**Proposal Template**

For the First Open Call for ESMERA Experiments

|  |  |
| --- | --- |
| Project acronym:  | ESMERA |
| Project grant agreement: | No: 780265 |
| Project full name: | European SMEs Robotics Applications |
| Project web address: | <http://esmera-project.eu>  |
| Call title: | The Second Open Call for ESMERA Experiments |
| Call identifier:  | ESMERA - SOCE |
| Full call information: | <http://esmera-project.eu/Open-Calls>  |
| Call publication date: | 02.09.2019 |
| Proposal submission deadline:  | 02.12.2019, at 18.00 (Brussel’s time) |
| Proposal submission web address: | http://opencalls.esmera-project.eu |
| Expected duration: | 9 months for experiments in Phase 1 (max 18 months for experiments advancing to Phase 2) |
| Total budget: | €2,750,000 (maximum 20 experiments for the Phase 1 and maximum 10 experiments for the Phase 2). Maximum funding per proposal: €200,000 (€75,000 for the Phase 1, €125,000 for the Phase 2, including 25% indirect costs) |
| More information: | opencalls@esmera-project.eu  |

Text in blue represents comments and should be deleted in your submission. Page limits refer to this
text style in word: Times New Roman 11 pt font, Line spacing 1.15 lines, 6pt after, Standard A4 page
size and margins

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 (she/he will be the contact person)
* Name and organization of each member

**PROPOSAL ACRONYM**

**Proposal Name**

This proposal addresses the following challenge: (please select the field and the challenge number. The challenge definition of each challenge and their challenge IDs can be found in <http://www.esmera-project.eu/challenges> )

|  |  |  |  |
| --- | --- | --- | --- |
| **Area** | **Challenge** | **Problem ID** | **Selection (****)** |
| Agriculture | Agriculture Challenge 1 | A1.A1 |  🞏 |
| A1.A2 |  🞏 |
| A1.B |  🞏 |
| Construction | Construction Challenge 1 | C1.A1 |  🞏 |
| C1.A2 |  🞏 |
| C1.A3 |  🞏 |
| C1.B |  🞏 |
| Construction Challenge 2 | C2.A1 |  🞏 |
| C2.B |  🞏 |
| Energy | Energy Challenge 1 | E1.A1 |  |
| E1.A2 |  |
| E1.A3 |  |
| E1.B |  |
| Energy Challenge 2 | E2.A1 |  |
| E2.B |  |
| Emergency Response | Emergency Response 1 | ER1.A |  |
| ER1.B |  |
| Emergency Response 2 | ER2.A |  |
| ER2.B |  |
| Emergency Response 3 | ER3.A |  |
| ER3.B |  |
| Food Processing | Food Processing Challenge 1 | FP1.A1 |  |
| FP1.A2 |  |
| FP1.A3 |  |
| FP1.B |  |
| Food Processing Challenge 2 | FP2.A1 |  |
| FP2.B |  |
| Healthcare | Healthcare 1 | H1.A1 |  |
| H1.A2 |  |
| H1.B |  |
| Healthcare 2 | H2.B |  |
| Healthcare 3 | H3.B |  |
| Manufacturing | Manufacturing Challenge 1 | M1.A1 |  |
| M1.A2 |  |
| M1.A3 |  |
| M1.A4 |  |
| M1.B |  |
| Manufacturing Challenge 2 | M2.A1 |  |
| M2.A2 |  |
| M2.B |  |
| Manufacturing Challenge 3 | M3.A1 |  |
| M3.A2 |  |
| M3.A3 |  |
| M3.A4 |  |
| M3.A5 |  |
| M3.B |  |
| Manufacturing Challenge 4 | M4.A1 |  |
| M4.A2 |  |
| M4.B |  |
| Manufacturing Challenge 5 | M5.A1 |  |
| M5.B |  |
| Retail | Retail 1 | R1.A |  |
| R1.B |  |

**Experiment Coordinator**

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

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

|  |  |
| --- | --- |
| **Organization name** |  |
| **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 have not yet please insert “not available”.*

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**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 (can also be “system integration”), the starting point and the impact.

