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Privacy-Enhancing Computation (PEC) Market Forecasts to 2032 - Global Analysis By Component (Solutions and Services), Data Type, Organization Size, Deployment Mode, Technology, End User and By Geography

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Abstracts

According to Stratistics MRC, the Global Privacy-Enhancing Computation (PEC) Market is accounted for $6.5 billion in 2025 and is expected to reach $30.9 billion by 2032 growing at a CAGR of 25% during the forecast period. Privacy-Enhancing Computation (PEC) refers to a set of advanced computational techniques that enable data to be processed, analyzed, or shared while minimizing the exposure of sensitive or personal information. PEC allows multiple parties to collaborate on data-driven tasks without revealing raw data, identities, or confidential attributes. These techniques include secure multi-party computation, homomorphic encryption, trusted execution environments, and federated learning. By ensuring that data remains encrypted, anonymized, or locally processed throughout its lifecycle, PEC helps organizations comply with data protection regulations, reduce privacy risks, and build trust while still extracting valuable insights from data.

Market Dynamics:

Driver:

Rising data privacy regulatory requirements

Enterprises face mounting obligations under frameworks such as GDPR, CCPA, and HIPAA, which demand secure data processing without compromising compliance. PEC technologies such as homomorphic encryption, secure multi-party computation, and

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differential privacy enable organizations to analyze sensitive data while maintaining confidentiality. Financial services, healthcare, and government agencies are leading adoption due to heightened regulatory exposure. Vendors are embedding compliance-ready features into PEC platforms to strengthen trust and accelerate enterprise uptake. Growing emphasis on regulatory alignment is reinforcing PEC as a critical enabler of secure digital transformation. Rising data privacy mandates are accelerating demand for privacy-enhancing computation solutions across industries.

Restraint:

Limited awareness among enterprise decision-makers

Many organizations still view privacy technologies as niche solutions rather than mainstream enablers of secure analytics. This lack of understanding slows investment decisions and delays integration into enterprise workflows. Smaller firms, in particular, struggle to evaluate PEC?s strategic benefits compared to traditional security measures. Vendors must invest heavily in education, training, and proof-of-concept deployments to overcome this barrier. Industry alliances and regulatory bodies are beginning to promote awareness, but adoption remains uneven. Limited executive-level awareness is restraining widespread deployment of PEC despite strong regulatory and market drivers.

Opportunity:

Growing adoption in healthcare analytics

Healthcare analytics is emerging as a strong opportunity for PEC platforms. Hospitals, insurers, and research institutions increasingly require secure frameworks to share and analyze sensitive patient data. PEC enables collaborative analytics across institutions without exposing raw data, strengthening compliance with HIPAA and other healthcare mandates. Integration with AI-driven diagnostics and genomics research further amplifies demand for privacy-preserving computation. Vendors are tailoring PEC solutions to healthcare-specific workflows, including clinical trials and population health studies. Rising investment in digital health ecosystems is reinforcing adoption of PEC in this sector.

Threat:

Rapidly evolving cyberattack techniques

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Attackers are increasingly targeting cryptographic models, cloud infrastructures, and data-sharing frameworks. Enterprises must continuously update PEC systems to withstand advanced persistent threats and AI-driven intrusions. Rising sophistication of adversarial attacks increases costs for vendors and slows enterprise confidence in PEC platforms. Smaller providers struggle to maintain resilience compared to established cybersecurity firms. Regulatory emphasis on proactive defense adds further complexity to PEC deployments.

Covid-19 Impact:

The Covid-19 pandemic accelerated demand for PEC solutions as enterprises shifted to remote work and digital-first strategies. On one hand, budget constraints delayed some large-scale deployments. On the other hand, surging demand for secure data collaboration in healthcare, financial services, and government boosted adoption. PEC platforms became critical in enabling privacy-preserving analytics across distributed ecosystems during the pandemic. Organizations leveraged homomorphic encryption and secure multi-party computation to ensure compliance while sharing sensitive data. The crisis reinforced the importance of resilient, privacy-first digital infrastructures. Overall, Covid-19 boosted awareness of PEC as a strategic enabler of secure collaboration.

