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| <p>[29 FEB. 2024]</p> | <p>Efficient Verification of Quantum computing architectures with Bosons</p> |
| | <p>D5.8 PLAN FOR DISSEMINATION AND COMMUNICATION ACTIVITIES</p> <p>Version 1.0 – Final PUBLIC</p> |
| | |
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PLAN FOR DISSEMINATION AND COMMUNICATION ACTIVITIES

| | |
|---------------------------------------|---|
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Acronyms

| | |
|----------|--|
| AQIPCS | ALTERNATIVE APPROACHES TO QUANTUM INFORMATION PROCESSING, COMMUNICATION, AND SENSING |
| CA | CONSORTIUM AGREEMENT |
| CV | CONTINUOUS VARIABLES |
| CUT | SHORT ACRONYM OF THE CHALMERS BENEFICIARY |
| EIC | EUROPEAN INNOVATION COUNCIL |
| DoA | DESCRIPTION OF ACTION |
| KPI | KEY PERFORMANCE INDICATORS |
| PEPR | FRENCH QUANTUM RESEARCH PRIORITY PROGRAMME AND EQUIPMENT |
| PI | PRINCIPAL INVESTIGATOR |
| SU | SORBONNE UNIVERSITE |
| QAT TEAM | QUANTUM COMPUTING ARCHITECTURES, ALGORITHMS, APPLICATIONS AND THEIR THEORY |
| WP | WORK PACKAGE |

Publishable Summary

The Plan for dissemination and communication activities outlines the preliminary version of the external communication and dissemination strategy of the project.

It is the result of the complementary work carried out in WP5 (Project management, communication, dissemination and exploitation) and WP6 (Portfolio activities). As stated in the DoA, the main objectives of the plan for dissemination and communication activities are:

- To build public awareness of the project
- To promote the action and progressive outcomes of the project

The report is also seen as a guideline for the whole consortium when communicating and sharing the projects results with the project ecosystem.

This plan is a living document, the current version is a first draft, the final version is due at the end of the project in M48 (D5.9).

Its structure mainly follows the template suggested in the Veriqub GA (proposal part) and will be updated during the project implementation and tailored to the project's needs and progress on demand. The plan is closely linked to the following other deliverables:

- D5.7 "Project website and logo" 31 October 2023
- D6.1 "Portfolio Action Plan" 31 December 2023
- D5.11 "Plan for Exploitation activities" 28 February 2024
- D6.2 "Report on portfolio activities 1" 31 August. 2024
- D6.3 "Report on portfolio activities 2" 31 August. 2025
- D6.4 "Report on portfolio activities 3" 31 August. 2026
- D5.9 "Final version of plan dissemination and communication activities" 31 August 2027
- D5.10 "Workshop" 31 August 2027
- D5.12 "Final version of plan for exploitation activities" 31 August 2027
- D6.5 "Report on portfolio activities 4" 31 August 2027

The European IP Helpdesk¹ clearly differentiate communication from dissemination, from exploitation:

- Communication aims at:
 - reaching out to society and show the impact and benefits of EU-funded R&I activities;
 - informing about and promoting the project and its results and success;
 - targeting multiple audiences beyond the project's own community.
- Dissemination aims at:
 - transferring knowledge and results;
 - describing and ensuring results available for others to use and reuse;
 - reaching out to audiences with an interest in use and reuse of the results.
- Exploitation aims at
 - effectively using and reusing project results through scientific, economic, political and societal exploitations routes;

¹ IP in EU-funded projects: https://intellectual-property-helpdesk.ec.europa.eu/ip-management-and-resources/ip-eu-funded-projects_en

- targeting people and organisations including making concrete use and reuse of the project results.

The Exploitation strategy is part of the D5.11 (Plan for Exploitation Activities) also planned in M6 and therefore not covered in this report D5.8.

Management, dissemination, exploitation, and communication activities are coordinated and monitored via WP5. The central hub allows us to react to challenges in a timely manner, by redistributing efforts and resources between the work packages to mitigate delays and to make advancements in achieving results that are within and beyond the original scope of the project. This is supported by the fact that the scientific organisation of Veriqub allows all work packages to start from the beginning of the project and to run in parallel, making it easy to shift priorities on the go. A final WP is dedicated to Portfolio Activities throughout the project and increases the dissemination opportunities by expanding the scientific, economic and industrial landscape of the project. Therefore, Dissemination measures related to the portfolio activities are described in the present report.

The first section of the plan outlines the project key information, relevant to contextualise the results. It focuses on the communication channels and their alignment with the purposes and expected impacts of the project. The second section reflects the first ideas of the consortium for disseminating the results and reach out the specific industrial players and policy-makers.

1 | COMMUNICATION STRATEGY

1.1 Veriqub key facts and figures

Some key facts and figures about the **Veriqub project**:

- Veriqub is an acronym which stands for “Efficient Verification of Quantum computing architectures with Bosons”
- Launch: September 1st, 2023
- Official kick-off: 3-4 October 2023
- Project duration: 48 months (2023–2027)
- Financed under the European Union’s Horizon Europe Framework Programme with 3 983 635€
- Consortium of five partners
- Coordinated from France by INRIA
- Topic: ‘Alternative approaches to Quantum Information Processing, Communication and Sensing’

1.2 Veriqub objectives and impacts

The key goals of the Veriqub project are (Figure 1):

