techUK

10 St Bride Street
London EC4A 4AD

techUK.org | **@techUK**

Media Contacts
Margherita Certo
T: (+44) 07462107214
E: margherita.certo@techUK.org

Press release

FOR IMMEDIATE RELEASE

UK in strong quantum commercialisation position but more investment needed from government and industry, says new techUK report

- New report identifies five priorities and 20 recommendations the UK Government and industry should address to compete internationally with the UK's quantum ecosystem
- The UK could face significant challenges in developing skills, talent pipelines and commercial use cases if action is not taken
- The report comes as the UK moves from research to deployment to support the quantum ecosystem and develop viable use cases

LONDON, 24 May 2022: Technology trade association techUK has today published a new quantum commercialisation report – *Quantum commercialisation: Positioning the UK for success*– calling on UK Government and industry to set clear commercial ambitions together, giving UK-based and international businesses the confidence that the UK is a viable place to achieve quantum commercial viability.

This report comes at a crucial time in the development of quantum technologies, as industry moves from research to deployment of the initial use cases. Quantum technologies can play a formidable role in unlocking innovation both in the UK and internationally, enabling previously unattainable technological advancements in drug discovery, protein-folding, carbon capture, battery research and more. Such advancements will have a profound impact in the UK as we build on our position as a science and technology leader and turn academic strength in quantum into economic success.

However, to achieve this vision the following **five key priorities** should be addressed:

- **Ensure access to quantum talent and developing quantum skills in the UK:** the UK is in international competition to develop quantum skills, with competitive international salaries making it difficult for the UK to attract quantum talent. Ramping up the talent pipeline must happen immediately and rapidly to mitigate the potential of brain drain. The development of a talent pipeline will require the UK tech sector, the quantum industry, academia, and UK Government to actively work together to prioritise quantum skills.
- **Work with the UK tech sector to develop models of easy access to quantum technologies, including building pathways with other critical emerging technologies**: the report emphasises the complementary role other technologies such as Cloud, HPC and AI will play for commercialisation.

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techUK recommends that the UK Government should think holistically about research, ecosystems, and commercialisation of these technologies together. A focus on commercialisation also means support for other technologies that will become part of the quantum ecosystem and enable its success.

- **Promote international collaboration to help grow and develop opportunities for the UK sector, and protect the UK's capabilities**: The US, Germany and France are among the countries developing at pace that already have the structure to support the growth of their quantum ecosystems. The UK Government should use international collaboration and partnerships as an opportunity to showcase the weight of its quantum ecosystem, and match this with continued commitment to support its development through grants, opportunities, and procurement.

- **Encourage public sector procurement of quantum to grow the quantum market, offer stability, and enable commercialisation**: the UK Government should set ambitious plans for public procurement of quantum technologies that will help find quantum-based solutions and drive forward commercialisation, addressing the barriers limiting public sector adoption of quantum such as skills and awareness, and accessibility for SMEs to the procurement process.

- **Ensure commercialisation and innovation is achieved in a responsible and ethical manner:** the UK Government should explore whether a central resource offering training and advice on how to turn responsible innovation principles into practice could be particularly useful for start-ups and SMEs**. This could be matched with grants or credits as part of upskilling for projects, ensuring the UK is addressing responsible innovation at every stage.

techUK believes that without addressing these five key priorities, it will become difficult to sustain a world-leading quantum ecosystem in the UK with commercialisation at the forefront. Across these priorities, techUK underscores the importance of **collaboration** and **partnership** with the wider tech sector to make this a reality.

Laura Foster, Head of Technology and Innovation, techUK said:
"With the formidable role quantum technologies will play in enabling previously unattainable technological advancements in drug discovery, protein-folding, carbon capture, battery research and more, quantum will be key to unlocking the UK's success as a science and technology superpower. However, industry cannot do this alone – our first quantum report calls on UK Government and industry to set clear commercial ambitions together, giving UK-based and international businesses the confidence that the UK is a viable place to achieve commercial viability."

Science Minister George Freeman said:
"The advances being made in Quantum technology offer some of the most exciting opportunities in the innovation pipeline for the years ahead, potentially revolutionising

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everything from medical diagnostics and autonomous vehicles, to military navigation and cybersecurity.

"This report highlights just how important the commercialisation of quantum technology will be in unleashing the UK's full potential as a science superpower, which is why it is a priority for this government as we work to develop the National Quantum Strategy."

Howard Watson, Chief Technology Officer, BT has said:
"We are on the cusp of a quantum revolution. In the years ahead, further advances in quantum-driven technologies, solutions, products and services are expected to bring profound changes to the technology sector and are expected to be transformational in areas as diverse as pharma, finance, telecommunications, construction and civil engineering. As the leading UK provider of fixed and mobile telecommunications, BT is determined to ensure the security of the UK's economy with an ambition for national quantum-secure communications. We welcome techUK's Quantum Report which recognises the achievements of the UK so far and gives clear recommendations to retain its global leadership."

