

# Quantum Computing in Automotive Market by Application (Route Planning & Traffic Management, Battery Optimization, Material Research, Production Planning & Scheduling), Deployment, Component, Stakeholder & Region - Global Forecast to 2035

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## Abstracts

The automotive quantum computing market is projected to grow from USD 143 million in 2026 to USD 5,203 million by 2035, at a CAGR of 35.0% from 2031 to 2035. The automotive industry has constantly focused on developing innovative technologies to advance technological expertise within electric and hybrid vehicles, fuel cell optimization, connected mobility, and automated driving features (ADAS). Immense quantum computing capabilities are projected to bring life-changing results across the entire value chain of the automotive industry.

Autonomous & connected vehicles to become the fastest-growing segment during the forecast period

Developments in autonomous vehicles will be significant in the near years. The future adoption of Level 3, 4, and 5 autonomous vehicles could result in passengers spending more time in cars and less time physically driving them. Few surveys suggest that about 90% of these autonomous vehicles will be shared, and 10% will be used for personal commuting. Owing to these advantages, quantum computing can act as a breakthrough advancement to make autonomous vehicles a reality soon with lower error margins. For instance, quantum computing algorithms can rapidly process and calculate huge amounts of data generated from LIDAR, RADAR, & image sensors, and other advanced systems. This would be helpful in training & developing intelligence within the vehicle to operate with little manual intervention. With the help of quantum optimization and simulation algorithms, it is possible to optimize this data in a fraction of the time against

traditional computers, which may require years to process. Quantum computing would be useful to provide faster computation and develop meaningful insights for critical areas necessary for proper vehicle functioning. Likewise, Quantum machine algorithms can also detect objects and recognize patterns. They can potentially provide faster and more accurate results, improving the overall performance and safety of the vehicle. Rising applications of quantum computing in autonomous vehicles for different applications, such as route optimization of the autonomous vehicle, integration of data produced by various sensors, 3D object recognition, and cybersecurity, would fuel the growth of quantum computing technology for developing autonomous vehicles.

Software segment to lead the quantum computing market in the automotive industry

The software segment is projected to lead the quantum computing market in the automotive industry by component. With the rising efforts and investments by private and public entities to develop a commercially viable and fault-free physical quantum computer, the advancement in the software environment is also necessary to improve quantum computer performance. As clients from multiple industry industries continue to grow, technology providers would focus on developing sustainable quantum computing software to cater to the upcoming requirements of various industries. According to the "State of Quantum 2022 Report", 66% of companies consider software development a main priority for quantum computing technology. Established companies and multiple start-ups are expected to develop different versions of software platforms that can fill gaps in existing software and enhance the performance of quantum computers. Associated complexity, huge capital investments, and scarcity of qualified professionals required to develop physical quantum computers are expected to limit fewer new entrants in hardware development in the future. Alternatively, this will bring immense growth opportunities for software developers to integrate themselves into the existing stack to develop disruptive software and reap tremendous business revenues in the coming years

Asia Pacific is projected to be the fastest-growing market for quantum computing in the Automotive market by 2035

During the forecast period, Asia Pacific will be the fastest-growing market for quantum computing in the automotive industry. Asia Pacific has emerged as a hub for automotive production in recent years, due to which most automotive OEMs and component manufacturers are based out of Asian countries. China, India, Japan, and South Korea are major vehicle production hubs in the region and have planned some promising considerable to be invested in quantum computing technology. Further few regional

players, such as Hyundai Motors and AISIN Group, have started exploring quantum computing capabilities in electric vehicle batteries, autonomous vehicles, and material research. Improving per capita income, changing consumer preferences, and tightening emission norms have further increased competition among the regional players to sustain their market hold. This quantum computing technology can help them remain competitive in the coming years.

In-depth interviews were conducted with CXOs, VPs, directors from business development, marketing, product development/innovation teams, independent consultants, and executives from various key organizations operating in this market.

By Stake Holders: Demand Side – 20%, Supply Side – 80%

By Designation: Director Level – 30%, C Level Executives - 10%, and Others - 60%

By Region: Asia Pacific – 40%, Europe - 20%, and North America – 40%

Quantum computing in the automotive market is led by globally established players such as IBM Corporation (US), Microsoft Corporation (US), Amazon (US), D-Wave Systems, Inc.(US), and Rigetti & Co, LLC (US).

Research Coverage:

The study segments the automotive quantum computing market and forecasts are based on the application type (Route Planning & Traffic Management, Battery Optimization, Material Research, Autonomous, and Connected Vehicles, Production Planning and Scheduling, and others), by deployment type (Cloud, and On-premises), by component type (Software, Hardware, and Services), by Stakeholder type (OEM, Automotive tier 1 and 2, and Warehousing and Distribution), and Region (Asia Pacific, Europe, and Americas).

The study also includes an in-depth competitive analysis of the market's key 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 the market leaders/new entrants with information on the closest approximations of the revenue numbers for the overall quantum computing in the automotive market and the sub-segments. This report will help to understand the potential applications of quantum computing technology and OEM tie-ups for the use of quantum computing technology for various applications. 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. This report will help stakeholders to understand the potential applications and their penetration rate in the automotive industry. This report provides insights on strategic developments by automotive companies in quantum computing technology across short-term and long-term automotive applications. This report will offer the futuristic market potential of various components such as hardware, software, and services, enabling readers to understand market investment areas. The report also helps stakeholders understand the market's pulse and provides information on key market drivers, restraints, challenges, and opportunities.

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\*Details on Business Overview, Products Offered, Recent Developments, MnM View, Right to win, Strategic choices made, Weaknesses and competitive threats might not be captured in case of unlisted companies.

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