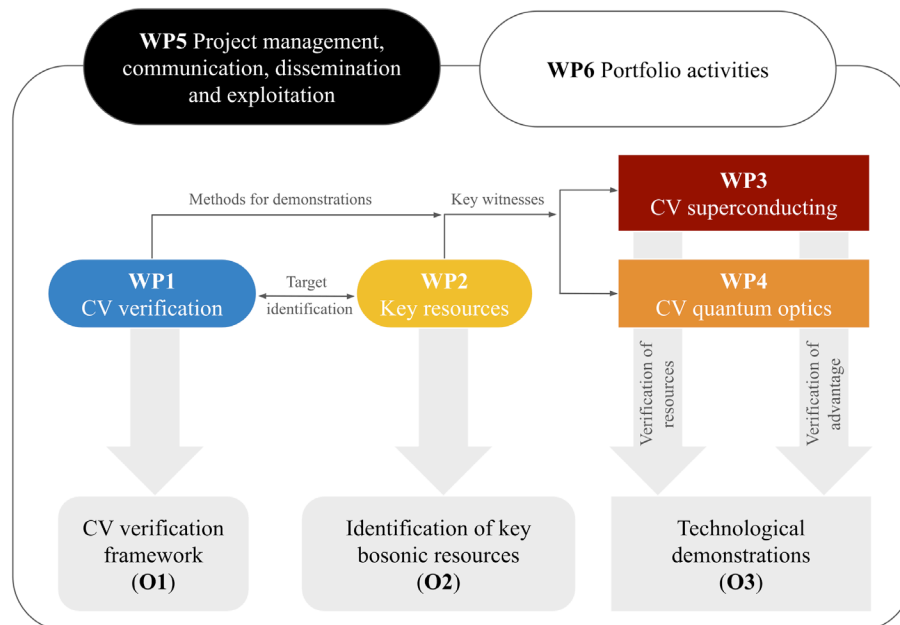


Figure 1. Main objectives of the Veriqub project

- Veriqub will develop a CV quantum verification toolbox for efficient and practical verification of large bosonic devices, characterising its fundamental and experimental limitations and benefits.
- Veriqub will identify and optimise the key resources for bosonic computations for different architectures, enabling their meaningful scale-up.
- Veriqub will implement technological demonstrations that highlight the potential of our framework, achieving both the verification of bosonic resources and the demonstration of verified quantum speedup.
- The Veriqub project aims to have the following main impacts (Figure 2):
 - **Offer** a fundamental theoretical framework for the verification of quantum devices, enabling bosonic quantum computing architectures to be scaled up and **positioning Europe as a leader** in this field
 - **Deliver** the first demonstration of verified quantum speedup
 - In the long term, **propose a verification toolbox** to be tested on the industrial market and eventually exploited commercially as a benchmark

