



First national meeting of Quantum Communications Complementary Plan

The participating autonomous communities of Madrid, Catalonia, Basque Country, Galicia, Castilla y Leon and Valencia, and CSIC, presented their respective programs on Quantum Communications, displaying their lines of work, goals and milestones.

This plan has a total budget of 73M ? for the entire country, 54M? coming from MCIN (Ministry of Science and Innovation), and aims to build a quantum communications network through the development of a pioneering cutting-edge infrastructure, easy to integrate into the existing telecommunications network.

The program is a pilot test in Spain for the future EuroQCI, the European quantum communications and quantum internet network that will expand throughout Europe and will provide an additional layer of security that will protect the transmission of sensitive information.

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The exchange of ideas and new collaborative projects have been the main outcomes of the national meeting of the **Quantum Communications Complementary Plan**, which took place end of September 2023, aimed at the gathering the participating communities, together with the institutions that are also part of this plan or program, to facilitate an environment of discussion and dialogue. The event took place at the Escuela Tecnica Superior de Ingenieros Industriales of the **Universidad Politecnica de Madrid (UPM)**, institution that acts as the national coordinator of this program.

The meeting was attended by a large number of participants from the five autonomous communities that are currently managing quantum communications projects: **Madrid, Catalonia, Basque Country, Galicia, Castilla y Leon and Valencia**, in addition to the **CSIC**. The overall coordination of the plan, which unites all the regional plans, is carried out by Professor **Vicente Martin**, Professor at UPM until December 2023. Subsequently, ICREA Professor at ICFO Valerio Pruneri will take over as national coordinator for the remaining duration of the plan.

The event, which lasted 3 days, was opened by **Raquel Yotti**, General Secretary of Research at the Ministry of Science and Innovation, **Ignacio Azorin**, General Director of Digital Strategy of the Community of Madrid, **Claudio Feijoo**, Deputy Rector of UPM and **Vicente Martin**.

After the inauguration, the participating communities, together with CSIC, presented their respective Quantum Communication programs, exposing their lines of work, goals and milestones. The meeting focused on a session of short talks as well as a poster session, in addition to working sessions in which different lines of work and roadmaps of technology development were discussed. These discussions on the different lines of work mainly focused on following topics: **LA-1**: EuroQCI, towards a European quantum communication infrastructure; **LA-2**: Hardware for quantum communications; **LA-3**: Software for quantum communications; **LA-4**: Hardware for quantum processing; **LA-5**: Software for quantum processing.

During the third and last day of the event, the "**Industry Day**" took place, dedicated to give visibility to all the technology that is being developed and deployed within the programs by public institutions, companies, start-ups and spin-offs, who are aware of the prevailing needs of the market in terms of cybersecurity and protection of sensitive data, and have created possible technological solutions that could be of great benefit to the industry, the public as well as the private sector.

The pieces of the complex puzzle

The Quantum Communications Complementary Plan represents a significant piece in the complex puzzle that is being created throughout Europe. With a total budget of 73M€, it aims to build and deploy a nationwide quantum communications network through the

development of a state-of-the-art infrastructure, easy to integrate into the classic telecommunications networks we have today.

The projects of the six autonomous communities will work closely together to address the technological challenges that arise and seek solutions as a team. Moreover, they will also be linked to the EuroQCI-Spain program, coordinated by ICFO, which is part of the large network of the European Quantum Communication Infrastructure (EuroQCI). EuroQCI's ultimate goal is to build the quantum communications network and quantum internet that will expand throughout Europe and provide an additional security level to protect the transmission of sensitive information.

Valerio Pruneri, ICREA Professor at ICFO as well as coordinator of the Complementary Plan in Catalonia, and from January 2024 of all Spain, stressed the importance of this meeting since, "it allowed for the first time to create a space for discussion and exchange of ideas among all the communities that are involved in the field of quantum communications, in addition to being able to meet in person in one place". Likewise, he expressed his positive assessment of the meeting concluding that "I see potential for new collaborations, not only within the community, but between communities, and all this to achieve a goal in Spain, which we will then extend to Europe. Most important of all, I see leadership potential in what we are creating here, at home, in Europe¿?

. Pruneri also stresses that each of these programs represents an essential piece in the large European program and it is important to develop, integrate and deploy the technology as efficiently as possible to detect technological difficulties and be able to solve them quickly. That is why the process will be carried out starting at a local level with small deployment networks to see its functionality and operability, and once its optimal performance has been verified, it will be scaled up to much larger distance

