

Automotive LiDAR Market by Technology (Mechanical LiDAR and Solid-state LiDAR), Image Type, ICE Vehicle Type (PC, LCV, HCV), Location, Electric Vehicle, Range, Laser Wavelength, Measurement Process, Level of Autonomy, and Region - Global Forecast to 2030

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Report description:

The global automotive LiDAR market is projected to reach USD 1.19 billion in 2024 to USD 9.59 billion in 2030, at a CAGR of 41.6% from 2024-2030.

The automotive LiDAR market is expanding rapidly, driven by continuous advancements in imaging and detection technologies, rising demand for luxury vehicles equipped with LiDAR, and a push toward higher levels of vehicle autonomy. Automakers like Mercedes-Benz Group AG (Germany), BMW Group (Germany), and BYD Co., Ltd. (China) are integrating LiDAR into models such as the Mercedes-Benz EQS, BMW i7, and BYD Han DM-i, enhancing driver assistance systems and enabling higher vehicle autonomy levels. In Asia Pacific, the market is witnessing significant growth, fueled by government initiatives and technological advancements, including China's goal to equip 70% of new cars with Level 2 or Level 3 autonomy by 2025 and developments in robotaxi services by companies like Baidu Inc. (China) and WeRide. Ai (China). Additionally, innovations like Aeva Inc.'s (US) Atlas, the first 4D LiDAR sensor designed for mass production, are setting new benchmarks in the industry. With growing regulatory emphasis on vehicle safety and increasing consumer demand for convenience and automation, the automotive LiDAR market is poised for substantial global growth, with Asia Pacific leading the way.

"Passenger Cars segment is expected to hold the largest share in the automotive LiDAR market during the forecast period."

The passenger cars segment is anticipated to hold the largest market share over the forecast period, driven by several key factors. The growing trend of autonomous mobility in passenger cars significantly impacts the demand for LiDAR technology, as it is essential for advanced driver assistance systems that enhance vehicle safety and performance. Features such as automatic emergency braking, adaptive cruise control, and emergency lane keeping systems are increasingly becoming standard, pushing

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manufacturers to integrate LiDAR into their vehicles. Numerous passenger car models are already equipped with LiDAR, including the Mercedes-Benz EQS, Xpeng G9, BMW iX3, and BYD Han DM-i, reflecting the industry's commitment to adopting this technology. Furthermore, Waymo LLC's (US) 6th generation Waymo Driver system, launched in August 2024, features four LiDAR sensors, while vehicles like the Lotus Emeya also incorporate four LiDAR units, and GAC Aion's HYPTEC HT and HYPTEC GT models feature three LiDAR sensors each. As consumer awareness of safety features rises and regulatory pressures increase, the integration of LiDAR in passenger vehicles is expected to expand further. Overall, the combination of technological advancements and heightened consumer demand positions the passenger car segment for substantial growth in the automotive LiDAR market. "Bumper & Grill segment is expected to hold the largest share in the automotive LiDAR market during the forecast period." The bumper and grill segment is set to establish a strong foothold in the automotive LiDAR market, driven by its suitability for seamless integration and optimal placement for front-facing perception. Installing LiDAR in the bumper or grill allows manufacturers to embed sensors without compromising vehicle aesthetics or aerodynamics, making it a preferred choice. Many luxury vehicles, such as the Mercedes-Benz S-Class and BMW i7, feature LiDAR integrated into the grill, highlighting its practicality and effectiveness in advanced driver-assistance systems. As the demand for autonomous capabilities grows, the bumper and grill location is poised to remain a key focus for LiDAR integration. Additionally, companies are innovating with LiDAR integration in various vehicle locations. In April 2024, Marelli Holdings Co., Ltd. (Japan) and Hesai Group (China) introduced LiDAR-integrated headlamps, blending Hesai's compact ATX LiDAR into Marelli's lighting system, reducing volume by nearly 60% for seamless and affordable integration. For roof-mounted solutions, Luminar Technologies, Inc.'s (US) LiDAR, featured in the Volvo EX90, and Hesai Group's AT128, integrated with Webasto Group's (Germany) roof sensor module as shown in September 2023, demonstrate the versatility of LiDAR placement. As demand for autonomy grows, the bumper and grill, along with these innovative placements, remain key areas for LiDAR adoption.

