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MINISTERIO DE TRANSFORMACIÓN DIGITAL Y DE LA FUNCIÓN PÚBLICA
SECRETARÍA DE ESTADO DE DIGITALIZACIÓN E INTELIGENCIA ARTIFICIAL

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UNIVERSIDAD POLITÉCNICA DE MADRID
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Quantum Technologies Standardization

October 2025

Workshop

QuTechSpace

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under the project *"Quantum technology components for space communication" (QuTechSPace, grant agreement No 101135225)*

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Spanish Landscape: National Quantum Technologies Strategy

From local to Global: Spain's Quantum Vision in the European Landscape

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The National Strategy for Quantum Technologies (2025-2030) positions Spain as a key contributor to the EU's goal of becoming a global quantum industrial power by 2030

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1 Spanish Landscape: National Quantum Technologies Strategy

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The Beginnings

MINISTERIO DE CIENCIA, INNOVACIÓN Y UNIVERSIDADES

MINISTERIO PARA LA TRANSFORMACIÓN DIGITAL Y DE LA FUNCIÓN PÚBLICA

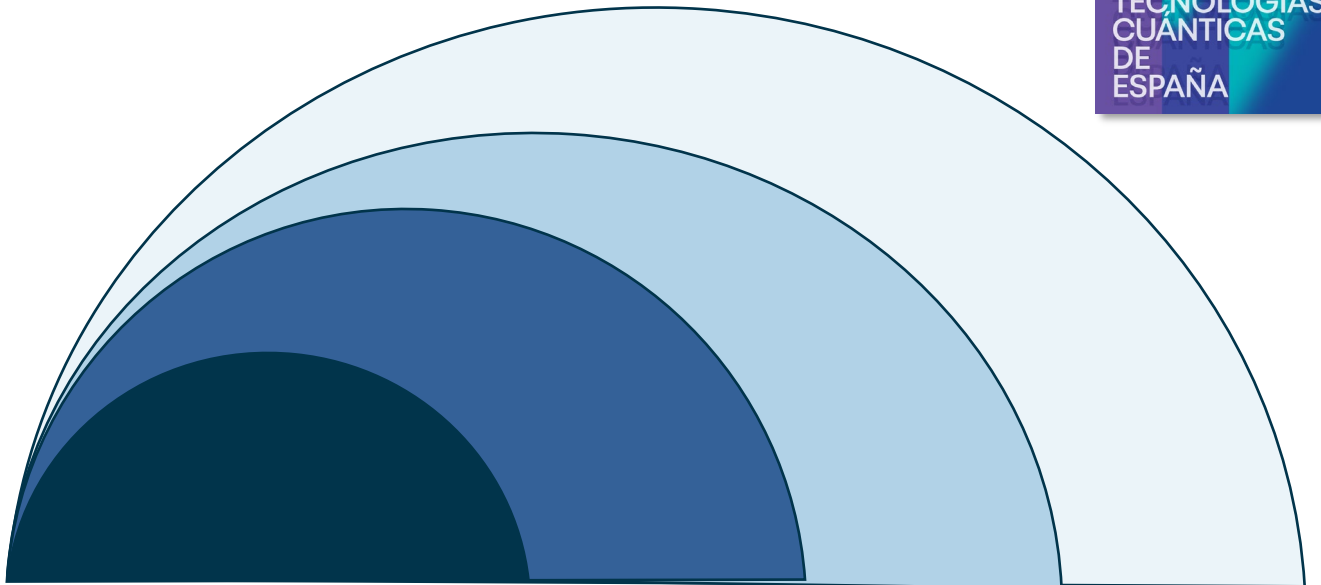
Spanish Scientific proficiency

Maturity of Spanish Quantum ecosystem

Decisive moment
Global race, players emerging worldwide

Strategic & Technological sovereignty priority

808 M€



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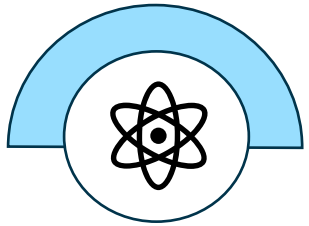
The Objectives

Standarization

Strengthen research and knowledge transfer

Create a Spanish quantum market

Prepare society for disruptive change



Consolidate national ecosystem

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The Map

Computation & Simulation

Communications & Security

Sensing and Metrology

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2 From local to Global: Spain's Quantum Vision in the European Landscape

