

Post-Quantum Cryptography (PQC) Software

ANMD-MRS24-238 · Quantum & Advanced Computing

A Global Sustainability Due Diligence & Market Research Study

History 2020–2024 · Base Year 2025 · Forecast 2025–2032 · Outlooks 2035 / 2040 / 2050 · Currency US\$

WHY THIS REPORT

Post-quantum cryptography (PQC) software migrates the world’s digital systems to quantum-resistant algorithms — spanning PQC libraries / SDKs, crypto-agility platforms and discovery & inventory tools built on lattice (ML-KEM/ML-DSA), hash-based and code-based schemes now standardised by NIST. This report is a comprehensive, decision-grade study of the PQC-software market across product type, algorithm family, application, end user and business model, spanning history 2020–2024, a 2025 base year, a 2025–2032 forecast and long-term outlooks to 2035, 2040 and 2050.

SUSTAINABILITY & SDG IMPACT — THE ANMD LENS

The sustainability case centres on digital trust. PQC software protects long-lived data, critical infrastructure and digital sovereignty against future quantum attack with minimal hardware footprint. The analysis applies double materiality, maps outcomes to GRI, SASB, ISSB, TCFD, TNFD, CSRD and the EU Taxonomy, and links contributions to SDGs 9, 16 and 8. Equitable access, open-standards governance and responsible-disclosure practices are treated as material risks — with greenwashing and SDG-washing screens applied throughout.

Mapped Sustainable Development Goals:

SDG 9 Industry & Innovation	SDG 16 Peace & Justice	SDG 8 Decent Work & Growth
---------------------------------------	----------------------------------	--------------------------------------

Framework alignment: Double materiality mapped to GRI, SASB, ISSB, TCFD, TNFD, CSRD and the EU Taxonomy, with greenwashing and SDG-washing screens applied throughout.

WHAT'S INSIDE AT A GLANCE

53 Chapters	9 Report Parts	7 Regions Covered	40+ Country Markets
2025–32 Forecast Horizon	4 Forward Scenarios	25+ Companies Profiled	3 SDGs Mapped

MARKET OVERVIEW

PQC software is moving from standards to enterprise-wide migration.

Demand is driven by finalised NIST standards, government mandates and the harvest-now-decrypt-later threat forcing crypto-agility. The market is read three ways — value, licences and protected endpoints — and forecast under conservative, base, accelerated and disruption scenarios, with every projection resolved to the 2025 base year and each region reported separately rather than folded into Rest of World.

- North America leads migration, anchored by the United States, where SandboxAQ, Entrust Corporation, DigiCert, Inc., Microsoft Corporation, International Business Machines Corporation and Palo Alto Networks drive enterprise PQC adoption.
- Europe enforces compliance, with the UK, France and Germany advancing PQShield Ltd, Thales S.A. and Utimaco under regulatory and sovereignty mandates.
- Asia Pacific scales rollout, as India and regional providers combine QNu Labs and others with fast-digitising enterprise demand.
- Product type and algorithm family segment the value, across PQC libraries/SDKs, crypto-agility platforms and discovery/inventory tools, and lattice, hash-based and code-based schemes.

REGIONAL OUTLOOK

Across the seven reporting regions, the report separates migration leaders from emerging adopters, profiling named country sub-markets, compliance regimes and adoption pipelines in each. North America and Europe anchor near-term volume; Asia Pacific scales on digitisation; while Latin America, Africa and the Middle East are assessed on their own merits rather than aggregated away.

Region	Stage	Lead Country Markets & Drivers
Europe	Strong contender	UK, France, Germany — PQShield Ltd, Thales S.A., Utimaco, regulatory mandates
North America	Market leader	United States, Canada — SandboxAQ, Entrust Corporation, DigiCert, Inc., Microsoft Corporation, International Business Machines Corporation
Asia Pacific	Scale engine	India, Singapore — QNu Labs, enterprise digitisation
Latin America	Emerging	Brazil, Chile — financial-sector migration
Africa	Frontier	South Africa, Egypt — government & telecom compliance
Middle East	Frontier	Saudi Arabia, UAE, Israel — sovereign & defence migration

