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RobMoSys

RobMoSys

Composable Models and Software for Robotics Systems

Deliverable 5.5: Evaluation and Selection for Open call II

Luz Martínez, Technische Universität München (TUM)

Dayana Ramírez, Technische Universität München (TUM)

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Author(s): Luz Martínez, Technische Universität München (TUM), Dayana Ramírez, Technische Universität München (TUM)

Reviewer: Alfio Minissale (COMAU)

Content

1. Executive Summary

The evaluation process of the proposals presented to the Second Open Call of the EU project RobMoSys is reported in Deliverable 5.5. Task 5.4: Evaluation and Selection contributed to this report. RobMoSys involves three instruments.

- ITPs of Instrument # 1 focus on developing RobMoSys-conformant pilots (industrial case studies) based on existing assets (software and tools from the RobMoSys ecosystem) or providing software components conformant to the RobMoSys pilots. These ITPs have a runtime of six months.
- ITPs of Instrument # 2 contribute to (1) ROS 2 and Model-Driven Software Development, (2) Functional composition inside components, (3) System-level composition/safety, (4) System-level predictability of properties, Navigation, (5) System-level predictability of properties, Manipulation, (6) OPC UA Robotics, and (7) Open topic. Instrument 3 ITPs will contribute to (1) Adoption Measures, (2) Digital Infrastructure, (3) Market Uptake, (4) Community Creation, (5) Academy Growing. These ITPs have a runtime of twelve months.
- ITPs of Instrument # 3 aim to familiarize themselves with the RobMoSys approach, actively participate in technical workshops, meet with RobMoSys partners in their labs, contribute to the RobMoSys community building, or get involved in specific ITP (Integrated Technical project). These ITPs have a runtime of six months.

The evaluation and selection process was divided into three cut-off dates. A summary of the characteristics and results of each cut-off date is available below.

- For cut-off date # 1, RobMoSys opened a call for proposals of Instruments # 1, # 2 and # 3. Eleven (11) proposals were accepted, one for Instrument # 1, nine for instrument # 2, and one for Instrument # 3.
- The second cut-off called proposals only for Instruments # 1 and # 3 given the asymmetry in the number of selected Integrated Technical Projects (ITPs) per Instrument. As a result, six proposals were chosen for Instruments # 1 and three proposals for Instrument # 3.
- The exclusive cut-off date opened for Instrument # 1 and # 3. The decision to open an exclusive cut-off only for instruments # 1 and # 3 was made considering the shorter runtime of the funding period. Namely, ITPs of Instrument # 2 have a runtime of twelve months while ITPs for Instruments # 1 and # 3 have a runtime of six months. This cut-off date allowed us to effectively use the remaining RobMoSys budget as well. It involved only applicants whose proposals were not accepted in previous calls. As a result, two proposals for Instrument # 1 were accepted.

All evaluations followed the principles outlined in the guide *Good practices and templates for organizing open calls under the H2020 Financial Support to Third Parties Scheme* (see Annex 4). Special care was taken to evaluate the existence of conflicts of interest between evaluators and proponents.

Deliverable 5.5 is divided into four parts. In the first section, the open call timeline is introduced. In the second part, the evaluation process, evaluation criteria, assignment of proposals to evaluators, and documents provided to evaluators are explained. In the third section, the panel meeting members and its guiding principles and minutes are presented. And finally, the selection process results are analyzed for each cut-off date.

1 Introduction and Methodology

RobMoSys's main goal is to create and consolidate an EU Digital Industrial Platform for Robotics to establish a common methodology for software development, improve tools, and foster interoperability by model interchange and composability. The RobMoSys Open Calls are an essential means to achieve this goal.

In the framework of the first Open Call, six teams were selected, with competences in tooling, development of models and generation of associated software (implementations that realize the models, and that are created/configured by the tooling) demonstrated on system-level prototypical scenarios in, e.g., navigation and manipulation. The tools, models, and software developed by ITPs of this first Open Call were made publically available to serve industrial experiments.

The second Open Call has three specific goals, each goal corresponds to an Instrument:

- Instrument # 1 focuses on developing RobMoSys-conformant pilots (industrial case studies) based on existing assets (software and tools from the RobMoSys ecosystem) or providing software components conformant to the RobMoSys pilots.
- Instrument # 2 targets the following domains: (1) ROS 2 and Model-Driven Software Development, (2) Functional composition inside components, (3) System-level composition/safety, (4) System-level predictability of properties, Navigation, (5) System-level predictability of properties, Manipulation, (6) OPC UA Robotics, and (7) Open topic. Finally, Instrument 3 addresses (1) Adoption Measures, (2) Digital Infrastructure, (3) Market Uptake, (4) Community Creation, (5) Academy Growing.
- Instrument # 3 aim to familiarize themselves with the RobMoSys approach, actively participate in technical workshops, meet with RobMoSys partners in their labs, contribute to the RobMoSys community building, or get involved in specific ITP (Integrated Technical project).

