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German National Quantum Technology Program

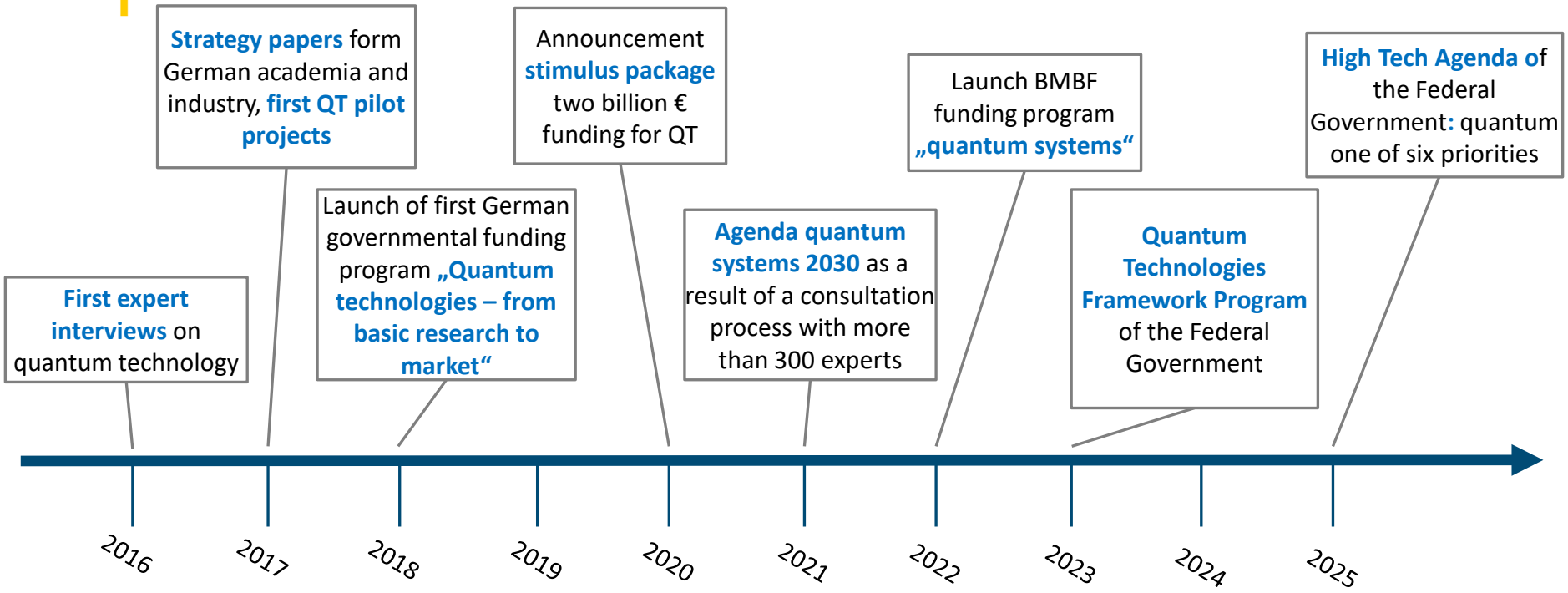
Teratec Forum

Paris, Palais des Congrès | October 20–21, 2026

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Quantum Technologies in Germany – a Timeline



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High-Tech Agenda

- Tech agenda of the government

- **Quantum technologies as one of the six key technologies**



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Realignment of Research and Innovation Policy

- **Interlinking**
  Interlinking of research and technology policy with industrial, location, and security policy.
- **Technological Capacities**
  Focus on value creation and the development of technological capacities in Germany and Europe.
- **Innovation Ecosystems**
  Holistic strengthening of technological innovation ecosystems through systemic approaches.
- **Outcome Orientation**
  Innovation initiative with an outcome orientation focused on accelerating the development and commercialization of technologies.



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Quantum Technology

Goal 1 – Quantum Computing

Target 1: By 2030 deliver at least two error-corrected quantum computers of European world-class performance and make them accessible to users.

Key actions:

- Launch a mission-driven hardware competition (starting 2025) to advance the most promising architectures and scale them to logical-qubit machines within four years.
- Create favourable conditions for start-ups to become system integrators and commercialise quantum-computer components.
- Support acquisition of quantum computers by research institutions and HPC centres, fostering integration with classical supercomputers and networking of the HPC-quantum community.

Goal 2 – Quantum Sensing

- **Target:** By 2030 enable earlier disease detection with quantum sensors and open at least one additional application field.
- **Key actions:**
  - Initiate lighthouse projects (from 2026) in production-process monitoring, mobility (battery-cycle surveillance), life sciences (enhanced imaging), and space (satellite positioning).
  - Advance industrial quantum-sensor development, including a robust field-deployable optical atomic clock, quantum-magnetometer solutions for medical technology, and quantum-based electrical metrology.

