### PORTUGUESE QUANTUM COMMUNICATION INFRASTRUCTURE

### Newsletter - December, 2023

## Participation in the REPMUS & NATO Dynamic Messenger 2023 (DYMS23) exercises



From left to right: Margarida Almeida (IT), Catarina Bastos (Deimos), Coronel Paulo Santos (Gabinete Nacional de Segurança), Nuno Ávila (Deimos), Daniel Pôças (IT).

#### **Field Demonstration**

Three of our partners, Quantum Communications Group (Instituto de Telecomunicações - Aveiro), Elecnor Deimos, and Gabinete Nacional de Segurança (GNS), participated in a field demonstration of a cutting-edge quantum-link CV-QKD system developed in the laboratory to exchange confidential information between a command center and a docked navy frigate. The REPMUS & NATO Dynamic Messenger 2023 (DYMS23) exercises were organized by the Portuguese Navy at the Operational Experimentation Center in Troia, Portugal.

### In this issue:

Participation in the REPMUS & NATO DYMS23 exercises; FCCN, IPTelecom, and Warpcom implement Secure Communication Infrastructure; EuroQCI - Spain; Roll-Up; Our partners, Brochure, and Upcoming Communications Activities.

### About the project

2nd Edition

The Portuguese Quantum Communication Infrastructure (PTQCI) project is the first land segment of the European Quantum Communication Infrastructure (EuroQCI) in Portugal and is the first step towards the integration in the European infrastructure.

 PTQCI should enable the deployment of highlysecure services based on Quantum KeyDistribution (QKD).







https://www.linkedin.com/company/por tuguese-quantum-communicationsinfrastructure-ptqci/



### **Demonstration**

FCCN, IPTelecom, and Warpcom implemented a Secure Communication Link based on Quantum Technologies



Secure Communication Link connecting two points, on a 14-kilometer route, in Lisbon.

FCCN, IPTelecom and Warpcom, partners in the Portuguese Quantum Communications Infrastructure – PTQCI project, joined forces to implement a modern secure communications link, through a system that combines a quantum cryptographic technology with network and security solutions, connecting two points, on a 14-kilometer route, in Lisbon.

A Quantum Key Distribution (QKD) system was used to perform the activity to guarantee the security of the generation of cipher keys between two points. The exercise highlights the importance of the technology for data protection and encryption and for strengthening the communication infrastructure in Portugal.

"This demonstration is not only evidence of

technological but also progress a materialization of collaborative innovation. It demonstrates what can be developed when experts in the field come together to open new frontiers in data security and quantum technology", says Bruno Gonçalves, from Warpcom.

The FCCN, IPTelecom, and Warpcom teams have plans to follow the implementation of quantum network technology in a national context, through integration tests with different QKD system solutions from different traditional network and security manufacturers.

The demonstration was carried out within the scope of the Portuguese Quantum Communications Infrastructure – PTQCI project with the support of the EuroQCI program.

### Participation

## EuroQCI - Spain

On November 28th, Catarina Bastos from Deimos participated in the "Quantum Communication Innovation Forum", an event organized by the EuroQCI-Spain consortium.

The PTQCI project was discussed at the "EuroQCI National Projects" roundtable, in the "European Quantum Communications Ecosystem" session, at the BAT B Accelerator Tower in Bilbao, Spain.

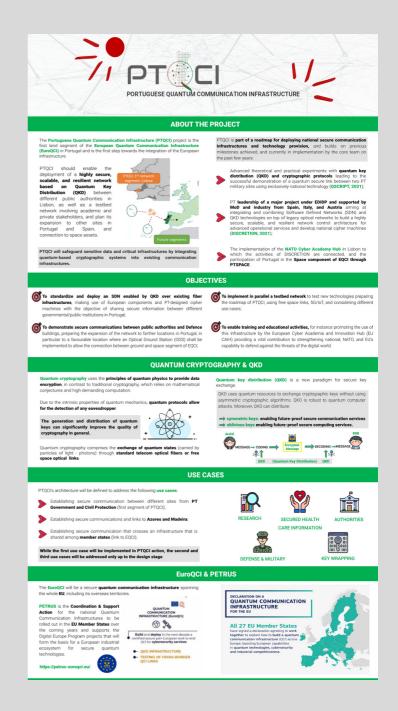


Quantum Communications Innovation Forum, in Bilbao, Spain.

# PORTUGUESE QUANTUM COMMUNICATION INFRASTRUCTURE

## PTQCI PROJECT ROLL-UP

This roll-up was developed as a support material to present the PTQCI project in presentations, meetings, events, and conferences. The main goal is to demonstrate the project's purpose, the practical applications, the use cases, and the activities to be developed during the project's lifetime.



### Download the roll-up here!

### Let's meet our partners!



"We develop technologies that profit from the peculiarities of quantum theory to do new things or to improve the way we do things".

Quantum Communications Group - Instituto de Telecomunicações (Aveiro)

"We explore how quantum mechanics can touch the communications industry and feed innovation in our products".



Altice Labs



"We aim for the highest quantum communications levels of performance in Europe, and we integrate quantum key distribution in secure networks".

Elecnor Deimos Engenharia

# BROCHURE

## PTOCI PROJECT BROCHURE

This brochure was developed as a support material to present the PTQCI project.

The main goal is to share the flyers with the partners to collaborate with the dissemination of the project.

Download the brochure here!



#### ABOUT **OBJECTIVES USE CASES** The Portuguese Quantum Communication Infrastructure (PTQCI) is the Portuguese first land segment of the European Quantum Communication Infrastructure (EuroQCI). Designing, implementing, and testing an operational quantum network between public authorities. Implement in parallel a testbed network to test new technologies preparing the roadmap of PTQCI. PTQCI should enable the deployment of highly secure services based on Quantum Distribution (QKD). Key Run a series of use cases to demonstrate the real potential of quantum technologies. **QUANTUM CRYPTOGRAPHY** Promote training and education activities in quantum technologies. Quantum cryptography uses the principles of quantum physics to support cryptographic services QKD Quantum key distribution (QKD) is a new paradigm for secure key exchange. QKD uses quantum resources to exchange cryptographic keys without using asymmetric cryptographic algorithms. EuropCi - The European Quantum Communication Infrastructure. The European Commission is working with all 27 EU Member States, and the European Space Agency (ESA). to design, develop, and deploy a pan-European quantum secure network composed of a terrestrial segment relying on fiver communications networks linking strategic sites at national and cross-border levels, and a space segment based on satellites. QKD is robust to quantum computer attacks. Moreover, QKD can distribute symmetric keys, enabling future-proof secure communication services, and oblivious keys, enabling future-proof ting service PETRUS prepares for a fully functional and harmonized EuroQCI by covering all relevant fields, coordinating

### **Upcoming Communication Activities**



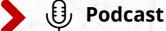
Institucional Video

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Project **Stationary Materials** 



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Workshop: Quantum **Communications Network** 

EuroQCI by covering all relevant fields, coordinating national QCIs, using EU-27 components, and adhering to European accreditation and certification policies.



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