

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
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Dr. Enrique Sánchez-Bautista
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Dr. Daniele Binosi
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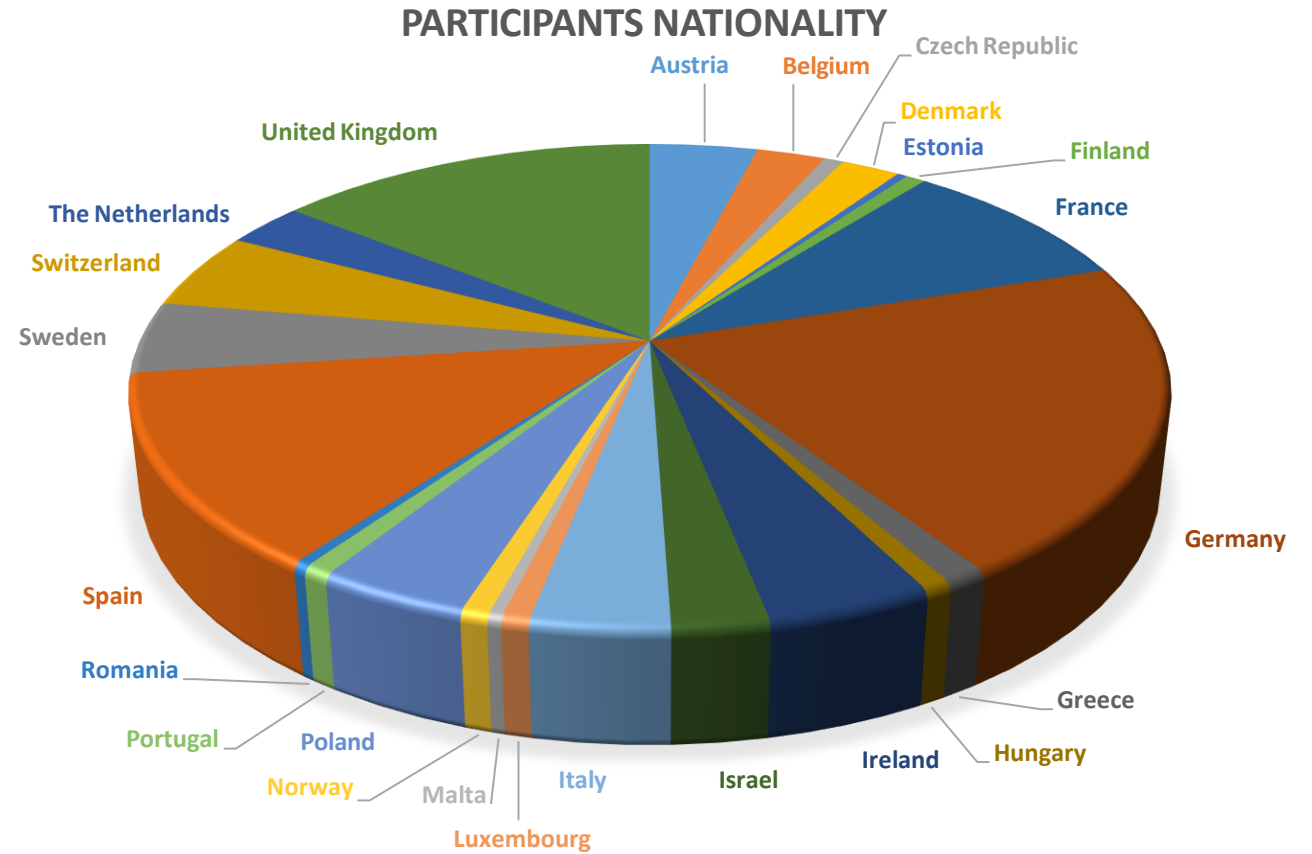