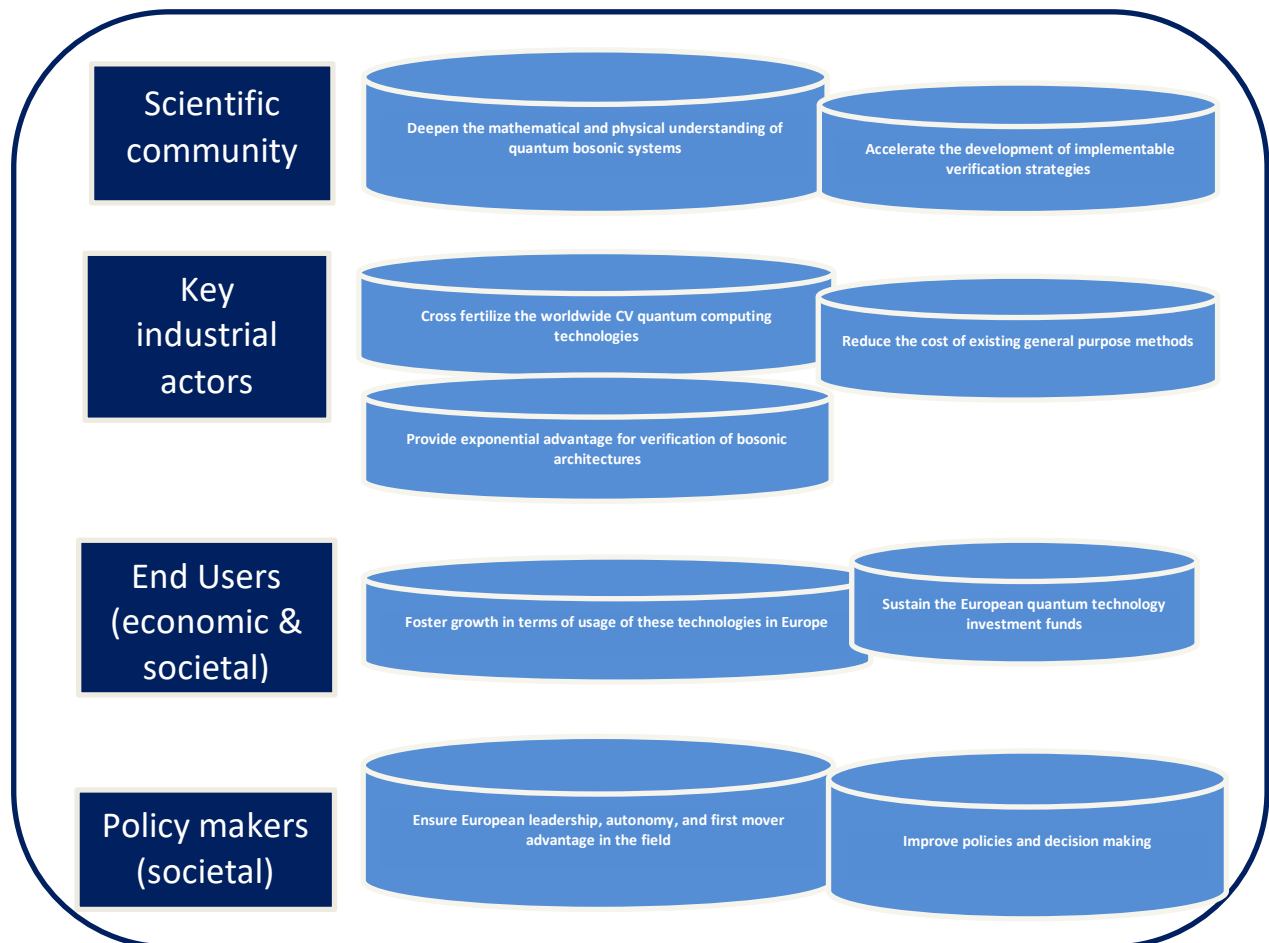


Figure 2. Main impacts of the Veriqub project

1.3 Communication identified channels

| Subject | Objective | Target group | Communication activity | Target performance | Timing |
|---------------------------------------|---|---|---|--|--|
| General information about the project | Increase awareness about VERIQUB and the project's research objectives and impact | General public, policy makers, scientific community, industry | Project logo; development of project website and social media outlets | 2000 website visits/year | Initiated at project start and maintained throughout |
| VERIQUB's progress | Outreach about project methods, progress, and results | Scientific community, tech enthusiasts | Project social media profile on Twitter | 1 tweet per month, average of 40 tweet impressions | Throughout |
| Scientific results | Outreach about main results | Journalists, policy makers | Press release | Two press releases during the project | Throughout |
| Scientific results | Outreach about main results | General public | Media appearances | Two media appearances during the project | Throughout |
| Scientific results | Outreach about main results | Scientific community, tech enthusiasts, general public | Participation in local mediation venues (e.g., Fête de la Science) | One participation per year | Throughout |
| Standardisation effort | Foster the adoption VERIQUB's toolbox as a verification standard | Policy makers, industry | Participation in panel discussions, industry days, coordination events | One participation per year | Throughout |

Table 1. communication strategy

The consortium is actively taking part in the communication activities. The coordinator is involving different entities, communication and scientific ones:

- The INRIA Paris center² is one of the nine INRIA centers in France, to which the project is administratively attached. The coordination team benefits from the transverse services of the center which sustain the coordination in finance, legal aspects, marketing and communication. The Veriqub communication team works closely with the INRIA Paris communication service, which among others things, helps the coordinator in writing short blog posts and relaying them on the X platform.
- The INRIA QAT team³ (of which Ulysse Chabaud is a PI) is a theoretical research team devoted to the development of Quantum Information Processing. Their research program is focused on developing advanced theoretical tools that can help the understanding of the capabilities of quantum computers, the improvement of their design for specific algorithms, and the

² <https://www.inria.fr/en/inria-paris-centre>

³ <https://qat.inria.fr/>

unlocking of new functionalities using quantum information processing. The Veriqub project is an integral part of the team.

- The French QuantumTech@INRIA programme⁴: INRIA plays one a major role in quantum information processing in France, and as such has been entrusted with the co-piloting of several funding schemes: the QuantumTech@INRIA programme co-pilots the quantum PEPR⁵ and the hybrid quantum computing platform (HQI). It is also involved in work on the pre-standardisation of performance measurements for quantum computers and various initiatives aimed at facilitating the creation of fault-tolerant machines.

These three internal channels enhance project visibility through ongoing scientific exchanges, collaboration, shared publications, and event participation. They are supported by the consortium throughout the project and will adapt as initial results are achieved. Additionally, the project and consortium are integral parts of the European Quantum Computing ecosystem, necessitating communication adjustments to align with result dissemination. As of now, the communication plan has identified four primary channels, as outlined in Table 1:



Figure 3 Veriqub main communication channels

⁴ <https://www.inria.fr/en/quantum-algorithms-and-computing>

⁵ <https://www.cnrs.fr/en/pepr/pepr-dacceleration-technologies-quantiques>

1.3.1 Project website

The project website⁶ serves as the primary platform for disseminating project progress, including information on public events, publications, noteworthy results, and submitted deliverables. Initial communication efforts included the creation of a logo, design chart, and kakemono, as detailed in the D.5.7 "Project website and logo" submitted in October 2023. Currently, the coordinator updates the website with upcoming events, publications, and publicly submitted deliverables. Additionally, a monthly "Behind the Scenes" feature highlights the profile of a Veriqub contributor through an interview format.

Home

[Project](#) [Partners](#)

Efficient verification of quantum computing architectures with bosons

Veriqub aims to develop a new approach to the efficient verification of quantum computing architectures with bosons, using continuous-variable measurements. [Learn more.](#)

News

| Name | Tags | Date |
|---|---------------------|------------------------------------|
| Behind the scenes - January 2024 with Carlos Ernesto Lopetegui-González | People | @January 25, 2024 |
| Behind the scenes - December 2023 with Jack Davis | People | @January 24, 2024 |
| Veriqub Kick-Off Meeting | Events | @October 3, 2023 – October 4, 2023 |
| Start of the project! | Events Publications | @September 1, 2023 |

The Veriqub project is funded through [Horizon Europe](#) and brings together five partners: Inria (France, coordinator), Chalmers University of Technology (Sweden), Sorbonne University (France), CNRS (France) and University of Milan (Italy). It runs from September 2023 to August 2027. [Learn more.](#)

Figure 4 Website Home page

⁶ <https://ulysseschabaud.github.io/Veriqub>

1.3.2 Social media

The project relies so far on four existing social media accounts using X and mainly LinkedIn:

- Veriqub LinkedIn page⁷, created in January 2024, (42 subscribers- 15 February 2024)
- INRIA National LinkedIn account⁸ (87 752 subscribers) for sharing paramount progress and announcements of project related-events.
- INRIA Paris Twitter account⁹ (3978 subscribers) for any post related to the life of the project.
- The QAT team INRIA LinkedIn account which federates a European quantum computing scientific community gathers 72 subscribers.

The LinkedIn project account is accompanied of a succinct social media plan and contains a list of upcoming posts. LinkedIn was the chosen media for the following reasons:

- Best matches the specific target audience (scientific community in quantum information, Industrial players, investors and policy makers)
- Offers more flexibility in writing posts (more characters available, scheduling option, modification option)
- Is the media that ensures the longest life of a post (around 2 weeks).

The coordination team, with the support of the INRIA communication service, emphasized LinkedIn that is currently less controversial than X and brings together more and more scientific communities as well as professional and industrial accounts.

