Quantum Computing: Technologies and Global Markets to 2028

Market Research Report | 2023-08-25 | 265 pages | BCC Research

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Report description:

Description

Report Scope:

In this report, the quantum computing market has been segmented based on offering, deployment, technology, application, end-user industry, and region. The report provides an overview of the global quantum computing market and analyzes market trends. Using 2022 as the base year, the report provides estimated market data for the forecast period 2023 through 2028.

Revenue forecasts for this period are segmented into:

Offering: services and systems.
Method of deployment: on-premises and cloud-based.
Technology: trapped ions, quantum annealing, superconducting qubits, and others.
Application: quantum-assisted optimization, quantum simulation and quantum-assisted machine learning.
End-user industry: banking and finance, IT and telecom, healthcare and pharmaceuticals, space and defense, energy and power, transportation and logistics, academia, government, chemicals, and others.
Region: North America is segmented into the U.S., Canada, and Mexico; Europe is segmented into the U.K., France, Germany, and Rest of Europe; the U.K. is further segmented into England, Wales, Scotland, and Northern Ireland; Asia-Pacific (APAC) is segmented into China, Japan, India, and Rest of Asia-Pacific; the Rest of World is segmented into the Middle East and Africa, and Latin America.
COVID-19 has had a massive impact on society since early 2020. This report considers the impact of COVID-19 and the economic slowdown it created. With people relying more on technology, the demand for quantum computing will increase and boost the market growth. The report also focuses on the major trends and challenges that affect the market and the vendor landscape.

This report has been prepared in a simple, easy-to-understand format, with numerous tables and charts/figures. The scope of the report includes a detailed study of global and regional markets for quantum computing, with reasons given for variations in the growth of the industry in certain regions. The report examines each component of quantum computing technology, determines its current market size, and estimates its future market. The report also analyzes the market from the manufacturers' viewpoint as well as that of the final consumer. A number of technical issues arising out of the utilization of quantum computing technologies are discussed, and solutions are indicated.

Report Includes:

- 43 data tables and 45 additional tables
- An updated review of the global markets for quantum computing technologies
- Estimation of market size and analyses of global market trends, with data from 2022, estimates for 2023, and projections of compound annual growth rates (CAGRs) through 2028
- Evaluation and forecast the global quantum computing market size in dollar value terms, and corresponding market share analysis by offering, application, end-user industry and region
- Identification of the quantum computing technologies and products with the greatest commercial potential
- Coverage of recent advances in the quantum computing industries with environmental, social, and corporate governance (ESG) developments, and information on Japan's first superconducting quantum computer launched by Nippon Telegraph and Telephone Corp. (NTT)
- Assessment of the key drivers and constraints that will shape the market for quantum computing over the next ten years and discussion on the upcoming market opportunities and areas of focus to forecast the market into various segments and sub-segments
- Identification of the companies best positioned to meet this demand because of their proprietary technologies, strategic alliances, or other advantages
- Review of the key patent grants and new technologies in the quantum computing sector
- Insight into the recent industry strategies, such as M&A deals, joint ventures, collaborations, and license agreements currently focused on quantum computing products and services
- Company profiles of major players within the industry, including Alphabet Inc. (Google LLC), Amazon.com Inc., International Business Machines (IBM) Corp., and Microsoft Corp.

Executive Summary

Summary:

Quantum computing is the gateway to the future. It can revolutionize computation by making certain types of classically stubborn problems solvable. Currently, no quantum computer is mature enough to perform calculations that traditional computers cannot, but great progress has been made in the last few years. Several large and small start-ups are using non-error-corrected quantum computers made up of dozens of qubits, some of which are even publicly accessible via the cloud. Quantum computing helps scientists accelerate their discoveries in related areas, such as machine learning and artificial intelligence.

This report has divided the global quantum computing market based on offering, technology, method of deployment, application, end-user industry, and region. Based on offering, the market is segmented into systems and services. The services memory segment held the largest market share, and it is expected to register the highest CAGR, at REDACTED%, during the forecast period. The services segment includes quantum computing as a service (QCaaS) and consulting services.

The market for quantum computing by application is segmented into quantum-assisted optimization, quantum simulation, quantum-assisted machine learning, and quantum cryptography. The quantumassisted optimization segment dominated the

market, holding over REDACTED% of market share in 2022.

With regard to end-user industries, the market covers banking and finance, information technology, healthcare and pharmaceuticals, space and defense, energy and power, transportation and logistics, academia, government, chemicals, and others. The demand for quantum computers is expected to grow from multiple end-user industries, from finance to pharmaceuticals, automobiles to aerospace. The academia, government, banking and finance, healthcare and pharmaceuticals, and chemicals industries are expected to be fastest growing end-user industries during the forecast period.

In terms of geographical regions, North America held the highest revenue share in the market in 2022 at $REDACTED million, and it is expected that it will continue to dominate the revenue share with a value of $REDACTED billion in 2028. The robust R&D environment and the increasing focus on public-private partnerships to boost adoption and innovation in the field are expected to drive the quantum computing market in North America.

The extensive growth of the Europe quantum market is mainly driven by key factors such as the rush towards quantum computing technologies in the region in various sectors such as healthcare, chemicals and pharmaceuticals among others. Also, its higher application in fields such as development and discovery of new drugs, cryptography, cybersecurity, and defense sector is likely to bolster market growth during the forecast period.

The APAC region is expected to be the fastest-growing regional market for quantum computing during the forecast period. In 2022, China accounted for a majority of the demand for quantum computing in APAC due to growing applications from end-user industries and increasing R&D activities. The other Asia-Pacific countries, including Japan, India and South Korea, are supplementing regional market growth.

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