InnovizTwo model. This development makes Lidar more affordable for standard and mid-range vehicles, driving deeper market penetration. Additionally, this growth is bolstered by the expanding automotive electronics industry; an April 2025 report from the Infosys Knowledge Institute projected that the global automotive semiconductor market, essential for Lidar systems, will surge from $51 billion in 2025 to $102 billion by 2034.

Market Challenge

The relatively steep price of Lidar sensors presents a major hurdle to the broad expansion of the global automotive Lidar market. These high costs directly restrict the technology's incorporation into the high-volume vehicle segments that make up the bulk of worldwide auto production. Because car manufacturers are under immense pressure to control manufacturing expenses to keep mass-market vehicles competitively priced, the current financial burden of Lidar technology makes it economically unfeasible for most standard models. Consequently, its use is largely limited to luxury automobiles and specialized autonomous driving setups.

This financial obstacle prevents Lidar from reaching a massive segment of the

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automotive industry. Data from the International Organization of Motor Vehicle Manufacturers (OICA) reveals that global motor vehicle manufacturing surpassed 68.7 million units during the first three quarters of 2025. Although this statistic highlights an enormous potential market for advanced sensing systems, the substantial per-unit expense of Lidar sensors dictates that only a minor percentage of these vehicles can practically adopt them. This limitation directly hinders the overall market value and growth trajectory of automotive Lidar technologies.

Market Trends

Innovations in 4D and FMCW LiDAR technologies are completely transforming the perception functions of automotive Lidar systems. Frequency Modulated Continuous Wave (FMCW) Lidar delivers distinct benefits by capturing immediate velocity data for each identified point, which improves object differentiation and boosts reliability in poor weather. Additionally, FMCW setups are naturally resistant to interference from ambient lighting and other Lidar devices. In January 2025, for example, Aeva partnered with Wideye to demonstrate an in-cabin FMCW 4D LiDAR mounted behind a specialized windshield. Importantly, these advancements allow for vastly expanded detection ranges; a July 2025 investor presentation from Aurora Innovation noted that its FirstLight FMCW Lidar can identify objects at over twice the distance of conventional lidar systems.

The market for automotive Lidar is also being deeply influenced by strengthening partnerships between Lidar suppliers and original equipment manufacturers to improve factory integration and speed up mass production. Rather than just facilitating sensor purchases, these alliances prioritize the co-development and tailoring of Lidar solutions for particular assembly lines and vehicle designs. Such collaboration is essential to reach the economies of scale required for widespread market integration. For instance, in March 2026, AEye, Inc. revealed its selection by a leading global transportation OEM for a project offering a $30 million revenue opportunity, expecting wider implementation by late 2026. These direct partnerships play a critical role in smoothly incorporating Lidar technology throughout the automotive manufacturing landscape.

Key Market Players

Hesai Technology Co., Ltd

RoboSense Technology Co., Ltd.

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Luminar Technologies, Inc.

Valeo SA

Innoviz Technologies Ltd.

Aeva Inc.

Ouster, Inc.

Hexagon AB

Faro Technologies, Inc.

Teledyne Technologies Inc.

Report Scope

In this report, the Global Automotive Lidar Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

Automotive Lidar Market, By Application

Semi-Autonomous Vehicle

Autonomous Vehicle

Automotive Lidar Market, By Technology

Mechanical LiDAR

Solid-state LiDAR

Automotive Lidar Market, By Range

Short- & Mid-range

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South Korea

South America

Brazil

Argentina

Colombia

Middle East & Africa

South Africa

Saudi Arabia

UAE

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Automotive Lidar Market.

Available Customizations:

Global Automotive Lidar Market report with the given market data, TechSci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).

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