KEY MARKET DRIVERS & RESTRAINTS

Drivers	Restraints
<ul style="list-style-type: none"> • NIST standards (ML-KEM/ML-DSA) finalised • Government mandates & migration deadlines • Harvest-now-decrypt-later threat urgency • Enterprise crypto-agility & inventory needs • Compliance & regulatory pressure 	<ul style="list-style-type: none"> • Migration complexity across legacy estates • Performance & key-size overheads • Skills shortage & integration cost • Algorithm-confidence & standards evolution • Crowded vendor field & differentiation

SEGMENTATION SNAPSHOT

By Product Type	PQC libraries / SDKs · crypto-agility platform · discovery & inventory
By Algorithm Family	Lattice (ML-KEM/ML-DSA) · hash-based · code-based
By Application	Lattice · hash-based · code-based deployments
By End User	Government / defence · finance · telecom · enterprise / SaaS
By Business Model	Licence · subscription / SaaS · professional services
By Deployment	On-premise · cloud · embedded / endpoint

TABLE OF CONTENTS — PARTS & CHAPTERS

The full report is organised into nine parts across 53 chapters, listed below. Detailed sub-headings, country tables and directories are provided in the full report.

PART I — REPORT FOUNDATION, DISCOVERY AND STRATEGIC INTELLIGENCE

- › Chapter 1. Scope, Methodology and Report Architecture
- › Chapter 2. Industry Discovery Summary — Post-Quantum Cryptography (PQC) Software
- › Chapter 3. Executive Intelligence and Decision Dashboard
- › Chapter 4. Strategic Findings, Materiality and Investment Verdict Preview

PART II — MARKET INTELLIGENCE, SIZING, FORECASTING AND SEGMENTATION

- › Chapter 5. Industry Overview and Market Evolution
- › Chapter 6. Market Dynamics
- › Chapter 7. Global Market Size and Forecast, 2020–2032
- › Chapter 8. Market Segmentation Analysis
- › Chapter 9. End-User and Demand-Side Intelligence
- › Chapter 10. Pricing, Cost and Commercial Model Intelligence

PART III — REGIONAL AND COUNTRY INTELLIGENCE

- › Chapter 11. Global Regional Intelligence Framework
- › Chapter 12. North America Market Intelligence
- › Chapter 13. Europe Market Intelligence
- › Chapter 14. Asia Pacific Market Intelligence
- › Chapter 15. Latin America Market Intelligence
- › Chapter 16. Africa Market Intelligence
- › Chapter 17. Middle East Market Intelligence
- › Chapter 18. Rest of World Market Intelligence

PART IV — TECHNOLOGY, INNOVATION AND CATEGORY-SPECIFIC INTELLIGENCE

- › Chapter 19. Technology Landscape and Architecture
- › Chapter 20. Emerging and Next-Generation Technology Intelligence
- › Chapter 21. Category-Specific Intelligence Module
- › Chapter 22. Research, Innovation and Funding Landscape

PART V — COMPANY, COMPETITION, PATENT AND PROJECT INTELLIGENCE

- › Chapter 23. Competitive Landscape
- › Chapter 24. Company Profiles
- › Chapter 25. Mergers, Acquisitions, Partnerships and Ecosystem Intelligence
- › Chapter 26. Patent Landscape and Intellectual Property Intelligence
- › Chapter 27. Project, Deployment and Case-Study Intelligence

PART VI — SUSTAINABILITY, ESG, SDG, CLIMATE AND NATURAL-CAPITAL INTELLIGENCE

- › Chapter 28. Sustainability Intelligence Suite
- › Chapter 29. ESG Intelligence and Double Materiality
- › Chapter 30. ESG and Sustainability Framework Alignment
- › Chapter 31. SDG Intelligence
- › Chapter 32. Carbon, Net-Zero and Climate-Mitigation Intelligence
- › Chapter 33. Water, Biodiversity and Natural-Capital Intelligence
- › Chapter 34. Circular Economy and Resource-Security Intelligence
- › Chapter 35. Social Impact, Human Capital and Community Intelligence
- › Chapter 36. Climate Risk, Adaptation and Resilience Intelligence

PART VII — SUPPLY CHAIN, POLICY, LEGAL, ECONOMICS AND FINANCE

- › Chapter 37. Value Chain, Supply Chain and Geopolitical Intelligence
- › Chapter 38. Policy, Regulation and Incentive Intelligence
- › Chapter 39. Legal, Contracting and Risk-Allocation Intelligence
- › Chapter 40. Unit Economics, CAPEX, OPEX and Return Analysis
- › Chapter 41. Investment, Sustainable Finance and Bankability Intelligence