"Germany is expected to lead in European automotive LiDAR market during the forecast period."

Germany is set to lead the automotive LiDAR market in Europe, driven by several key factors. The country boasts a robust automotive hub, home to major players such as Mercedes-Benz Group AG (Germany), BMW Group (Germany), and Volkswagen Group (Germany), which are at the forefront of developing advanced autonomous technologies. Germany's progressive regulatory environment already permits Level 3 autonomous vehicles, with models like the Mercedes S-Class and EQS operating in designated areas, highlighting the country's commitment to integrating cutting-edge technology into its automotive landscape. Additionally, BMW Group (Germany) is expanding its lineup with LiDAR-equipped models to enhance autonomous capabilities; for instance, in January 2024, Innoviz demonstrated the BMW i7, which features InnovizOne LiDAR for Level 3 driving. As Germany continues to prioritize innovation and safety in its automotive sector, it is well-positioned to maintain its leadership in the European automotive LiDAR market.

In-depth interviews were conducted with CEOs, marketing directors, other innovation and technology directors, and executives from various key organizations operating in this market.

- By Company Type: Tier I 33%, Tier II 43%, and Tier III 24%
- -□By Designation: Directors 28%, Managers 53%, and Others 19%
- By Region: Asia Pacific 27%, North America 42%, and Europe 31%

The automotive LiDAR market is dominated by major players, including RoboSense Technology Co., Ltd. (China), Hesai Group (China), Luminar Technologies, Inc. (US), Seyond (US), Huawei Technologies Co., Ltd. (China), Innoviz Technologies Ltd. (Israel), Valeo (France) and more. These companies are expanding their portfolios to strengthen their automotive LiDAR market position. Research Coverage:

The report covers the automotive LiDAR market in terms of Technology (Mechanical LiDAR and Solid-state LiDAR), Image Type (2D and 3D), ICE Vehicle Type (Passenger Cars, Light Commercial Vehicles, and Heavy Commercial Vehicles), Location (Bumper & Grill, Headlight & Taillight, Roof & Upper Pillars, and Others), Electric Vehicle Type (Battery Electric Vehicles, Plug-in Hybrid Electric Vehicles, Fuel Cell Electric Vehicles, Hybrid Electric Vehicles), Range (Short and Mid-range (170m and Below) and Long range (Above 170m), Laser Wavelength (Near Infrared, Short-wave Infrared, and Long-wave Infrared), Measurement Process (Frequency Modulated Continuous Wave and Time of Flight), Level of Autonomy (Semi-autonomous and Autonomous), and Region. It covers the competitive landscape and company profiles of the significant automotive LiDAR market players.

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The study also includes an in-depth competitive analysis of the key market players, their company profiles, key observations related to product and business offerings, recent developments, and key market strategies.

Key Benefits of Buying the Report:

- The report will help market leaders/new entrants with information on the closest approximations of revenue numbers for the automotive LiDAR market and its subsegments.
- This report will help stakeholders understand the competitive landscape and gain more insights to position their businesses better and plan suitable go-to-market strategies.
- The report also helps stakeholders understand the market pulse and provides information on key market drivers, restraints, challenges, and opportunities.
- -IThe report also helps stakeholders understand the current and future pricing trends of the automotive LiDAR market.
- The report will help market leaders/new entrants with information on various trends in LiDAR market based on range, image type, technology, and other parameters.

The report provides insight on the following pointers:

- Analysis of key drivers (LiDAR's technological edge to fuel market expansion, OEM focus on testing and deployment of vehicles with higher level of autonomy, Government regulations for integration of advanced safety technologies), restraints (Higher cost of LiDAR, Emergence of alternative technologies), opportunities (Rise of robotaxi and ride-hailing services, Commercial vehicle automation in logistics and transportation), and challenges (Fluctuating raw material prices and supply chain disruptions, Infrastructure Gaps Hinder growth in Emerging markets)
- Product Development/Innovation: Detailed insights on upcoming technologies, research & development activities, and new product & service launches in the automotive LiDAR market.
- Market Development: Comprehensive information about lucrative markets the report analyses the automotive LiDAR market across varied regions.
- Market Diversification: Exhaustive information about new products & services, untapped geographies, recent developments, and investments in the automotive LiDAR market.
- Competitive Assessment: In-depth assessment of market share, growth strategies, and service offerings of leading players like RoboSense Technology Co., Ltd. (China), Hesai Group (China), Luminar Technologies, Inc. (US), Seyond (US), Huawei Technologies Co., Ltd. (China), Innoviz Technologies Ltd. (Israel), and Valeo (France) among others in automotive LiDAR market.

