Annex 7

MASTER 1st Open Call

March 2024

*Submission of applications starts on 18th of March 2024, at 09:00 (CET)*

*Submission deadline: 31st of May 2024, at 17:00 (CET)*

# Disclaimer

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# Annex 7: Application Form

Text in red represents comments and should be deleted in your submission. Page limits refer to this
text style in word: Calibri 11 pt font, Line spacing 1.15 lines, 6pt after, A4 page
size and normal margins. Figures, schemes and photos are encouraged to be provided to make clearer the aim of the proposal, as long as they do not exceed the maximum length indicated in each section.

# Cover Page

Please include here information regarding proposing consortium:

* The name of the proposal
* Acronym
* The name, email address and the organization of the coordinator (he/she will be the main contact person)
* Name and organization of each member

**PROPOSAL ACRONYM**

**Proposal Name**

This proposal addresses the following challenge: (please select only one challenge. The challenge definition can be found in Annex 4)

| **Area** | **Field** | **Challenge** | **Selection** |
| --- | --- | --- | --- |
| Safety and ergonomy in workplace | Integrating machine learning methods to XR tools towards accurate layout planning and validation | TC – 1 |  |
| XR-based environment for ergonomics training methods to evaluate and best-practices suggestion | TC – 2 |  |
| Real-time visualization of safety-related information in XR environment to increase operators’ safety awareness | TC – 3 |  |
| Open challenge related to improved working conditions in the workplace | TC – 4 |  |
| Intuitive robot programming | XR-based system to program on demand tasks to stationary robots | TC – 5 |  |
| XR-based programming of mobile robots for intralogistics operations | TC – 6 |  |
| Intuitive XR-based robot programming for assembly and packaging tasks | TC – 7 |  |
| Any challenge related to Intuitive robot programming of manufacturing operations | TC – 8 |  |
| User-friendly HRI methods | Interaction systems in multi-player virtual environments | TC – 9 |  |
| Advanced multi-modal (i.e. voice, gesture, gaze) interaction system | TC – 10 |  |
| Interactive system to unlock accessibility capabilities in the XR environment | TC – 11 |  |
| Open challenge related to user-friendly HRI methods in the workplace | TC – 12 |  |

## Application Coordinator

|  |  |
| --- | --- |
| **Name** |  |
| **Organization** |  |
| **Phone Number** |  |
| **E-Mail** |  |

## Participants

(1 table for each organization, including that of coordinator)

|  |  |
| --- | --- |
| **Organization** |  |
| **Key person** |  |
| **Address** |  | **City** |  |
| **ZIP Code** |  | **Country** |  |
| **Phone Number** |  |
| **E-Mail** |  |
| **Website** |  |
| **PIC** *(1)* |  | **Role**  |  |

*(1) Participant Identification Code (PIC) is a 9-digit code you need for participating in European projects. If you already have one, please insert the code. If you don’t have one yet, please insert create* [*here*](https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/how-to-participate/participant-register)*.*

## Abstract (limit: 1/3 page)

Please insert a short summary of your proposal here. This summary should be a “Mission of Statement” rather than a scientific/technical abstract. The mission includes a statement on the developed technology indicating how you address the given challenge, the step beyond the state of the art, the starting point and the impact.

# Scientific / Technological Excellence (limit: 3 pages)

Your proposal should address one of the challenges defined by the MASTER Project as described in Annex 4 and it should propose novel XR technologies to enable teachers create education material on manufacturing robotics. Your work must have the potential to produce/deliver tangible results at the end of each stage:

* Stage I: Development of the proposed solution
* Stage II: Integration to MASTER-XR platform
* Stage III: Technical validation

You should describe the technical approaches in detail and justify the technical feasibility describing the duration of the different stages, taking the selected challenge into consideration.

## Progress beyond the current state of the art

You should describe the starting point of your technological development and in which content you advance the state-of-the-art technology addressing the given challenge. You should detail the hardware and the software components, sub-systems, frameworks, middleware etc. that you will use and explain in which parts you will integrate them to your development.

Please indicate the added value in terms of technology/research that you will develop. Also, outline the currently available linked activities on that field with the name of the project, the name of the institute, and the outputs from these you use in your technology. Please be concrete by giving examples, by referencing authoritative publications, studies, etc. Outline which aspects have prevented a change of the situation up to now and why you are now able to do it.

What will be possible after the completion of your technology that is not possible now? Describe the positioning of the technology. One way to describe the progress is to use Technological Readiness Levels (TRLs), as described by EC ([link](https://ec.europa.eu/research/participants/data/ref/h2020/wp/2014_2015/annexes/h2020-wp1415-annex-g-trl_en.pdf)).

Why and in which way do these approaches solve the problem and how do you overcome the obstacles that have prevented a problem-solution so far? What are the technologies which are available on the market? Which are the advantages of the technologies you will upgrade in your approach compared to the others? What is your advantage over these competing technologies and what benefits you can get from them? Outline which alternative approaches to tackling the challenge would be possible and explain why you decide to pursue your approach.

