



Horizon Europe Programme

Chips Joint Undertaking

**Specific Application Form (Call for establishing Framework
Partnership Agreements for developing Quantum Chip
Technology)**

HORIZON-JU-Chips-2024-FPA-QAC-1

HORIZON-JU-Chips-2024-FPA-QAC-2

Project proposal – Technical description (Part B)

Version 1.0
20 September 2024



Structure of the Proposal

The proposal contains two parts:

- **Part A** of the proposal **is generated by the IT system. It is based on the information entered by the participants through the submission system in the Funding & Tenders Portal.** The participants can update the information in the submission system at any time before final submission.
- **Part B** of the proposal is the narrative part that includes three sections that each correspond to an evaluation criterion. Part B needs to be uploaded as a PDF document following the templates downloaded by the applicants in the submission system for the specific call or topic. The templates for a specific call may slightly differ from the example provided in this document.

The electronic submission system is an online wizard that guides you step-by-step through the preparation of your proposal. The submission process consists of 6 steps:

- Step 1: Logging in the Portal
- Step 2: Select the call, topic and type of action in the Portal
- Step 3: Create a draft proposal: Title, acronym, summary, main organisation and contact details
- Step 4: Manage your parties and contact details: add your partner organisations and contact details.
- Step 5: Edit and complete web forms for proposal part A and upload proposal part B
- Step 6: Submit the proposal

HISTORY OF CHANGES		
Version	Publication date	Changes
1.0	20/.09.2024	<ul style="list-style-type: none">• Initial version

Proposal template Part B: technical description


(for full proposals: single stage submission procedure and 2nd stage of a two-stage submission procedure)

This template is to be used in a single-stage submission procedure or at the 2nd stage of a two-stage submission procedure.

The structure of this template must be followed when preparing your proposal. It has been designed to ensure that the important aspects of your planned work are presented in a way that will enable the experts to make an effective assessment against the evaluation criteria. Sections 1, 2 and 3 each correspond to an evaluation criterion.

Please be aware that proposals will be evaluated as they were submitted, rather than on their potential if certain changes were to be made. This means that only proposals that successfully address all the required aspects will have a chance of being funded. There will be no possibility for significant changes to content, budget and consortium composition during grant preparation.

Please remove this instruction page before submitting. Remove also the table with the definition of terms and the help text added after each section.

 The following formatting conditions apply.

The reference font for the body text of proposals is Times New Roman (Windows platforms), Times/Times New Roman (Apple platforms) or Nimbus Roman No. 9 L (Linux distributions).

The use of a different font for the body text is not advised and is subject to the cumulative conditions that the font is legible and that its use does not significantly shorten the representation of the proposal in number of pages compared to using the reference font (for example with a view to bypass the page limit).

The minimum font size allowed is 11 points. Standard character spacing and a minimum of single line spacing is to be used. This applies to the body text, including text in tables.

Text elements other than the body text, such as headers, foot/end notes, captions, formula's, may deviate, but must be legible.

The page size is A4, and all margins (top, bottom, left, right) should be at least 15 mm (not including any footers or headers).

This document is tagged. Do not delete the tags; they are needed for our internal processing of information, mostly for statistical gathering. In that light, please do not move, delete, re-order, alter tags in any way, as they might create problems in our internal processing tools. Tags do not affect or influence the outcome of your application.