Table of Contents:

1⊓INTRODUCTION□28

- 1.1 STUDY OBJECTIVES 28
- 1.2 | MARKET DEFINITION | 29
- 1.3 STUDY SCOPE 32
- 1.3.1 MARKET SEGMENTATION 32
- 1.3.2 INCLUSIONS & EXCLUSIONS 33
- 1.4 TEARS CONSIDERED 34
- 1.5 CURRENCY CONSIDERED 34
- 1.6 UNIT CONSIDERED 35
- $1.7 \verb||STAKEHOLDERS|| 35$
- 2 RESEARCH METHODOLOGY 36
- 2.1 RESEARCH DATA 36
- 2.1.1 SECONDARY DATA 38
- $2.1.1.1 \verb|| Secondary sources \verb||| 38$
- 2.1.1.2 Key data from secondary sources 40
- 2.1.2 PRIMARY DATA 40
- 2.1.2.1 Primary interviewees from demand and supply sides 141
- 2.1.2.2 Breakdown of primary interviews 41

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- 2.1.2.3 Primary participants 41
- 2.1.2.4 Objectives of primary research 42
- 2.2 MARKET SIZE ESTIMATION 42
- 2.2.1 BOTTOM-UP APPROACH 44
- 2.2.2 TOP-DOWN APPROACH 45
- 2.3 DATA TRIANGULATION 46
- 2.4∏FACTOR ANALYSIS∏48
- 2.5 RESEARCH ASSUMPTIONS 148
- 2.6 RESEARCH LIMITATIONS 49
- 2.7∏RISK ASSESSMENT∏50
- 3∏EXECUTIVE SUMMARY∏52
- 4∏PREMIUM INSIGHTS∏56
- 4.1 ATTRACTIVE OPPORTUNITIES FOR PLAYERS IN AUTOMOTIVE LIDAR MARKET 56
- 4.2□AUTOMOTIVE LIDAR MARKET, BY REGION□57
- 4.3∏AUTOMOTIVE LIDAR MARKET, BY TECHNOLOGY∏57
- 4.4∏AUTOMOTIVE LIDAR MARKET, BY IMAGE TYPE∏58
- 4.5∏AUTOMOTIVE LIDAR MARKET, BY ICE VEHICLE TYPE∏58
- 4.6□AUTOMOTIVE LIDAR MARKET, BY LOCATION□59
- 4.7 AUTOMOTIVE LIDAR MARKET, BY ELECTRIC VEHICLE TYPE 159
- 4.8 \ AUTOMOTIVE LIDAR MARKET, BY RANGE \ 60
- 4.9∏AUTOMOTIVE LIDAR MARKET, BY LASER WAVELENGTH∏60
- 4.10 AUTOMOTIVE LIDAR MARKET, BY MEASUREMENT PROCESS 61
- 4.11 \\ AUTOMOTIVE LIDAR MARKET, BY LEVEL OF AUTONOMY \\ 61
- 5∏MARKET OVERVIEW∏62
- 5.1□INTRODUCTION□62
- 5.2 MARKET DYNAMICS 63
- 5.2.1 □ DRIVERS □ 63
- 5.2.1.1 Rapid advancements in LiDAR technology 63
- 5.2.1.2□Focus of OEMs on testing and deploying vehicles with high

