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Quantum Communication Market Forecasts to 2030 – Global Analysis By Offering (Hardware and Services), Transmission Type (Fiber Optic Transmission, Free-Space Optics (FSO) Transmission and Satellite-Based Transmission), Organization Size (Large Enterprises & Small and Medium-Sized Enterprises), End User and By Geography

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Abstracts

According to Stratistics MRC, the Global Quantum Communication Market is accounted for $0.72 billion in 2024 and is expected to reach $4.87 billion by 2030 growing at a CAGR of 37.3% during the forecast period. With the use of quantum bits (qubits) and quantum phenomena like entanglement and superposition, information can be transmitted via the ground-breaking technology known as quantum communication. Because any attempt to intercept the communication disturbs the quantum state and exposes the intrusion, it offers unbreakable encryption through quantum key distribution (QKD) and enables secure data transfer that is supposedly impenetrable by hackers.

Market Dynamics:

Driver:

Rising need for data security

With increasing cyberattacks and data breaches, industries such as finance, defense, and government are adopting quantum communication technologies like Quantum Key Distribution (QKD) for ultra-secure data transmission. These technologies ensure that any eavesdropping attempts are detectable, providing unmatched security. This growing

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demand for secure communication solutions is fueling investments and advancements in quantum technologies, thereby driving the market's growth significantly.

Restraint:

Limited range and scalability

Current technologies face challenges in transmitting quantum signals over long distances without degradation, requiring costly infrastructure like quantum repeaters. Additionally, the scalability of these systems is hindered by their technological complexity and high implementation costs. These limitations restrict widespread adoption and delay the development of large-scale quantum networks, impacting the market's growth potential.

Opportunity:

Growing demand for secure communication

The growing demand for secure communication presents a significant opportunity for the quantum communication market. Industries like banking, healthcare, and government are increasingly adopting quantum technologies to safeguard sensitive information against advanced cyber threats. Innovations in hybrid systems that integrate classical and quantum networks further expand the application scope. This rising interest in ultra-secure communication solutions creates a favorable environment for market expansion.

Threat:

Standardization and interoperability

Standardization and interoperability challenges threaten the growth of the quantum communication market. The lack of uniform standards complicates the integration of quantum technologies with existing classical communication systems. This results in compatibility issues that hinder widespread adoption. Moreover, regulatory uncertainty regarding data protection and cybersecurity adds to these challenges, creating barriers for industry players to develop scalable and interoperable solutions.

Covid-19 Impact:

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The Covid-19 pandemic had a mixed impact on the quantum communication market. While disruptions in supply chains delayed infrastructure development, the pandemic also accelerated digital transformation across industries, increasing demand for secure communication solutions. As remote work and online transactions surged, industries prioritized investments in advanced encryption technologies like QKD to protect sensitive data from cyber threats. This dual effect has positioned the market for steady recovery and long-term growth post-pandemic.

The hardware segment is expected to be the largest during the forecast period

The hardware segment is expected to account for the largest market share during the forecast period due to its critical role in enabling quantum communication systems. Essential components like quantum repeaters, entangled photon sources, and detectors are pivotal for establishing secure networks. High demand from sectors such as defense and finance drives investments in hardware development. Continuous advancements in photonic circuits and satellite-based systems further bolster this segment's dominance in supporting large-scale deployment of quantum technologies.

The banking & financial services segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the banking & financial services segment is predicted to witness the highest growth rate due to its need for robust encryption methods to secure financial transactions and sensitive customer data. Quantum Key Distribution (QKD) offers unparalleled protection against evolving cyber threats, making it highly attractive to this sector. Increasing adoption of digital banking services globally amplifies this demand, positioning BFSI as a key driver of innovation in quantum communication technologies.

Region with largest share:

During the forecast period, the North America region is expected to hold the largest market share due to significant investments in quantum research by governments and private enterprises. The United States leads with initiatives like national quantum programs aimed at enhancing cybersecurity capabilities. Strong infrastructure, coupled with collaborations between academia and industry players, positions North America as a hub for developing advanced quantum communication solutions across sectors like defense and finance.

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Region with highest CAGR:

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR due to substantial investments by countries like China, Japan, and India in quantum research. China's leadership in satellite-based QKD systems and large-scale projects like Micius satellite highlights its dominance. Favorable government policies supporting innovation and rapid adoption of advanced technologies across industries further drive growth in this region's quantum communication market.

Key players in the market

Some of the key players in Quantum Communication Market include Toshiba, Thales, IDEMIA, ID Quantique, QuintessenceLabs, QuantumCTek, Qubitekk, Quantum Xchange, HEQA Security, MagiQ Technologies, Crypta Labs, SpeQtral, QEYnet, Quantropi, Qunnect, Aliro Quantum, NuCrypt and Quantum Opus.

Key Developments:

In January 2025, Toshiba and Numana are pleased to announce a strategic collaboration to enhance the Kirq quantum communication testbed in the Province of Quebec. This evolving relationship will contribute to expand the characteristics of Kirq's real-world telco-grade infrastructure in capacity and distance. It will further leverage cutting-edge quantum technologies like Quantum Key Distribution (QKD) technology to ensure secure communications.

In October 2024, lyntia partners with IDQ and others in a proof of concept of Quantum Key Distribution (QKD) in a real-world data centre production network. The goal was clear: to secure a fibre-optic link from Digital Realty's data centre and, in turn, to demonstrate on one leg of the connection the compatibility of quantum cryptography with a new, very low-latency fibre-optic technology.

In May 2024, IDEMIA Secure Transactions (IST), a division of IDEMIA Group announced a strategic research partnership with Indian Institute of Technology, Hyderabad (IIT Hyderabad) on Post Quantum Cryptography. The objective of the partnership will be to strengthen privacy frameworks against quantum threats, with a specific focus on designing post-quantum schemes based on lattices and to create post-quantum cryptography solutions that ultimately ensure the long-term security of products. As part of this partnership project, IST will sponsor PhD scholars over a four-

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year period.

Offerings Covered:

- Hardware
- Services

Transmission Types Covered:

- Fiber Optic Transmission
- Free-Space Optics (FSO) Transmission
- Satellite-Based Transmission

Organization Sizes Covered:

- Large Enterprises
- Small and Medium-Sized Enterprises (SMEs)

End Users Covered:

- Government & Defense
- Banking & Financial Services
- Telecommunications
- Healthcare
- IT & Technology
- Research & Academia

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- Energy & Utilities
- Other End Users

Regions Covered:

- North America
  - US
  - Canada
  - Mexico
- Europe
  - Germany
  - UK
  - Italy
  - France
  - Spain
  - Rest of Europe
- Asia Pacific
  - Japan
  - China
  - India
  - Australia

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New Zealand

South Korea

Rest of Asia Pacific

South America

Argentina

Brazil

Chile

Rest of South America

Middle East & Africa

Saudi Arabia

UAE

Qatar

South Africa

Rest of Middle East & Africa

What our report offers:
- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2022, 2023, 2024, 2026, and 2030
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments

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- Supply chain trends mapping the latest technological advancements

Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

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Note: Tables for North America, Europe, APAC, South America, and Middle East & Africa Regions are also represented in the same manner as above.

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