# Position Paper

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**Issue: Establishing Ethical Guidelines and Regulatory Frameworks for International Quantum Technology Development**

The rapid advancement of quantum technologies—encompassing quantum computing, quantum communication, and quantum cryptography—presents unprecedented opportunities for science, industry, and society. These technologies have the potential to revolutionize fields such as materials science, medicine, cybersecurity, and artificial intelligence. However, their development also raises complex ethical, legal, and security challenges that demand coordinated international regulation. Germany recognizes the importance of creating global frameworks to ensure that quantum technologies are developed responsibly while promoting innovation.

Germany has invested heavily in quantum research and development, committing over 2 billion euros through its National Quantum Initiative. This program aims to secure Germany's technological leadership while integrating ethical, legal, and societal considerations into research processes. Germany believes that responsible quantum technology development requires transparent, fair, and socially accountable practices, alongside robust safety and privacy protections.

Germany strongly supports international collaboration to develop harmonized standards and ethical guidelines for quantum technologies.

At the European level, Germany actively participates in initiatives such as the European Quantum Flagship and the CEN-CENELEC Focus Group on Quantum Technologies. These initiatives aim to coordinate research efforts, establish technical standards, and create best practices for responsible innovation. Germany emphasizes that such collaboration is essential to prevent technological monopolies and ensure equitable access to quantum advancements.

While recognizing the transformative potential of quantum technologies, Germany is aware of the risks posed by uncontrolled development. Quantum computing could compromise existing encryption methods, while unregulated deployment of quantum communication networks may threaten global cybersecurity. Germany therefore advocates for the creation of international ethical frameworks and regulatory measures that address both the opportunities and challenges posed by these emerging technologies.

Germany therefore proposes some actions for consideration by the CSTD

Development of international ethical guidelines for quantum technology research and deployment, building upon existing standards for artificial intelligence and emerging technologies.

Promotion of harmonized regulatory frameworks across nations to ensure interoperability, security, and responsible innovation.

Increased support for education, training, and collaborative research programs to broaden access to quantum expertise and foster equitable technological development.

Encouragement of transnational public-private partnerships to combine scientific research, industrial capacity, and ethical oversight.

The delegation of Germany affirms that global cooperation and ethical oversight are essential to maximize the benefits of quantum technologies while mitigating their risks. Germany is committed to leading these efforts in partnership with other nations to ensure that quantum innovations contribute to a safe, sustainable, and inclusive future.

**Sources:**


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