DEFINITIONS	
Critical risk	<p>A critical risk is a plausible event or issue that could have a high adverse impact on the ability of the project to achieve its objectives.</p> <p>Level of likelihood to occur (Low/medium/high): The likelihood is the estimated probability that the risk will materialise even after taking account of the mitigating measures put in place.</p> <p>Level of severity (Low/medium/high): The relative seriousness of the risk and the significance of its effect.</p>
Deliverable	A report that is sent to the Commission or Agency providing information to ensure effective monitoring of the project. There are different types of deliverables (e.g. a report on specific activities or results, data management plans, ethics or security requirements).
Impacts	<p>Wider long term effects on society (including the environment), the economy and science, enabled by the outcomes of R&I investments (long term). It refers to the specific contribution of the project to the work programme expected impacts described in the destination. Impacts generally occur some time after the end of the project.</p> <p>Example: <i>The deployment of the advanced forecasting system enables each airport to increase maximum passenger capacity by 15% and passenger average throughput by 10%, leading to a 28% reduction in infrastructure expansion costs.</i></p>
Milestone	Control points in the project that help to chart progress. Milestones may correspond to the achievement of a key result, allowing the next phase of the work to begin. They may also be needed at intermediary points so that, if problems have arisen, corrective measures can be taken. A milestone may be a critical decision point in the project where, for example, the consortium must decide which of several technologies to adopt for further development. The achievement of a milestone should be verifiable.
Objectives	The goals of the work performed within the project, in terms of its research and innovation content. This will be translated into the project's results. These may range from tackling specific research questions, demonstrating the feasibility of an innovation, sharing knowledge among stakeholders on specific issues. The nature of the objectives will depend on the type of action, and the scope of the topic.
Outcomes	<p>The expected effects, over the medium term, of projects supported under a given topic. The results of a project should contribute to these outcomes, fostered in particular by the dissemination and exploitation measures. This may include the uptake, diffusion, deployment, and/or use of the project's results by direct target groups. Outcomes generally occur during or shortly after the end of the project.</p> <p>Example: <i>9 European airports adopt the advanced forecasting system demonstrated during the project.</i></p>
Pathway to impact	Logical steps towards the achievement of the expected impacts of the project over time, in particular beyond the duration of a project. A pathway begins with the projects' results, to their dissemination, exploitation and communication, contributing to the expected outcomes in the work programme topic, and ultimately to the wider scientific, economic and societal impacts of the work programme destination.


Research output	Results generated by the action to which access can be given in the form of scientific publications, data or other engineered outcomes and processes such as software, algorithms, protocols and electronic notebooks.
Results	<p>What is generated during the project implementation. This may include, for example, know-how, innovative solutions, algorithms, proof of feasibility, new business models, policy recommendations, guidelines, prototypes, demonstrators, databases and datasets, trained researchers, new infrastructures, networks, etc. Most project results (inventions, scientific works, etc.) are 'Intellectual Property', which may, if appropriate, be protected by formal 'Intellectual Property Rights'.</p> <p>Example: <i>Successful large-scale demonstrator: trial with 3 airports of an advanced forecasting system for proactive airport passenger flow management.</i></p>
Technology Readiness Level	See Work Programme General Annexes B

Guidance on the use of generative AI tools for the preparation of the proposal


When considering the use of generative artificial intelligence (AI) tools for the preparation of the proposal, it is imperative to exercise caution and careful consideration. The AI-generated content should be thoroughly reviewed and validated by the applicants to ensure its appropriateness and accuracy, as well as its compliance with intellectual property regulations. Applicants are fully responsible for the content of the proposal (even those parts produced by the AI tool) and must be transparent in disclosing which AI tools were used and how they were utilized.

Specifically, applicants are required to:

- Verify the accuracy, validity, and appropriateness of the content and any citations generated by the AI tool and correct any errors or inconsistencies.
- Provide a list of sources used to generate content and citations, including those generated by the AI tool. Double-check citations to ensure they are accurate and properly referenced.
- Be conscious of the potential for plagiarism where the AI tool may have reproduced substantial text from other sources. Check the original sources to be sure you are not plagiarizing someone else's work.
- Acknowledge the limitations of the AI tool in the proposal preparation, including the potential for bias, errors, and gaps in knowledge.

 *Fill in the title of your proposal below.*

TITLE OF THE PROPOSAL

 *The consortium members are listed in part A of the proposal (application forms). A summary list should also be provided in the table below.*

[This document is tagged. Do not delete the tags; they are needed for processing.] #@APP-FORM-HEFPA@#

List of participants

Participant No. *	Participant organisation name	Country
1 (Coordinator)		
2		
3		

* Please use the same participant numbering and name as that used in the administrative proposal forms.

1. Excellence #@REL-EVA-RE@#***Excellence – aspects to be taken into account.***

- Clarity and pertinence of the project's objectives.