level of autonomy \ 64

- 5.2.1.3 Stringent government regulations for integrating advanced
- safety technologies \ 65
- 5.2.2□RESTRAINTS□66
- 5.2.2.1 High cost of LiDAR 66
- 5.2.2.2 Emergence of alternative technologies 67
- 5.2.3 OPPORTUNITIES 68
- 5.2.3.1 Rise of robotaxi and ride-hailing services 68
- 5.2.3.2 Automation of commercial vehicles 70
- $5.2.4 \verb||CHALLENGES|||71$
- 5.2.4.1 Fluctuating prices of raw materials and supply chain disruptions 71
- 5.2.4.2 Poor performance in challenging weather conditions 71
- 5.3 TRENDS & DISRUPTIONS IMPACTING CUSTOMER BUSINESS 73
- 5.4 PRICING ANALYSIS 74
- 5.4.1 AVERAGE SELLING PRICE, BY KEY PLAYER, 2024 74
- 5.4.2 AVERAGE SELLING PRICE, BY ICE VEHICLE TYPE 175
- 5.4.3 AVERAGE SELLING PRICE, BY REGION 75
- 5.5 IMPACT OF AI ON AUTOMOTIVE LIDAR MARKET 76

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- 5.6 ECOSYSTEM ANALYSIS 77
- 5.7 VALUE CHAIN ANALYSIS 78
- 5.8 CASE STUDY ANALYSIS 79
- 5.8.1 TATA ELXSI LEVERAGED AI-POWERED LIDAR TECHNOLOGY TO ENHANCE VEHICLE DETECTION CAPABILITY IN AUTONOMOUS DRIVING SYSTEMS 79
- 5.8.2 IMERIT PROVIDED EXPERT LIDAR DATA ANNOTATION SERVICES, ENABLING AUTONOMOUS VEHICLE COMPANY TO LABEL AND SEGMENT 3D POINT CLOUD DATA 180
- 5.8.3∏FORTERRA DEPLOYED OUSTER'S DIGITAL LIDAR SENSORS TO ENHANCE VISIBILITY AND NAVIGATION CAPABILITIES OF ITS AUTODRIVE PLATFORM□80
- 5.8.4□LUMINAR INTEGRATED ITS LIDAR TECHNOLOGY INTO ITS SOFTWARE TO HELP MANUFACTURERS ACCELERATE DEPLOYMENT OF AUTONOMOUS VEHICLES□81
- 5.8.5 AVANTIER HELPED AUTONOMOUS VEHICLE COMPANY DEVELOP COST-EFFICIENT AND HIGH-PERFORMANCE LIDAR SOLUTIONS 181
- 5.9□INVESTMENT AND FUNDING SCENARIO□82
- 5.10 PATENT ANALYSIS 83
- 5.11 □ TECHNOLOGY ANALYSIS □ 87
- 5.11.1 KEY TECHNOLOGIES 87
- 5.11.1.1 Frequency-modulated continuous wave (FMCW) LiDAR 87
- 5.11.1.2 4D LiDAR 87
- 5.11.2 COMPLEMENTARY TECHNOLOGIES 88
- 5.11.2.1 Sensor suite 88
- 5.11.2.2 Flash LiDAR technology 88
- 5.11.3 ADJACENT TECHNOLOGIES 89
- 5.11.3.1 Perception software 89
- 5.11.3.2 Simultaneous localization and mapping (SLAM) 90
- 5.11.3.3 Optical beam-steering 90
- 5.12 \ HS CODE \ 91
- 5.12.1 IMPORT SCENARIO 191
- 5.12.2 EXPORT SCENARIO 93
- 5.13 REGULATORY LANDSCAPE 94
- 5.13.1 REGULATIONS PERTAINING TO USAGE OF AUTONOMOUS VEHICLES,
- BY KEY COUNTRY∏96
- 5.13.2 REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS 97
- 5.14 KEY CONFERENCES & EVENTS, 2025-2026 100
- 5.15 KEY STAKEHOLDERS AND BUYING CRITERIA 101
- 5.15.1 KEY STAKEHOLDERS IN BUYING PROCESS 101
- 5.16 BUYING CRITERIA 103
- 5.17 OEM ANALYSIS 104
- 5.17.1 INTEGRATION OF LIDAR SOLUTIONS INTO VEHICLES BY OEMS INTO
- $5.17.2 \square$ INSTALLATION OF LIDAR SYSTEMS IN PASSENGER CARS \square 105
- 5.17.3 DESIGN WINS FOR KEY LIDAR COMPANIES 105
- 5.17.4 AUTOMOTIVE LIDAR MARKET: SUPPLIER ANALYSIS 106
- 6∏AUTOMOTIVE LIDAR MARKET, BY ICE VEHICLE TYPE∏111
- 6.1□INTRODUCTION□112
- 6.2 PASSENGER CAR 114
- 6.2.1 GROWING DEMAND FOR ADVANCED SAFETY FEATURES TO DRIVE MARKET 114
- 6.3 LIGHT COMMERCIAL VEHICLE (LCV) 116

