



## **OPENQKD - Open European Quantum Key Distribution Testbed**

Quantum communication has the potential to protect the EU's sensitive data and digital infrastructure for years to come. A test quantum communication infrastructure will be set up in several European countries. Launched by the EU-funded OPENQKD project, its activities will take place in Austria, Czech Republic, France, Germany, Greece Italy, Netherlands, Poland, Spain, Switzerland and the UK. It will boost the security of critical applications in various fields – from telecommunications to electricity supply and healthcare. Bringing together a multidisciplinary team (leading European telecommunication equipment manufacturers, end-users and critical infrastructure providers, network operators, quantum key distribution equipment providers, digital security professionals and scientists) from 13 EU countries, the aim is to bolster Europe's leadership in quantum technologies.

OPENQKD brings together a multidisciplinary team of the leading European telecommunication equipment manufacturers, end-users and critical infrastructure providers, network operators, QKD equipment providers, digital security professionals and scientists from 13 countries to reinforce Europe's position at the forefront of quantum communication capabilities globally.

The project will create an open QKD testbed to promote network functionality and use-cases to potential end-users and relevant stakeholders from research and industry. Over 25 use-case trials have already been determined and will be complimented by open calls for funding third parties. OPENQKD will develop an innovation ecosystem and training ground as well as helping to grow the technology and solution supply chains for quantum communication technologies and services.

In preparation for not only managing a central QKD testbed in Geneva (CH), but as precursor to managing a pan-European network, we will incorporate testbeds in Cambridge (UK), Madrid (ES) and Poznan (PL), along with specific use-case-driven test sites, and develop a virtual network of these islands of security as an interim substitute for a QKD backbone, bringing these distant networks together. OPENQKD will deploy 40 QKD systems with standardized hardware and software interfaces for network devices and protocols on over 1000km of fiber links, as well as testing compatibility with satellite-based schemes.

The OPENQKD network will be used to demonstrate the transparent integration of quantum-safe technologies and solutions broadly across the European digital landscape as well as advancing initiatives for the standardization and certification of QKD-enabled technologies. The work in the OPENQKD testbed should lay the foundations for rolling out a pan-European quantum-safe digital infrastructure, with a solid basis to educate and lead a quantum-aware workforce and with European industry leaders already engaged.

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