**Scientific Methodologies for Advanced Research in Teaching**

**List of participants (1 page)**

|  |  |  |
| --- | --- | --- |
| **Participant No.** | **Participant organisation name** | **Country** |
| **1**  **(Coordinator)** |  |  |
| **2** |  |  |
| **3** |  |  |
| **4** |  |  |
| **5** |  |  |
| **6** |  |  |

**Page limit: 30 pages**

**1. Excellence** #@REL-EVA-RE@#

**1.1. Objectives** #@PRJ-OBJ-PO@#

[e.g. 1 page]

*Briefly describe the objectives of your proposed work.*

* *Why are they pertinent to the work programme topic?*
* *Are they measurable and verifiable?*
* *Are they realistically achievable?*

**1.2. Coordination and/or support measures and methodology** #@CON-MET-CM@# #@COM-PLE-CP@#

[e.g. 6 pages]

**1.2.1 Overall methodology and concepts**

*Describe the overall methodology, including the concepts, models and assumptions that underpin your work. Explain how this will enable you to deliver your project’s objectives. Refer to any challenges you may have identified in the chosen methodology and how you intend to overcome them.*

*If you plan to use, develop and/or deploy artificial intelligence (AI) based systems and/or techniques you must demonstrate their technical robustness. AI-based systems or techniques should be, or be developed to become:*

*• technically robust, accurate and reproducible, and able to deal with and inform about possible failures, inaccuracies and errors, proportionate to the assessed risk they pose*

*• socially robust, in that they duly consider the context and environment in which they operate*

*• reliable and function as intended, minimizing unintentional and unexpected harm, preventing unacceptable harm and safeguarding the physical and mental integrity of humans*

*• able to provide a suitable explanation of their decision-making processes, whenever they can have a significant impact on people’s lives.*

**1.2.2 Coordination and support measures**

*Describe and explain the coordination and/or support measures. Explain how this will enable you to deliver your project’s objectives.*

**1.2.3 Open Science Practices**

*Describe how appropriate open science practices are implemented as an integral part of the proposed methodology. Show how the choice of practices and their implementation are adapted to the nature of your work, in a way that will increase the chances of the project delivering on its objectives [e.g. 1 page, including research data management]. If you believe that none of these practices are appropriate for your project, please provide a justification here.*

*Open science is an approach based on open cooperative work and systematic sharing of knowledge and tools as early and widely as possible in the process. Open science practices include early and open sharing of research (for example through preregistration, registered reports, pre-prints, or crowd-sourcing); research output management; measures to ensure reproducibility of research outputs; providing open access to research outputs (such as publications, data, software, models, algorithms, and workflows); participation in open peer-review; and involving all relevant knowledge actors including citizens, civil society and end users in the co-creation of R&I agendas and contents (such as citizen science).*

*Please note that this question does not refer to outreach actions that may be planned as part of communication, dissemination and exploitation activities. These aspects should instead be described below under ‘Impact’*

**1.2.4 Research data management and management of other research outputs**

*Research data management and management of other research outputs: Applicants generating/collecting data and/or other research outputs (except for publications) during the project must provide maximum 1/2 page on how the data/research outputs will be managed in line with the FAIR principles (Findable, Accessible, Interoperable, Reusable.*

**2. Impact** #@IMP-ACT-IA@#

**2.1. Project’s pathways towards impact**

[e.g. 4 pages]

*Provide a narrative explaining how the project’s results are 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.*

1. *Describe the unique contribution your project results 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 your project, 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.*

**2.1.1 Scientific Impact**

*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);*

**2.1.2 Economic/technological impact**

*e.g. bringing new products, services, business processes to the market, increasing efficiency, decreasing costs, increasing profits, contributing to standards’ setting, etc.*

**2.1.3 Societal Impact**

*e.g. decreasing CO2 emissions, decreasing avoidable mortality, improving policies and decision making, raising consumer awareness.*

**2.1.4 Scale and significance**

* 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.*

**2.1.5 Requirements and potential barriers**

* 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 – Dissemination, exploitation and communication** #@COM-DIS-VIS-CDV@#

[e.g. 5 pages, incl. section 2.3]

**2.2.1 Dissemination, exploitation and communication**

* 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).

*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.*

*Communication*[[1]](#footnote-1) *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.*

**2.2.2 IPR management**

Outline your strategy for the management of intellectual property, foreseen protection measures, such as patents, design rights, copyright, trade secrets, etc., and how these would be used to support exploitation.