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- 6.3.1 RISING NEED FOR REAL-TIME OBSTACLE DETECTION IN LCVS TO BOOST MARKET 116
- 6.4 HEAVY COMMERCIAL VEHICLE (HCV) 117
- 6.4.1 □ ADVANCEMENTS IN TRUCK AUTOMATION TO FUEL MARKET GROWTH □ 117
- 6.5 INSIGHTS FROM INDUSTRY EXPERTS 119
- 7 AUTOMOTIVE LIDAR MARKET, BY ELECTRIC VEHICLE TYPE 120
- 7.1 INTRODUCTION 121
- 7.2 BATTERY ELECTRIC VEHICLE (BEV) 123
- 7.2.1 SHIFT TOWARD FULLY AUTOMATED DRIVING TECHNOLOGIES TO ACCELERATE NEED FOR RELIABLE LIDAR 123
- 7.3 | FUEL CELL ELECTRIC VEHICLE (FCEV) | 126
- 7.3.1∏FOCUS OF OEMS ON ENHANCING SAFETY AND RELIABILITY IN CHALLENGING WEATHER CONDITIONS TO BOOST MARKET∏126
- 7.4 PLUG-IN HYBRID ELECTRIC VEHICLE (PHEV) □ 127
- 7.4.1 ⊓RISING DEMAND FOR HIGH LEVEL OF AUTONOMY IN VEHICLES TO FUEL GROWTH □127
- 7.5 ☐ HYBRID ELECTRIC VEHICLE (HEV) ☐ 129
- 7.5.1 □ NEED FOR IMPROVEMENT AND INNOVATION IN HEVS TO BOOST ADOPTION OF LIDAR TECHNOLOGY □ 129
- 7.6 INSIGHTS FROM INDUSTRY EXPERTS 129
- 8∏AUTOMOTIVE LIDAR MARKET, BY IMAGE TYPE∏130
- 8.1□INTRODUCTION□131
- 8.2[2D[133
- 8.2.1 EASE OF USE AND COST EFFICIENCY OF 2D LIDAR TO DRIVE GROWTH 133
- 8.3□3D□134
- 8.3.1 ∏ADVANCEMENTS IN AUTONOMOUS DRIVING TECHNOLOGY TO DRIVE MARKET ☐ 134
- 8.4 INSIGHTS FROM INDUSTRY EXPERTS 136
- 9∏AUTOMOTIVE LIDAR MARKET, BY LASER WAVELENGTH∏137
- 9.1□INTRODUCTION□138
- 9.2 NEAR-INFRARED 141
- 9.2.1 COST EFFICIENCY OF NEAR-INFRARED LIDAR TO DRIVE MARKET GROWTH 141
- 9.3∏SHORT-WAVE INFRARED∏142
- 9.3.1□ABILITY OF SHORT-WAVE INFRARED LIDAR TO ENHANCE DETECTION IN CHALLENGING WEATHER CONDITIONS TO BOOST ITS POPULARITY□142
- 9.4∏LONG-WAVE INFRARED∏142
- 9.4.1 ☐ ABILITY OF LONG-WAVE INFRARED LIDAR TO PRODUCT HIGH-QUALITY IMAGES TO BOOST DEMAND ☐ 142
- 9.5∏INSIGHTS FROM INDUSTRY EXPERTS∏142
- 10∏AUTOMOTIVE LIDAR MARKET, BY LEVEL OF AUTONOMY∏143
- 10.1 INTRODUCTION 144
- 10.2□SEMI-AUTONOMOUS□146
- 10.2.1 STRINGENT REGULATIONS TO DRIVE INTEGRATION OF LIDAR TECHNOLOGY INTO SEMI-AUTONOMOUS VEHICLES 146
- 10.3∏AUTONOMOUS∏148
- 10.3.1∏FOCUS ON ENHANCING OBJECT DETECTION USING 3D MAPPING
- TO BOOST MARKET∏148
- 10.4 INSIGHTS FROM INDUSTRY EXPERTS 149
- 11∏AUTOMOTIVE LIDAR MARKET, BY LOCATION∏150
- 11.1 INTRODUCTION 151
- 11.2 BUMPER & GRILLE 153
- 11.2.1 INCREASING FOCUS OF OEMS ON ADAS FEATURES TO PROPEL MARKET 153
- 11.3 HEADLIGHT & TAILLIGHT 155
- 11.3.1 NEED FOR ENHANCED SAFETY IN VEHICLES TO BOOST MARKET 155
- 11.4 ROOF & UPPER PILLAR 156

