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2025 Global Quantum Sensing Industry Development Outlook

Quantum Technologies Annual Report Series

February, 2025

Definition of Quantum Sensing

This report focuses on quantum sensing. Given that devices and sensors in some fields of the quantum sensing layer are still in the early stage of development and the system is not yet mature, the research centers on its sensing layer, specifically quantum precision measurement.

▶Quantum Sensing

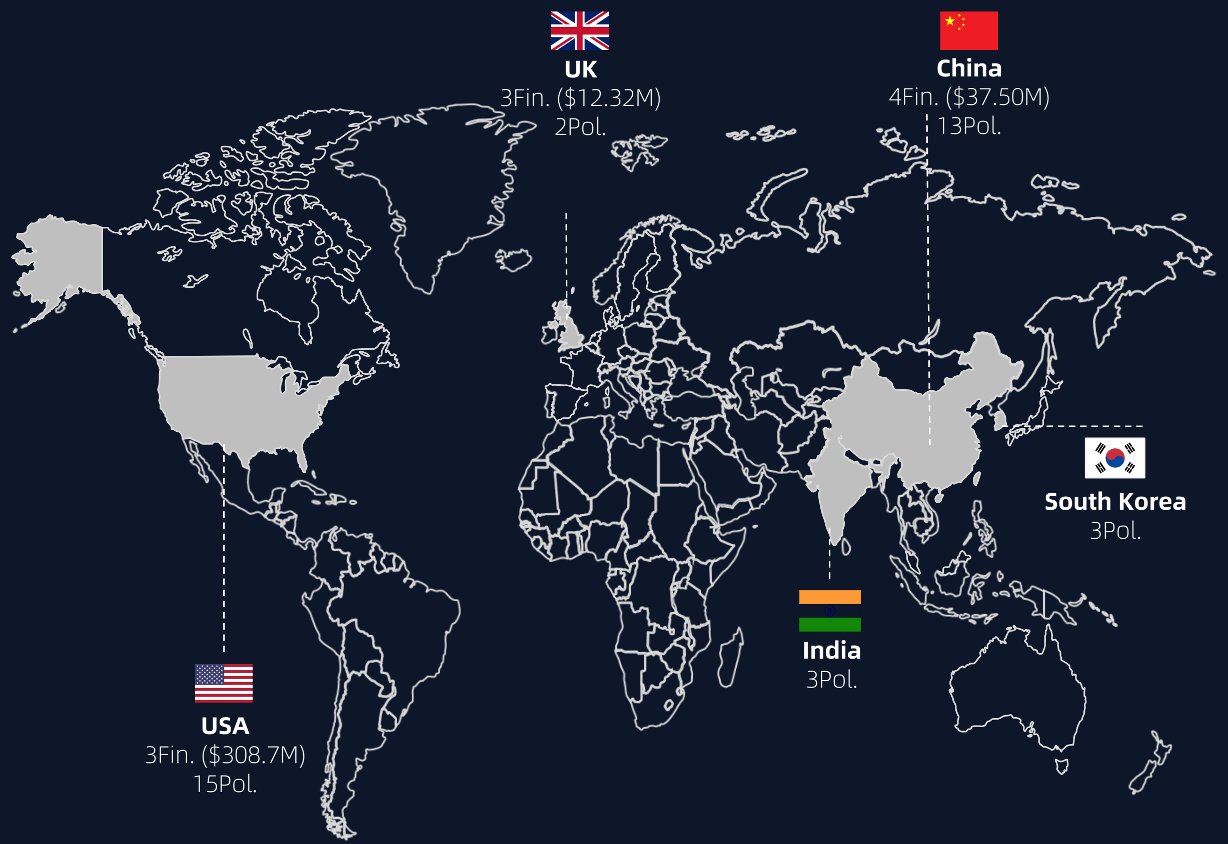
Quantum sensing is a wide - ranging technology. It not only includes quantum precision measurement but also covers many related fields, such as quantum transmission, quantum information processing, and quantum information perception. According to the technical architecture, quantum sensing can be divided into four layers, namely the perception layer, network layer, platform layer and application layer.