The second Open Call was opened in February 2019 and was initially announced with two cut-off dates. However, the second RobMoSys Open Call had three cut-off dates. The decision to open a third exclusive cut-off was made considering the available budget and the shorter runtime of the funding period. Table 1 shows the cut-off date characteristics of the Second Open Call.

Table 1. Cut-off Dates Characteristics of the Second Open Call

Cut-off	Instruments	Open Call dates	Results	Starting date
First	1, 2 and 3	01.02.2019 - 07.05.2019	-Submitted Proposals: 26 -Selected Proposals: eleven (one ITP for Instrument # 1, nine ITPs for Instrument # 2, one ITP for Instrument # 3)	01.11.2019
Second	1 and 3	01.08.2019 - 31.10.2019	-Submitted Proposals: 15 -Selected Proposals: eleven (six ITPs for Instrument # 1, three ITPs for Instrument # 3)	Exact dates differ between ITPs. All ITPs started during October and November 2019.
Exclusive	1 and 3	11.02.2020 - 12.03.2020	-Submitted Proposals: four -Selected Proposals: two (both for Instrument # 1)	01.05.2020

The second Open Call followed the general procedure established during the first Open Call. This is, call publication, call opening, submission of proposals with deadlines, remote evaluations conducted by

internal (3rd cut-off date and 2nd cut-off date) or external evaluators (1st and 2nd cut-off date), panel meetings, reporting feedback and contracts, and the start of experiments (see Table 2). Unlike the first Call, the second Call held online Panel Meetings for cut-off dates 2 and 3. However, the Panel Meeting of the first cut-off date was in person.

Table 2. Second Open Call Evaluation Timeline

Cut-off	Open Call dates	Remote evaluations	Panel meeting	Reporting feedback	Starting date
First	01.02.2019 - 07.05.2019	08.05.2019 - 21.06.2019	02.07.2019 - 03.07.2019	08.2019	Exact dates differ between ITPs. All ITPs started during October and November 2019.
Second	01.08.2019 - 31.10.2019	01.11.2019 - 29.11.2019 (Inst. # 3) 12.12.2019 - 17.01.2020 (Inst. # 1)	03.12.2019 (Inst. # 3) 29.01.2020 (Inst. # 1)	08.01.2020 (Inst. # 3) 06.02.2020 (Inst. # 1)	Exact dates differ between ITPs. All ITPs started during April and May 2020.
Exclusive	11.02.2020 - 12.03.2020	13.03.2020 - 25.03.2020	02.04.2020	06.04.2020	01.05.2020

The *Second Call for RobMoSys Contributions* was published and evaluated on the Open Calls platform[1]. The platform ensures transparency and cohesion of all the processes regarding Open Call management. The evaluation stage was handled with the same *electronic tools* implemented during the preparation and publication of the call, as defined in *Deliverable 5.1, section 4.2*. It was decided to handle all interactions with the Evaluators per email *t*o assure the continuity and recording of all the communications.

2 Remote Evaluation

The underlying principles for the evaluation of proposals during the remote evaluation and the physical panel meeting were established by the *Good practices and templates for organizing open calls under the H2020 Financial Support to Third Parties scheme* (See Annex 4).

- **Excellence**: projects must demonstrate a high level of quality concerning the topics and criteria set out in the calls
- **Transparency**: funding decisions must be based on clearly defined rules and procedures, and applicants should receive adequate feedback on the outcome of the evaluation
- **Fairness and impartiality**: all proposals must be treated equally and evaluated impartially on their merits, irrespective of their origin or the identity of the applicants
- **Confidentiality**: all proposals and related data, knowledge, and documents must be treated in confidence

[1] https://opencalls.robmosys.eu/forms/overview/17

2.1 Evaluation Process

The evaluation process was broken down into three steps, namely Remote Evaluation I, Remote Evaluation II, and Panel Meetings. However, the evaluation workflow varied per Instrument as depicted in Figure 1., Figure 2., and Figure 3. The evaluation process followed the timeline outlined in Table 2.

(i) *Remote Evaluation I:* Two independent experts evaluated each admissible proposal and submitted individual *evaluation reports* on the Open Calls platform.

(ii) *Remote Evaluation II:* One of the experts that reviewed the proposal during the first step was assigned as rapporteur. As rapporteur, the expert was responsible for initializing the Consensus Blog on the RobMoSys Open Calls Platform to discuss with the other expert evaluator their evaluation reports and agree on comments and scores. When a consensus was not reachable, the rapporteur was instructed to request the involvement of a third evaluator. The discussion resulted in a *consensus report* drafted by the rapporteur, for which the evaluators explicitly agreed on the text and final marks for each criterion.

The evaluators named in step 1 and 2 had access to their assigned proposals via the Open Calls Platform. They could view only the information related to the proposals assigned to them. In this Open Call, no third evaluator was involved in any of the evaluations.

