

Q-ESSENCE Integrating Project



Quantum Interfaces, **SEN**sors, and **C**ommunication based on **E**ntanglement (Q-ESSENCE) Integrating Project will aim at

- Development of **quantum interfaces** capable of high-fidelity mapping of quantum information between different quantum systems
- Generation of **quantum entanglement at new scales and distances** as a resource to carry out quantum information tasks
- Engineering **multipartite entanglement in specific topologies** of elementary systems

These accomplishments will create manifold opportunities in quantum information technologies that will be captured by Q-ESSENCE to develop realistic and complete schemes for executing ICT (Information and Communication Technologies) tasks. The prospective application areas with the highest potential for significant impact from groundbreaking progress in controlling entanglement in real-world environments will be focal points of the project work plan used to organize the overall effort of the consortium into three tightly intertwined Sub-Projects (SPs)

- **SP1: Quantum Metrology and Sensing**
- **SP2: Enabling Technologies for Quantum Communication**
- **SP3: Distributed Quantum Information Processing**

The research and technology development activities will be assisted by

- **SP4: Strategic Operations and Management**

which will cover scientific coordination, management, dissemination, and meetings and conferences.

Source URL: <http://qurope.eu/projects/qessence>