

QUTE-EUROPE Work Package 2: Coordination and Collaboration

Objectives

Work package 2 will contribute to the coordination and development of a common strategic vision in the field of QIPC research. To achieve the ultimate goal of future sustainability, WP2 will engage in a set of activities that focus on forward-look, anticipatory and strategy shaping actions. It will:

- Maintain and update the QIPC Strategic Roadmap on a regular basis;
- Contribute to white papers, reports and position documents;
- Coordinate the work of the Virtual Institutes;
- Contribute to the consolidation of Research Agendas.

Description of work and role of partners

Task 2.1 Strategic Roadmap and other position documents (UULM, FBK, FU SAV)

This task will take care of the regular update and maintenance of the QIPC Strategic Report. This document expresses the common scientific strategy, vision and goals of the QIPC community, and has become a reference document for a wide range of stakeholders in the field. The updates will be based both on the VI experts judgment of the state-of-the-art and recent advances in the field, as well as on direct community input provided via the web portal set up in WP3. Given the long-term strategy nature of this document, there will be only one update following the major conference organized by the CA (and therefore the VI expert meeting). At the end of the project the Strategic road map will be published in a printed form in a special issue of a scientific journal and will be available for distribution to all stakeholders.

Task 2.2 QIPC Virtual Institutes (ICFO, FU SAV)

The Virtual Institutes (VIs) will provide a framework for interaction and coordination with the scientific branches of the research community. QUTE-EUROPE will continue and expand the activities of the Virtual Institutes that were established by the predecessor program QUIE2T.

Specifically, in addition to the structure set up by QUIE2T, a new centralized point of contact for all VIs will be established by the CA. This will ensure a more tight organization and workflow control. This Head of the Directorial Board (HDB) will be responsible for the overview, coordination and information exchange between the different VIs, as well as for the public visibility of the accomplished work. The aim is to guarantee an optimized and efficient workflow whenever coordinated work or information is required between the different institutes. The HDB will represent the Virtual Institutes, ensuring the interaction among them and beyond.

Task 2.3 Virtual Institute of Quantum Simulation (ICFO)

QUTE-EUROPE will add one more to the set of four Virtual Institutes in order to reflect the growing impact of the research related to implementation of quantum simulations.

- Virtual Institute of Quantum Simulation. Quantum simulation (QS) of physical and artificial systems is now becoming the focus of many branches of QIPC. Some branches are already mature enough to perform groundbreaking QS experiments and implementations, while for

other branches QS constitutes a driver of the development of powerful hardware platforms and protocols. This institute provides a common agenda and a common language for all QIPC groups and projects. It is cross-disciplinary and directly addresses the kind of development that is expected to be the main QIPC road in at least the short term. It embraces transformational aspects in a unified manner, preparing useful applications to profit from progress in hardware, and providing a driver for quantum technologies and the scaling up QIPC platforms. In short, contributing to a sustainable long-term development of QICT.

The addition of this institute will complete the set of covered areas in QICT and ensure the addition of expertise that has been lacking until now.

Task 2.4 Sustainability (CHALMERS)

This task will address questions how to create a sustainable long-term development of QICT in Europe, and how to provide drivers for quantum technologies and the scaling up of QIPC platforms. The QIPC field is now entering a stage where large resources are put into engineering of quantum information processing devices and systems in a quest for ground-breaking applications in computing, simulation, and communication.

The objectives of this task are spelt out as follows:

- Assess European competitiveness in the QIFT area
- Asses the resources needed to lead the development
- Produce a white paper on the sustainability of European competitiveness

Concretely, this task will:

- Asses the resources needed for Europe to stay in the international QIFT frontline, and even take the lead. This sub-task is based on the work on the roadmap, comparing the ongoing and planned work of the European QIFT groups with the rest of the world.
- Produce a white paper on what is needed for sustainability of European competitiveness at the frontline.

The global competition has become fierce, and worldwide major resources are invested in powerful collaborations to achieve breakthroughs in fault-tolerant QIPC. The Brussels concept of "The European Dimension", i.e. fairly loose EU collaborations without the funding needed at the R&D level, is now being put to test - without strong unifying and efficient EC actions, the dimension may become reduced to a social issue. The aim of this task is to contribute to a sustainable scientific and technological European ability to meet the global challenges of scaling up QIPC to competitive high-performance computing and simulation.

Task 2.5 Coordinating QICT projects (FU SAV)

The aim of this task is to facilitate and encourage the interaction between projects selected for funding through the FET Objective QICT. The work will draw upon the infrastructure that is available through the QUROPE web portal. Groups and projects will be encouraged to join the common facilities, databases, mailing list, etc., in order to get automatic updates and information material. Through this interaction, the CA will strive to encourage in particular:

- Joint publications between different projects,
- Joint meetings, e.g. schools, workshops, etc.

In addition, we will contribute to the coordination of joint activities like the QIPC cluster meetings, training

activities, etc.

List of deliverables

Deliverable	Description	Month	Status
D2.1	1st year WP2 progress report	12	
D2.2	2nd year WP2 progress report	24	
D2.3	3rd year WP2 progress report	36	

Schedule of relevant Milestones

Milestone	Description	Month	Status
MS3	Creation of a communication scheme for providing VIs expertise	12	

Attachment

[WP2 - Deliverables 21.pdf](#)

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Size

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904.35 KB

2.55 MB

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