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- 11.4.1 \square DEMAND FOR LONG-RANGE OBJECT DETECTION SYSTEM TO SPUR DEMAND \square 156
- 11.5 OTHER LOCATIONS 158
- 11.6 INSIGHTS FROM INDUSTRY EXPERTS 160
- 12 AUTOMOTIVE LIDAR MARKET, BY MEASUREMENT PROCESS 161
- 12.1□INTRODUCTION□162
- 12.2 TIME OF FLIGHT (TOF) 164
- 12.3 FREQUENCY-MEASUREMENT CONTINUOUS WAVE (FMCW) 165
- 12.4 INSIGHTS FROM INDUSTRY EXPERTS 166
- 13 AUTOMOTIVE LIDAR MARKET, BY TECHNOLOGY 167
- 13.1∏INTRODUCTION∏168
- 13.2 MECHANICAL LIDAR 170
- 13.2.1 FOCUS ON INCREASING VEHICLE SAFETY TO DRIVE MARKET 170
- 13.3 SOLID-STATE LIDAR 172
- 13.3.1 NEED FOR INCREASED RELIABILITY AND DURABILITY TO DRIVE MARKET 172
- 13.3.1.1 Microelectromechanical system (MEMS) LiDAR 174
- 13.3.1.2∏Flash LiDAR∏174
- 13.3.1.3 Optical phased array (OPA) LiDAR 174
- 13.3.1.4 Others 175
- 13.4 INSIGHTS FROM INDUSTRY EXPERTS 175
- 14 AUTOMOTIVE LIDAR MARKET, BY RANGE 176
- 14.1 INTRODUCTION 177
- 14.2 SHORT- & MID-RANGE (170 METERS AND BELOW) 179
- 14.2.1 NEED FOR IMPROVED, ADVANCED DRIVER-ASSISTANCE CAPABILITY IN VEHICLES TO DRIVE MARKET 179
- 14.3□LONG-RANGE (ABOVE 170 METERS)□179
- 14.3.1 DEMAND FOR LIDAR SYSTEMS FEATURING ENHANCED CAPABILITIES TO BOOST MARKET 179
- 14.4 INSIGHTS FROM INDUSTRY EXPERTS 180

?

- 15∏AUTOMOTIVE LIDAR MARKET, BY REGION∏181
- 15.1 INTRODUCTION 182
- 15.2∏ASIA PACIFIC∏184
- 15.2.1 MACROECONOMIC OUTLOOK 184
- 15.2.2 | CHINA | 189
- 15.2.2.1 \square Increased production of passenger cars to drive growth \square 189
- 15.2.3 INDIA 190
- 15.2.3.1 Growing demand for vehicles equipped with ADASs to boost market 190
- 15.2.4∏APAN∏192
- 15.2.4.1 Technological advancements by prominent players to propel demand 192
- 15.2.5 SOUTH KOREA 194
- 15.2.5.1 Strategic collaboration between LiDAR manufacturers and
- OEMs to drive market 194
- 15.3 EUROPE 196
- 15.3.1 MACROECONOMIC OUTLOOK 196
- 15.3.2∏GERMANY∏201
- 15.3.2.1 Significant presence of prominent automakers and suppliers
- to drive market 201
- 15.3.3 FRANCE 203
- 15.3.3.1 Emphasis on autonomous transportation solutions and advanced mobility services to drive market 203