▶Quantum Precision Measurement

Quantum precision measurement is a technology that uses the characteristics of quantum mechanics (such as atomic energy levels, spin of elementary particles, etc.) to detect and perceive physical quantities. It mainly measures the state changes of microscopic particles under the action of the physical quantities to be measured, and depends on the accurate manipulation and reading of the state of microscopic particles.

Policies Guide Industry Direction and Stimulate Financing Activities.

Global Quantum Precision Measurement Enterprise Financing Status and Number of National-Level Policies Issued in 2024



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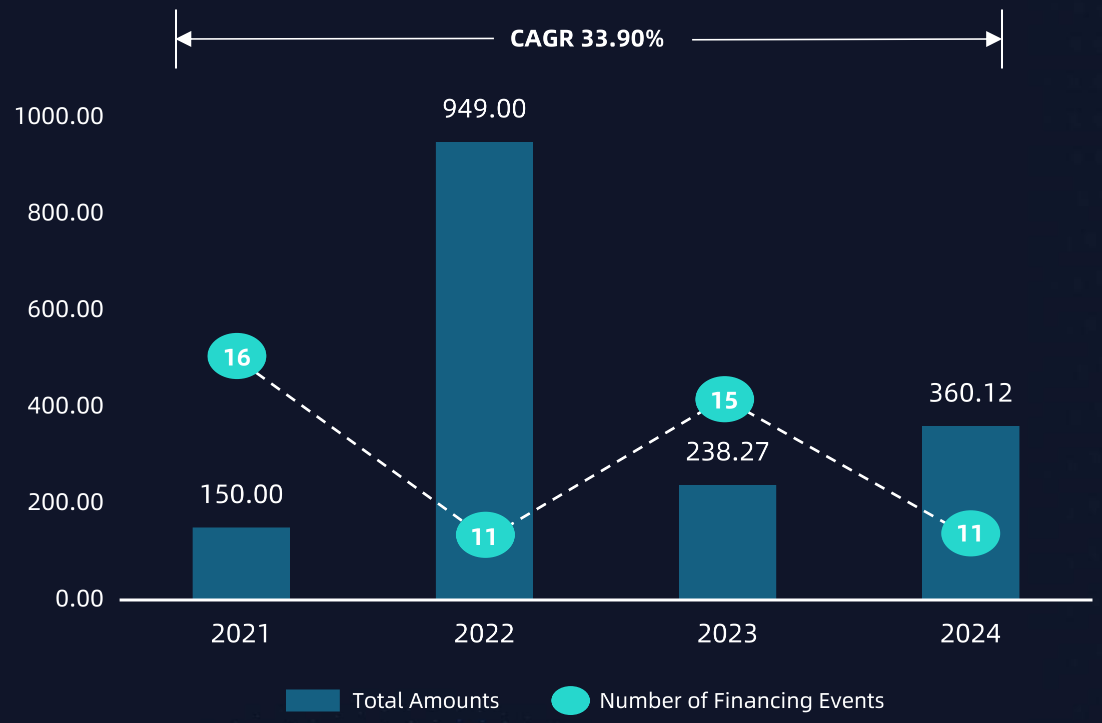
- The United States has issued 15 national policies and completed three financing rounds in the field of quantum precision measurement, with a total amount of about $309 million.
- China has issued 13 national policies and promoted four investment and financing activities, ranking second in the world.
- The UK has issued Two national policies and has completed three financing transactions with a total amount of about $12 million.
- India and South Korea have also issued relevant policies, but there have been no specific investment and financing activities involving social capital.

Financing Activities are Shifting from Relatively Scattered Small Investments to A Few Large Investments.