(iii) *Panel meetings*

a. *Physical Panel Meeting*: held with a subset of four (4) independent experts that participated in the first step of the evaluation, and was led by the panel chair. For Instruments #1 and #3, only those proposals were discussed that fulfilled the requirements of the external evaluation. For the Instrument # 2 evaluation, all proposals were discussed which were evaluated as 'B' during the external evaluation in the first phase, giving the possibility to assign them as 'C' (reject the proposal) or 'A' (passed to the next phase). The second phase was evaluated per topic: all the proposals assigned as 'A' (those originally rated 'A' as a result of the external evaluation and those that were assigned as 'A' after the first phase). Upon which the final ranking of proposals for Instrument # 2 was established.

b. *Digital Panel Meeting:* held for the second and the third cut-off dates as presented in Table 2. The participants of all panel meetings were representatives of the RobMoSys Consortium. The tasks of the panel chair are outlined in section 3 of this report.

In preparation for the panel meetings, panelists were assigned proposals according to their expertise. Attendants to the panel meeting had access to a summary of the scores of all the proposals. The summary was prepared by the Technical University of Munich. However, only proposals above the threshold were discussed during the panel meetings. Panelists were responsible to present the main insights, strengths, and weaknesses of the proposals assigned according to the evaluation conducted by experts during the first two steps. Panelists also presented their assessment of the assigned proposal and clarified doubts other attendants had about the proposals. Based on the discussion, each RobMoSys consortium partner voted.

The figures below present the workflows of the evaluation and selection processes of the individual Instruments of the Second RobMoSys open call.

