



Executive Summary of the “Towards a European Quantum Industry Consortium” Teleconference

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

Repository

- All relevant documents related with this event, from the concept document to the ones produced during and after the telco (including this one), are accessible to all participants on the password protected [Sciebo directory](#) (password to log in: QuIC_2020). The directory is hosted on the Forschungszentrum Jülich servers.
- We plan to upload on this directory also the minutes of the various telcos the Interim Working Groups and Work Package groups will have during the following months.

Vision of the prospective European Quantum Industry Consortium (QuIC)

1. The QuIC will be an interest group, implemented by a private organization, whose members represent private companies with stakes/genuine interest in Quantum Technologies (QTs).
2. It will assert and foster the common interests of the European QT Industry and play a key role in Europe’s goal to industrialize QTs, bootstrap an entirely new market and create new jobs for European citizens.
3. It will represent the European equivalent of the US Quantum Economic Development Consortium ([QED-C](#)).

QuIC Work Packages

- 9 Work Packages (WPs) were proposed to take care of all QuIC related tasks:
 - WP1: Market trends and use cases
 - WP2: Intellectual Property (IP)
 - WP3: Education
 - WP4: Standards
 - WP5: Industry state-of-the-art
 - WP6: Strategic Industry Roadmap

- WP7: Coordination, processes, facilitation
 - WP8: Ecosystem
 - WP9: Funding
- During the telco, attendees were invited to join independent break-out sessions dedicated to each of the WPs in order to discuss further the possible tasks that the WP could carry out once the QuIC is established.
 - Each WP had a moderator that lead the session, encouraged participants to provide feedback, summarized the session's outcomes and reported to the plenary.

Below, we summarize per WP the main conclusions presented to the plenary by the moderators of the different break-out sessions.

WP1 Market trends and use cases:

- This WP focuses on identifying QTs' market trends and economically viable use cases.
- It is closely intertwined with WP2 "Intellectual Property", WP5 "State of the art" and WP6 "Strategic Industry Roadmap".
- Possible use cases for QTs have to be elicited and new use cases have to be developed.
- The use cases will be classified on short/mid/long-term according to the technological maturity (TRL) and requirements.
- Those use cases suitable for "lighthouse projects" would be highlighted and communicated to funding and standardization agencies.
- On market trends, it will be putting emphasis on strategically important markets, e.g. regarding EU's security and autonomy.

WP2 Intellectual Property (IP):

- WP2 will elaborate IP guidelines to help the QuIC members to better define their own IP strategies, summarizing some of the already existing IP guidelines provided by European Institutions.
- It will identify gaps in the European patent landscape and help in the definition of better patent targets and/or areas where the European QT industry could successfully fill the gaps.
- Also, it will identify patent families where a lot of non-European IP already exists and propose solutions to circumvent the problems that this might create for each pillar of the Quantum Flagship.
- All this information will be made available to the European industry to better define their IP strategies.
- Additionally, the WP2 will develop advocacy both at project/company level and at European policy level; more specifically:
 - At project/company level it will:
 - Address fields where there is still some room to create IP and encourage project consortiums to agree on a clear common marketing strategy at the beginning of the project.
 - Prevent project consortia/companies losing in IP value when developing new products.
 - Provide recommendations to tackle the problem of blocking patents.

- At institutional level it will:
 - Provide all the necessary advocacy to the EPO with respect to IP in QTs, when needed.
 - Advocate at the European Institutions for identifying blocking patents or patent families that will help in defining a better IP strategy for the European QT industry.
 - Provide recommendations on how to develop IP strategies that will benefit the European QT industry, including the organization of trainings in collaboration with the European Patent Office and the EC that will benefit the members of the QuIC.

WP3 Education:

- In order to bootstrap the European QT industry, it is necessary to foster education in a broad spectrum of professionals, including quantum scientists, quantum engineers, quantum software developers, classical engineers for enabling technologies, technicians, product developers/users.
- WP3 will help in the definition of a clear strategy for training the future European workforce with respect to two profiles:
 - a. Developers of QTs
 - b. Users of QTs
- A truly multidisciplinary training will be required, providing a strong background on the relevant classical science and technology as well.
- Promoting collaboration with industry, with joint research projects, internships, events exposing industrial work, etc, will be essential for gaining transferable skills or reskilling the current workforce.
- It will also be important to raise awareness over QTs to pupils from the early education stages and promote inclusion (gender balance, underrepresented groups) and career prospects.