Ms. Monica Constantin
QCN, Brussels Office Assistant

About the participants

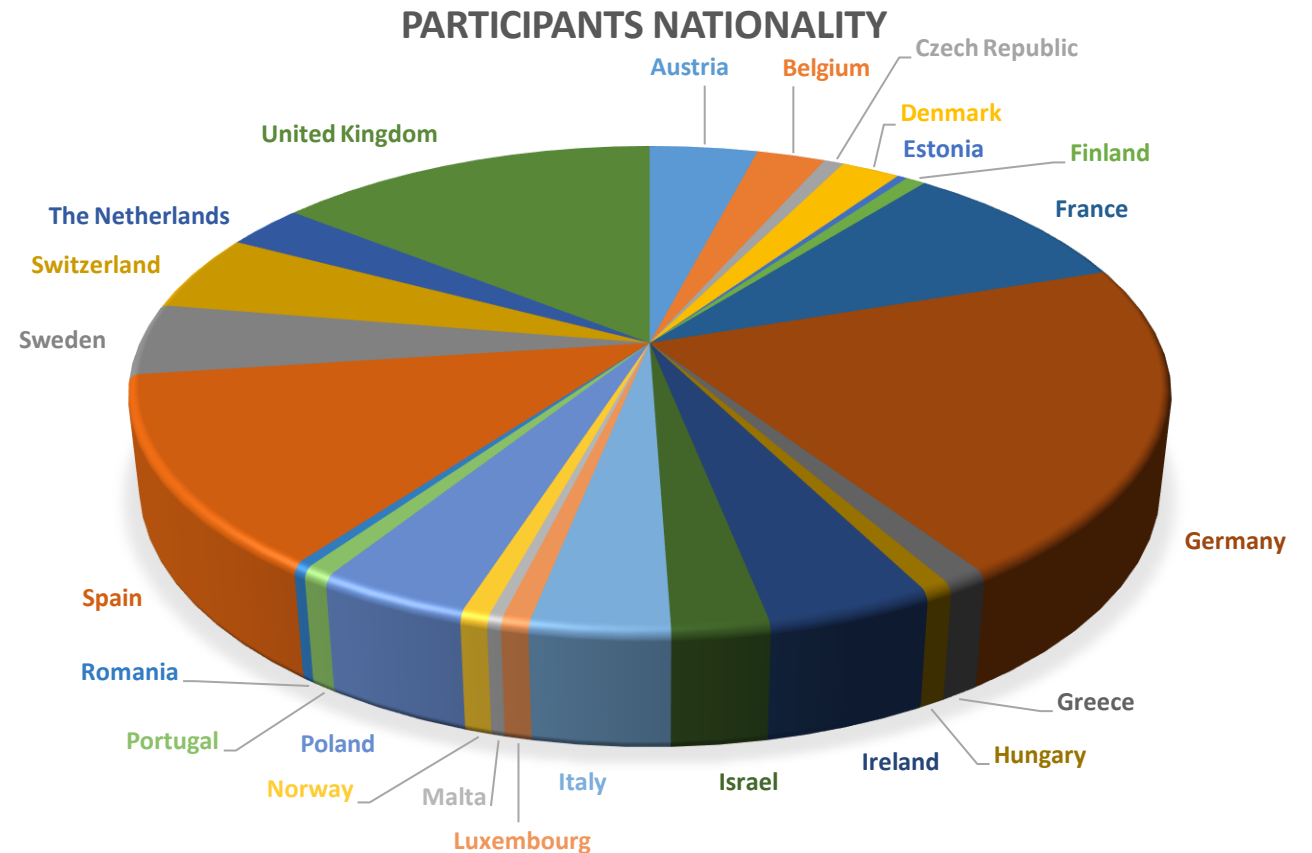
- 273 participants
- 24 countries from Europe

Germany	57	Israel	7
United Kingdom	39	Denmark	6
Spain	35	Greece	3
France	25	Czech Republic	2
Switzerland	14	Finland	2
Sweden	13	Hungary	2
Ireland	12	Luxembourg	2
Austria	11	Norway	2
Poland	11	Portugal	2
Italy	10	Estonia	1
The Netherlands	8	Malta	1
Belgium	7	Romania	1



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 they 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)



Proposal for the creation of 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



Proposal for the creation of the
Quantum Industry Consortium
(QuIC)

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**

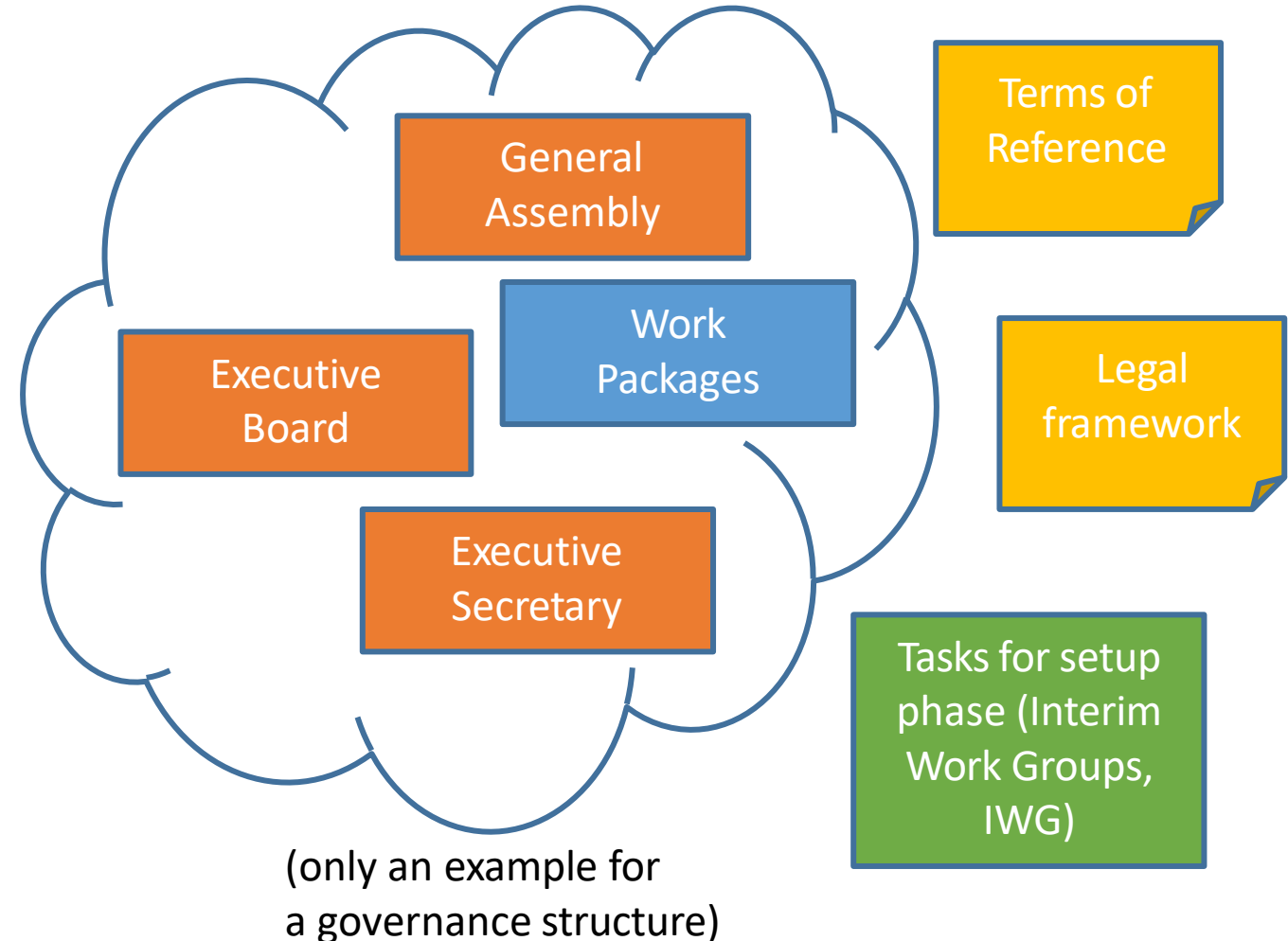
[7] **Connects start-ups** to VC / business angels to ease access to seed capital + their transformation into SMEs