Figure 1.Evaluation workflow for Instrument # 1: Fast Adoption

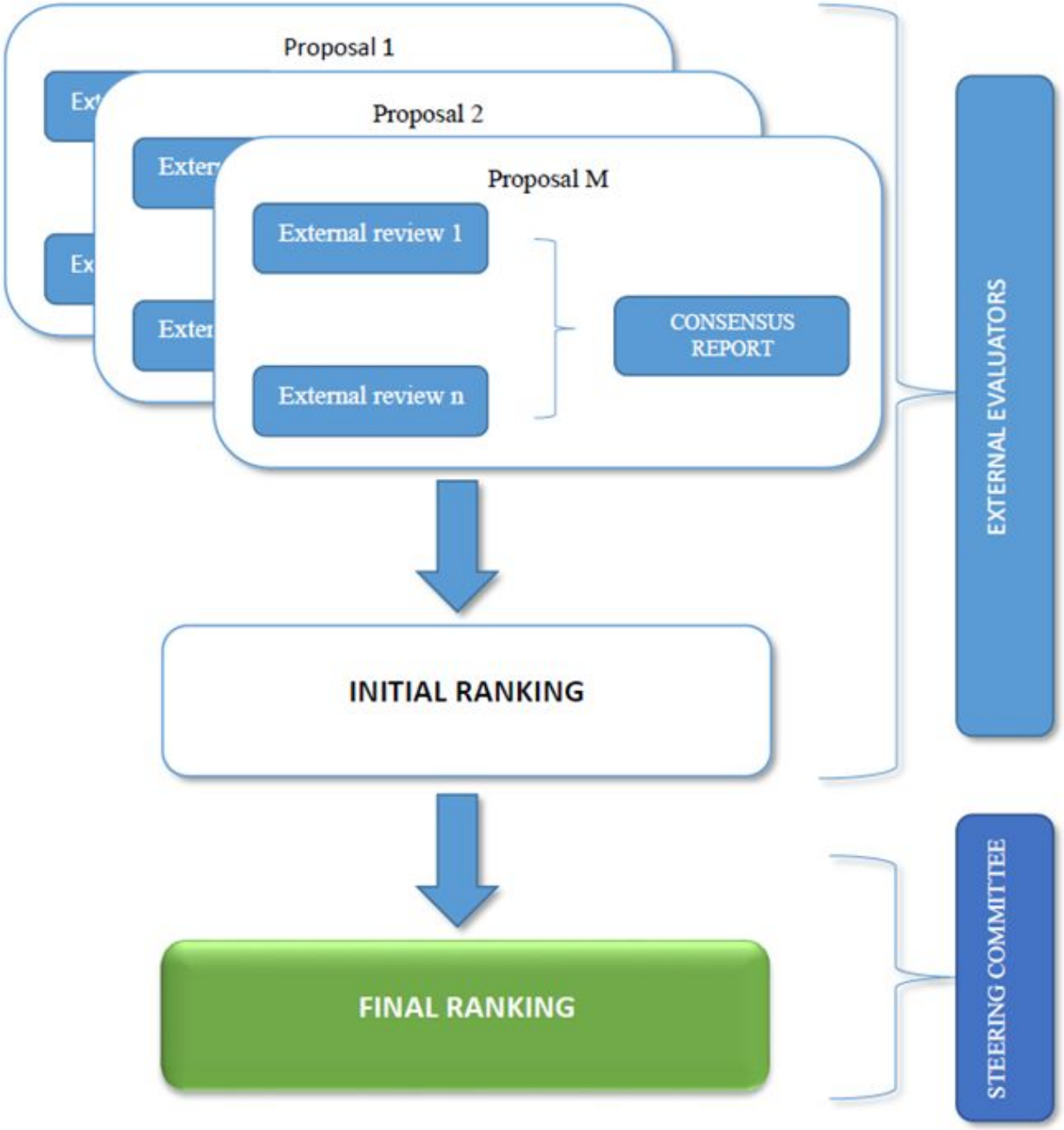


Figure 2. Evaluation workflow for Instrument # 2: Ecosystem Challenges

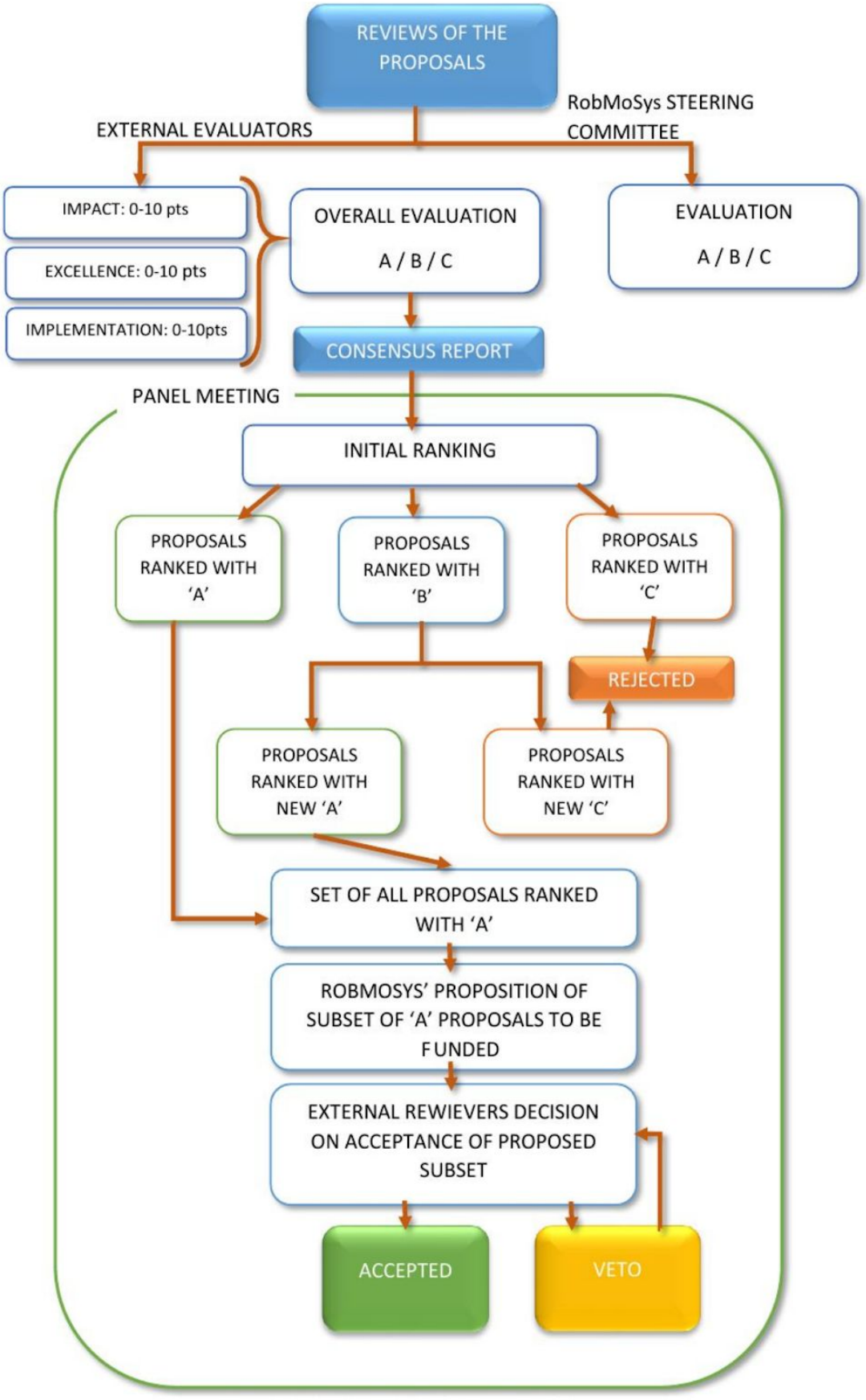
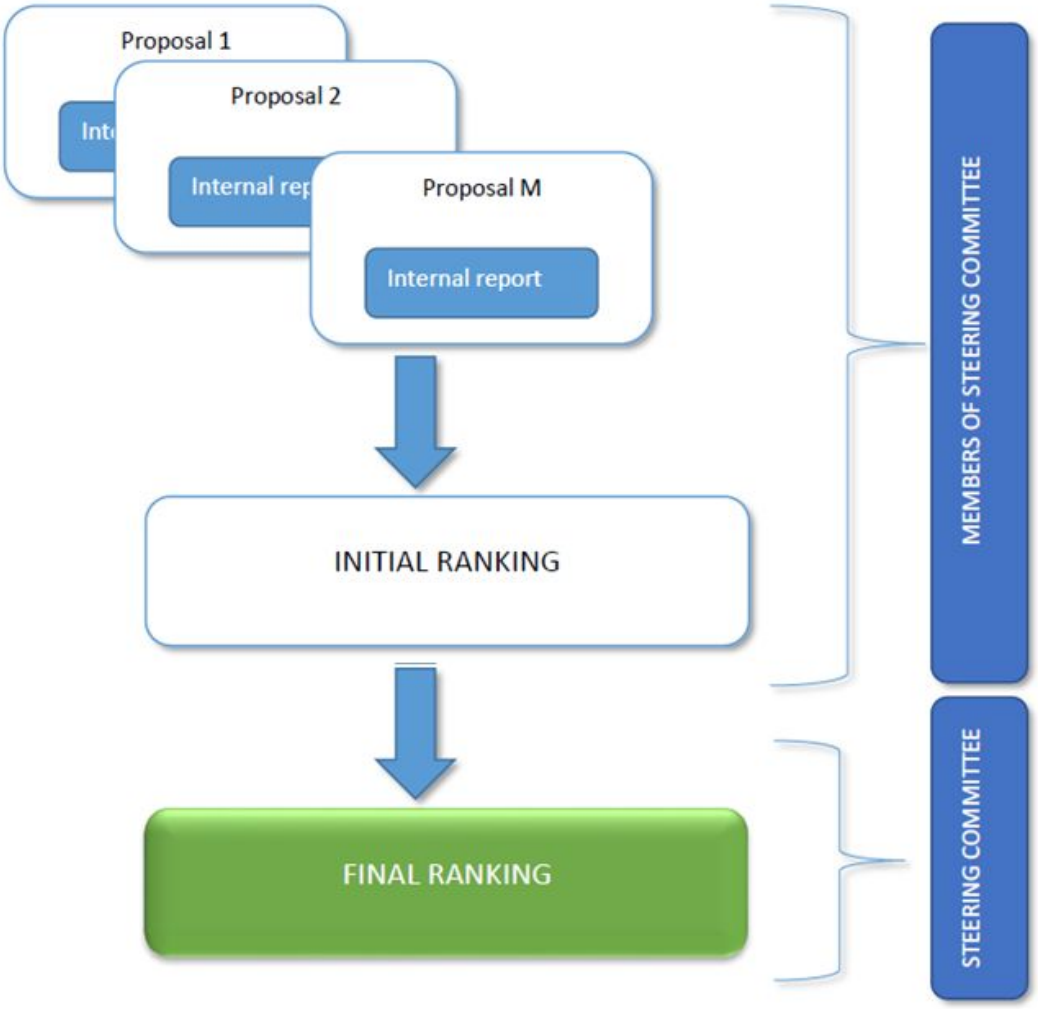