Global Quantum Sensing Financing Events and Total Amounts, 2021-2024（in Million USD）



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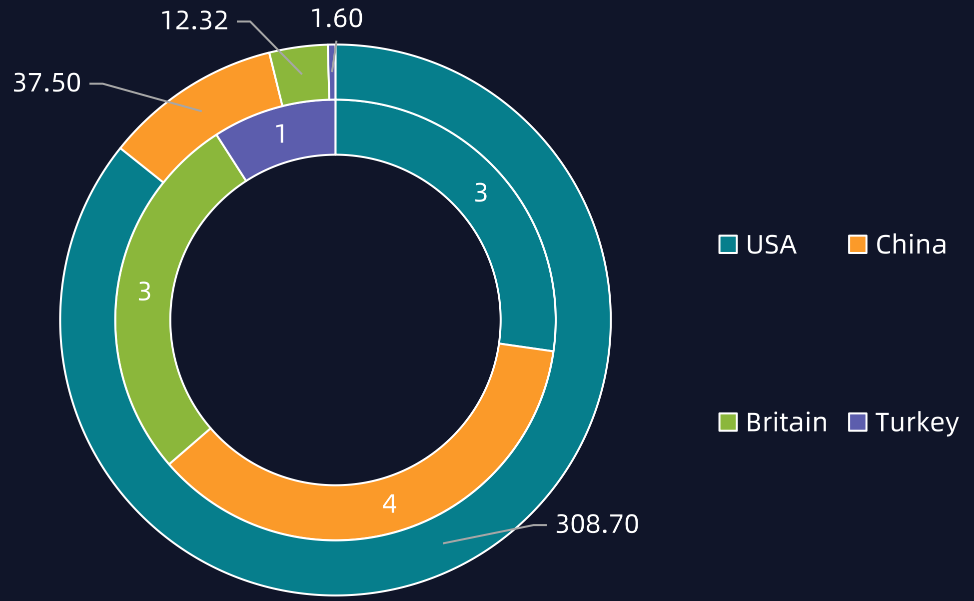
- From 2021 to 2024, financing activities in the field of global quantum precision measurement showed certain volatility and growth potential, with a compound annual growth rate (CAGR) of about 33.90%.
- In general, although the amount of financing has changed in different years, the increase in large - scale financing events shows that financing activities are shifting from relatively scattered small investments to a few large - scale investments, which means that projects with clear commercialization prospects or large - scale capabilities will be more easily favored by the capital market. And especially in the context of high - tech investment, the influx of funds is gradually accelerating.

Investment and Financing Activities Show the Characteristics of Diversification, and Investment Shows the Trend of Centralization.

The Situation of Enterprises' Financing in the Field of Quantum Sensing in Various Countries, in 2024 (in Million USD)



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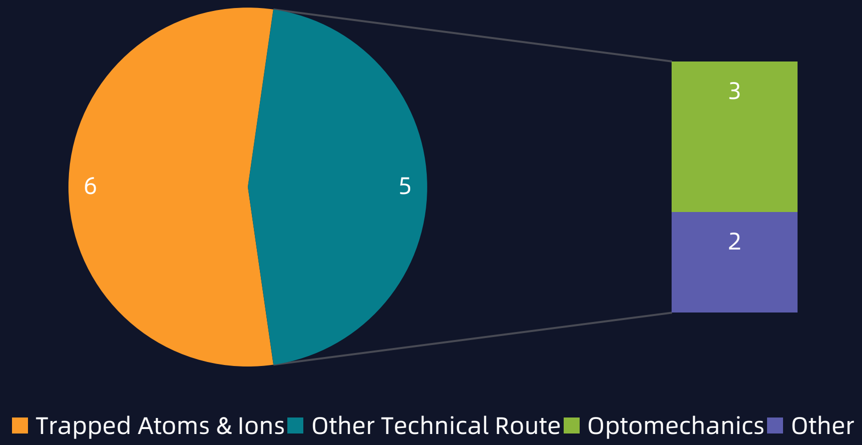
Note: This statistic has estimated the number of companies that have not disclosed the specific financing amount; The inner circle represents the number of financing transactions, and the outer circle represents the financing amount.