The LinkedIn page is used for sharing outstanding results such as preprints or open access publications and announcements of project's related events. To create the page, the coordination team focused on some main elements:

- Visual banner and logo identity care
- Complete description including the consortium description, the address of the coordinator and a baseline to enhance the project's identity.
- Make sure to have recurrent posts so as not to let the page into disuse by sharing:
 - publications
 - "Behind the scenes" interviews on a monthly basis
 - project's progress
 - main events, conferences or workshops where Veriqub was presented (refer to Fig.5 and 6)
 - third party contents:
 - highlight the important news of the project's beneficiaries
 - share the content of our network when related to our research domain. We notably have common communication activities with the Heisingberg project¹⁰, part of the portfolio of the WP6.
- Give priority to relevant content
- Engage the collaborators to reshare the content by highlighting their work and profiles

⁷ <https://www.linkedin.com/showcase/100581498/admin/feed/posts/>

⁸ <https://www.linkedin.com/company/inria/mycompany>

⁹ <https://x.com/Inria?s=20>

¹⁰ <https://www.linkedin.com/feed/update/urn:li:activity:7158401678344384512>

- Track the metrics to assess the performance of our communication and improve it according to the statistics



Figure 5 INRIA Paris X Post

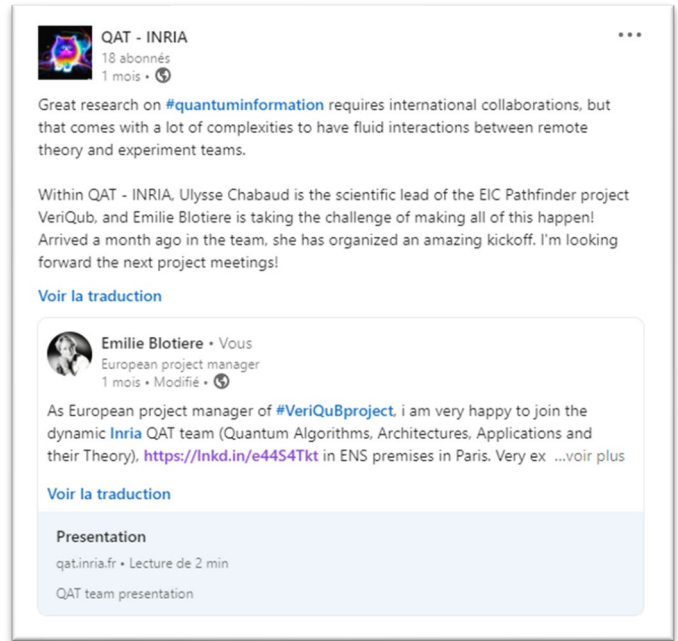


Figure 6 QAT team LinkedIn post

We also ritualised the content to gain visibility by building a loyal VeriQub community that extends beyond the partners and key players already involved in the project. As mentioned, since December 2023, we set up the monthly “Behind the scenes” series (refer to Fig.7) consisting in interviewing each month a member of the consortium and broadcasting the written interview on the project website and social media. A written template is sent to the month’s interviewee to optimise the process.

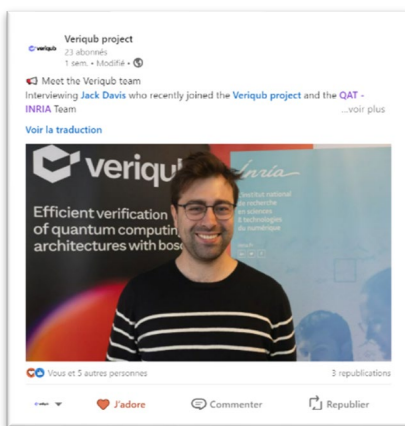


Figure 7 Behind the scenes #1- VeriQub LinkedIn project page

INRIA coordinates a media plan within WP5, involving other consortium partners. This plan involves pre-planning posts to align with each partner's communication activities, such as Veriqub event attendance and recruitment. A shared spreadsheet is updated monthly during the Executive Committee meetings with input from WP leaders.

Utilizing existing channels allows for swift and effective visibility enhancement. The social media strategy engages consortium partners to share project updates on their institutional and personal accounts, focusing on platforms like LinkedIn due to their prominence within the research community and their high-quality audience engagement.

Regular analysis of social media metrics is scheduled, with periodic reports including breakdowns such as those depicted in figures 8 and 9. These figures illustrate the demographic distribution of Veriqub LinkedIn page subscribers and visitor statistics, showing a predominant presence of researchers in the project's early stages. The medium-term goal is to diversify this audience by attracting industrial players and policymakers.