# Impact (limit: 2 pages)

## Expected results

Please describe the impact generated by your results (e.g. long-term effects on the robotics community, the market structure, and economic prospects). The impact should be realistic, transparent and measurable. Please individually explain the scientific impact, technological impact and the economic impact you expect. Please state the indicators by which you would like the impact to be measured. Indicators are for example the creation of new products, revenue, competitive edge, the creation of new jobs. Measures should address the full range of potential users and uses, including research, commercial, social, environmental, contribution to standards etc. Additionally, you can refer to “networking”: joint industry-academia publications, new collaborations, the impact of the scientific work of the research done in other institutions, sectors or disciplines etc.

Moreover, you should clearly identify the partner within the consortium who will commercialize the product, illustrate how you will ensure that there is a strong commitment to further develop and commercialize the technology. Please outline the time to commercialization. Also, indicate the scalability of your technology addressing the potential of future / wider challenges in the area. Please include a business plan and reveal your calculation on “Return on Investment”: Only proposals with a binding commitment on exploitation are eligible. Please also explain the target price of your technology to the end user, the way how you calculate this price and the reasons why you think this price level in order to be successful with the commercialization of the technology.

## Exploitation plan of project results

Describe all possible exploitations of the outcome, highlighting any know-how and technology transfer between academia and industry e.g. new product generation, founding new companies, patent application etc.

## Dissemination plan of technology development results

Both the scientific community and the possible end-users or producers of the technology have to be clearly stated. The dissemination plan should describe measures and target audiences, e.g. presence at trade shows and/or conferences, association meetings, workshops, creation of multi-media material, scientific papers, articles in industrial magazines, etc. Don’t forget to mention the creation of a public video showing the final development of the application as well as of a private video that will be used internally for the MASTER’s project evaluation purposes, that may contain more details, even confidential information, not visible in the public one.

# Implementation (limit: 5 pages)

## Workplan

Please provide the detailed description of the scientific and technological approach and/or methodology to follow your objectives. Describe the milestones and decision points for your technology development and explain processes you will follow to reach them. While explaining them please make sure that you have concrete results at the end of each stage. Describe the outcome of each stage in a clear and measurable way and explain them.

Describe the overall work plan as follows:

1. Provide a work description in the following states
2. Task list (use the table in Section 1.3.1);
3. Description of individual tasks (use the table in Section 1.3.2);
4. List of deliverables (use the Table in Section 1.3.3);
5. List of milestones (use the Table in Section 1.3.4)
6. Show the timing of the different tasks and their components (Gantt chart)
7. Please provide a detailed plan covering all the three stages of MASTER.
8. Describe any significant risks and associated contingency plans.

### Task list

Please provide tasks which explain the complexity of the work and the overall value of the proposed technology. The plan should be detailed for each phase and the role of each partner (in case there is more than one partner) should be clearly stated. Milestones should be sufficiently precise to allow progress monitoring. Please remember to include a task for the execution of the demonstrator and as deliverables the provision of material upon which the demonstrator will be evaluated. Also, you must include deliverables for the dissemination of the solution based on its maturity, such as presentations and videos.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Task No | Task Title  | Lead Participant | Start month | End month |
| **T1** |  |  |  |  |
| **T2** |  |  |  |  |
| **T3** |  |  |  |  |
| **T4** |  |  |  |  |

(Please add another row if you have more tasks)

### Description of individual tasks

|  |
| --- |
| **Task 1:** [name and timing information, from month to month] |
| **Participant** | **Role:** | **Person- month** |
|  |  |  |
|  |  |  |
| **Objectives:** |
| **Description of work and contribution of individual participants:** |

|  |
| --- |
| **Task 2:** [name and timing information, from month to month] |
| **Participant** | **Role:** | **Person- month** |
|  |  |  |
|  |  |  |
| **Objectives:** |
| **Description of work and contribution of individual participants:** |

(Please add tables for each task that you want to describe)

### List of deliverables

Please explain the deliverables that you will get at the end of each phase. This allows your mentor to concur together with you whether your application is on track and take corrective actions if necessary. During the duration of the experiment, the applicants are expected to produce multimedia material (video and pictures) showing their progress. Please keep the following table, updating only the information in red font. The black text is mandatory.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Deliverable No | Deliverable Name | Tasks No | Dissemination level**[[1]](#footnote-1)** | Delivery date**[[2]](#footnote-2)** |
| D1 | Publishable summary with figure | XX | PU | M1 |
| D2 | Short Teaser Video | XX | PU | M1 |
| D3 | *(Deliverable for the end of Stage I)* | XX | XX | M5 |
| D4 | *(Deliverable for the end of Stage II)* | XX | XX | M7 |
| D5 | *(Deliverable for the end of Stage III)* | XX | XX | M9 |
| D6 | Individual Video | XX | PU | M9 |
| D7 | Product Picture(s) | XX | PU | M9 |