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Goal 3 – Quantum Communication

Target: Strengthen and expand the quantum-communication innovation ecosystem, giving end-user perspectives greater weight.

Key actions:

- Combine top-level basic research with technology transfer to build quantum-ready cyber-security (e.g., “Grand Challenge Quantum Communication”).
- Deploy Germany’s first quantum-communication research satellite in 2025; a second small satellite is planned for 2026.
- Conduct high-visibility experiments under the QuNET initiative (2025-2026) and demonstrate the first quantum repeater in 2028, laying the foundation for long-range quantum networks.

Goal 4 – Workforce Development

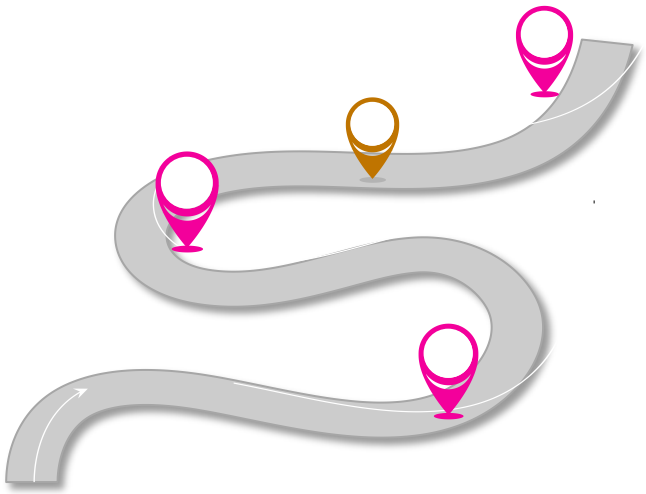
Target: Strengthen the skilled-personnel base for quantum technologies.

Key actions:

- Implement the “Quantum Future Professionals” agenda to expand education and training across the entire career lifecycle (starting 2025).
- Promote concepts for lifelong learning, “Quantum Awareness” initiatives, talent acquisition, and interdisciplinary training of quantum experts.

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Roadmap process



Start in January 2026

Involvement of industry (large companies, SMEs, start-ups), science and the federal states in the key technologies

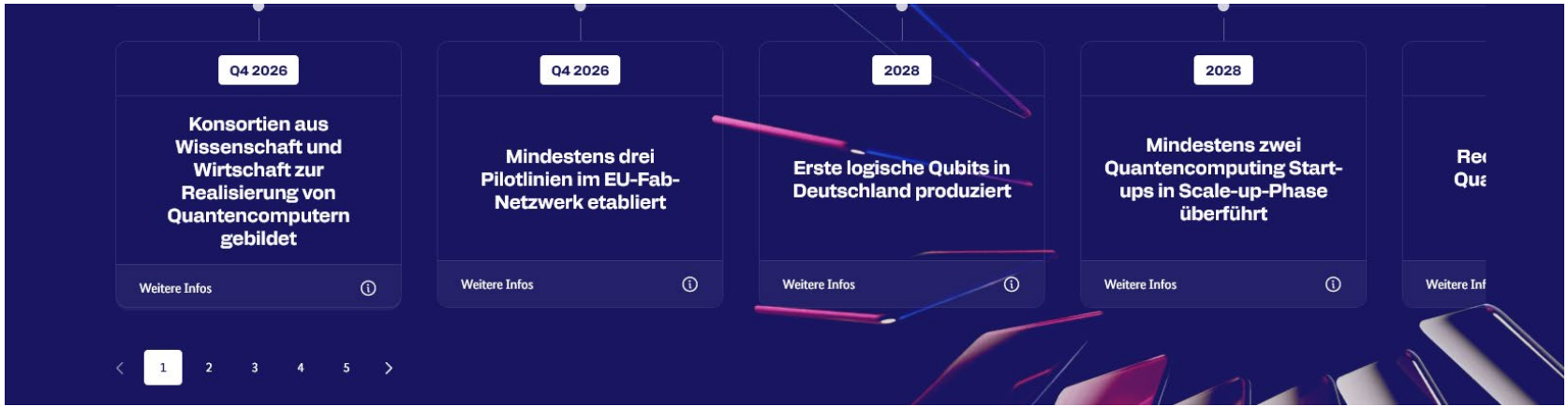
Results have been published in June 26

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Roadmap Quantum technologies

- **Timeline and milestones** defined for quantum computing, sensing and communication