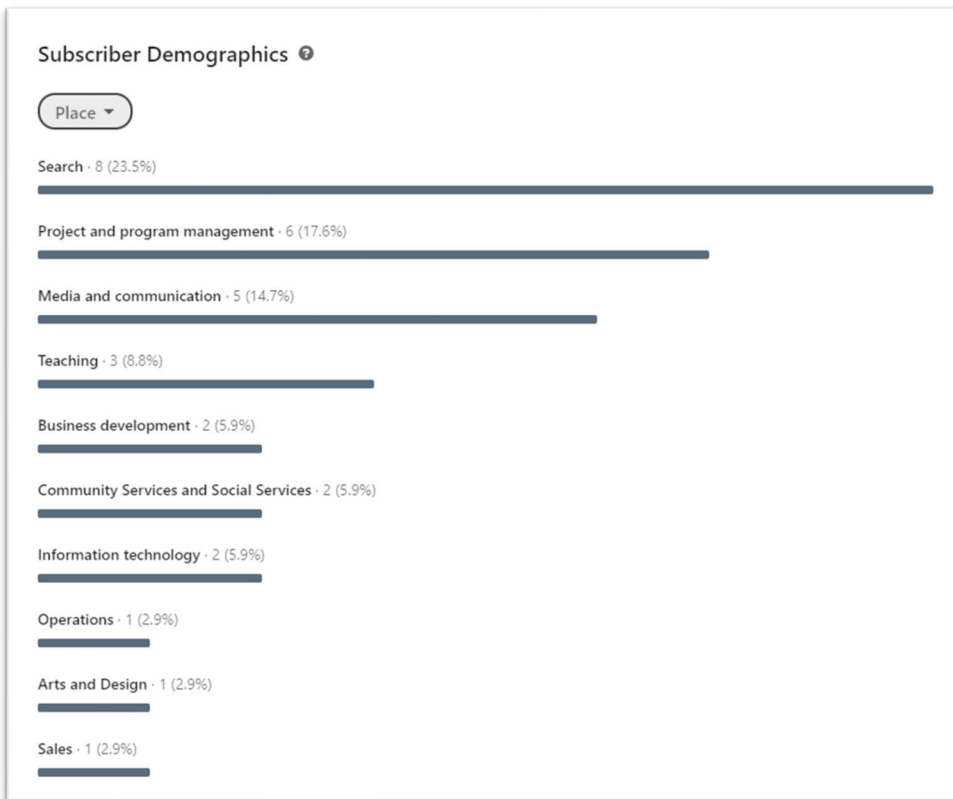


Figure 8 Position breakdown of the Veriqub LinkedIn page subscribers – 29 January 2024

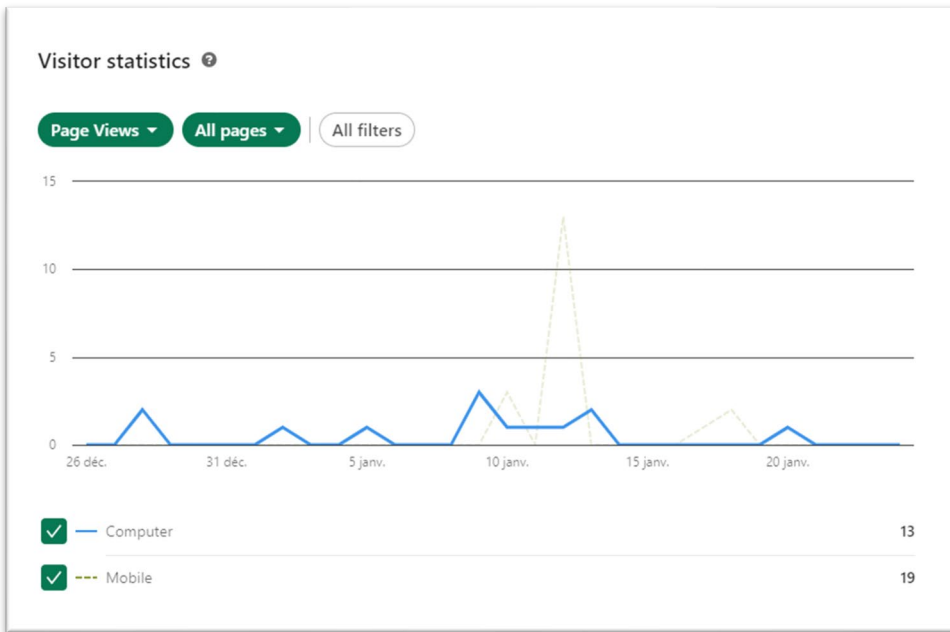


Figure 9 Number of visitors on January 2024 – 31 January 2024

1.3.3 Events

Attendance at events plays a pivotal role in project communication. The coordinator oversees three types of events to engage with diverse audiences:

- Veriqub internal events, including the Kick-Off, consortium meetings, and workshops. These sessions provide opportunities to update external stakeholders on task progress and may feature keynote speakers during yearly onsite consortium meetings to enhance collaboration with related initiatives or projects.
- European scientific gatherings such as seminars, webinars, and workshops focusing on bosonic quantum information processing. Targeted events include top-tier conferences like the annual QIP, APS meetings, OSA conferences, as well as presentations at national events. Notably, French partners in Veriqub (SU, CNRS) participate in the national GDR network for quantum technologies, uniting the French scientific community across various research areas related to quantum technologies.
- Public scientific engagements like panel discussions, industry days, "fête de la science," and coordination events, aiming to reach a non-scientific audience interested in quantum information, particularly industrial or economic stakeholders. These events emphasize knowledge transfer, results dissemination, and ensuring project alignment with industrial and economic needs.

1.3.3.1 KICK-OFF MEETING

The Veriqub Kick-Off meeting took place the 3rd and 4th October in Paris in Sorbonne Université premises. 25 people attended the two days kick off, each partner was represented by several

colleagues and all WP leaders attended and presented their work package. The INRIA communication team was present to take pictures of the consortium, some of which are broadcasted on the project website. The informed consent has been signed by each participant to allow broadcasting on the website and social media.



Figure 10 Veriqub consortium - Kick Off 3rd-4th October 2023

1.3.3.2 EVENT ATTENDANCE

In order to follow and assess the efficiency of events 'attendance, the Event spreadsheet is shared during each Executive Committee (on a monthly basis) in which each WP leader indicates the future events they plan to attend, the target audience and the estimated outreach (refer to Fig. 11). The spreadsheet is harvested on Notion, the project management tool and accessible to the whole consortium for completion. The objective of this process is twofold:

- Ensure the completion of the continuous report and the upcoming periodic reports
- Follow the communication activity of each member and drive eventual necessary re-orientation to make sure all target audiences are reached out via diverse events in terms of format, audience and localisation.