Figure 3. Evaluation workflow for Instrument #3: Innovation Expert Intake



2.2 Evaluation Criteria

The proposals were evaluated according to the criteria presented in the Guides for Applicants and the Guide for Evaluators. These guides have small differences between cut-off dates. Differences are specified in tables three, four, and five. The criteria reflect the expected impact of projects funded under those Instruments.

Table 3. Evaluation Criteria of Instrument # 1

1. Expected impact	Weight: 40%
Criteria for the first cut-off date: • Show clear roadmap of full adoption of the RobMoSys approach in an organization, in line with the RobMoSys Adoption Path • Size of the potential users' group(s) • Demonstrate complete business cases showing a clear Return of Investment (RoI) • Accessibility of the results, preferring open source licensing that enables composability similar to proven platform projects as Eclipse	Score: x/ 10 *(Threshold: 6/10)*

Criteria for the second and exclusive cut-off dates: • Describe the roadmap for adoption of the RobMoSys approach in your organization which is aligned with the RobMoSys Adoption Path** • Present the size of the users' group(s) • Demonstrate a complete business case and the expected Return of Investment • Highlight accessibility of the results, open-source is the preferred licensing scheme	
2. Technical excellence	**Weight: 30%**
Criteria for the first cut-off date: • Compliance with the RobMoSys meta-models and methodology • Support smooth transition to full RobMoSys benefits (compositionality, predictability) • Develop or adapt (existing) pilots demonstrating RobMoSys added value in the context of real industrial settings • Quality • Envisioned Technology Readiness Level • Clarity of suggested KPIs Criteria for the second and exclusive cut-off dates: • Highlight compliance with the RobMoSys meta-models and methodology • Describe planned transition to full RobMoSys benefits (compositionality, predictability) • Describe new pilots that will be developed or the way existing pilots will be adapted to demonstrate RobMoSys added value in the context of real industrial settings • Describe the envisioned technology to be integrated, provide a clear indication of the expected Technology Readiness Level	Score: x/ 10 *(Threshold: 6/10)*
3. Implementation of the ITP	**Weight: 30%**

