Quantum-Enhanced Homomorphic Encryption Market Size Worth $5.79 Billion by 2029 - Exclusive Report by TBRC

The Business Research Company's Quantum-Enhanced Homomorphic Encryption Global Market Report 2025 – Market Size, Trends, And Global Forecast 2025-2034

The Business Research Company

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How Much Is The Quantum-Enhanced Homomorphic Encryption Market Worth?

> The Business Research Company's Latest Report Explores Market Driver, Trends, Regional Insights - Market Sizing & Forecasts Through 2034"
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The market size for quantum-enhanced homomorphic encryption has seen rapid expansion in the past few years. The forecast predicts market growth from $1.18 billion in 2024 to $1.63 billion in 2025, equating to a compound annual growth rate (CAGR) of 37.7%. The substantial growth during the historical period can be traced back to the heightened need for secure data transmission, the widespread use of cloud computing, regulatory emphasis on data privacy, the surge in online threats towards sensitive data, and an increasing number of businesses adopting encryption solutions.

In the forthcoming years, the quantum-enhanced homomorphic encryption market is predicted to witness enormous growth, surging to $5.79 billion in 2029 with a compound annual growth rate (CAGR) of 37.4%. This predicted growth during the forecast period is due to factors such as rising adoption of quantum-resistant security solutions, amplified usage of homomorphic encryption within cloud services, heightening incorporation in healthcare data security measures, broadening applications in governmental and defense sectors, and accelerated demand from platforms based on blockchain. Key trends for the projected period include

advancements in quantum-safe encryption methodologies, breakthroughs in homomorphic encryption hardware acceleration, strides in hybrid classical-quantum encryption models, advancements in the field of privacy-preserving computation research and development, and the amalgamation of post-quantum cryptography standards.

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What Are The Factors Driving The Quantum-Enhanced Homomorphic Encryption Market?
The expected surge in quantum-enhanced homomorphic encryption market growth can be attributed to the escalating threat of data breaches. Contraventions involving unauthorized access, disclosure, or theft of safeguarded, sensitive, or classified information from an institution or network is referred to as a data breach. The risk of these invasions is on the rise due to a growing volume of sensitive digital data that's being generated, stored, and transmitted online, expanding the scope for illicit access and exploitation. Quantum-enhanced homomorphic encryption aids in fortifying against data breaches by facilitating the secure encryption of data without the need for decryption, ensuring confidentiality even when faced with burgeoning quantum computing threats. For instance, as per an assessment in June 2025 by the Department for Science, Innovation, and Technology - a UK government department, approximately 43% of UK businesses and 30% of charities faced a cybersecurity breach or attack in the preceding year. This is a staggering figure approximating to about 612,000 businesses and 61,000 charities that underwent such incidents. Hence, the increasing risk of data breaches is propelling the market growth for quantum-enhanced homomorphic encryption. The digital transformation trend is stimulating the quantum-enhanced homomorphic encryption market's progressive trajectory, primarily due to the increasing uptake of secure data processing and privacy-preserving technologies. Digital transformation encompasses the assimilation of digital technologies across all sectors of an organization, altering its operational paradigm and the way it delivers value to clients. The burgeoning digital transformation trend owes its growth to technological advancements, as firms are swiftly capitalizing on new digital methodologies to keep pace with shifting consumer expectations and remain competitive. Quantum-enhanced homomorphic encryption aids digital transformation by enabling privacy-preserving data processing and analytics, even within quantum computing environments. As an illustration, in October 2024, as per the European Investment Bank (EIB) - a nonprofit European Union institution based in Luxembourg, 74% of EU companies reportedly utilized digital technologies in 2024, reflecting a 4% increase compared to the prior year. Therefore, the progressive digital transformation trend is catalyzing the quantum-enhanced homomorphic encryption market's growth.

Who Are The Major Players In The Quantum-Enhanced Homomorphic Encryption Market?
Major companies operating in the quantum-enhanced homomorphic encryption market are NVIDIA Corporation, Google LLC, Microsoft Corporation, International Business Machines Corporation, Amazon Web Services Inc., Intel Corporation, Thales Group, Zama Inc., D-Wave Systems Inc., Quantinuum Limited, QnuLabs Pvt. Ltd., Rigetti Computing, SandboxAQ Inc., Duality Technologies Inc., Post-Quantum Security Ltd., PQShield Ltd., Decentriq AG, Ravel

Technologies Inc., Enveil Inc., and Chain Reaction Labs Inc.

What Are The Upcoming Trends Of Quantum-Enhanced Homomorphic Encryption Market In The Globe?
Significant players in the quantum-enhanced homomorphic encryption market are turning their attention towards the development of progressive strategies, such as the quantum privacy query (QPQ) protocol. This approach aims to provide secure, effective data protection solutions facilitating privacy-preserving inquiries. The Quantum Privacy Query protocol, a quantum-enhanced encryption method, allows users to confidently query encrypted databases and achieve precise results without disclosing the query details or jeopardizing data privacy. For instance, in January 2025, MicroCloud Hologram Inc., a software enterprise based in the US, introduced quantum bit rotation-based single-ternary quantum homomorphic encryption protocol. It supports asynchronous operations in distributed systems and real-time encrypted data handling while simplifying key management. These amenities boost data privacy and processing velocity, particularly in industries dealing with large amounts of confidential data. This development signifies the broader pivot in the industry towards embedding quantum concepts within cryptographic models to counter emerging cybersecurity issues. Despite the substantial possibilities this progress yields, broad-scale adoption is hampered by hardware necessities and continuous standardization attempts.

Which Segment Accounted For The Largest Quantum-Enhanced Homomorphic Encryption Market Share?
The quantum-enhanced homomorphic encryption market covered in this report is segmented
1) By Component: Software, Hardware, Services
2) By Deployment Mode: On-Premises, Cloud
3) By Enterprise Size: Small And Medium Enterprises, Large Enterprises
4) By Application: Banking And Finance, Healthcare, Government, Defense, Information Technology And Telecommunications, Retail, Other Applications

Subsegments:
1) By Software: Data Encryption Tools, Secure Computation Platforms, Privacy Preserving Analytics Software, Encrypted Machine Learning Frameworks, Cloud Based Encryption Solutions
2) By Hardware: Quantum Cryptographic Processors, Secure Enclaves, Encryption Acceleration Chips, Quantum Random Number Generators, Trusted Execution Environments
3) By Services: Encryption Integration Services, Managed Security Services, Cloud Security Consulting, Data Privacy Compliance Services, Post Quantum Security Training

View the full quantum-enhanced homomorphic encryption market report:
https://www.thebusinessresearchcompany.com/report/quantum-enhanced-homomorphic-encryption-global-market-report

What Are The Regional Trends In The Quantum-Enhanced Homomorphic Encryption Market?
In the Quantum-Enhanced Homomorphic Encryption Global Market Report 2025, North America

represented the most significant portion in 2024. However, it is anticipated that the Asia-Pacific region will witness the most rapid growth during the forecast period. The report details regions such as Asia-Pacific, Western Europe, Eastern Europe, North America, South America, Middle East, and Africa.

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