*If your project is selected, you will need an appropriate consortium agreement to manage (amongst other things) the ownership and access to key knowledge (IPR, research data etc.). Where relevant, these will allow you, collectively and individually, to pursue market opportunities arising from the project.*

*If your project is selected, you must indicate the owner(s) of the results (results ownership list) in the final periodic report.*

#§COM-DIS-VIS-CDV§#

**2.3. Summary**

Provide a summary of this section by presenting in the canvas below the key elements of your project impact pathway and of the measures to maximise its impact.

**KEY ELEMENT OF THE IMPACT SECTION**

|  |  |  |
| --- | --- | --- |
| **SPECIFIC NEEDS** | **EXPECTED RESULTS** | **D & E & C MEASURES** |
| *What are the specific needs that triggered this project?*  **Example 1**  Most airports use process flow-oriented models based on static mathematical values limiting the optimal management of passenger flow and hampering the accurate use of the available resources to the actual demand of passengers.  **Example 2**  Electronic components need to get smaller and lighter to match the expectations of the end-users. At the same time there is a problem of sourcing of raw materials that has an environmental impact. | *What do you expect to generate by the end of the project?*  **Example 1**  Successful large-scale demonstrator: Trial with 3 airports of an advanced forecasting system for proactive airport passenger flow management.  Algorithmic model:  Novel algorithmic model for proactive airport passenger flow management.  **Example 2**  Publication of a scientific discovery on transparent electronics.  New product: More sustainable electronic circuits.  Three PhD students trained. | *What dissemination, exploitation and communication measures will you apply to the results?*  **Example 1**  Exploitation: Patenting the algorithmic model.  Dissemination: Scientific publications, large scale demonstration  Communication towards citizens: An event in a shopping mall to show how the outcomes of the action are relevant to our everyday lives.  **Example 2**  Exploitation of the new product: Patenting the new product;  Licencing to major electronic companies.  Dissemination towards the scientific community and industry:  Participating at conferences; Developing a platform of material compositions for industry; Participation at EC project portfolios to disseminate the results |
| **TARGET GROUPS** | **OUTCOMES** | **IMPACTS** |
| *Who will use or further up-take the results of the project? Who will benefit from the results of the project?*  **Example 1**  9 European airports:  Schiphol, Brussels airport, etc.  The European Union aviation safety agency.  Air passengers (indirect).  **Example 2**  End-users: consumers of electronic devices.  Major electronic companies: Samsung, Apple, etc.  Scientific community | *What change do you expect to see after successful dissemination and exploitation of project results to the target group(s)?*  **Example 1**  Up-take by airports: 9 European airports adopt the advanced forecasting system demonstrated during the project.  **Example 2**  High use of the scientific discovery published (measured with the relative rate of citation index of project publications).  A major electronic company (Samsung or Apple) exploits/uses the new product in their manufacturing. | *What are the expected wider scientific, economic and societal effects of the project contributing to the expected impacts outlined in the respective destination in the work programme?*  **Example 1**  Scientific: New breakthrough scientific discovery on passenger forecast modelling.  Economic: Increased airport efficiency  Size: 15% increase of maximum passenger capacity in European airports, leading to a 28% reduction in infrastructure expansion costs.  **Example 2**  Scientific: New breakthrough scientific discovery on transparent electronics.  Economic/Technological: A new market for touch enabled electronic devices.  Societal: Lower climate impact of electronics manufacturing (including through material sourcing and waste management). |

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

**3.1. Work plan and resources**

[e.g. 10 pages – including tables]

*Please provide the following:*

*• brief presentation of the overall structure of the work plan;*

*• timing of the different work packages and their components (Gantt chart or similar);*

*• graphical presentation of the components showing how they inter-relate (Pert chart or similar).*