WP4 Standards:

- Intellectual Property is highly linked with standardization processes, as it can enable or block standardization.
- There was a general consensus that Europe needs to boost standardization processes in the QT industry across technologies in all pillars (Communication, Sensing, Metrology and Computing).
- Both Communication and Sensing would need to speed up their standardization processes with respect to Metrology and Computing due to their more advanced development status.
- Standardizing the working principle could not be sufficient, since the technical system may still suffer from industrial robustness.
- Standards are of paramount importance because, without them, it will not be possible to advance in regulation and certification processes, which would have strong impact to the ecosystem.

WP5 Industry State-of-the-art:

- The industry state-of-the-art will be measured by achievements, not by effort or publications.
- The KPIs document of the Quantum Flagship will be used as a guidance.
- The state-of-the-art in Europe is currently defined by academia while in the US the industry plays a bigger role. To reach a proper balance, more collaboration between academia and industry will be fostered.
- The work of this WP will be carried out in synergy with all the other QuIC WPs.

WP6 Strategic Industry Roadmap (SIR):

- A reliable and transparent SIR written in a way everyone can understand it, will be essential for the industry, because QT holds the promise of having a big societal impact (both at National and European levels).
- More specifically, a well-defined SIR will:
 - Monitor progress and guide expectations for policy makers as well as business decision makers
 - Help to steer funding from governments and industry
 - Help parties in the value-chain to focus on their role and clarify their objectives
- The SIR will be a product roadmap. Focus on real-life demonstrators that satisfy concrete needs, rather than technology demonstrators.
- It will highlight user-needs and market pull, as well as indicate technology maturity and link to adjacent (non-QT) technologies which will be also required to achieve product specifications.
- It will be aligned with other relevant roadmaps (e.g., SRA, Space, Energy, etc.).

How can QuIC drive the Industry Roadmap?

- QuIC will first develop a solid strategy (vision, mission, goals and KPIs) and connect this to European/UN values; the SIR will be then a practical implementation of this strategy.
- Lobbying at governments and other fundraising will be organized by QuIC to drive the SIR.
- Things that cannot be aligned (IP, different strategic and international interest) will be identified in the beginning and treated accordingly.

WP7 Coordination, processes, facilitation:

- This WP will develop the whole QuIC communication strategy of the QuIC including, among other things: content creation for newsletters; the organization of events; etc.
- It will also facilitate collaboration between members of different QuIC's WPs.
- However, the development of an organic communication strategy will a clear definition of the QuIC's ultimate goals.

WP8 Ecosystems:

- This WP will be fostering the European industry leadership of QTs by:
 - a) Ensuring that European companies can compete/lead in QT internationally
 - b) Ensuring that no critical dependencies on non-EU supply chains for key industries exist

- c) Identifying key gaps in supply chains and promote investments/programs
- It will also operate in an international environment by:
 - a) Setting up an open approach to international colleagues.
 - b) Ensuring that the QuIC can support/advocate for EC strategic initiatives
 - c) Developing different QuIC membership levels, as QED-C does.

WP9 Funding:

- The tasks of this WP will be oriented towards the development of better funding opportunities for QT companies by lobbying with all the relevant actors (National agencies, European Commission, venture capitalists).
- Additionally, it will help the development of better funding policies by providing advocacy, when needed, to the above-mentioned actors.
- Finally, it will negotiate, on behalf of the QuIC, access for QT start-ups to platforms such as IBM, Google, AWS, Atos, etc.

Next steps

1. Following the teleconference, it was agreed to set up three Interim Working Groups (IWGs), that will bootstrap the QuIC in its embryonic phase. These IWGs are:
 - IWG1 Governance & Structure
 - IWG2 Instantiation
 - IWG3 Involvement

IWGs have been populated with respondents to the poll that were launched during the meeting. The three IWGs will start their working through telcos in the upcoming weeks.

2. In addition, the concept of the different WP will be further refined by the breakout sessions participants together with people opting in from the polls that will be distributed within the telco participants. This will happen, ideally, after the summer break (at the beginning of September).
3. Meanwhile the recruiting process of hiring the QuIC Secretary General/ Executive Director that will steer the bootstrap and establishment of the QuIC.