[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



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.
- Define 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
- Communicate it within QuIC
- Discuss measures to advance it in a coordinated fashion (related to roadmap)

QuIC work packages (2/2)

WP6: Strategic Industry Roadmap

- Develop and coordinate a Strategic Industry Roadmap, including the supply chain.

WP7: Coordination, processes, facilitation

- Develop and operate efficient coordination processes for the QT industry in Europe.
- Ensure access of companies to testbeds.

WP8: Ecosystem

- Describe ecosystem (involved companies, their areas of activity and position in the supply chain).
- Identify roadblocks in supply chain / enabling technologies / infrastructures and propose specific measures to remove / overcome them.

WP9: Funding

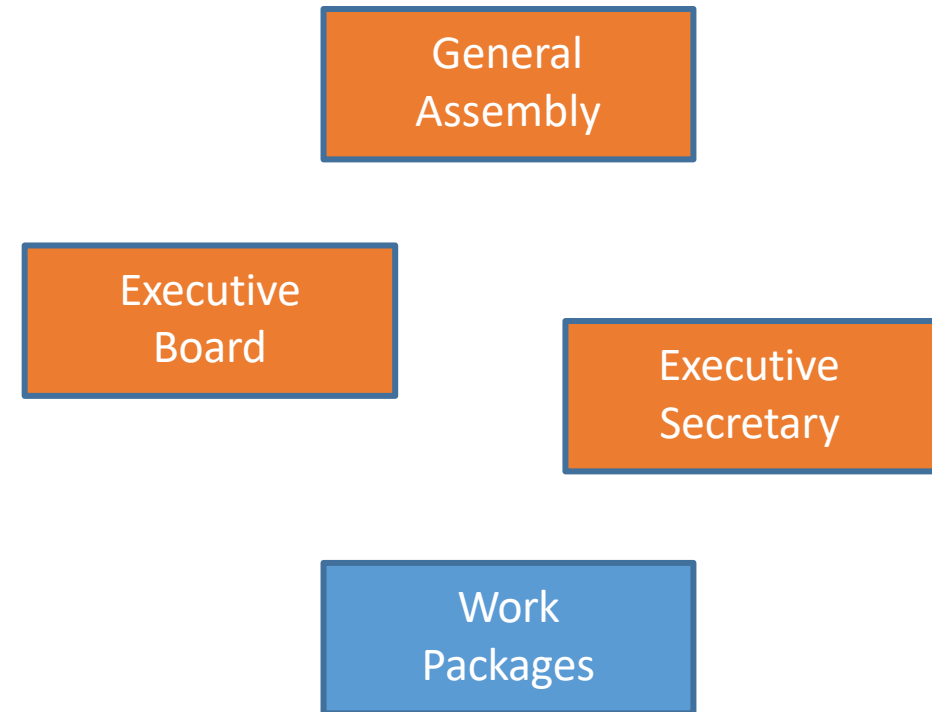
- Determine future financing needs, useful funding instruments, feedback to existing funding instruments.
- Share experience on how to get access to financing from VCs; in particular, connect startups & VCs (mainly for funding purposes).
- Access to funding

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