Criteria for the first cut-off date:
• Ready not to work in isolation, but in co-operation with other members of the RobMoSys Community.
• Composition of the tandem/consortium
• Risk management
 	
Criteria for the second and exclusive cut-off dates:
• Provide a coherent and appropriate work description including at least:
  ○ Tasklist including the timing of the different tasks, efforts, and role of partners
  ○ List of deliverables
	Score: x/ 10
	(Threshold: 6/10)

○ List of milestones • Address risk management • Describe your plans for cooperating with the RobMoSys community	
Remarks	
Ethical implications and compliance with applicable international, EU and national law	*Essential*
OVERALL SCORE :	Score: x/ 30 *(Threshold 21/30)*

Table 4. Evaluation Criteria of Instrument # 2

1. Expected impact	**Weight: 40%**
• Size of the potential users' group(s) • The potential extension of the RobMoSys ecosystem coverage • Accessibility of the results, preferring open source licensing that enables composability similar to proven platform projects as Eclipse • Significance of the results on the development of the RobMoSys approach and community	Score: x/ 10 *(Threshold: 6/10)*
2. Technical excellence	**Weight: 30%**
• Compliance with the RobMoSys meta-models and methodology • The excellence w.r.t. the state of the art in the field • Quality • Envisioned Technology Readiness Level • Clarity of suggested KPIs • Fit to the selected challenge	Score: x/ 10 *(Threshold: 6/10)*
3. Implementation of the ITP	**Weight: 30%**
• Coherence, appropriateness, effectiveness • Composition of the tandem/consortium • Risk management	Score: x/ 10 *(Threshold: 6/10)*
Remarks	
Ethical implications and compliance with applicable international, EU and national law	*Essential*
OVERALL SCORE :	Score: x/ 30 *(Threshold 21/30)*

*Robmosys opened the call for Instrument # 2 only during the first cut-off.

Table 5. Evaluation Criteria of Instrument # 3

1. Expected impact	**Weight: 40%**

Criteria for the first cut-off date: • Size and significance of the community to be reached • Expected results of the planned activities • Quality and importance of events to be attended Criteria for the second and exclusive cut-off dates: • Describe the community you will reach and the expected impact you will have on this community • Describe the events you are planning to attend or organize in which RobMoSys approach will be further disseminated	Score: x/ 10 *(Threshold: 6/10)*
2. Technical excellence	**Weight: 30%**
Criteria for the first cut-off date: • Quality of the technical idea to be analyzed with the core consortium • Experience of the expert assigned to the project • Technical correctness of the community-building activities Criteria for the second and exclusive cut-off dates: • Describe the idea that you want to discuss with the core consortium and fit into the RobMoSys approach • Describe the background of the expert designated for this project highlighting accomplishments relevant to RobMoSys and links to communities which will be reached • Present the community-building activities you are planning to organize (e.g. workshops, attendance to conferences, etc.)	Score: x/ 10 *(Threshold: 6/10)*
3. Implementation of the ITP	**Weight: 30%**
Criteria for the first cut-off date: • Cost-effectiveness • Realistic timeline • Planning of the events and/or workshops Criteria for the second and exclusive cut-off dates: • Present a timeline of your project including the onsite coaching, events to be organized and events to be attended • Justify costs to be incurred • Describe your plans for cooperating with the RobMoSys community	Score: x/10 *(Threshold: 6/10)*
Remarks	
Ethical implications and compliance with applicable international, EU and national law	*Essential*

OVERALL SCORE :	Score: x /30 *(Threshold 21/30)*

2.3 Assignment of Proposals to Evaluators

For the evaluation of the proposals, the Consortium invited experts from relevant related domains[2] to register on the Open Calls Platform. Upon closure of the call, the assignment of proposals to evaluators was done based on keywords, diversity of domains, and exclusion criteria.

Once the call was closed for submissions, the platform generated a list of potential evaluators for each proposal by matching the *keywords* from the proposals to the keywords selected by the experts when they registered on the Platform.

Then, to ensure that each proposal would be evaluated by at least two evaluators from different technology fields or application areas, these lists were manually prioritized based on the *expertise areas* established in the submitted CVs.

To prevent potential conflicts of interest during the remote evaluation, an *exclusion criterion* was implemented list by list. I.e. the experts were removed from the list of potential evaluators for a given proposal, if they were from the same institution as the applicants, or had joint publications in the last five years.

Finally, before granting access to the proposals, the evaluators received a list with the names of the applicants of each proposal assigned to them, plus a definition and examples of conflicts of interest, and a form to declare potential and disqualifying conflicts of interest.