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- 15.3.4 ITALY 205
- 15.3.4.1 Expansion of autonomous technologies in commercial vehicles to drive market 205
- 15.3.5∏UK∏206
- 15.3.5.1 ☐ Increased focus on cutting-edge innovation in autonomous

mobility to drive growth 206

- 15.3.6 | SPAIN | 208
- 15.3.6.1 Government's push for improving road safety to drive market 208
- 15.4 NORTH AMERICA 210
- 15.4.1 MACROECONOMIC OUTLOOK 210
- 15.4.2 US 215
- 15.4.2.1 Presence of major players like Seyond and Luminar Technologies to drive popularity of LiDAR systems 1215
- 15.4.3 | CANADA | 217
- 15.4.3.1 Surge in adoption of autonomous vehicles to drive market 217
- 16 COMPETITIVE LANDSCAPE 219
- 16.1□INTRODUCTION□219
- 16.2 KEY PLAYER STRATEGIES/RIGHT TO WIN, 2022-2024 219
- 16.3 REVENUE ANALYSIS 221
- 16.4 MARKET SHARE ANALYSIS 223
- 16.5 COMPANY VALUATION AND FINANCIAL METRICS 225
- 16.6 BRAND/PRODUCT COMPARISON 226
- 16.7 COMPANY EVALUATION MATRIX: KEY PLAYERS, 2024 228
- 16.7.1 STARS 228
- 16.7.2□EMERGING LEADERS□228
- 16.7.3 PERVASIVE PLAYERS 228
- 16.7.4 PARTICIPANTS 228
- 16.7.5 COMPANY FOOTPRINT 230
- 16.7.5.1 Company footprint 230
- 16.7.5.2 Region footprint 231
- 16.7.5.3 Technology footprint 232
- 16.7.5.4 Image type footprint 233
- 16.7.5.5 Range footprint 233
- 16.8 COMPANY EVALUATION MATRIX: STARTUPS/SMES, 2024 234
- 16.8.1 □ PROGRESSIVE COMPANIES □ 234
- 16.8.2 RESPONSIVE COMPANIES 234
- 16.8.3 DYNAMIC COMPANIES 234
- 16.8.4 STARTING BLOCKS 234
- 16.8.5 COMPETITIVE BENCHMARKING 236
- 16.8.5.1 List of startups/SMEs 236
- 16.8.5.2 Competitive benchmarking of startups/SMEs 237
- 16.9□COMPETITIVE SCENARIO□238
- 16.9.1 PRODUCT LAUNCHES 238
- 16.9.2 DEALS 241
- 16.9.3 EXPANSION 247
- 16.9.4 OTHER DEVELOPMENTS 248
- 17□COMPANY PROFILES□250
- 17.1 KEY PLAYERS 250
- 17.1.1 FROBOSENSE 250

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- 17.1.1.1 Business overview 250
- 17.1.1.2 Products/Solutions offered 252
- 17.1.1.3 Recent developments 254
- 17.1.1.4 MnM view 255
- 17.1.1.4.1 | Key strengths | 255
- 17.1.1.4.2 Strategic choices 255
- 17.1.1.4.3 Weaknesses and competitive threats 255
- 17.1.2 HESAI GROUP 256
- 17.1.2.1 Business overview 256
- 17.1.2.2 Products/Solutions offered 258
- 17.1.2.3 Recent developments 261
- 17.1.2.4 | MnM view | 264
- 17.1.2.4.1 Key strengths 264
- 17.1.2.4.2 Strategic choices 264
- 17.1.2.4.3 Weaknesses and competitive threats 264
- 17.1.3 ☐ LUMINAR TECHNOLOGIES, INC. ☐ 265
- 17.1.3.1 Business overview 265
- 17.1.3.2 Products/Solutions offered 268
- 17.1.3.3 Recent developments 269
- 17.1.3.4∏MnM view∏272
- 17.1.3.4.1 Key strengths 272
- 17.1.3.4.2 Strategic choices 272
- 17.1.3.4.3 Weaknesses and competitive threats 272
- 17.1.4□SEYOND□273
- 17.1.4.1 Business overview 273
- 17.1.4.2 Products/Solutions offered 274
- 17.1.4.3 Recent developments 275
- 17.1.4.4 MnM view 277
- 17.1.4.4.1 Key strengths 277
- 17.1.4.4.2 Strategic choices 277
- 17.1.4.4.3 Weaknesses and competitive threats 277
- 17.1.5 THUAWEI TECHNOLOGIES CO., LTD. T278
- 17.1.5.1