# Scientific/ Technological Excellence (limit: 4 pages)

Your proposal should address one of the challenges defined by the ESMERA Project (see <http://www.esmera-project.eu/challenges>/) and it should propose novel robotic technologies to solve it. Your work must have the potential to produce/deliver tangible results: at the end of each phase (Phase I: proof of concept and Phase II: industrial leadership and business support). Make sure that there is a robust demonstration at the end of each phase. You should describe the technical approaches in detail and justify the technical feasibility describing the duration of the different phases as taking the individual challenge description into account.

## 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 need (please check if they are available in the CCs described in [http://www.esmera-project.eu/our-network/](http://www.esmera-project.eu/competence-centers) ) and explain in which parts you will integrate them to your research/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 in a position to do it.

What will be possible after the completion of your technology that is not possible now? Describe the positioning of the proposed technology. One way to describe the progress is to use Technological Readiness Levels (TRLs), as described in the current Multi-Annual Roadmap (MAR) of the euRobotics aisbl (you can check the definition of different TRL levels from <https://www.eu-robotics.net/cms/upload/downloads/ppp-documents/Multi-Annual_Roadmap2020_ICT-24_Rev_B_full.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: 4 pages (including business model canvas))

## 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 that you expect. Please state the indicators (such as the creation of new products, revenue, competitive edge, the creation of new jobs) by which you would like the impact to be measured and make a distinction between two phases. Measures should address the full range of potential users and uses, including research, commercial, social environmental, contribution to standards, and the commitment of a robot manufacturer to use the work in their future product program. 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, and address the following:

* Illustrate how it will be ensured that there is a strong commitment to further develop and commercialize the technology
* Outline the time to commercialization and a plan for the product’s route-to-market and possible description of who might invest in the product.
* Indicate the scalability of your technology addressing the potential of future / wider challenges in the area
* Include a preliminary business plan and business model description
	+ a realistic assessment of the size of the potential market
	+ an analysis of competitor products
	+ an assessment of manufacturing costs and retail price
	+ 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 is necessary to be successful with the commercialization of the technology

Only proposals with a binding commitment on exploitation are eligible.

## 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.

Please fill in the Business Model Canvas (page 7) to give a structured overview about the customers you serve, what value propositions are offered through what channels, and how your company plans to make money with the product developed in ESMERA. The Business Model Canvas was created by Alexander Osterwalder of Strategyzer, you can find more information on the [webpage](https://www.strategyzer.com/) or in this [video](https://www.youtube.com/watch?reload=9&v=QoAOzMTLP5s).

## 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.

## Business Model Canvas

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *Key Partners*Who are our Key Partners? Who are our Key Suppliers? Which Key Resources are we acquiring from partners? Which Key Activities do partners perform? | *Key Activities*What Key Activities do our Value Propositions require?Our Distribution Channels?Customer Relationships?Revenue streams? | *Value Proposition*What value do we deliver to the customer?Which one of our customer’s problems are we helping to solve?What bundles of products and services are we offering to each Customer Segment?Which customer needs are we satisfying? | *Customer Relationships*What type of relationship does each of our CustomerSegments expect us to establish and maintain with them?Which ones have we established?How are they integrated with the rest of our business model?How costly are they? | *Customer Segments*For whom are we creating value?Who are our most important customers? |
| *Key Resources*What Key Resources do our Value Propositions require?Our Distribution Channels? Customer Relationships?Revenue Streams? | *Channels*Through which Channels do our Customer Segments want to be reached? How are we reaching them now? How are our Channels integrated?Which ones work best?Which ones are most cost-efficient?How are we integrating them with customer routines? |
| *Cost Structure*What are the most important costs inherent in our business model?Which Key Resources are most expensive?Which Key Activities are most expensive? | *Revenue Streams*For what value are our customers really willing to pay?For what do they currently pay?How are they currently paying?How would they prefer to pay?How much does each Revenue Stream contribute to overall revenues? |

# Implementation (limit: 6 pages)

## Workplan

Please provide a 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 phase. Describe the outcome of each phase clearly and measurably and explain them. Please describe how you address the required KPIs.

Describe the overall work plan as follows in the following subsections:

1. Task list (use the table in Section 3.3.1);
2. Description of individual tasks (use the table in Section 3.3.2);
3. List of deliverables (use the Table in Section 3.3.3);
4. List of milestones (use the Table in Section 3.3.4)
5. Show the timing of the different tasks and their components (Gantt chart)
6. Please provide a detailed plan covering both Phases of ESMERA.
7. Describe any significant risks and associated contingency plans.