Just for your information, the following deliverables for communication and dissemination activities around the MASTER project have been included in the above table. Feel free also to use the material for your own PR activities.

|  |  |  |
| --- | --- | --- |
| Time of Delivery | Type of Deliverable | Details |
| Beginning of the application | Publishable summary with figure | A short-written text about the experiment / the demonstrator (200-300 words) and picture showing the prototype or a first sketch about it. Picture must be in high resolution, at the minimum 300 dpi to be able to be printed. |
| Short Teaser Video | 30-60 seconds of film footage with public material, showing the first idea of the application |
| End of the application | Individual video | Video of around 5 minutes showing and explaining in detail the technological standard, the features and characteristics of the applications and the concrete solution ideas for the given challenge. |
| Product Picture(s) | A more mature picture of the final applications. At least one picture of the demonstrator as a whole, preferably also pictures of details. All pictures need to be in high resolution of at least 300 dpi and ready to be printed. |

### List of milestones

Milestones are control points where the decisions are needed with regard to the next stage of the application. A milestone should be defined when a major result has been achieved.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Milestone No | Milestone Name | Tasks involved | Expected date | Means of verification |
| M1 | Development of the proposed solution  |  | M5 |  |
| M2 | Integration to MASTER-XR platform |  | M7 |  |
| M3 | Technical validation |  | M9 |  |

### Technological Risks

Please explain the risks of the technology development and your plan to address these risks. Please make sure that you have identified all crucial risks (technical, commercial and others) and indicate how these will be addressed and overcome effectively. Indicate the potential obstacle to commercialization and explain how you address them. The risk assessment should be geared to the two phases (proof of concept and industrial leadership and business support).

## Consortium as a whole

For each participant in the proposed technology, provide a short description of their organization and their specific role in the project, the main tasks attributed to them, and their previous experience relevant to those tasks. Provide a short profile of the staff members who will be undertaking the work and their commitment expressed as a percentage of the full-time equivalent.

## Overall experiment resources – costs

Please detail the budget that you need, describe the travel expenses and other major cost items. Declare costs for travel, including joint events such as workshops, and for dissemination and exploitation events during the runtime of the experiment, for the creation of a multimedia report.

***Example***

*The team partners are committed to mobilise the resources needed to guarantee the achievement of the results. The total budget is of xxx.xxx,xx €. The total requested funding is of xxx.xxx,xx €.*

*Breakdown of costs:*

* *Personnel: The involvement of the x participants in the xx months will amount to xxx.xxx,xx €*
* *Travel expenses: Attendance to periodical technical meetings and the presence at the XX event will amount to xxx.xxx,xx €*
* *Other direct costs: they will amount to xxx.xxx,xx € (provide a brief description)*

*In the following table a detailed cost breakdown takes place (please add more columns if more than 4 organizations compose the consortium).*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Cost category** | **Costs for Partner 1 (insert partner acronym)** | **Costs for Partner 2 (insert partner acronym)** | **Costs for Partner 3 (insert partner acronym)** | **Costs for Partner 4 (insert partner acronym)** | **Total Costs per category** |
| Personnel costs (€) |  |  |  |  |  |
| Travel (€) |  |  |  |  |  |
| Other direct costs (€) *(1)* |  |  |  |  |  |
| Indirect costs (€) *(2)* |  |  |  |  |  |
| Total eligible costs (€) *(3)* |  |  |  |  |  |
| Requested funding (€) |  |  |  |  |  |

1. *Only the eligible part of the equipment full cost (without taxes) for the project's duration can be considered; this may depend on local or national rules on depreciation.*
2. *To be computed, on the basis of the flat rate of 25%, of actual direct costs.*
3. *Sum of the first 4 rows.*

# Intellectual Property and Ethical Issues (limit: 1 page)

Please explain your plans addressing IP (e.g. patent) issues to protect the technology rights. As exploitation/commercialization is the clear goal of the Open Call application, it is of utmost importance that you illustrate how you want to handle this issue within the consortium. Hinting to the sub-Grant Agreement to be signed after the acceptance of the proposal is NOT enough at this point. Please explain your plan to address Ethical Issues and certification process. Finally, please state that there is no active engagement with the MASTER consortium partners.

# Appendix (limit: 2 Pages)

Partners profiles and previous experience to back up the appropriateness of the partners.

1. Please indicate the dissemination level using the following codes: PU: Public, PP=Restricted to other program participants (including Commission Services), RE=Restricted to a specified group by the consortium (including the Commission Services), CO: Confidential, only for members of the consortium (including the Commission Services). [↑](#footnote-ref-1)
2. Measured in months from the Project start date (M1) [↑](#footnote-ref-2)