PRESS

2025/041
October 27, 2025

Position paper on quantum technologies: Experts call for greater focus in research policy

Leading representatives from science and industry make proposals for better research and innovation funding. The position paper will be presented this week at the MicroSystemTechnology Congress 2025.

[Frankfurt am Main, October 27, 2025] Leading experts in the field of quantum technologies call for a more coherent and focused research policy in a position paper. In the paper published by the VDE Association for Electrical, Electronic & Information Technologies, which will be presented this week at the MicroSystemTechnology Congress 2025 in Duisburg, representatives from science and industry offer seven ideas for achieving this:

- Develop a shared vision and underpin it with roadmaps
- Expand ecosystems and infrastructure
- Designing efficient research and innovation funding
- Win the competition for the best minds
- Focus on application and actively introduce users
- Support international standardization
- Establish Quantum Initiative Germany

The paper is based on expert opinions from Prof. Dr. Immanuel Bloch (Professor of Experimental Physics – Quantum Optics, LMU Munich, and Director of the Max Planck Institute for Quantum Optics, Munich), Prof. Dr. Tommaso Calarco (Professor of Quantum Information Theory at the University of Cologne), Dr. Michael Förtsch (CEO Q.ANT GmbH, Stuttgart), Dr.

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Presentation at the MicroSystemTechnology Congress 2025

The position paper will be presented on Tuesday, October 28, 2025, at the MicroSystemTechnology Congress (MST Congress) 2025 in the Mercatorhalle Duisburg. From October 27 to 29, experts from science, industry, and politics will meet at the central forum for microsystem technology in the German-speaking world. This year's event is themed "Change through Progress." It is organized by the the VDE/VDI-Society Microelectronics, Microsystems and Precision Engineering (VDE VDI GMM) and the VDI/VDE Innovation + Technology GmbH (VDI/VDE-IT).

More information about the MST Congress can be found here (German version).

The seven impulses in detail:

"Quantum technologies are currently making noticeable progress. But the road to successful (mass) products is long. We need to be patient," the position paper states. However, examples from the past – such as laser lithography and photonics – show that long journeys can be worthwhile. But to achieve this, experts believe that a roadmap is needed that is jointly supported by politics, business, and society and that points the way to a vision that is also jointly supported.

Based on this vision and roadmap, the experts believe that the existing internationally successful regional quantum ecosystems consisting of science and (young) companies and their infrastructure should be specifically expanded in this country. "This means, for example, that high-tech infrastructures funded within this framework are also accessible to other projects on a low-threshold basis according to defined rules. This allows us to use investment funds efficiently," summarizes Dr. Thomas Becks, who aggregated the findings and ideas for the VDE and edited the position paper.

Overall, research and innovation funding must become more efficient through such and similar measures. Until now, it has too often been the case that different ministries have set up funding projects with only loose connections to each other, that hardware and software have not been considered in an integrated manner, and that there has been a lack of a reliable overall strategy. Instead, there is a need for funding from a single source.

It should also not be forgotten that Germany and its ecosystems for quantum technologies are in international competition for the best minds in science, research, and innovation. "Knowledge is Germany's only natural resource," the paper states. Germany must remain attractive as a place of study for foreign students – and improve conditions for researchers.

The experts suggest that applied research should be promoted more strongly in Germany. "The technology often cannot yet be adapted and therefore cannot prove itself," summarizes Dr. Thomas Becks from VDE. As a result, the practical relevance is often unclear. The position paper mentions ideas for events where user and technology companies sit down at a round table. This allows users to learn first-hand about different technological possibilities and their prospects. Something like this can be easily implemented.

In order for quantum sensors and computers to work with existing IoT systems and computer architectures, standards must be considered at an early stage. Large companies with advanced product developments are already trying to set initial standards, which amounts to quasi-standardization through market power. Germany must keep a close eye on these developments and on corresponding approaches from China. After all, those who can shape standards have a competitive advantage.

To give these impulses more weight, the experts are proposing the establishment of a Quantum Initiative Germany. This initiative would bring together science (universities, research associations, research and technology institutions), industry (start-ups, SMEs, medium-sized and large companies), consulting firms, and venture capitalists. "Too often in Germany, attempts are made to integrate new cross-cutting topics such as quantum technologies into existing structures," the position paper states. "The establishment of a Quantum Initiative Germany, which will quickly get involved in the technical and content-related work , is a sensible way to strengthen our business location and quickly and efficiently find the path from basic research to application."

The position paper can be found here (German version).

About the VDE/VDI-Society Microelectronics, Microsystems and Precision Engineering (VDE VDI GMM):

The VDE/VDI Society Microelectronics, Microsystems and Precision Engineering (VDE VDI

GMM) is the comprehensive platform in microelectronic application areas. It is jointly supported by the VDE and VDI, and promotes the valuable transfer of interdisciplinary knowledge. Its spectrum ranges from basic technologies in the production of microelectronics and microsystem technology right through to mechatronics and fields of electromagnetic compatibility. The GMM stands for cooperation and international networking to foster innovation. It works with interdisciplinary research institutes, companies and universities at every stage, from basic research to applications, and offers its members all the advantages of being part of a progressive expert community. Thanks to its expertise, the GMM has an influence on technical standards and is involved in national and European research programs. Other important goals for the GMM include promoting young scientists as well as training and further education. The COSIMA competition (Competition of Students in Microsystems Applications), which is funded by the Federal Ministry of Education and Research, is essential in achieving this.

For more information, visit www.vde.com/gmm

About VDE:
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The VDE (VDE Association for Electrical, Electronic & Information Technologies) is headquartered in Frankfurt am Main. For more information, visit www.vde.com

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