Alan Baratz, president and CEO of D-Wave, said:
"D-Wave is highly supportive of the ongoing discussions around the advancement of quantum technology, and we're pleased to see the UK government taking an active role. We believe quantum partnership is important for accelerating quantum innovation and impact. Governments must not only foster collaboration in research, but also work with industry leaders to build quantum-hybrid applications to solve public sector challenges and facilitate commercial adoption. We also need to act swiftly to support talent development and commercialization. The recent report from techUK reinforces these imperatives, showcasing the commercial readiness of quantum technology and how it can be applied by the private and public sector today."

-ENDS-

Notes to Editors

Summary of recommendations

techUK has set out 20 recommendations to government and industry to scale the UK's quantum ecosystem across its five key priorities:

Ensuring access to quantum talent and developing quantum skills in the UK

1. **Government and industry should work together to open access so that PhD's are not the only route into a career in quantum.** Addressing this large barrier to entry will allow for more talented people to enter the sector, increase the sector's diversity, and fill industry job shortages.

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2. **Government should encourage the move to industry by funding industry placements making the move from academia to industry more attainable**. These placements should also be available for international talent to mitigate difficulty in creating internships and industry placement for international PhDs.

3. **Digital skills for different technologies should not be viewed in isolation**. Quantum will align closely with other forms of technologies and cross-disciplinary programmes to bring technologies together should be encouraged.

4. **Support upskilling for a quantum literate workforce.** This can be done through training opportunities and education programs that accelerate cross-disciplinary programs that bridge engineering, science, business, and social sciences to develop people with an understanding of the huge potential of quantum from a technological and business perspective.

5. **Ensure the UK has access and remains attractive to large international talent.** Enhancing visa flexibility for quantum talent, including short-term access for academic-industry placements and internships, will be crucial so that we hire the best and brightest to progress the UK's quantum journey.

6. **Drive wider business skills and socio-ethical skills.** To create a successful quantum ecosystem, key interventions in training should include business skills that needed for commercialisation.

Working with the UK tech sector to develop models of easy access to quantum technologies, including building pathways with other critical emerging technologies such as Cloud, HPC and AI that will be key for commercialisation

7. **Investment in supporting infrastructure will enable access to quantum**. This includes encouraging key connections between quantum and high-performance computing (HPC), AI and Cloud

8. **Encourage convergence between quantum and emerging technologies through key national priorities** and developing opportunities for this convergence to take place

9. **International partnerships with those who can provide access to existing quantum capacity** will be particularly valuable to support UK business adoption, especially as other nations push forward in building HPC/quantum capacities.

10. **Government should think in particular about encouraging access to quantum for SME's and start-ups**, to make sure quantum is accessible. This will include exploring different access models to quantum through the cloud.

Promote international collaboration globally to help grow and develop opportunities for the UK sector, and protect the UK's capabilities

11. **The UK should be vocal about its success in quantum.** the UK Government should use international collaboration and partnerships to showcase the weight of the UK

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quantum ecosystem, and match this with continued commitment to support the development of the UK quantum ecosystem through grants, opportunities and procurement.

12. **Increase partnerships, agreements and the number of memoranda of understanding between UK and third country regulators.** These agreements should be flexible and have the ability to encompass the growth and evolution of quantum technologies.

13. **Utilise emerging tech taskforces, framed on the Regulatory Horizons Council,** aimed at breaking down barriers and streamlining regulatory processes to development and deployment of key emerging technologies. These taskforces should be a partnership between industry and Government that seek to identify and tackle regulatory approvals, certifications and economic and cultural barriers to the commercialisation and deployment of key emerging tech.

Encourage public sector procurement to grow the quantum market, offer stability, and enable commercialisation

14. **Set ambitious plans for public procurement of quantum technologies** that will help find quantum-based solutions and drive forward commercialisation especially for SMEs

15. **Frame procurement around intersect key national priorities** such as developing low carbon solutions and levelling up, where departments are working together to find strategic solutions. Here, quantum should be embedded as part of the solution with other emerging technologies like Cloud, HPC, AI and more.

16. **Use procurement to frame quantum as a part of a wider technology toolkit available in the UK.** Again, achieving key national priorities will be crucial here

17. **Address the barriers limiting public sector adoption of quantum** such as skills and awareness, and accessibility for SME's to the procurement process

Ensure commercialisation and innovation is achieved in a responsible and ethical manner

18. UK Government, industry and academia should partner to deliver training opportunities and education programmes on the societal and ethical considerations of quantum technologies, to establish the UK's leadership position

19. Work with the UK digital ethics community to help develop guidance, resource and best practice for operationalising responsible innovation in the quantum ecosystem.

20. Ensure any strategy or approach to quantum skills includes the development of business, commercial and socio-ethical skills.

The full report can be downloaded here.

techUK's Quantum programme

About techUK

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techUK is the technology trade association that brings together people, companies and organisations to realise the positive outcomes of what digital technology can achieve.

With over 850 members (the majority of which are SMEs) across the UK, techUK creates a network for innovation and collaboration across business, government and stakeholders to provide a better future for people, society, the economy and the planet.

By providing expertise and insight, we support members, partners and stakeholders as they prepare the UK for what comes next in a constantly changing world.

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