- In 2024, a total of 11 enterprises around the world participated in investment and financing activities, and the total amount of financing was expected to reach $360 million.
- In the United States, there were three corporate investment and financing activities, with a total financing amount of $309 million.
- In China, the total investment and financing amount of enterprises was about $38 million, and the number of investment and financing transactions reached 4.
- In the UK, there were three investment and financing transactions, with an estimated total amount of $12 million.
- In Turkey, there was only one investment and financing transaction, with an investment amount of about $1.6 million.

The Financing Direction of Trapped Ion/Atom Path is Relatively Large, and the Financing Type is Mainly Seed Round Investment.

The Situation of Enterprises' Financing in the Field of Quantum Sensing in Various Countries, in 2024 (in Number of Financing Events)



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In 2024, quantum precision measurement financing focused on trapped atoms/Ions (6 companies) and other methods (5 companies).

Global Corporate Financing in the Field of Quantum Precision Measurement, in 2024 (in Million USD)

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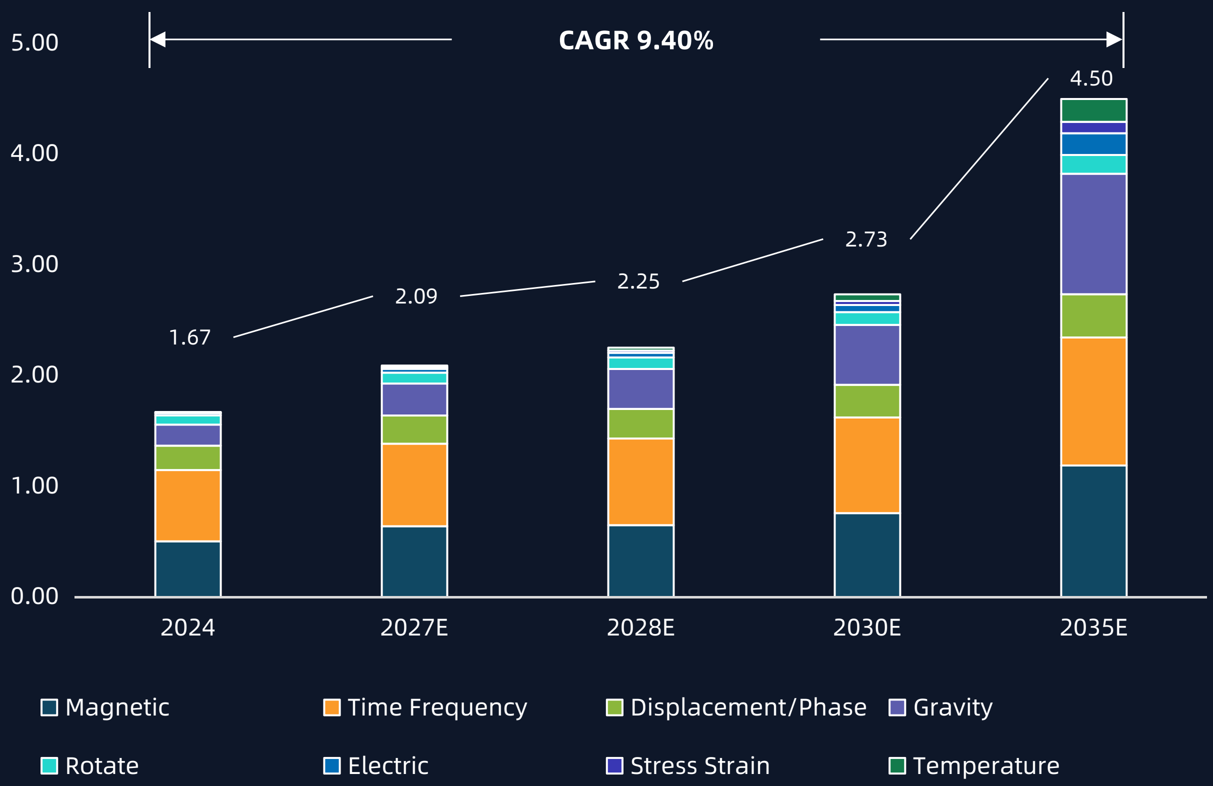
Early - stage rounds (10 deals) totaled $60 million, eclipsed by a single - late - stage deal at $300 million, reflecting concentrated high - value investments.

