QuIC

Towards a European Quantum Industry Consortium

1st online meeting
24 June 2020, 10:00 – 16:00

Tommaso Calarco (QCN, FZ Jülich)
Thomas Strohm (QCN, FCO, Robert Bosch GmbH)
We accompany you today

Prof. Dr. Tommaso Calarco
QCN, FCO, FZ Jülich

Dr. Thomas Strohm
QCN, FCO, Robert Bosch GmbH

Dr. Enrique Sánchez-Bautista
QCN, Brussels Office Coordinator

Dr. Daniele Binosi
QCN, Senior Advisor

Ms. Monica Constantin
QCN, Brussels Office Assistant
About the participants

• 273 participants
• 24 countries from Europe

<table>
<thead>
<tr>
<th>Country</th>
<th>Participants</th>
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<tbody>
<tr>
<td>Germany</td>
<td>57</td>
<td>Israel</td>
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<td>United Kingdom</td>
<td>39</td>
<td>Denmark</td>
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<td>Spain</td>
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<td>France</td>
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<td>Czech Republic</td>
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<td>Finland</td>
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<td>Italy</td>
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<td>Estonia</td>
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<td>The Netherlands</td>
<td>8</td>
<td>Malta</td>
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<td>Belgium</td>
<td>7</td>
<td>Romania</td>
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About the participants

• 214 companies (80%)
  • 32 CEOs
  • 8 Founders
  • 39 Heads / Directors
  • Business developers
  • Consultants
  • Senior researchers

• 41 academic (14%)

• 20 public institutions (16%)
  • EC, ESA, JRC, EPO
Introduction
Introduction – Context

• Motivation and idea for QuIC
• Involvement of the European Commission
• Timeline
• Involvement of FZ Jülich
Introduction – Preparation workshops

• 6 preparation WSs from 6 Feb to 19 June

• Tasks
  • Review and complete first draft of QuIC mission and tasks
  • Work out draft work packages
  • Prepare today’s workshop

• Participants:
  • Representatives of EU companies which are partners in at least 2 Flagship projects
  • Representatives of the Flagship Coordination Office: academics and RTOs
  • Representatives from VC and other quantum stakeholder groups
  • Note: Participants have no special rights, were chosen because the have a “track record” in serving to the Quantum Flagship

• Participants:
  • Attocube (DE)
  • Bull/Atos (FR)
  • Muquans (FR)
  • MyCryoFirm (FR)
  • NVision (DE)
  • QuSide (ES)
  • Bosch (DE)
  • Thales (FR)
  • Toptica (DE)
  • VLC Photonics (ES)
The Quantum Industry Consortium (QuIC)
QuIC proposal – Rationale

• European Quantum Technology (QT) Industry will
  • play a key role in Europe’s goal to industrialize QTs
  • create an entirely new market
  • create new jobs for European citizens.

• Central success factor
  • EU QT Industry organizes in a European Quantum Industry Consortium (QuIC)
  • Consortium members represent private companies with stakes/are genuine interest in QT

• Industry has already an advising role in the QT Flagship initiative
  • at Governance level (SAB, SEB, QCN)
  • at coordination level (SRA WG, Inno WG)

• QuIC
  • will be an interest group, implemented by a private organization
  • asserts and fosters the common interests of the European QT Industry
  • (European equivalent of the US Quantum Economic Development Consortium, QED-C)

*) SAB: Strategic Advisory Board; SEB: Science and Engineering Board; QCN: Quantum Community Network
SRA WG: Strategic Research Agenda Working Group; Inno WG: Innovation Working Group
QuIC proposal – Objectives

Mission
• Voice of the Quantum Industry in Europe.
• Represent and promote common interests of the Europe-based QT industry towards the European Institutions and stakeholders in order to ensure a sustainable business environment and foster its global competitiveness.

Objectives
• Identifying requirements from public and private sector side for a flourishing EU QT Industry and market, particularly in terms of supply chain, enabling components and/or technologies, use cases, performance, standards, workforce
• Facilitate the coordination between QT industries, as well as liaise with public QT stakeholders (government agencies, EU institutions and academia)
• Advocate at the public institutions level for industry needs, in particular to steer QT investment priorities.