- *The following aspects will be taken into account only to the extent that the proposed work is within the scope of the work programme topic.*

1.1 Objectives and ambition #@PRJ-OBJ-PO@#

- Describe the context (including the target quantum technology, and to what extent your partnership builds on previous project results in the field) and analyse the needs which will be addressed by the partnership.
- Define the specific objectives of the partnership. What issue/challenge/gap does it aim to address? How does your partnership address the more general objectives and themes & priorities of the EU call/topic to which you are applying? What is the project's contribution? The objectives should be clear, measurable, realistic and achievable within the duration of the FPA. For each objective, define appropriate indicators for measuring achievement (including a unit of measurement, baseline value and target value).
 - In particular, describe which advanced manufacturing techniques and integration processes tailored to the needs of the quantum industry is targeting the partnership. Justify how these will result in significant improvements in production stability and yield rates, and how they will contribute to a more reliable supply chain for quantum chips in Europe.
- Outline the approach and methodology behind the partnership. Explain why they are the most suitable for achieving its objectives.
 - Specifically, provide a high-level roadmap for achieving a pilot line for quantum chips. This roadmap should illustrate how the partnership will enhance the infrastructure for high-yield production of quantum chips, integrating various technologies, as well as improving the maturity of the target technology.

#\$PRJ-OBJ-PO\$# #SREL-EVA-RE\$#

2. Impact #@IMP-ACT-IA@#***Impact – aspects to be taken into account.***

- Credibility of the action plan of the FPA to achieve the expected outcomes and impacts specified in the work programme.

The results of your project should make a contribution to the expected outcomes set out for the work programme topic over the medium term, and to the wider expected impacts set out in the 'destination' over the longer term.

2.1 Project's pathways towards impact

- Provide a **narrative** explaining how the partnership is expected to make a difference in terms of impact, beyond the immediate scope and duration of the project. The narrative should include the components below, tailored to your project.

(a) Describe the unique contribution the partnership would make towards (1) the **outcomes** specified in this topic, and (2) the **wider impacts**, in the longer term, specified in the respective destinations in the work programme.

- *Be specific, referring to the effects of the partnership, and not R&I in general in this field.*
- *State the target groups that would benefit. Even if target groups are mentioned in general terms in the work programme, you should be specific here, breaking target groups into particular interest groups or segments of society relevant to this project.*
- *The outcomes and impacts of the partnership may be:*
 - *Scientific, e.g. contributing to specific scientific advances, across and within disciplines, creating new knowledge, reinforcing scientific equipment and instruments, computing systems (i.e. research infrastructures);*
 - *Economic/technological, e.g. bringing new products, services, business processes to the market, increasing efficiency, decreasing costs, increasing profits, contributing to standards' setting, etc.*
 - *Societal, e.g. decreasing CO₂ emissions, decreasing avoidable mortality, improving policies and decision making, raising consumer awareness.*

Only include such outcomes and impacts where your project would make a significant and direct contribution. Avoid describing very tenuous links to wider impacts. However, include any potential negative environmental outcome or impact of the project including when expected results are brought at scale (such as at commercial level). Where relevant, explain how the potential harm can be managed.

(b) Give an indication of the scale and significance of the project's contribution to the expected outcomes and impacts, should the project be successful. Provide quantified estimates where possible and meaningful.

- *'Scale' refers to how widespread the outcomes and impacts are likely to be. For example, in terms of the size of the target group, or the proportion of that group, that should benefit over time; 'Significance' refers to the importance, or value, of those benefits. For example, number of additional healthy life years; efficiency savings in energy supply.*
- *Explain your baselines, benchmarks and assumptions used for those estimates. Wherever possible, quantify your estimation of the effects that you expect from your project. Explain assumptions that you make, referring for example to any relevant studies or statistics. Where appropriate, try to use only one methodology for calculating your estimates: not different methodologies for each partner, region or country (the extrapolation should preferably be prepared by one partner).*
- *Your estimate must relate to this project only - the effect of other initiatives should not be taken into account.*

(c) Describe the kind of actions the partnership plans to ensure a sustainable quantum pilot line open to European stakeholders, including SMEs and start-ups, across the whole value chain, from materials to applications, enabling technologies, and thereby creating a community of interest for those technologies. Additionally, specify the type of infrastructure that the pilot line will require, and outline the plans to obtain it, including options such as hiring, acquiring, outsourcing, etc.

