

ICFO hosts the closing event of the Complementary Plan for Quantum Communications

The Complementary Plan for Quantum Communications is a program co-funded by the Ministry of Science, Innovation and Universities and the regions of Catalonia, Madrid, Castile and Leon, Valencia, Galicia, and the Basque Country, with the collaboration of the Spanish National Research Council (CSIC). This plan has focused on promoting the development of quantum technologies applied to i¿½quantum-safei¿½ communications and the quantum internet, aligning itself with European initiatives uch as EuroQCI, the Quantum Flagship, and the Quantum Act. Co-coordinated by ICFO and UPM, more than 40 national entities, including research centers, universities, and companies, have participated in the program.

November 19, 2025

On November 13th, 2025, ICFO hosted the closing event of the Complementary Plan fo Quantum Communications, bringing together more than 160 representatives from th Government of Spain, as well as ministers and general directors from the autonomou communities of Catalonia, Madrid, Castile and Leon, Valencia, Galicia, and the Basqu Country, together with the Spanish National Research Council (CSIC) and researchers an scientific experts from all the institutes participating in the program

The Ministry of Science, Innovation and Universities (MICIU) and six autonomou communities concluded the Complementary Plan for Quantum Communications, bringin together more than 160 representatives from the Government of Spain, ministers and genera directors, and various representatives from the autonomous communities of Catalonia Madrid, Castile and Leon, Valencia, Galicia, and the Basque Country, as well as the Spanis National Research Council (CSIC). The event also gathered researchers from all institute involved in the program

The event was chaired by the Secretary of State for Science, Innovation and Universities Juan Cruz Cigudosa, accompanied by the Minister of Research and Universities of th Government of Catalonia, Nuria Montserrat. The event served to present the main results an achievements obtained over the four years of the project, which had a budget o approximately 70 million euros

Scientific Results

Coordinated by Valerio Pruneri, ICFO Prof. at ICFO and Vicent Martin, Prof. of the Universidad Politecnica de Madrid (UPM), the Complementary Plan for Quantum Communications has been an initiative promoted by the Government of Spain in collaboration with the six autonomous communities, aimed at strengthening cybersecurity and fostering the development of quantum technologies applied to communication security and the quantum internet.

The plan was structured into seven lines of action: Quantum communications (EuroQCI infrastructure), Hardware and software for quantum communications, Hardware and software for quantum processing, Human resources and training, Industrial ecosystem and Dissemination.

Through these lines of action, the more than 40 participating entities achieved significant milestones across all areas. In particular, given the vulnerability of traditional encryption systems, the program promoted the development and implementation of technologies for secure encryption and information transmission using quantum key distribution (QKD), combining classical and quantum infrastructures to reinforce security. Notably, this includes the deployment and launch of Spain's largest quantum communication network, with nearly 1,000 km of accumulated length. Additionally, as a result of the plan, it will be possible to deploy a pioneering optical ground station for satellite-based quantum communications in

the future.
At the same time, in the area of quantum processing, the project has promoted the development of protocols, simulators, and software for quantum key control (QKD); error correction and algorithms; and the demonstration of various technologies across different platforms for the generation of specific qubits and their use in quantum information processing.
Finally, a line of action was dedicated to the development, implementation, and integration of quantum repeaters for the construction of the future quantum internet-a network that will connect quantum computers, sensors, and devices with unprecedented precision and security.
More than 40 entities across Spain participated in the plan, over 300 people were hired, and more than 530 studies were published in scientific journals presenting the project's scientific results. The project also generated 14 patents, 12 intellectual property registrations, and the consolidation of more than 20 industrial collaborations with national companies such as Telefonica, Nestle, INDRA, Cellnex, SENER, Hispasat, and GMW Aerospace.
In the context of this Complementary Plan, 9 spin-off companies were created, consolidated and supported: Qoolnet, LuxQuanta, Quside, Q-Dynamics, InspirationQ, G2-Zero, HYBPIC, IANTUM-TECH, and Nanological, demonstrating the potential of the Spanish industrial sector in quantum communications and processing.
These results reflect intense scientific and technological activity and highlight the collaborative capacity of participating research centers, universities, and industry partners.
The Complementary Plan has been strategically aligned with the main European strategies in the field of quantum technologies, such as the Quantum Flagship and the European Quantum Communications Infrastructure (EuroQCI), contributing to consolidating European scientific and technological leadership. It has also created a national ecosystem for the future European Quantum Technologies Act (Quantum Act), promoted by the European Commission and Member States such as Spain.

Eight Complementary Plans

The Government approved the first four Complementary Plans in 2021, dedicated to renewable energy and hydrogen, marine sciences, quantum communication, and biotechnology applied to health; and in 2022, those for agri-food, astrophysics and high-energy physics, advanced materials, and biodiversity.
In total, these eight Complementary Plans have mobilized 466 million euros, of which the MICIU has financed 299.2 million euros (64.2% of the total budget) and the autonomous communities the remaining 35.8%, with 166.9 million euros.
The goal was to strengthen strategic lines of action and promote territorial cohesion. These plans have facilitated collaborations and aligned the efforts of the central government,

autonomous communities, and European funds to address key challenges in Spain, meeting the EU criteria for implementing transformative measures for the economy within th Recovery Plan.











PLAN COMPLEMENTARIO
DE COMUNICACIONES
CUÁNTICAS

El Plan Complementario de Comunicaciones Cuánticas ha sido cofinanciado por el Ministerio de Ciencia e Innovación con fondos de la Unión Europea NextGenerationEU, el Plan de Recuperación, Transformación y Resiliencia y las siguientes comunidades autónomas, junto con el CSIC:

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Plan de Recuperación, Transformación y Resiliencia

Generalitat de Catalunya

CSIC