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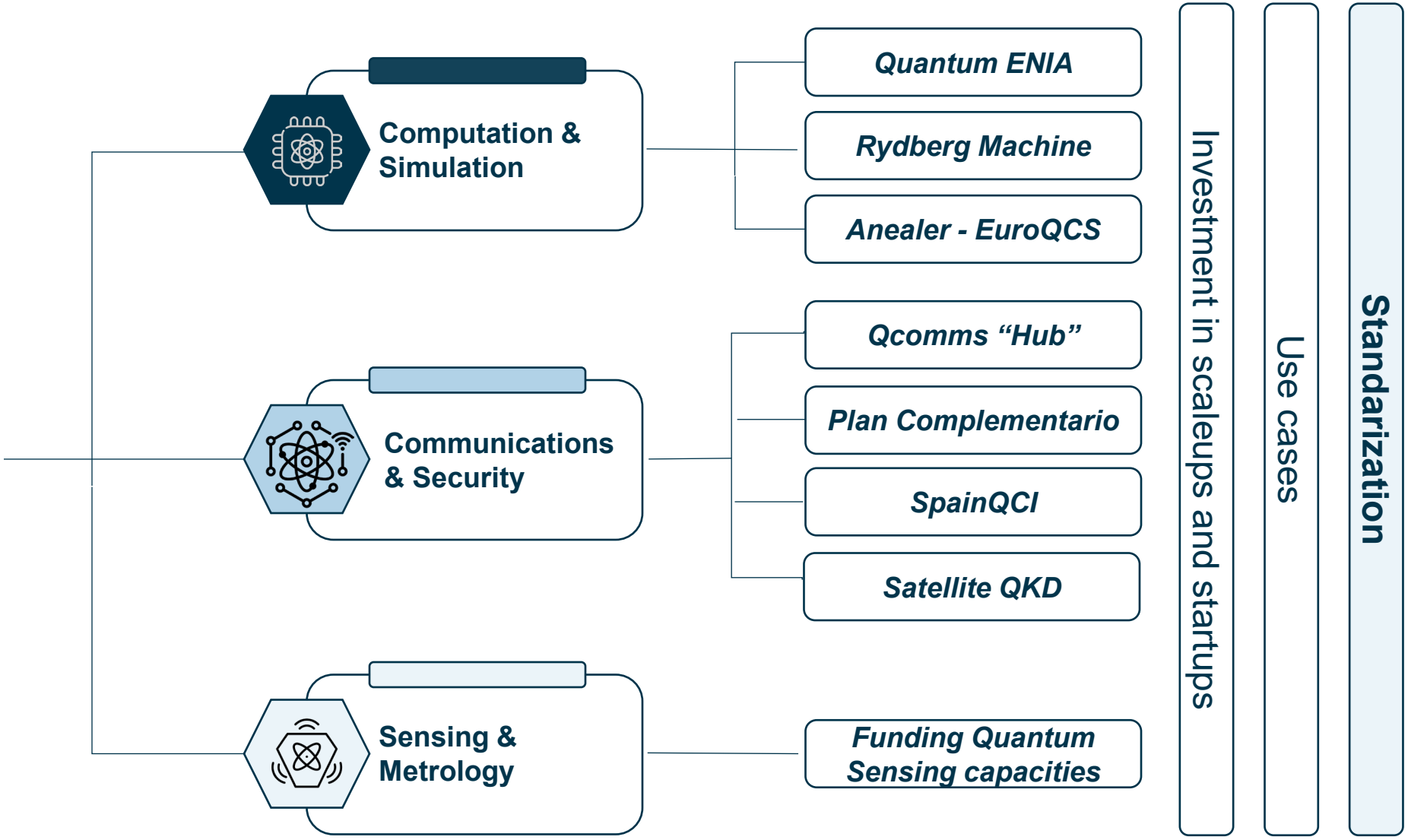
Spain's Quantum Technologies Strategy

Some of our initiatives



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Computation & Simulation

Quantum Spain

Rydberg Machine

Annealer - EuroQCS

Quantum ENIA

- Creating QHPCs
- Education and dissemination
- R&D

22M€

Rydberg Machine

7 M€

- 256 qubits by Q4 2028
- Education and dissemination
- R&D

Annealer – EuroQCS Spain

- Constructing QHPC
- 1 of 7 Node of EuroQCS network
- R&D

8,5 M€

European Tech

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Plan de Actuaciones en Comunicaciones Cuánticas

Qcommunications "Hub"

10M€

Goal

- Supporting the consolidation of the quantum communications and applied photonics ecosystem.
- Strengthening technological sovereignty and consolidating Spain as an international benchmark.

Scope

- Provide distributed experimental infrastructure.
- Funding applied research, technological development, training, and collaborations with industry.

Approach

- Collaboration between entities of excellence.
- Common access rules, creation of a distributed center of excellence.

Initiative 3.1 of Spain's Quantum Technologies Strategy

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Plan de Actuaciones en Comunicaciones Cuánticas

Qcommunications "Hub"

10M€

01 Use Cases in QComms

Practical aplications in strategic sectors

1. Optical Ground Stations for satellite connections
2. Terrestrial MAD - BCN & new nodes

02 Photonics & Qcomms R&D

Advanced systems and devices development

1. New security protocols
2. Quantum memories & repeaters
3. Space systems
4. PICs
5. Classical networks integration

03 Training and Outreach

Specialized training and technology transfer

1. Business seminars
2. Specialized practical training

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Plan Complementario de Comunicaciones Cuánticas

MINCIU

73M€

- Promoting the **development and implementation of quantum communication technologies** in Spain.
- Develop a **high-security communications structure** in Spain
- Supporting the European quantum industry
- Promoting a new industrial sector with new companies in the digital and cybersecurity fields

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Quantum Competence Clusters

Funding
Intermediation with investors and guidance toward sources of financing

Ecosystem building
Matchmaking activities and outreach to expanding regions

Knowledge security and protection
Guidance on export controls, investment evaluation, etc.