2.4 Documents provided to the Evaluators

Evaluators were provided with the RobMoSys Guide for Evaluators before they started the evaluation process. This document included:

- Guidelines on the evaluation process: Timeline, evaluation process, the definition of Conflicts of Interest
- User manuals: Open Calls platform and evaluation on the platform
- All call documents as provided to the applicants
- A list of must-read RobMoSys WiKis to aid the evaluators to familiarize themselves with RobMoSys.

3 Panel Meeting

The panel meeting was formed by RobMoSys consortium representatives. Their goals were to achieve an agreed conclusion on the evaluation of the proposals, finalize the Evaluation Summary Reports of the proposals, rank the proposals above the threshold, and prepare the Panel Report for the European Commission. Only proposals that received a score equal to or higher than the threshold were discussed during the panel meeting (see section 2.1).

Panel meeting attendees played the following roles:

- Panel chair: moderates the discussion, highlights aspects which are particularly relevant for RobMoSys, casting vote in case of undecided votes, in charge of the Panel Report.
- RobMoSys Steering Committee: One representative of each core partner, vote on behalf of the

[2] *Expertise areas of the evaluators* : Software infrastructure; Advance platforms; Robot software development, market based approaches; AI and cognition in robotics; Systems and software engineering methods for cyber physical systems; Systems engineering and automation; Manufacturing engineering (industry 4.0)

consortium (a simple majority, abstentions not possible).

- RobMoSys Back Benchers: Scientists of the consortium who will present the proposals to the external panelists, supporting the steering committee, no voting right.
- Panel Minute Keepers: Keep the minutes during the panel which is the basis of the Panel Report and the deliverable RobMoSys on Second Open Call.

Three main rules guided the panel meeting. First, voting was done by a simple majority. Second, the proxy rule is that it is possible to pass the voting right to another member of the steering committee in case of the absence of the representative of a particular member of the consortium. Finally, the Out-of-the-room rule is applied in case of any situation where the impartial and objective implementation of the panelists' work is compromised. A panelist with conflict of interest steps outside the meeting room to have no impact on the evaluation process of a proposal in question.

The panel review resulted in a panel report drafted by a panel chair. The panel report includes the evaluation summary report (ESR) for each proposal, a list of proposals passing all thresholds, along with a final score (panel ranked list). The Panel produced a ranked list of the proposals and recommended for funding and integration into the RobMoSys work plan as experiments the top eleven (11) ranked proposals during the first and second cut-off, and the top two (2) ranked proposals during the exclusive cut-off.

3.1 Panel Chair

The Panel Chair was one person selected from the RobMoSys consortium attendees to the panel. This selection was done considering scientific expertise and the capacity to lead the discussion.

The responsibilities of the panel chair included:

2. To keep the meeting strictly on time.
3. To lead the voting for changes in scores or commentaries, if opinions are divided. To encourage the panel to consider the description of the call when scoring.
4. To lead the discussion of the ranking and selection of proposals that should be recommended for funding, according to score and indicative funding available.

3.2 Impartiality

The panelist must perform his/her work impartially and take all measures to prevent any situation where the impartial and objective implementation of the work is compromised.

If expert evaluators and applicants are contracted or employed by the same institution, then the expert is invited to take part in the panel meeting by following the 'Out of the room' rule. This is, the expert may not follow the evaluation session of the proposal concerned and must leave the room or the electronic forum where the evaluation session is held.

Nevertheless, the participation of this expert is justified first, by the requirement to appoint the best available experts, by the limited size of the pool of qualified experts, and by the fact, the expert works in a different department/laboratory/institute from the one where the proposal plans to be carried out.

4 Evaluation Results

4.1 First cut-off date

Upon closure of the call submission platform on May 7th, 2019 at 17:00 CEST, 26 proposals were submitted. The reasons for the non-admissibility of one (1) of the received proposals are stated in Table 6. The non-admissible proposals were not considered, either for remote evaluation nor in the panel meeting.

Table 6. Non-Admissible Proposals

Proposal ID	Non-admissibility reason
31	Double submission (corresponds to proposal 33)

The general statistics for the proposals reviewed in the remote evaluation and the panel can be found in Table 7.

Table 7. Evaluation overview

2nd Call - 1st Cut-off date	Eligible Proposals	Above thresholds Remote Evaluation	Accepted during Panel Meeting
Number of proposals - Inst. 1	4	1	1
Number of proposals - Inst. 2	20	16	9
Number of proposals - Inst. 3	1	1	1
Total	25	18	11

The eligibility of proposals followed a two-step filtering process: first considering the score per criterion and then the overall score, obtained by arithmetic sum. The proposal will be considered as eligible for funding if each mark is not less than 6/10 and the overall score not less than 21/30.

1. Expected impact: (weight 30% and threshold 6/10)
2. Technical excellence: (weight 40% and threshold 6/10)
3. Implementation of the ITP: (weight 30% and threshold 6/10)

Overall score: threshold 21/30

Besides, the RobMoSys consortium agreed upon taking into account the topics of Instrument # 2 to balance the needs of the different areas of robotics.