The Commercialization of the Industry is Gradually Mature, and the Overall Scale is Further Improved.

Global Quantum Sensing Measurement Size Projection, 2024-2035E (in Billion USD)



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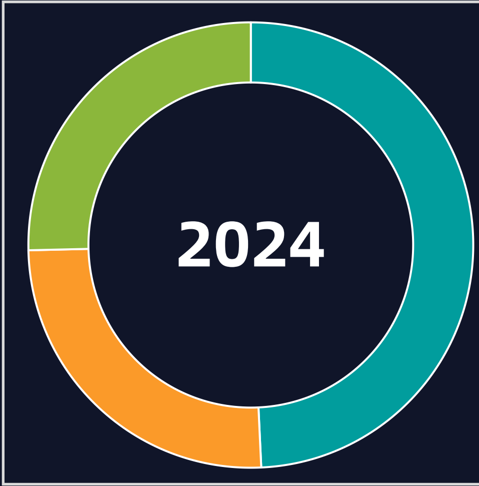
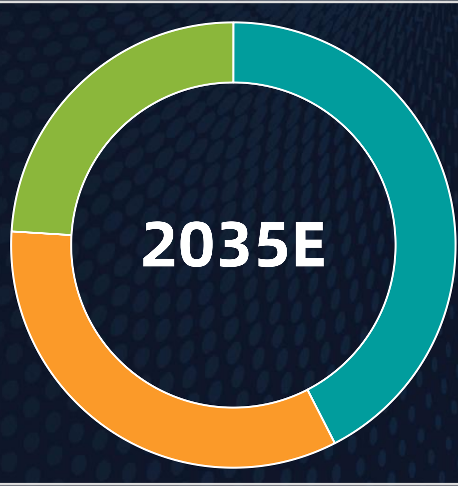
- From the perspective of sub - sectors, the growth rate of the industrial scale of each technology direction will vary in the next decade, but on the whole, this situation reflects that the diversified applications of quantum precision measurement technology are gradually maturing and beginning to be commercialized.
- The industrial scale of quantum clocks reached $1.23 billion, with a compound annual growth rate of 6.63%. The scale of the gravity measurement market is expected to reach $1.09 billion in 2035. The industrial scale of magnetic measurement is expected to reach $1.02 billion US dollars by 2035.
- Although the industrial scale of such sub - sectors as rotation measurement, electric field measurement, temperature measurement and pressure measurement is relatively small, the growth rate cannot be ignored.

Extensive Demand in Defense, Medical Treatment and Other Fields Has Injected Vitality into Market Growth.

2024 & 2035E Global Quantum Precision Measurement Size by Application Area (in Billion USD)