| Name | Format | Date | Veriqub speaker(s) | Target audience | # Estimated outreach | Slides | Description |
|--------------------------------|-------------------|--------------------------------|---|--|----------------------|---|--|
| QIPA 2023 | Conference | 04/12/2023 -- 09/12/2023 | A Alessandro Ferraro | Research community | 80 | | Invited talk on quantum computing over bosonic systems |
| OQuLus Kick-off | Workshop | 30/11/2023 | M Mattia Walschaers N Nicolas V Valentina Parigi C Carlos | Research community | 100 | | Kick-off meeting PEPR Quantique OQuLus, mentioned the importance of Veriqub in theory protocols talk |
| EIC Portfolio meeting | Portfolio meeting | 27/11/2023 | Ulysse I Luce Emilie | Research community | 35 | | First portfolio projects meeting |
| Quantum Energy Initiative 2023 | Conference | 19/11/2023 -- 24/11/2023 | M Mattia Walschaers | Research community Industry players | 100 | https://youtu.b... | Invited talk on resources for bosonic quantum computing in Singapore |
| EQIP | Workshop | 15/11/2023 -- 16/11/2023 | Ulysse | Research community Veriqub | 40 | EQIP_Stellar.key | Talk at Inria workshop in Lyon |
| QuiDIQua | Workshop | 08/11/2023 -- 10/11/2023 | Ulysse M Mattia Walschaers | Research community | 80 | WigNeg=Cont... | Talks at phase-space workshop in Lille |
| Veriqub Kick Off | Workshop | 03/10/2023 -- 04/10/2023 | Ulysse G Giulia Emilie A Alessandro Ferraro N Nicolas A Axel | Veriqub | 25 | | Kick-off meeting in Paris |
| SuperMeQ annual meeting | Workshop | 21/09/2023 | G Giulia | Research community | 25 | https://chalmers... | Invited talk at EU project Supermeq Annual meeting |
| IQIS 2023 | Conference | 18/09/2023 -- 22/09/2023 | A Alessandro Ferraro | Research community | 180 | 2023-IQIS-tries... | Contributed talk on quantum computing over bosonic systems |

Figure 11 Event spreadsheet screenshot (31 January 2024)

1.3.4 Publications

1.3.4.1 PRESS RELEASES

Press releases are tailored to specific audiences such as journalists, bloggers, or influencers, and are distinct from traditional publications. The content must be customized to capture the attention of each recipient. Social media and partner websites are the primary channels for reaching these targeted audiences.

The project launched its first press release on September 12, 2023, through the INRIA website, officially introducing the project and outlining its main challenges in an accessible manner. This informative article was disseminated in both French and English, shared with the consortium mailing list for broader distribution, and promoted across various social media channels and by individual contributors.

At least two additional press releases are scheduled during the project's duration. One will be issued at the project's conclusion to widely share its key outputs with a broad audience. Depending on the project's progress and potential collaborations with other initiatives or projects related to bosonic architectures, a third press release may also be considered.

1.3.4.2 Open access scientific publications

Scientific publications serve as a critical means of engaging with users within European academia. These publications typically fall into two main categories: preprints and peer-reviewed articles, with popularization articles also playing a role in disseminating findings. The consortium initially shares results through preprints on multidisciplinary open-access servers such as ArXiv¹¹. ArXiv, a free distribution service and open-access archive, hosts nearly 2.4 million scholarly articles across various disciplines including physics, mathematics, computer science, biology, finance, statistics, engineering, systems science, and economics. Materials on ArXiv are not peer-reviewed by the platform itself but are subject to community scrutiny. ArXiv is supported by Cornell University and involves a community of volunteer authors, readers, moderators, advisory board members, supporting members, donors, and third-party collaborators. Preprint versions of articles will be deposited on ArXiv under a Creative Commons CC BY 4.0 license.

Scientific publications will subsequently be published in esteemed peer-reviewed open-access journals such as Nature, Science, Nature Photonics, Nature Physics, Physical Review Letters, Physical Review X, and the community-driven open science journal Quantum.

1.3.4.3 Publications follow up

The openness of the publication is also tracked via a shared spreadsheet on Notion to be aligned with the Open Science principles; the spreadsheet contains the following information required by the EC (refer Fig.11): Type, Title, Authors, Title of the journal or equivalent, Number, Peer-reviewed, Was the publication available in OA through the repository at the time of publication, Month and year of publication, PID (Publisher version of record) and PID of the deposited publications

¹¹ <https://arxiv.org/>

1.3.4.4 POLICY BRIEFS

Two policy briefs at least, are planned throughout the project and will be written by the WP6 [Portfolio Action Plan] and other projects part of the EIC Quantum Tech Portfolio¹² to feed both the strategic research and industrial policy-making and boost private investment to support tech upscale.

The first policy brief is scheduled in M36 regarding the portfolio contribution to the industry, the sustainability of their approach and the remaining challenges/risks inspiration, The target audience are both policy makers.

The second policy brief is scheduled in M40 to promote investment in response to the needs identified by academia and the industry and highlight the EIC Quantum Tech Portfolio expertise.

¹²[chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://eic.ec.europa.eu/system/files/2023-06/eic_Quantum_Technologies.pdf](https://eic.ec.europa.eu/system/files/2023-06/eic_Quantum_Technologies.pdf)

2 | PLAN FOR DISSEMINATION OF RESULTS

The dissemination plan presented here outlines our current strategy for reaching Veriqub stakeholders, including the target audience and various European national communities. Throughout the project, Veriqub will implement a series of dissemination measures. Initially, the focus will be on communicating the project and its objectives. As the project progresses, these channels will transition to presenting and communicating its results, methodologies, and workflows. According to a brochure by the European Intellectual Property Rights (IPR) Helpdesk, "dissemination" entails transferring knowledge and results to enable others to utilize and adopt these findings, thereby maximizing the impact of EU-funded research¹³.