PART VIII — SCENARIO, FUTURE INTELLIGENCE AND FINAL DUE DILIGENCE VERDICT

- › Chapter 42. Scenario Analysis and Future Intelligence
- › Chapter 43. Sustainability Due Diligence Framework and Data-Room Index
- › Chapter 44. Risk Register, RAG Rating and Anti-Greenwashing Screen
- › Chapter 45. Bottom-Line Verdict and Strategic Recommendations
- › Chapter 46. Implementation Roadmap and Stakeholder Playbooks

PART IX — ANNEXES, DIRECTORIES AND REFERENCE MATERIAL

- › Chapter 47. Methodology Annex
- › Chapter 48. Corporate Directory and Company Intelligence Annex
- › Chapter 49. Patent Directory and Patent Intelligence Annex
- › Chapter 50. Project Intelligence Annex
- › Chapter 51. Forecast Annex
- › Chapter 52. Sustainability KPI Annex
- › Chapter 53. Reference Annexes

COMPETITIVE & INVESTMENT SNAPSHOT

The competitive field spans PQC pure-plays, PKI incumbents and platform vendors. Profiled players include SandboxAQ, PQShield Ltd, Thales S.A., Entrust Corporation, DigiCert, Inc., Microsoft Corporation and International Business Machines Corporation. Deal activity — PKI integrations, government awards and venture financing — signals a market consolidating around crypto-agility platforms. Investment intelligence spans venture, corporate-strategic, government and growth finance, culminating in a bankability assessment and investment verdict.

KEY QUESTIONS THIS REPORT ANSWERS

- ? How large is the global post-quantum cryptography (pqc) software market, and how fast will it grow to 2032?
- ? Which regions, countries and segments offer the strongest risk-adjusted opportunity?
- ? How do technology and adoption shifts change value versus legacy approaches?
- ? Who leads, and where is the competitive and patent white space?
- ? Is the investment case bankable — and under what conditions?
- ? How does the category align with the SDGs and disclosure regulation?

WHY ANMD — THE DIFFERENCE

Most market studies stop at units and revenue. This report is built as a sustainability due diligence instrument — fusing market sizing with ESG, SDG and natural-capital intelligence and a decision-ready bankability verdict in a single architecture.

- **Triangulated sizing** — every market read three ways so value, volume and installed-base views reconcile rather than conflict.
- **Region-honest forecasting** — Latin America, Africa and the Middle East reported in full, never hidden inside Rest of World, every forecast resolved to the 2025 base year.
- **Integrated evidence base** — company, patent and project databases linked to the analysis, with published-filing patents and FTO treated as an indicator, not a legal conclusion.
- **No-fabrication discipline** — every estimate carries a data-confidence rating and disclosed sources; gaps are flagged for further diligence, never filled with invented numbers.
- **Anti-greenwashing rigour** — SDG-washing and greenwashing screens plus claim-substantiation checks built into the ESG and project analysis.
- **Decision-first structure** — 9 Parts and 53 Chapters culminating in stakeholder playbooks and a clear, conditional investment verdict.

WHO SHOULD BUY THIS REPORT

Investors and growth funds, software and cybersecurity vendors, PKI and platform providers, enterprise and government buyers, regulators and standards bodies, lenders, and corporate strategy and ESG teams — alongside strategic corporate planners and decision-makers.

Access the Full Report

The complete report delivers all 53 chapters in full, with every sub-heading, country table, company and patent directory, forecast model and due diligence checklist.

Purchase at www.anewmarketdynamics.com · Standard & Premium licences · Single-Site (SSL) and Global-Site (GSL) options at checkout.

Want the Complete Detailed Table of Contents?

This prospectus lists the nine parts and 53 chapters. The complete detailed table of contents — every sub-heading, country table, exhibit, company and patent directory and annex — is available on request to registered users. To receive it, register with your official company email at www.anewmarketdynamics.com. The full detailed table of contents will be sent directly to your registered company email address.

To license this report or commission related custom research, contact Anew Market Dynamics at research@anewmarketdynamics.com.