The homomorphic encryption segment is expected to be the largest during the forecast period

The homomorphic encryption segment is expected to account for the largest market share during the forecast period driven by demand for secure computation on encrypted data without exposing raw information. Enterprises in finance and healthcare increasingly rely on homomorphic encryption to strengthen compliance and enable collaborative analytics. Vendors are embedding homomorphic encryption into cloud-native platforms to improve scalability and operational efficiency. Rising demand for secure AI model training further reinforces adoption in this segment. Homomorphic encryption is viewed as a cornerstone technology for privacy-preserving computation across regulated industries.

The energy & utilities segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the energy & utilities segment is predicted to witness the

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highest growth rate supported by rising demand for secure data sharing across smart grids, IoT ecosystems, and critical infrastructure. PEC enables utilities to analyze consumption patterns and operational data without exposing sensitive customer information. Governments are reinforcing adoption through mandates on cybersecurity and privacy in critical infrastructure. Enterprises in this sector are increasingly embedding PEC into predictive analytics and sustainability initiatives. Local utilities benefit from scalable, cost-effective PEC solutions tailored to real-time monitoring.

Region with largest share:

During the forecast period, the North America region is expected to hold the largest market share driven by mature IT infrastructure, strong regulatory frameworks, and early adoption of privacy-enhancing technologies. Enterprises in the United States and Canada are leading investments in PEC to comply with stringent mandates such as HIPAA, SOX, and state-level privacy laws. The presence of major technology vendors and cloud providers further strengthens regional dominance. Financial services, healthcare, and government agencies are particularly active in deploying PEC platforms to ensure transparency and compliance. Rising demand for secure AI-driven analytics is reinforcing adoption across large enterprises.

Region with highest CAGR:

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR fueled by rapid digitization, expanding cloud adoption, and government-led privacy initiatives. Countries such as India, China, and Singapore are investing heavily in PEC platforms to support large-scale digital ecosystems. Enterprises in the region are adopting privacy-preserving computation to strengthen analytics in e-commerce, fintech, and healthcare sectors. Local startups are deploying cost-effective, AI-driven PEC solutions to meet growing demand from SMEs. Government programs promoting digital trust and cybersecurity are accelerating adoption across industries. Rising demand for transparency in cross-border data flows is reinforcing the importance of PEC platforms.

Key players in the market

Some of the key players in Privacy-Enhancing Computation (PEC) Market include IBM Corporation, Microsoft Corporation, Google LLC, Amazon Web Services, Inc., Oracle Corporation, SAP SE, Intel Corporation, Hewlett Packard Enterprise Company, Accenture plc, Capgemini SE, Infosys Limited, Tata Consultancy Services Limited, Duality Technologies, Inc., Cosmian SAS and Inpher, Inc.

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Key Developments:

In January 2024, IBM partnered with the Banco de Espa?a (BdE) to explore the application of PEC techniques, specifically fully homomorphic encryption (FHE), for auditing artificial intelligence models in a privacy-preserving manner. This collaboration aims to develop methods for regulators to validate AI systems within financial institutions without accessing sensitive underlying data.

In November 2023, Microsoft, the company launched Azure Confidential VMs with Intel TDX, expanding its confidential computing offerings to a broader set of workloads by providing VM-level isolation and encryption for data in use on a new generation of Intel processors.

Components Covered:

- Solutions
- Services

Data Types Covered:

- Structured Data
- Semi-Structured Data
- Unstructured Data

Organization Sizes Covered:

- Small & Medium Enterprises (SMEs)
- Large Enterprises

Deployment Modes Covered:

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On-Premise

Cloud-Based

Technologies Covered:

Homomorphic Encryption

Secure Multi-Party Computation (SMPC)

Federated Learning

Differential Privacy

Trusted Execution Environments (TEE)

Other Technologies

End Users Covered:

Information Technology & Telecom

Government & Public Sector

Retail & E-Commerce

Manufacturing & Industrial

Energy & Utilities

Media & Entertainment

Other End Users

Regions Covered:

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North America

US

Canada

Mexico

Europe

Germany

UK

Italy

France

Spain

Rest of Europe

Asia Pacific

Japan

China

India

Australia

New Zealand

South Korea

Rest of Asia Pacific

South America

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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 2024, 2025, 2026, 2028, and 2032
- 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
- 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:

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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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