*) SAB: Strategic Advisory Board; SEB: Science and Engineering Board; QCN: Quantum Community Network
SRA WG: Strategic Research Agenda Working Group; Inno WG: Innovation Working Group
QuIC proposal – Tasks

[1] Identify **roadblocks in supply chain / enabling technologies / infrastructures** and propose specific measures to remove / overcome them

[2] Identify, support and promote discussion* about economically viable **use cases of QT**; drive attention of public QT stakeholders towards them

[3] Support **establishment and adoption of standards and legislation** in the emerging QT industry; advocate standards

[4] Recommend **sharing strategies for IP, technology forecasting*** and **quantum awareness***

[5] Promote discussion along potential supply chain players on **IP and market trends**

[6] Ensure industry **access to large-scale testbed infrastructures**

[7] **Connects start-ups** to VC / business angels to ease access to seed capital + their transformation into SMEs

[8] Determine the **workforce needs** for the **development of the QT landscape** in Europe. Propose changes to **academic curricula*** to better address industry requirements

[9] Implement efficient **coordination** with the public QT stakeholders. Provide a forum to (a) discuss openly the QT **industry state of the art** and (b) needed activities to advance it
Organizing the QuIC

• Governance structure
  • Discussed here and in “governance structure” Interim Work Group (IWG)
  • Documented in Terms of Reference (ToR)
  • Provided with legal framework

• Work Packages
  • Tasks of QuIC are carried out here, in work groups

(only an example for a governance structure)
QuIC Work Packages

• Proposal
• Discussion and elaboration (parallel sessions)
• Presentation
Tasks for setup phase – Interim Work Groups

• Interim Work Groups (IWGs) are responsible for setting up the QuIC

• Feedback to IWG topics and contents welcome!

• Members of IWGs are determined now
  • @all: Please engage! This is your Industry Consortium!
  • Doodle poll
  • Later joining also possible

IWG1: Governance Structure
• Elaborate the governance structure; fees?
• Document it in the Terms of Reference
• Determine an appropriate legal framework

IWG2: Instantiation
• Define process to determine board members
  • Executive Secretary “search committee”

IWG3: Involvement
• Gather feedback and build consensus with whole group of QuIC consortium members
• Foster participation of QuIC consortium members
QuIC work packages (1/2)

WP1: Market trends and use cases
- Identify market trends and economically viable use cases of QT:
  - Market trends for QT and products/services potentially involving QT have to be identified.*
  - Possible use cases for QT have to be elicited, new use cases have to be developed. Focus on economically viable use cases.*
  - Drive attention of public stakeholders to these use cases.
  *) has to be updated regularly.

WP2: Intellectual Property (IP)
- Recommend sharing strategies for IP.
- Develop strategies such that IP enables a large and economically successful European QT industry.

WP3: Education
- Determine the industry’s workforce needs.
- Defined professional profiles for the QT domain.
- Propose changes to academic curricula to address these professional profiles.

WP4: Standards
- Identify where standards are required/useful
- Support establishment and adoption of standards

WP5: Industry state-of-the-art
- Elicit industry state-of-the-art
- Communication it within QuIC
- Discuss measures to advance it in a coordinated fashion (related to roadmap)
QuIC work packages (2/2)

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<tr>
<th>WP6: Strategic Industry Roadmap</th>
<th>WP8: Ecosystem</th>
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<td>• Develop and coordinate a Strategic Industry Roadmap, including the supply chain.</td>
<td>• Describe ecosystem (involved companies, their areas of activity and position in the supply chain).</td>
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<td>• Identify roadblocks in supply chain / enabling technologies / infrastructures and propose specific measures to remove / overcome them.</td>
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<th>WP7: Coordination, processes, facilitation</th>
<th>WP9: Funding</th>
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<td>• Develop and operate efficient coordination processes for the QT industry in Europe.</td>
<td>• Determine future financing needs, useful funding instruments, feedback to existing funding instruments.</td>
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<td>• Ensure access of companies to testbeds.</td>
<td>• Share experience on how to get access to financing from VCs; in particular, connect startups &amp; VCs (mainly for funding purposes).</td>
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<td>• Access to funding</td>
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QuIC Governance Structure
Governance Structure
An example

- **General Assembly (GA)**
  - All QuIC consortium members
  - The GA advises and controls the Executive Board

- **Executive Board (EB)**
  - Selected QuIC consortium members that pay large fee.
  - EB is the final decision-making body.
  - Sets and adopts the QuIC’s strategy.
  - Is responsible to the GA
  - Nominates the Executive Secretary

- **Executive Secretary (ES)**
  - Implements decisions of the EB
  - Coordinates the interaction of all governance bodies
  - Guides the Work Packages
Further organizational issues
Next steps

- Start IWGs
- Write up discussion on WPs, refine WPs
- Find out budget need for infrastructure
- Hire executive secretary / director
- Make up participants lists for WPs; QuIC members: signup!
- Define chairs for the IWGs -> in first meetings (election)
- Work out a clear charter and implications to governance structure
- 1) IWG1 defines bullet points for charter
- 2) IWG1 defines criteria to Executive Secretary
- 3) IWG2 searches for person; IWP1 specifies draft
- 4) IWG3 iterates with all stakeholders; in Sep, we come up with agreed charter and shortlist with possible executive secretaries
- Find out the implications on the setup procedure if we go for an association (-> IWG1)

- Define timeline. Possibly until EC-organized meeting on 9 Sep / middle of Sep
- QuIC members: decide in which WPs you want to participate. Tell Daniele or Enrique. See doodle.
- WP moderators will be initial convenors of WPs