*• detailed work description, i.e.:*

* *a list of work packages (table 3.1a);*
* *a description of each work package (table 3.1b);*
* *a list of deliverables (table 3.1c);*
  + *Give full details. Base your account on the logical structure of the project and the stages in which it is to be carried out. The number of work packages should be proportionate to the scale and complexity of the project.*
  + *You should give enough detail in each work package to justify the proposed resources to be allocated and also quantified information so that progress can be monitored, including by the Commission.*
  + *Resources assigned to work packages should be in line with their objectives and deliverables. You are advised to include a distinct work package on ‘project management’, and to give due visibility in the work plan to ‘data management’ ‘dissemination and exploitation’ and ‘communication activities’, either with distinct tasks or distinct work packages.*
  + *You will be required to update the ‘plan for the dissemination and exploitation of results including communication activities’, and a ‘data management plan’, (this does not apply to topics where a plan was not required.) This should include a record of activities related to dissemination and exploitation that have been undertaken and those still planned.*
  + *Please make sure the information in this section matches the costs as stated in the budget table in section 3 of the application forms, and the number of person months, shown in the detailed work package descriptions.*
* *a list of milestones (table 3.1d);*
* *a list of critical risks, relating to project implementation, that the stated project's objectives may not be achieved. Detail any risk mitigation measures. You will be able to update the list of critical risks and mitigation measures as the project progresses (table 3.1e);*
* *a table showing number of person months required (table 3.1f);*
* *a table showing description and justification of subcontracting costs for each participant (table 3.1g)*
* *a table showing justifications for ‘purchase costs’ (table 3.1h) for participants where those costs exceed 15% of the personnel costs (according to the budget table in proposal part A);*
* *if applicable, a table showing justifications for ‘other costs categories’ (table 3.1i).*
* *if applicable, a table showing in-kind contributions from third parties (table 3.1j)*
* *a table showing details about the research component in the project (table 3.1k)*

**Table 3.1a – List of work packages**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **WP No** | **WP Title** | **Lead Participant No** | **Lead Participant Short Name** | **Person Months** | **Start Month** | **End Month** |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

***PERT chart***

**Table 3.1b – Work package description**

|  |  |
| --- | --- |
| **Work Package number** | **1** |
| **Work Package title** |  |
| **Objectives:** | |
| **T1.1 – Task title [Task duration] (Lead beneficiary**, Contributing beneficiaries**)** | |
| Task description | |
| **T1.2 - Task title [Task duration] (Lead beneficiary**, Contributing beneficiaries**)** | |
| Task description | |

### Repeat as needed

***Gantt chart***

**Table 3.1c: List of Deliverables**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **No** | **Deliverable Name** | **Short Description** | **WP No** | **Short Name of Lead Participant** | **Type** | **Dissemination Level** | **Delivery Date**  **(In Months)** |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
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*Type:*

*Use one of the following codes:*

*R: Document, report (excluding the periodic and final reports)*

*DEM: Demonstrator, pilot, prototype, plan designs*

*DEC: Websites, patents filing, press & media actions, videos, etc.*

*DATA: Data sets, microdata, etc.*

*DMP: Data management plan*

*ETHICS: Deliverables related to ethics issues.*

*SECURITY: Deliverables related to security issues*

*OTHER: Software, technical diagram, algorithms, models, etc.*

*Dissemination level:*

*Use one of the following codes:*

*PU – Public, fully open, e.g. web (Deliverables flagged as public will be automatically published in CORDIS project’s page)*

*SEN – Sensitive, limited under the conditions of the Grant Agreement*

*Classified R-UE/EU-R – EU RESTRICTED under the Commission Decision No2015/444*

*Classified C-UE/EU-C – EU CONFIDENTIAL under the Commission Decision No2015/444*

*Classified S-UE/EU-S – EU SECRET under the Commission Decision No2015/444*

**Table 3.1d: List of milestones**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Milestone**  **number** | **Milestone**  **Name** | **Related WP(s)** | **Due date**  **(in month)** | **Means of Verification** |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

***Means of verification***

*Show how you will confirm that the milestone has been attained. Refer to indicators if appropriate. For example: a laboratory prototype that is ‘up and running’; software released and validated by a user group; field survey complete and data quality validated*

**Table 3.1e: Critical risks for implementation** #@RSK-MGT-RM@#

|  |  |  |
| --- | --- | --- |
| **Description of risk (indicate level of (i) likelihood, and (ii) severity: Low/Medium/High)** | **WP(s) involved** | **Proposed risk-mitigation measures** |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

#§RSK-MGT-RM§#

**Table 3.1f: Summary of staff effort**

*Please indicate the number of person/months over the whole duration of the planned work, for each work package, for each participant. Identify the work-package leader for each WP by showing the relevant person-month figure in bold.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **WPn** | **WPn+1** | **WPn+2** | **Total Person-**  **Months per Participant** |
| **Participant Number/Short Name** |  |  |  |  |
| **Participant**  **Number/**  **Short Name** |  |  |  |  |
| **Participant**  **Number/**  **Short Name** |  |  |  |  |
| **Total Person**  **Months** |  |  |  |  |

