

(English version)

**Question for written answer E-002937/24
to the Commission**

Lídia Pereira (PPE), Sebastião Bugalho (PPE), Paulo Cunha (PPE), Hélder Sousa Silva (PPE)
(13 December 2024)

Subject: Driving decarbonisation: leveraging quantum computing for Europe's clean industrial future

In order to decarbonise growth, we need to grow decarbonisation. Quantum computing will reshape the economics of decarbonisation, advancing transformative innovation across cleantech applications and enabling a greenhouse gas reduction of up to 7 gigatonnes by 2035. The quantum market could be as large as EUR 78 billion by 2040. As pointed out by the Draghi report, today 'five of the top ten tech companies globally in terms of quantum investment are based in the US, four in China and none in the European Union'. Given Executive Vice-President of the Commission Stéphane Séjourné's task to ensure the industrial application of quantum computing is at the heart of our economy, how is the new Commission planning to harness quantum computing's potential in the Clean Industrial Deal considering:

1. a pan-European strategy for quantum applications in clean technologies, driven by public funding and supported by a comprehensive capacity-building plan for the quantum and clean tech industries;
2. the promotion of public-private partnerships in the form of centres of excellence to incentivise research and development (R&D) investment in quantum computing by the private sector;
3. the proactive involvement of European universities in the development of the skills and knowledge at the heart of a quantum economy for clean technologies.

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Answer given by Executive Vice-President Virkkunen on behalf of the European Commission
(12 February 2025)

The Commission acknowledges quantum computing's enormous potential to transform and grow many industrial sectors, including Europe's clean tech industry. The Quantum Technologies Flagship's Strategic Research and Industry Agenda for 2030 ⁽¹⁾ highlights many use cases relevant to clean tech.

To further harness quantum's great potential and building on the Quantum Declaration ⁽²⁾ signed by 26 Member States, the Commission is preparing a comprehensive quantum strategy aiming to consolidate EU and national initiatives and boost European competitiveness in this strategic field, including measures to increase public and private funding, facilitate the transformation of excellent EU research into marketable devices and applications, build pan-European quantum infrastructures such as advanced pilot lines (supported by, e.g., the Chips ⁽³⁾ and EuroHPC ⁽⁴⁾ Joint Undertakings), and promote quantum centres of excellence.

It will prioritise skills development, working with universities and research institutes to foster European quantum talent and building on the initiatives in quantum funded by the Digital Europe Programme ⁽⁵⁾.

The new strategy will help Europe maintain a highly competitive position in both quantum technologies and clean tech, as well as many other fields.

Moreover, European universities alliances can play a key role in developing skills and knowledge for a quantum economy through joint programmes, partnerships and coordinated investments in infrastructure, equipment and human resources.

⁽¹⁾ <https://qt.eu/media/pdf/Strategic-Research-and-Industry-Agenda-2030.pdf>

⁽²⁾ <https://digital-strategy.ec.europa.eu/en/library/european-declaration-quantum-technologies>

⁽³⁾ https://european-union.europa.eu/institutions-law-budget/institutions-and-bodies/search-all-eu-institutions-and-bodies/chips-joint-undertaking_en

⁽⁴⁾ <https://digital-strategy.ec.europa.eu/en/policies/high-performance-computing-joint-undertaking>

⁽⁵⁾ <https://digital-strategy.ec.europa.eu/en/activities/digital-programme>