2.1 Target Audience

According to the preparatory phase of the project, and as stated in the GA (see section 2.1 potential impact), the consortium has identified four target groups for which the project results make a direct impact:

- **Scientific community:** users in this group are more precisely European researchers from the quantum computing and quantum verification communities. The scientific contribution will foster a significant amount of follow-up work, both during and beyond the VERIQUB project, maximised by our dissemination measures (see section 2.3), including open access publications. The CV verification toolbox will be applicable to bosonic architectures other than those considered within VERIQUB, such as motional degrees of freedom in trapped ions.
- **Key industrial actors** (economic and technological): private sector stakeholders with a dedicated quantum computing research branch, and notably French and European start-ups which have the need to make the evidence of their hardware capability
- **End users** (including industry players who rely on quantum computing, their own end users, and quantum technology investment funds): rigorous quantum benchmarks are essential to inform investment decisions. Our objective is to inform industries and investors to have early access to large-scale bosonic quantum computing with verified quantum advantage, giving them a significant competitive edge in a wide range of industries.
- **Policy makers:** the project will obtain scientific results of crucial strategic importance for ensuring European leadership, autonomy, and first mover advantage in the field. The outputs will play a direct role in helping to raise awareness about the capabilities of quantum devices, thus improving policies and decision making. INRIA is already involved in the development of different quantum verification methods at the European level and has a steering role at the national level (France) for providing benchmarks for several- projects, in the context of the French National Quantum Strategy¹⁴.

¹³ The European IPR Helpdesk (2018). Making the Most of Your H2020 Project. Boosting the impact of your project through effective communication, dissemination and exploitation.

<https://www.iprhelpdesk.eu/sites/default/files/EU-IPR-Brochure-Boosting-Impact-C-D-E.pdf>, p. 13

¹⁴ France 2030 | Stratégie quantique : lancement d'une plateforme nationale de calcul quantique | Gouvernement.fr

2.2 Dissemination measures

2.2.1 Identified channels

The Veriqub consortium has devised a comprehensive plan for disseminating project results, aiming to maximize outreach to stakeholders. These measures will be public and accessible to all users, focusing initially on communicating the project's objectives and subsequently on presenting its outcomes as the project evolves.

Outlined below is an overview of these dissemination measures:

- **Publications:** Scientific articles covering the project's objectives, workflows, and results will be published in journals dedicated to quantum computing research communities, as well as professional channels relevant to industries and SMEs. The project adheres to an open-access policy, allowing for early interaction with the scientific community and industrial stakeholders. Various forms of scientific knowledge dissemination, including preprints, peer-reviewed articles, conference proceedings, monographs, patents, and research data, will be employed. The final versions of articles will be made immediately available in institutional open repositories. Publication strategies will prioritize "green" open-access journals whenever possible, with project funds reserved for "gold" open-access journals. Additionally, presentations will be made at top-level peer-reviewed open-access scientific journals and conferences, along with participation in national events and conferences such as the yearly QIP, APS meetings, and OSA conferences.
- **Project Deliverables:** Public deliverables will be accessible from the project website and deposited on Zenodo for open access as soon as they are accepted by the European Commission. These deliverables will detail the project's progress, workflows, methodologies, challenges, and solutions.
- **Reports on Veriqub-Initiated Events:** Activities initiated by Veriqub will be reported back to the project, facilitating the measurement of the impact of these dissemination activities.
- **Reports on events participated in by the Veriqub Consortium:** Consortium members will provide reports on their participation in various events, outlining knowledge exchange and networking opportunities.
- **Training and Guidelines:** Education activities such as coordinating quantum information master programs, organizing spring/summer schools, and teaching in quantum technology tracks will facilitate the transfer of project results to the future quantum workforce. The new ENS Master on quantum information, for which two Veriqub PIs are teachers is also considered as a recruitment avenue for PhD students.
- **WP6 Portfolio Activities:** Close collaboration with other projects within the EIC Quantum Tech Portfolio, such as OQulus and PANDA, will promote knowledge transfer and enhance the impact of Veriqub's results. The project coordinator has hired an innovation manager to leverage portfolio opportunities and increase the impact of project results on innovators and companies in the competitive quantum technology field. Collaboration with the EIC Programme Manager and other portfolio projects will be pursued through meetings and action plans.

The roadmap for these activities includes trilateral meetings with EU project officers and EIC Programme Managers, portfolio meetings, brainstorming sessions within project consortia, interactions within sub-portfolios, drafting of strategic plans, and finalization of sub-portfolio strategic plans.

2.2.2 Consortium matrix

The Veriqub consortium consists of a network of partners with long expertise in quantum computing. It is therefore strategic for the dissemination success of the results to leverage partners' individual contacts and related networks to multiply the effect of the outreach activities at geographical, qualitative and quantitative level. Veriqub project partners have defined their individual dissemination measures in line with the overall project dissemination strategy. Table 2 provides an overview on how each partner plans to support the dissemination of project results in terms of a) the organisation's/institution's specific target audience, b) main measures and access channels to the identified audiences, c) contribution of the organisation to the management and implementation of the dissemination process and c) time planning of the dissemination during the project lifespan.

| Partner | Organisation's specific target audience(s) | Main measures and access channels to the identified target audience(s) | Contribution of the organisation to the Veriqub dissemination process | Period of dissemination measures |
|---------------------------------|---|--|---|----------------------------------|
| INRIA | <ul style="list-style-type: none"> • Scientific community • Key industrial actors • Quantum Technology investment funds • Policy makers | <ul style="list-style-type: none"> • Project website relay • Social media relay • OA publications • Attendance to large public events • Organisation of a final event • Media appearances • Final workshop established experts (target ~100 participants) • Education activities, such as the ENS master | <ul style="list-style-type: none"> • Follow up of the consortium dissemination activities • Management of the event and publication spreadsheets • Knowledge transfer of top-level events to the consortium to ensure Veriqub attendance • Scientific articles • Close collaboration with the portfolio projects | Throughout the project |
| Sorbonne Université/CNRS | <ul style="list-style-type: none"> • Scientific community • Students • Key industrial actors | <ul style="list-style-type: none"> • Social media (LKB and group account) • OA publications • Attendance to large public events | <ul style="list-style-type: none"> • Scientific articles • Providing a link between Veriqub and the quantum optics community | Throughout the project |

