

Spotlight on the Hub's Industry Collaborations: the case of KETS Quantum Security Ltd

The company

KETS Quantum Security Ltd is an award-winning start-up with a mission to enable future-proofed, ultra-secure communications for devices and networks through the commercialisation of integrated photonic technologies.



The partnership with the Hub

KETS is a direct spinout of the Quantum Communications Hub, created by investigators and researchers involved in the work of the Hub during the first phase of the National Programme. The founders of the company, which was created in 2016, were based at the University of Bristol and led the world's first chip-to-chip demonstration of QKD by the Hub. The demonstration saw cryptographic keys being securely exchanged using microchip circuits, just a few millimetres in size, that were able to control, communicate and detect quantum states of light. Crucially, the chips were created using components and manufacturing processes already used within the telecommunications industry, therefore paving the way for the large-scale integration of QKD devices within conventional consumer devices and telecommunications networks. Having built a prototype QKD device as part of the Hub programme, KETS was created as a start-up, with support from the Hub, in order to focus on the commercialisation of the devices. Since then, the company has remained closely involved with the Hub, collaborating on many aligned projects and leveraging access to the UK Quantum Network to test and validate their devices.



"The Quantum Communications Hub was fabulously supportive of us, first as academics with our world first chip-to-chip QKD experiments, and then even more so when we created KETS to commercialise this technology and get it out into the real world protecting our private information. We continue to be proud industrial partners of the Quantum Communications Hub which enables us to access the UK national quantum network, keep abreast and contribute to the latest cutting-edge quantum communications research, and grow our team from the wonderful talent the Hub is producing. With the support of the Hub, the UK's National Quantum Programme, and the wider quantum community we're realising our dream of providing a quantum-safe future"

Chris Erven, KETS' CEO

Looking ahead

KETS has been a quintessential entrepreneurial success story. This success is manifested twofold – through numerous industry awards and realisation of funding from various funding rounds.

In parallel, the company has fast become a key collaborator in many large-scale, strategic projects in the area of quantum secure communications, both within the UK and internationally, including:

- 'Q-DOS Light', where their QKD chips were deployed to improve the security of Unmanned Aerial Vehicles.
- 'ViSatQT', which aims to develop satellite services which aims to overcome operation time barriers to the commercialisation of satellite QKD technologies.
- 'AQuaSec', which aims to develop new quantum-resistant algorithms and implement new ultra-compact QRNG and QKD prototypes based on photonic integrated circuit technology.
- 'Building a standardised quantum-safe networking architecture', a project funded jointly by the UK and Canada, which KETS leads on the UK side, and that aims to develop a Canadian-UK quantum secure network.

KETS is currently focused on delivering first products, development kits, that will enable them to deliver key first trials with a number of blue chip organisations they're currently engaged with across a range of sectors including telecommunications, governments, defence and finance. This will demonstrate the technology in real-world applications and environments and help these clients to secure their systems and data with quantum-safe crypto solutions. This is the first step towards delivering world-wide quantum-secure communications.



"Chip-based quantum photonics provides a clear pathway towards commercialisation and wide take-up of quantum communications and related technologies. Supporting the emergence of KETS has been a major Hub success in this sector. We look forward to a continuing collaboration with KETS on future generations of chip-based technologies."

Professor Tim Spiller, Director of the Quantum Communications Hub

To view the full text of this case study please visit: quantumcommshub.net