**Table 3.1g: ‘Subcontracting costs’ items**

*For each participant describe and justify the tasks to be subcontracted (please note that core tasks of the project should not be sub-contracted).*

|  |  |  |
| --- | --- | --- |
| **Participant Number/Short Name** | | |
|  | **Cost (€)** | **Description of tasks and justification** |
| **Subcontracting** |  |  |

**Table 3.1h: ‘Purchase costs’ items (travel and subsistence, equipment and other goods, works and services)**

*Please complete the table below for each participant if the purchase costs (i.e. the sum of the costs for ’travel and subsistence’, ‘equipment’, and ‘other goods, works and services’) exceeds 15% of the personnel costs for that participant (according to the budget table in proposal part A). The record must list cost items in order of costs and starting with the largest cost item, up to the level that the remaining costs are below 15% of personnel costs***.**

|  |  |  |
| --- | --- | --- |
| **Participant Number/Short Name** | | |
|  | **Cost (€)** | **Justification** |
| **Travel and subsistence** |  |  |
| **Equipment** |  |  |
| **Other goods, works and services** |  |  |
| **Remaining purchase costs (<15% of pers. Costs)** |  |  |
| **Total** |  |  |

**Table 3.1i: ‘Other costs categories’ items (e.g. internally invoiced goods and services)**

*Please complete the table below for each participant that would like to declare costs under other costs categories (e.g. internally invoiced goods and services), irrespective of the percentage of personnel costs.*

|  |  |  |
| --- | --- | --- |
| **Participant Number/Short Name** | | |
|  | **Cost (€)** | **Justification** |
| **Internally invoiced goods and services** |  |  |
| **…** |  |  |

**Table 3.1j: ‘In-kind contributions’ provided by third parties**

*Please complete the table below for each participant that will make use of in-kind contributions (non-financial resources made available free of charge by third parties). In kind contributions provided by third parties free of charge are declared by the participants as eligible direct costs in the corresponding cost category (e.g. personnel costs or purchase costs for equipment).*

|  |  |  |  |
| --- | --- | --- | --- |
| **Participant Number/Short Name** | | | |
| **Third party name** | **Category** | **Cost (€)** | **Justification** |
|  | **Select between**  Seconded personnel  Travel and subsistence  Equipment  Other goods, works and services  Internally invoiced goods and services |  |  |
|  |  |  |  |

#§QUA-LIT-QL§# #§WRK-PLA-WP§#

**3.2. Capacity of participants and consortium as a whole** #@CON-SOR-CS@# #@PRJ-MGT-PM@#

[e.g. 3 pages]

**3.2.1 Consortium description and complementarity**

*The individual participants of the consortium are described in a separate section under Part A. There is no need to repeat that information here.*

* Describe the consortium. How does it match the project’s objectives, and bring together the necessary disciplinary and inter-disciplinary knowledge? Show how this includes expertise in social sciences and humanities, open science practices, and gender aspects of R&I, as appropriate. Include in the description affiliated entities and associated partners, if any.
* Show how the partners will have access to critical infrastructure needed to carry out the project activities.
* 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.
* If applicable, describe the industrial/commercial involvement in the project 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).

**3.2.2 Other countries and international organisations**

* Note that for CSAs in Horizon Europe, except when explicitly allowed in the topic, any entity from a non-associated third country and International Organisations (other than International European ResearchOrganisations) can only participate as Associated Partners. There is no difference between entitiesestablished in low/middle income countries and developed countries.

If your topic does not include any specific condition related to non-associated third countries, you do not need to include any information on ‘Other countries and international organisations in this section of the proposal.

If your topic includes a specific condition related to non-associated third countries, note that legal entities established in those countries are only able to participate as beneficiaries or affiliated entities if eligible for funding:

•because they are from a low/middle income country identified in the Work ProgrammeGeneral Annexes B as automatically eligible for funding;

•because the call conditions explicitly provide for it;

•because the participation of the legal entity concerned is deemed essential for implementingthe action.

Only in the latter case, explain in this section of the proposal why the participation of the entity in question is essential to successfully carry out the project.

1. [↑](#footnote-ref-1)