(d) Describe any requirements and potential barriers - arising from factors beyond the scope and duration of the project - that may determine whether the desired outcomes and impacts are achieved. These may include, for example, other R&I work within and beyond Horizon Europe; regulatory environment; targeted markets; user behaviour. Indicate if these factors might evolve over time. Describe any mitigating measures you propose, within or beyond your project, that could be needed should your assumptions prove to be wrong, or to address identified barriers.

- *Note that this does not include the critical risks inherent to the management of the project itself, which should be described below under 'Implementation'.*

2.2 Measures to maximise impact #@COM-DIS-VIS-CDV@#

- Describe the planned measures to maximise the impact of your project by providing a first version of your 'plan for the dissemination and exploitation including communication activities'. Describe the dissemination, exploitation and communication measures that are planned, and the target group(s) addressed (e.g. scientific community, end users, financial actors, public at large).

Particularly, describe how your partnership intends to enhance collaboration and innovation within the European quantum ecosystem, fostering long-term growth and development in the sector.

- *Please remember that this plan is an admissibility condition, unless the work programme topic explicitly states otherwise. In case your proposal is selected for funding, a more detailed 'plan for dissemination and exploitation including communication activities' will need to be provided as a mandatory project deliverable within 6 months after signature date. This plan shall be periodically updated in alignment with the project's progress.*
- *Communication¹ measures should promote the project throughout the full lifespan of the project. The aim is to inform and reach out to society and show the activities performed, and the use and the benefits the project will have for citizens. Activities must be strategically planned, with clear objectives, start at the outset and continue through the lifetime of the project. The description of the communication activities needs to state the main messages as well as the tools and channels that will be used to reach out to each of the chosen target groups.*
- *All measures should be proportionate to the scale of the project, and should contain concrete actions to be implemented both during and after the end of the project, e.g. standardisation activities. Your plan should give due consideration to the possible follow-up of your project, once it is finished. In the justification, explain why each measure chosen is best suited to reach the target group addressed. Where relevant, and for innovation actions, in particular, describe the measures for a plausible path to commercialise the innovations.*
- *If exploitation is expected primarily in non-associated third countries, justify by explaining how that exploitation is still in the Union's interest.*
- *Describe possible feedback to policy measures generated by the project that will contribute to designing, monitoring, reviewing and rectifying (if necessary) existing policy and programmatic measures or shaping and supporting the implementation of new policy initiatives and decisions.*

##\$COM-DIS-VIS-CDV\$# ##\$IMP-ACT-IA\$#

¹ For further guidance on communicating EU research and innovation for project participants, please refer to the [Online Manual](#) on the Funding & Tenders Portal

3. Quality and efficiency of the implementation #@QUA-LIT-QL@# #@WRK-PLA-WP@#

Quality and efficiency of the implementation – aspects to be taken into account

- Capacity and role of each participant, and the extent to which the consortium as a whole brings together the necessary expertise.
- Potential for long-term cooperation among participants.

3.1 Capacity of participants and consortium as a whole

- Describe the individual members of the consortium and their role in the project.
- Describe the consortium and explain how they will work together to implement the action plan/implementation strategy. Include in the description affiliated entities and associated partners, if any. How will they bring together the necessary expertise? How do the members complement each other? In what way does each of the participants contribute to the action plan/implementation strategy? Show that each has a valid role and adequate resources to fulfil that role.
- Describe how the members complement one another (and cover the value chain, where appropriate)
- In what way does each of them contribute to the project? Show that each has a valid role, and adequate resources in the project to fulfil that role.
- Describe the industrial/commercial involvement of partners in the partnership to ensure exploitation of the results and explain why this is consistent with and will help to achieve the specific measures which are proposed for exploitation of the results of the project (see section 2.2). Specifically, elaborate on how this industrial/commercial involvement will demonstrate the ability to transition from pilot production to industrial-scale manufacturing, ensuring the commercial viability of new quantum technologies.

3.2 Potential for long-term cooperation #@CON-SOR-CS@# #@PRJ-MGT-PM@#

- Describe how the members of the consortium will establish a long-term cooperation.

#§CON-SOR-CS\$# #§PRJ-MGT-PM\$#