### 3.1.1. Task list

Please provide the task lists with the requested details (title, lead participant, start month and end month)

Table 3.1.1: Task List: Phase I (Proof of Concept)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Task No** | **Task Title**  | **Lead Participant** | **Start month** | **End month** |
| **T1.1** |  |  |  |  |
| **T1.2** |  |  |  |  |

(Please add another row if you have more tasks)

Table 3.1.2: Task List: Phase II (Industrial Leadership and Business Support)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Task No** | **Task Title**  | **Lead Participant** | **Start month** | **End month** |
| **T2.1** |  |  |  |  |
| **T2.2** |  |  |  |  |

(Please add another row if you have more tasks. Please be careful that the task number will start after the last task from the previous phase)

### 3.1.2. Description of individual tasks

Please provide the details of each task 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 maturities, such as presentations and videos.

|  |
| --- |
| **Task 1.1:** [name and timing information, from month to month] |
| **Participant** | **Role:** | **Person- month** |
|  |  |  |
|  |  |  |
| **Objectives:** |
| **Description of work and contribution of individual participants:** |

|  |
| --- |
| **Task 1.2:** [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)

### 3.1.3. List of deliverables

Please explain the deliverables that you will get at the end of each phase (there should be at least one deliverable at the end of the first 4 months of each phase). This allows your scientific moderator to concur together with you whether your experiment is on track and take corrective actions if necessary. Experiments should have a small set of deliverables.

During the duration of the experiment, the experimenters are expected to produce multimedia material (video and pictures) showing their progress. Please include the following deliverables (D0.X) for communication and dissemination activities around the ESMERA project. Feel free also to use the material for your own PR activities. We also expect all experiments to participate in so-called Demonstration Days where we present selected cases to the public or special media.

The following deliverables are mandatory (D0.X and D1.1) and you may find the details of each mandatory deliverables as follows:

D0.1: Publishable summary with figure and project hashtag: A short-written text about the experiment / the demonstrator (200-300 words) and a picture showing the prototype or the first sketch about it. Picture must be in high resolution, at the minimum 300 dpi to be able to be printed. A short and recognizable experiment hashtag that we use aligned through social media communication.

D0.2: Short Teaser Video: 30-60 seconds of film footage showing the first idea of the demonstrator.

D0.3: Presentation: 15-20 slides presenting the challenge, the solution idea and the concrete robotics innovation. It should display the features of the demonstrator, technical data, development potential and - if possible – ideas for further fields of usage if once brought to market.

D0.4:

* M9: Video of 5 to 7 minutes showing and explaining in detail the technological standard, the features and characteristics of the demonstrator and the concrete solution ideas for the given challenge.
* M18: Video of 1 to 2 minutes length showing you in the process of working on the experiment. It can show tests, product development, changes on the prototype or "just" the demonstrator and its features and characteristics.

D0.5: Product Pictures: A more mature picture of the demonstrator in its development process. 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.

D1.1: Bi-monthly reports: each project is monitored in every two months period and these reports should have all activities carried out during these periods.

Please provide the list of deliverables that you will deliver during the experiments considering the following notations: D1.X shows the deliverables in Phase I and D2.X shows the deliverables in Phase II.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Deliverable No** | **Deliverable Name** | **Task No** | **Nature[[1]](#footnote-1)** | **Dissemination level[[2]](#footnote-2)** | **Delivery date[[3]](#footnote-3)** |
| **D0.1** | Publishable Summary with figure and experiment hashtag |  | O | PU | M1 |
| **D0.2** | Short teaser video |  | D | PU | M4 |
| **D0.3** | Presentation |  | O | PU | M4, M9, M12, M18 |
| **D0.4** | Video |  | D | PU | M9, M18 |
| **D0.5** | Product Pictures |  | D | PU | M9, M18 |
| **D1.1** | Bi-monthly Reports |  | R | CO | M2, M4, M6, M9, M11, M13, M15, M18 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

