



New leap in Belgian quantum communication infrastructure: BeQCI realises first QKD links

Brussels, xx June - [BeQCI](#), the consortium charged with deploying the first ever quantum communication infrastructure in Belgium, has reached an important milestone in its Quantum Key Distribution (QKD) mission. [Belnet](#), the Belgian National Research Network (and BeQCI member), has successfully set up the required infrastructure and realised the first QKD links together with imec, UGent and ESA. This is a big step in the prestigious 30-month quantum cryptography project, which aims to achieve what was up until now impossible: a way to transmit data 100% safe and uninterceptably, using quantum physics principles.

Karel Dumon, R&D Project Manager at imec and coordinator of BeQCI: “We're very excited about entering this new phase, making this project a lot more concrete. The established infrastructure offers the opportunity to get early hands-on experience with QKD links for ultra secure data transfer in, for example, governmental institutions, logistics infrastructures, banks or hospitals. The infrastructure is now open to new end users that help us assess the practicality of different QKD systems and protocols for QKD. Organisations for which security is critical, can apply via info@beqci.be.”

➔ [New to QKD and quantum computing? Below you can catch up on the basics.](#)

Strengths of the Belgian research landscape

Within the EU HORIZON program, the European Commission is supporting member states to develop research and infrastructure for quantum-secure communication through the EuroQCI program. The program aims at building a European ecosystem to allow industry and research in the quantum communication field to thrive. In Belgium, the program takes form in the BeQCI project, a nation-wide consortium putting together academic institutions, private companies and governmental organizations.

The project, launched in January 2023, aims at establishing a quantum-secure communication testbed in Belgium, to allow private and public institutions to get familiar with the unavoidable future of digital communication. The project also sponsors selected research lines in academic institutions. The aim is to leverage the strengths of the Belgium research landscape to overcome the challenges of current QKD technology such as excessive costs or lack of scalability.

First three links established

The first QKD link, connecting two campuses of Ghent University, will be used mainly for research purposes. A second link connects Redu and Transinne and will be used by the European Space Agency together with the Centre d'Excellence en Technologies de l'Information et de la Communication (CETIC) to secure IOT data transfer. Finally, a third link, connecting two datacenters of Belnet, will be used for internal secure data transfer.

Jo Segart, network engineer at Belnet and lead deployment of BeQCI: “As the national research and education network, Belnet has built up broad expertise in innovative networking technologies. We are therefore ideally placed to deploy this quantum communication network with the support of our many academic partners. We look forward to sharing our know-how with end users and supporting them in using the QKD infrastructure.”

The BeQCI project started in January 2023 and will run over a period of 30 months. In the second project phase, starting in June, a QKD connection between Redu and Luxemburg will be established, aiming at testing the technology over a longer distance.

FIXED 'FRAME' – How quantum physics will help us to completely secure communications

Quantum computers are soon expected to have the capability of breaking current (mathematical) encryption methods. Considering the huge role of IT in society and the ever-increasing attacks, a new paradigm for IT security is required, and the scientific community is actively working on practical solutions.

Ironically, just like the threat, a possible solution comes from... quantum physics.

Quantum Key Distribution (QKD) aims at securing data communication using the laws of quantum mechanics. Growing understanding of quantum physics makes it possible to foster its principles and phenomena for developing new technological applications. Specifically, we've learnt that quantum physics allows for quantum key distribution (QKD), a new type of cryptography, which relies on the 'no-cloning' principle, a natural physics principle which ensures that quantum information cannot be copied.

This motivated the EU to launch EuroQCI, a massive technological and scientific effort for developing a global European quantum communication network, for which BeQCI forms the Belgian branch. In the short term this network will primarily involve QKD applications. The longer term vision is that such a network could serve as the backbone for a quantum internet, providing long-distance connections between quantum devices like quantum computers and quantum sensors.

About BeQCI

The goal of BeQCI is to introduce, evaluate and develop quantum communication infrastructure (QCI) in Belgium. The BeQCI [consortium](#) unites theoretical, experimental and engineering expertise on quantum technology, bringing together different university research groups, research centers, governmental agencies and private companies. BeQCI is part of the European [EuroQCI](#) initiative and is co-funded by the EU through the Digital Europe program and the Belgian Federal Science Policy Office (Belspo) through the Federal restart and transition plan.



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