| Partner | Organisation's specific target audience(s) | Main measures and access channels to the identified target audience(s) | Contribution of the organisation to the Veriqub dissemination process | Period of dissemination measures |
|-------------------|--|---|---|----------------------------------|
| | <ul style="list-style-type: none"> • Quantum Technology investment funds • Policy makers General audience | <ul style="list-style-type: none"> • Dedicated outreach events • Media appearances • Teaching on Bachelor and Master level Involvement in the Quantum information centre of Sorbonne University (QICS) | <ul style="list-style-type: none"> • Providing link between Veriqub consortium and the local quantum community QICS • Strong involvement in the organisation of educational activities at SU • Provide access to LKB's extensive network on the level of outreach (journalists, national media, science communicators) | |
| CUT | <ul style="list-style-type: none"> • Scientific community • Students • Key industrial actors • Quantum Technology investment funds • Policy makers General audience | <ul style="list-style-type: none"> • Social media (LinkedIn) • OA publications • Attendance to large public events • Dedicated outreach events • Media appearances • Teaching on Bachelor and Master level • Involvement in the Quantum information centre of WACQT | <ul style="list-style-type: none"> • Scientific articles • Providing a link between Veriqub and the quantum superconducting community • Providing link between Veriqub consortium and the local quantum community WACQT • Supervision of bachelor and/or master thesis students | Throughout the project |
| Milano University | <ul style="list-style-type: none"> • Scientific community • Key industrial actors • Policy makers and general public | <ul style="list-style-type: none"> • Project website relay • Social media relay • OA publications • Attendance to large public events • Education activities, such as the Quantum Technology Curriculum within Master in Physics Degree • Organisation and delivery of public | <ul style="list-style-type: none"> • Scientific articles • Close collaboration with the portfolio projects | Throughout the project |

| Partner | Organisation's specific target audience(s) | Main measures and access channels to the identified target audience(s) | Contribution of the organisation to the Veriqub dissemination process | Period of dissemination measures |
|---------|--|--|---|----------------------------------|
| | | lectures and large outreach events (e.g., Italian Quantum Week) | | |

TABLE 2. Dissemination measures matrix

2.2.3 Dissemination feedback and evaluation

The coordinator leads regular reviews of the entire dissemination process to ensure alignment of communication channels and key messages. Alongside monitoring communication activities, this process guarantees the effectiveness of the strategy. Success indicators, tracked through Key Performance Indicators (KPIs), acknowledge that KPIs do not progress linearly over time; rather, specific events and milestones often prompt increases in numbers.

| What to be analysed/monitored | Expected rate ¹⁵ |
|---|--|
| Social media (website, X and LinkedIn) | |
| Veriqub website visits | 480 at the end of the project |
| Nb of X posts views per post | At least 20 per post in average |
| Nb of LinkedIn views posts | At least 20 per post in average |
| Nb of Veriqub LinkedIn account followers | 110 by the end of the project ¹⁶ |
| Nb of external events attendance | 20 by the end of the project |
| Publications | |
| Nb of published articles (criteria: DOI, peer-review) | 5 |
| Nb of preprints | 5 |
| Policy brief | 2 regarding the portfolio contribution to the industry |

Table 3 Communication and dissemination KPIs

In case of oral communication channels, like a workshop, the KPIs will be, among others, the audience attending the event, their feedback, their participation at future events.

Internal coordination: The majority of tasks concerning internal coordination are overseen by WP5. The coordinator, who also manages WP6, leverages both roles to foster collaboration between the two initiatives. This includes notably, organizing brainstorming sessions within the consortium to explore potential synergies with the PANDA project, which is coordinated by Sorbonne Université. To ensure

¹⁵ Expected rate at the end of the project end of February 2027

¹⁶ 31 followers at the date of the deliverable writing 31 January 2024

the quality of dissemination activities, a knowledge and protection management team was established at the project's outset.

2.3 Intellectual Property Rights Management

Every result will be scrutinised for its potential for IP protection before publication. If such potential exists, patents will be filed, to pave a way towards commercialisation and to guarantee exploitation beyond the duration of the project. INRIA as a coordinator is responsible for this task, and depends on the Project Manager in cooperation with INRIA's legal and tech transfer offices. The management of IP is governed by the consortium agreement, signed by all partners of the consortium. The Veriqub consortium used the DESCA 2020 model of the CA. Although the Consortium Agreement is a basic and stable document, it will be modified in the course of the project duration to take into account any updated consensus on the project results. All partners have defined their specific background within the agreement to be included in the project. Foreground ownership belongs to partners primarily responsible for its development. For some of the CUT team members, the holding company WACQTIP will facilitate IP by providing a framework for patenting, with possibility of agreements with other project members for the cases of shared inventions. If IP protection is not applicable, results will be directly published in peer-reviewed open access journals.

The Veriqub project plans to contribute to the debates and evolutions that are currently taking place in the crucial domain of intellectual property rights and to propose new solutions and help standardise norms and rules on Open Access and Open Data at a European level. Veriqub will deposit its aggregated data, in respect of the General Data Protection Regulation (GDPR), in a specific research data repository, taking measures to make it openly available for access, analysis, exploitation and dissemination freely (especially by publishing it under Creative Commons licences) and provide information about tools and equipment of significance for the validation of the results. This underlines the baseline of the Veriqub project: "to generate an impact on the European knowledge economy at short-term." Finally, once IP protection is ensured, the consortium will reach out to industry to foster joint exploitation of results through the industry committee of the project. These measures help to achieve the economic and academic impact of the project by generating new markets on the one hand and establishing our results as a basis for future research within Europe on the other hand. By sharing our results with European SMEs and industry players, we will help to firmly position Europe's industry at the forefront of future quantum technologies, while making sure that our research, although fundamental in nature, has immediate exploitation potential and bridges the gap between science and technology.