 ☐ Business overview
 ☐ 278
- 17.1.5.2 Products/Solutions offered 280
- 17.1.5.3 Recent developments 280
- 17.1.5.4 MnM view 281
- 17.1.5.4.1 Key strengths 281
- 17.1.5.4.2 Strategic choices 282
- 17.1.5.4.3 Weaknesses and competitive threats 282
- 17.1.6 INNOVIZ TECHNOLOGIES LTD 283
- 17.1.6.1 Business overview 283
- 17.1.6.2 Products/Solutions offered 284
- 17.1.6.3 Recent developments 284
- 17.1.7 VALEO 288
- 17.1.7.1 Business overview 288
- 17.1.7.2 Products/Solutions offered 290
- 17.1.7.3 Recent developments 290

Scotts International. EU Vat number: PL 6772247784

```
17.1.8 OUSTER INC. 294
17.1.8.1 Business overview 294
17.1.8.2 Products/Solutions offered 295
17.1.8.3 Recent developments 296
?
17.1.9 DENSO CORPORATION 299
17.1.9.1 Business overview 299
17.1.9.2 Products/Solutions offered 301
17.1.9.3 Recent developments 301
17.1.10 CONTINENTAL AG 304
17.1.10.1 Business overview 304
17.1.10.2 Products/Solutions offered 306
17.1.10.3 Recent developments 306
17.1.11 ZF FRIEDRICHSHAFEN AG 309
17.1.11.1 Business overview 309
17.1.11.2 Products/Solutions offered \square 310
17.1.11.3 Recent developments 311
17.1.12□APTIV□312
17.1.12.1 Business overview 312
17.1.12.2 Products/Solutions offered 315
17.1.12.3 Recent developments 315
17.1.13 MAGNA INTERNATIONAL INC. 317
17.1.13.1 Business overview 317
17.1.13.2 Products/Solutions offered 318
17.1.13.3 Recent developments 319
17.2□OTHER PLAYERS□322
17.2.1 INFINEON TECHNOLOGIES AG 322
17.2.2 RENESAS ELECTRONICS CORPORATION 323
17.2.3 CEPTON, INC. 324
17.2.4 QUANERGY SOLUTIONS, INC. □324
17.2.5 MARELLI HOLDINGS CO., LTD. □325
17.2.6 | AEVA INC. | | 326
17.2.7 BLICKFELD GMBH 327
17.2.8 | AEYE, INC. | 327
17.2.9 LIVOX 328
17.2.10 HEXAGON AB 328
18 RECOMMENDATIONS BY MARKETS AND MARKETS 329
18.1 ASIA PACIFIC TO BE LARGEST MARKET DURING FORECAST PERIOD 329
18.2□LONG-RANGE LIDAR SEGMENT TO LEAD MARKET DURING FORECAST PERIOD□329
18.3 PASSENGER CAR SEGMENT TO LEAD MARKET DURING FORECAST PERIOD 330
18.4 A TO BE PIVOTAL IN INTEGRATION OF LIDAR INTO AUTONOMOUS VEHICLES 330
18.5 CONCLUSION 331
?
19∏APPENDIX[]332
19.1 INSIGHTS FROM INDUSTRY EXPERTS 332
19.2 DISCUSSION GUIDE 333
```

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19.3 KNOWLEDGESTORE: MARKETSANDMARKETS' SUBSCRIPTION PORTAL 337

19.4□CUSTOMIZATION OPTIONS□339

19.4.1 AUTOMOTIVE LIDAR MARKET, BY LEVEL OF AUTONOMY, AT COUNTRY LEVEL 339

19.4.2□AUTOMOTIVE LIDAR MARKET, BY ELECTRIC VEHICLE TYPE, AT COUNTRY LEVEL□339

19.4.3 COMPANY INFORMATION 339

19.4.3.1□Profiling of additional market players (up to five)□339

19.5 RELATED REPORTS 339

19.6 AUTHOR DETAILS 341

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