### 3.1.4. List of milestones

Milestones are control points where the decisions are needed with regard to the next stage of the technology development. A milestone should be defined when a major result has been achieved if its successful attainment is required for the next phase of work or it might be a point when the consortium must decide which of several technologies to adapt for further development.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Milestone No** | **Milestone Name** | **Tasks involved** | **Expected date** | **Means of verification** |
| **M1** |  |  |  |  |
| **M2** |  |  |  |  |
| **M3** |  |  |  |  |

### 3.1.5. Proofs-of-concept, prototypes, products

Experiments are expected to show prototypes or advanced proof of concept (expected at the end of Phase I) or products with explicit plans for how they will be industrialized/ commercialized (expected at the end of Phase II). Please explain how you deliver the proof of concept. If experiment requests support from a CC, please provide an explanation of the requested support/equipment/services.

### 3.1.6. TRL Definition

Please providethe starting TRL and the expected TRL by the end of each phase using the following the table. Please provide the roadmap that you will follow while achieving the expected TRL level at the end of the phase. There is no minimum limit for TRL in the beginning stage for the experiment, but it is all experimenters must achieve at least TRL5 at the end of Phase I and TRL6 at the end of Phase II. Please check the definition of different TRL levels from https://www.eu-robotics.net/cms/upload/downloads/ppp-documents/Multi-Annual\_Roadmap2020\_ICT-24\_Rev\_B\_full.pdf )

|  |  |  |  |
| --- | --- | --- | --- |
| **Phase** | **Start TRL** | **End TRL** | **Roadmap** |
| **Phase I** |  |  |  |
| **Phase II** |  |  |  |

### 3.1.7. 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).

## 3.2. 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 (which competence do they provide?), 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.

## 3.3. Overall experiment resources – costs

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

***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 (please, provide the costs for Phase I and II):*

* *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 challenge host will amount to xxx.xxx,xx €*
* *Other direct costs: they will amount to xxx.xxx,xx € (provide a brief description)*

|  |  |  |  |
| --- | --- | --- | --- |
| **Costs for Phase I** **Partner (insert partner acronym)****(repeat for each partner)** | **Costs for Phase II** **Partner (insert partner acronym)****(repeat for each partner)** |  | **Costs (Phase I + Phase II)** **Partner (insert partner acronym)****(repeat for each partner)** |
|  **Cost category** | **Cost** | **Cost category** | **Cost** |  | **Cost category** | **Cost** |
| Personnel costs (€) |  | Personnel costs (€) |  |  | Personnel costs (€) |  |
| Travel (€)  |  | Travel (€)  |  |  | Travel (€)  |  |
| Other direct costs (€) *(1)* |  | Other direct costs (€) *(1)* |  |  | Other direct costs (€) *(1)* |  |
| Indirect costs (€) *(2)* |  | Indirect costs (€) *(2)* |  |  | Indirect costs (€) *(2)* |  |
| Total budget (€) *(3)* |  | Total budget (€) *(3)* |  |  | Total budget (€) *(3)* |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Total costs for Phase I**  | **Total costs for Phase II**  |  | **Total costs (Phasee I+ Phase II)** |
| **Cost category** | **Cost** | **Cost category** | **Cost** |  | **Cost category** | **Cost** |
| Personnel costs (€) |  | Personnel costs (€) |  |  | Personnel costs (€) |  |
| Travel (€)  |  | Travel (€)  |  |  | Travel (€)  |  |
| Other direct costs (€) *(1)* |  | Other direct costs (€) *(1)* |  |  | Other direct costs (€) *(1)* |  |
| Indirect costs (€) *(2)* |  | Indirect costs (€) *(2)* |  |  | Indirect costs (€) *(2)* |  |
| Total budget (€) *(3)* |  | Total budget (€) *(3)* |  |  | Total budget (€) *(3)* |  |

1. *Only the eligible part of the equipment full cost (with 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. Please explain your plan to address Ethical Issues (if it is the case for your experiment) and the certification process. Finally, please state that there is no active engagement with the ESMERA consortium partners nor the challenge provider of the specific challenge you are addressing.

# Appendix (limit: 2 Pages)

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

1. Please indicate the nature of the deliverable using one of the following codes: R=Report, P=Prototype, D=Demonstrator, O=other. [↑](#footnote-ref-1)
2. 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-2)
3. Measured in months from the Project start date (M1), and Phase II starts from M10. [↑](#footnote-ref-3)