POSITION PAPER

A Dedicated Quantum Initiative

Implementing the Quantum Act through dedicated governance, strategic programming and a ring-fenced budget

Response to the Call for Evidence: "Horizon Europe – European Partnerships to be implemented as joint undertakings" (Ref. Ares, DG CNECT/DG RTD)

This position paper is submitted on behalf of the QOMPASS project consortium, the Coordination and Support Action mandated to support the European Commission in coordinating the Quantum Flagship. QOMPASS coordinates a community of over 3,000 EU quantum experts registered on the qt.eu platform, acting as a facilitator between European quantum academia, start-ups, scale-ups, and end-user industry. It is in this capacity that the consortium submits the following recommendations.

1. From Scientific Leadership to Industrial Sovereignty

The Quantum Flagship, launched in 2018 as a ten-year initiative, has been a major success. It has done far more than just foster scientific leadership: through the Quantum Flagship Roadmap, it united the academic and industrial community around shared scientific and technological targets, and this alignment has helped build a sizeable population of quantum start-ups and scale-ups alongside world-leading academic institutions. Europe has become one of the world's most dynamic regions for quantum science and technologies, with an exceptional pool of talent. This achievement was made possible through the Flagship's model of soft coordination — light-touch, community-driven alignment across a highly capable research and innovation landscape.

That model, however, is reaching the limits of its usefulness. Europe now stands at an inflection point. World-class research has established a strong scientific base, but translating this base into industrial leadership requires a governance architecture that soft coordination cannot deliver. Intensifying global competition, with the United States, China and others deploying massive state-backed investment, and a rapidly consolidating global industry demand a step-change in how Europe organises itself. The forthcoming EU Quantum Act provides the legislative momentum needed to build this structure, and the Commission's review of European Partnerships is the moment to decide its institutional form.

Quantum technologies will form part of the foundational layer of future economic resilience, industrial competitiveness, security and economic security. Leadership in quantum computing and simulation, communication, and sensing will help determine who controls critical digital infrastructure, who can guarantee secure communications, who masters technology and business for some of the best sensors, and who sets the global standards of the next technological era. If Europe falls behind, it risks serious data vulnerabilities, supply-chain lock-ins, and long-term dependence on non-European technology providers.

Europe is exceptionally well placed to lead. The continent has the highest concentration of top-tier quantum researchers in the world, leading research institutions, and successful pioneering frameworks to build upon, such as the Quantum Flagship, EuroHPC and Chips Joint Undertakings, as well as collaborative funding initiatives such as QuantERA. Scientific excellence and the existing Partnerships alone, however, are insufficient: converting the research advantage into global market leadership requires sustained alignment between the EU, Member States, academia and the private sector. The EU must provide single-market scale; Member States must replace fragmented national funding and regulation with coordinated strategies; academia must accelerate technology transfer *while sustaining excellence in frontier basic research*; and the private sector must be structurally integrated to crowd in the venture and growth capital needed to bridge the "valley of death" between laboratory prototypes and industrial scale-up. The governance model that enabled scientific and technological leadership is not the one required for industrial deployment. Europe now needs a dedicated

Quantum Initiative capable of coordinating long-term investment, industrial deployment and strategic programming across the quantum ecosystem.

2. Recommendations for the Next MFF: A Dedicated Quantum Track within the JU Architecture

QOMPASS recommends establishing a European Quantum Initiative covering all the quantum technology pillars in the next Multiannual Financial Framework, implemented through a dedicated and independent quantum governance track within the Joint Undertaking (JU) architecture. The JU model provides the governance framework needed to align investment by the European Commission, Member States and industry, and to support long-term industrial deployment through stable, multiannual governance. Without a dedicated quantum governance track and budget, investments risk being fragmented across multiple instruments and initiatives, reducing Europe's ability to build globally competitive quantum capabilities. The following principles should underpin the design of the initiative.

- **Dedicated quantum governance and a ring-fenced budget.** A dedicated quantum governance track and ring-fenced budget are essential to ensure strategic programming and coordination across the 10th framework programme (Horizon Europe), the European Competitiveness Fund and relevant sectoral programmes. The governance framework should be empowered to deploy the full range of instruments needed for industrialisation, including support for R&D and pilot-line activities, first-of-a-kind manufacturing facilities, first industrial deployment, coordinated State Aid where appropriate, and strategic public procurement that creates market pull for European quantum start-ups and scale-ups.
- **Multi-actor strategic governance and advisory structure.** Delivering on this agenda requires the European Commission and Member States to join forces within a single governing structure, advised by a permanent panel of experts representing the entire European quantum value chain, from academic research and research infrastructures to start-ups, scale-ups, established industry and end-user sectors, together with expertise in intellectual property, standardisation, regulation and scale-up finance. This structure should provide continuous strategic advice and help ensure that investment priorities remain aligned with technological maturity, industrial needs and long-term European competitiveness.
- **Embrace all quantum technologies.** The European Quantum Initiative should include all quantum technologies, quantum computing and simulation, communication, and sensing under one roof. Doing so will allow realising synergies; refraining from doing so will cause unnecessary frictions.
- **Moving from research to industrial deployment.** The governance framework should systematically close the gap between scientific excellence and commercial competitiveness by supporting technology transfer, demonstrators, pilot production and first industrial deployment. Translating research excellence into industrial deployment should be a core objective of the Quantum Act.
- **Strengthening Europe's quantum value chains.** Europe's strategic autonomy depends on developing, manufacturing and retaining critical capabilities across the quantum value chain, from enabling technologies and components to systems integration and industrial deployment. The initiative should strengthen European positions in strategically important segments of the quantum value chain, reducing critical dependencies while reinforcing Europe's technological leadership and supply-chain resilience.
- **Cross-sectoral strategic alignment.** Quantum technologies are increasingly interconnected with advanced semiconductors, high-performance computing, artificial intelligence and secure cloud infrastructures. The quantum governance track should therefore be closely coordinated with these European initiatives, while retaining the autonomy to steer quantum-specific priorities and investment decisions. Efficient cross-sectoral alignment can only be realised, however, with a strong mandate and governance behind it.

3. Conclusion

The Quantum Flagship has demonstrated that Europe can build world-leading scientific excellence and a vibrant quantum innovation ecosystem. The Quantum Act now provides the opportunity to convert this foundation into industrial leadership, while reinforcing the excellence in frontier research that will sustain Europe’s long-term technological leadership. Achieving that objective requires more than continued coordination: it requires governance with the authority to align investment, accelerate industrial deployment and sustain Europe's technological leadership. QOMPASS therefore recommends establishing a European Quantum Initiative, implemented through a dedicated quantum governance track and ring-fenced budget within the Joint Undertaking architecture. The consortium stands ready to support the Commission with evidence, stakeholder engagement and technical expertise as this governance model is developed.