- e. g. logical qubits by 2028



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Leading German Companies

Computing

- eleQtron
- planqc
- IQM
- KIPU QUANTUM
- HQS QUANTUM SIMULATIONS
- BASF We create chemistry
- covestro

Sensing

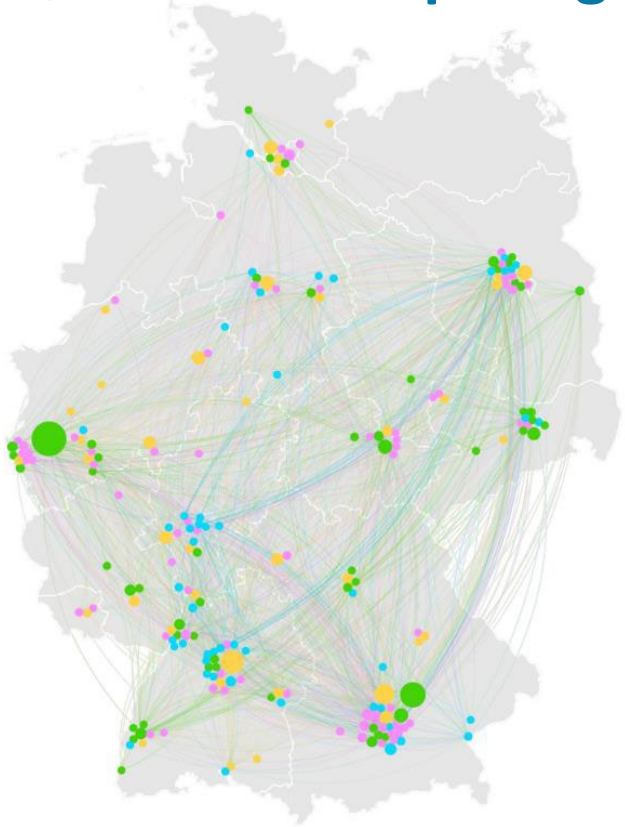
- NVISION
- Swabian instruments
- QUANTUM DIAMONDS SENSOR TECHNOLOGY
- Quantum Technologies

Communication

- KEEQUANT
- QUANTUM OPTICS JENA
- Pixel Photonics

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Quantum Computing R&D in Germany



- Research organization
- University and college
- Large companies
- SME and start-ups

Lines: collaboration within R&D-project

Size of circles: Amount of funding

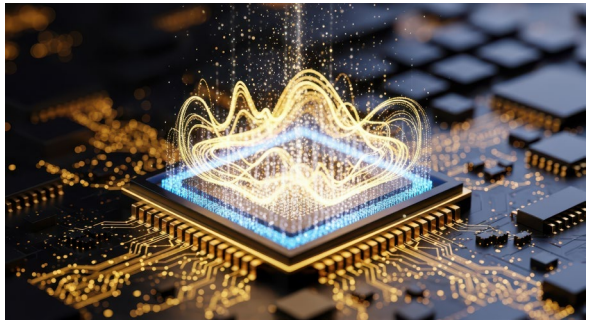
quantencomputing-deutschland.de

- Competences are **distributed** across Germany
- Ecosystem thrives strongly on **collaboration**
- **Regional clusters** for interdisciplinary cooperation

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Quantum computing competition

- R&D on **error-corrected quantum chips** and establishing corresponding **infrastructure**
- Technology platforms: **ion traps, superconductors and neutral atoms**
- **Technological entrance criteria** have to be shown by every consortium in advance
- Total budget **> 500 mio. €**



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Next steps

- **Quantum Hubs:**
  - Purchase of quantum computers by HPC-centers
  - consulting services on uses cases for companies
  - Planned publication in Sep/Oct 26
- **Quantum sensor** challenge planed for Q1 27

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Quantum Hubs

Objective A: Generate revenue for QC hardware providers

QC-providers

High-Performance QC System

revenues

Anchor Customer Purchase

Objective B: Transfer of QC to specific applications

End users (companies)

Low-threshold access to QC

Training, consultation

Co-deveelopment of Use Cases

Implementation

Quantum Hub

Modul A

- Procurement, Purchase, and Integration
- of the QC System into Existing Infrastructure
- Optimization of the QC System within the Data Center Infrastructure

consortium

HPC/Cloud
Centers/Institutes/Universities/
Quality Initiatives (1-2)

QC Software Developers
(Companies) (1-3)

Modul B

- Central Point of Contact
- Training
- User Accounts, Evaluation
- Collaborative Development of Use Cases
- Implementation of Use Cases
- R&D for Application-Specific Software