2024	Application Area	2035E
0.33	Defense Military	0.76
0.17	Civil	0.60
0.17	Scientific Research	0.43



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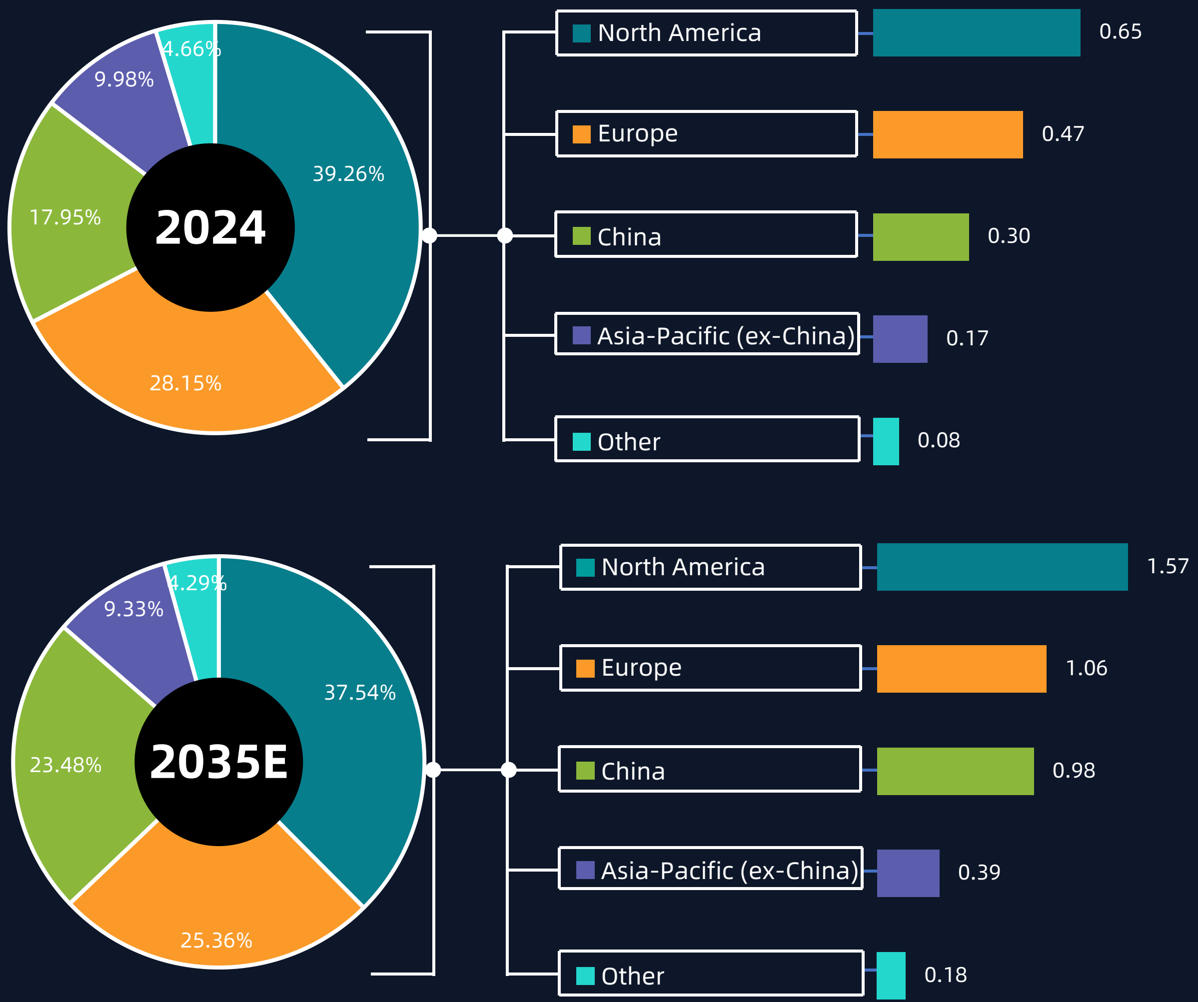
With the increasing demand for higher precision measuring equipment in the industry, the industrial scale is expected to expand steadily.

It is estimated that the proportion of the application scale of quantum precision measurement in military and national defense will reach 42.80% in 2035, slightly lower than that in 2024.

The proportion of the application scale in the civil field increased from 30.61% in 2024 to 35.76%, and the proportion of the application scale of scientific research decreased from 26.21% in 2024 to 21.44%.

Dynamic Changes of Global Competition Pattern of Quantum Precision Measurement.

2024 & 2035E Global Quantum Precision Measurement Size by Region (in %, Billion USD)



- The global quantum precision measurement market presents a dynamic trend. In 2024, the scale of the global quantum precision measurement industry reached $1.674 billion, with 39.26% in North America, 28.15% in Europe, 17.95% in China, 9.98% in the Asia-Pacific region (except China), and 4.66% in other regions.
- In 2035, with the continuous maturity and development of the quantum precision measurement market, the global industrial scale will rise to $4.497 billion.
- During this period, China's share will increase significantly to 23.48%, indicating China's rise in the global market. Europe and Asia-Pacific (except China) will decline slightly to 25.36% and 9.33% respectively, while other regions will account for 4.29%. North America will still maintain a high market share, accounting for 37.54%.

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