The Quantum Communications Hub

The laws of quantum physics facilitate advanced communications technologies that will transform the security of networks. The most mature of these technologies, Quantum Key Distribution (QKD), provides the means of sharing secure keys which can be used for a very wide range of functions and applications in which security is vital: from encryption of communications, passwords and ID, to financial transactions and internet shopping.

Vision

New quantum communications technologies that will:

- Reach new markets, enabling widespread use and adoption.
- Benefit sectors and domains, from government, industry, and commerce to consumers and the home.

Approach

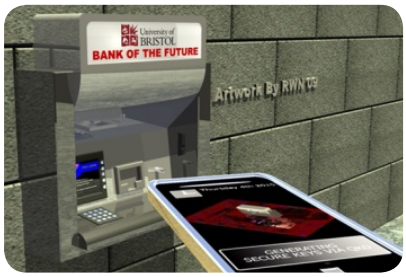
Phased development and implementation that will:

- Advance proven concepts in QKD to commercial-readiness.
- Explore new approaches, applications, protocols and services beyond QKD.

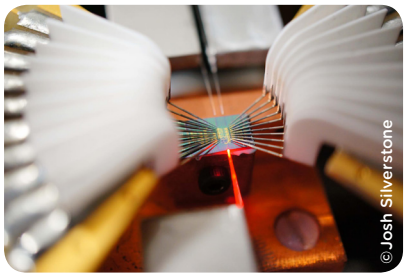
Delivery

Building, and providing access to:

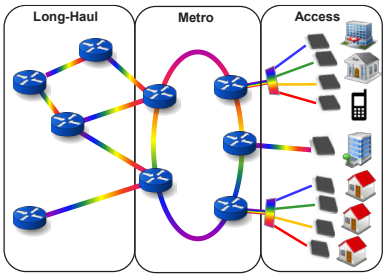
- Low-cost, short-range QKD for consumer applications.
- Chip-scale QKD modules for integration in computer systems.
- A UK Quantum Network, demonstrating real world communications at access, metro and inter-city scales.



Short Range QKD



Chip scale QKD Modules



Quantum Network Demonstrator

Partnerships – *World-leading researchers in universities and industry:*

York (lead), Bristol, Cambridge, Heriot-Watt, Leeds, Royal Holloway, Sheffield, Strathclyde, BT, the National Physical Laboratory, Toshiba Research Europe Ltd.

Collaboration – *Across private and public sectors and domains:*

- *Standards:* European Telecommunications Standards Institute (ETSI), GCHQ
- *For the UK Quantum Network:* ADVA, National Dark Fibre Infrastructure Service (NDFIS)
- *For supply/consultancy (optical):* Oclaro, ID Quantique
- *For collaboration/consultancy (microwave):* Airbus, L3-TRL
- *Start-ups (for exploitation):* Qumet (Bristol), Cryptographiq (Leeds/IP Group)
- *User Clusters:* in Bristol, Cambridge and Martlesham, supported by Bristol City Council and the Knowle West Media Centre; Cambridge Network Ltd; BT.

We welcome opportunities to collaborate in exploiting the emerging technologies for new products and services.

For further information or enquiries contact the Quantum Communications Hub:

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UK NATIONAL QUANTUM TECHNOLOGIES PROGRAMME

QUANTUM COMMUNICATIONS HUB

EPSRC
Engineering and Physical Sciences Research Council