Standardization and Intellectual Property
Support for standardization and intellectual property

Infrastructure and facilities
Access to and guidance on infrastructure and facilities (test benches, pilot lines, design tools, R&D facilities)

Test-before -invest
PoCs, demonstrations, validation, and benchmarking in relevant environments

Education and training
Training for industry, especially SMEs, including guidance and co-organization with external providers

Quantum Act in 2026

EU Strategy Roadmaps

Collaborative **development** throughout 2026 of the roadmaps that **will guide the Regulation**

Quantum Act in 2026

EU Quantum Computing & Simulation

Quantum Communication

Quantum Sensing

Quantum Chips Industrialisation

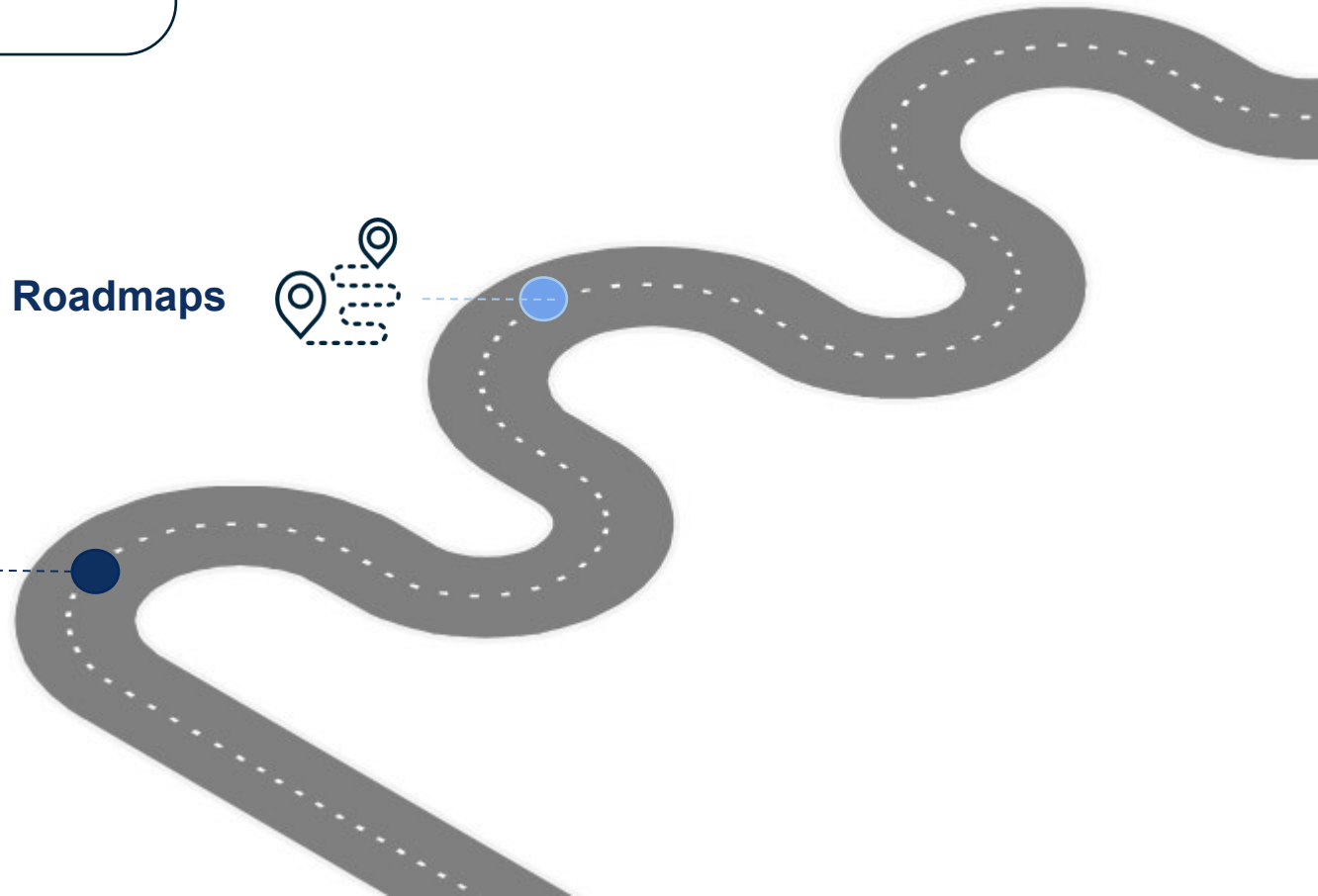
European Quantum Standards

Space & Defence Quantum Sensing

Quantum Supply Chain & Enabling Technologies

7 Roadmaps

QCCs



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Thanks!

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