After the panel, eleven (11) proposals were suggested for possible funding, as shown in Table 8 below.

Table 8. 1st cut-off date proposals suggested for funding

Proposal-ID	Proposal Acronym	Partners		Focus
2	AROSYS	Cyberbotics	Switzerland	Fast Adoption - Simulation
5	MROS	TU Delft UPM URJC Bosch ITU	Netherlands Spain Spain Germany Denmark	ROS 2 and Model-Driven Software Development
12	COCORF	Mkio	Germany	Functional Composition inside Components
15	VeriComp	Bielefeld University Hochschule Bonn-Rhein-Sieg	Germany Germany	Functional Composition inside Components
8	ForSAMARA	JOANNEUM RESEARCH TUW PILZ	Austria Austria Austria	System-level composition / Safety
22	SafeCC4Robot	Tecnalia	Spain	System-level composition / Safety
6	SCOPE	Università degli Studi di Genova Fondazione Istituto Italiano di Tecnologia	Italy Italy	System-level composition / Safety
30	MIRoN	Universidad de Extremadura University of Málaga Blue Ocean Robotics	Spain Spain Denmark	System-level predictability of properties, Navigation
19	RobMoSys-EGCS	University of Twente TNO VIRO	Netherlands Netherlands Netherlands	System-level predictability of properties, Manipulation
25	CMCI	UniBi TUBS	Germany Germany	Interaction Control
1	SmartDDS	UMA	Spain	Expert - DDS communication

4.1.1 Analysis of the selected proposals

The proposals recommended for funding, as shown in Table 8, cover a broad range of research topics and application fields, and they are in line with the expectations of the call. Specifically six (6) out of the seven (7) topics of Instrument # 2 were addressed.

Based on an intensive discussion of the panel meeting in regards to attaining the maximum benefit for the RobMosys project, scientifically and in terms of expenditure, it was recommended to the only fund for Instrument # 1 and Instrument # 3 the proposals that fulfilled the requirements of the external evaluation. For Instrument # 2, it was recommended to fund at least one proposal per topic and two more proposals in the topic related to safety, given the importance of the topic in robotics.

Table 9. The selected proposal suggested for funding for 1st cut-off date - Instrument # 1

Proposal	External Evaluation Score	Budget
AROSYS	6.85	60,000.00

Table 10. Selected proposals suggested for funding for 1st cut-off date - Instrument # 2

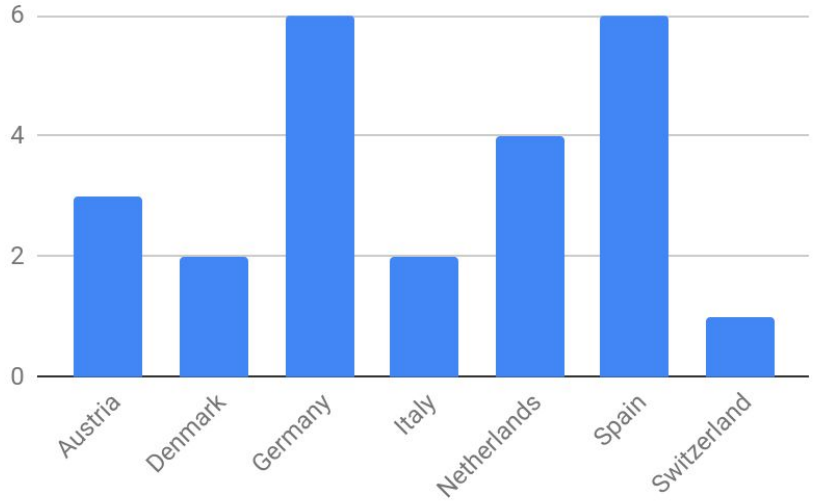
Topic	Proposal	External Evaluation Score	Internal Evaluation Score	Budget
1	MROS	7.4	A	299,999.38
2	COCORF	7.95	A	38,142.37
2	VeriComp	7	A	245,000.00
3	ForSamara	7.1	B	282,967.75
3	SafeCC4Robot	6.85	A	91,000.00
3	SCOPE	7.6	B	250,575.00
4	MIRoN	8.1	A	291,025.00
5	RobMoSys-EGCS	7.65	B	275,812.50
7	CMCI	8	B	221,000.00

Table 11. Selected proposals suggested for funding for 1st cut-off date - Instrument # 3

Proposal	Internal Evaluation Score	Budget
SmartDDS	8.4	14,900.00

The eleven (11) experiment consortia involve partners from seven European countries; the distribution is shown in Figure 4. Out of the twenty-four (24) new partners, nineteen (19) are non-profit organizations. The total accumulative budget of the eleven (11) selected proposals is €2,070,422, with the requested budget per organization ranging from €14,900 to €300,000.

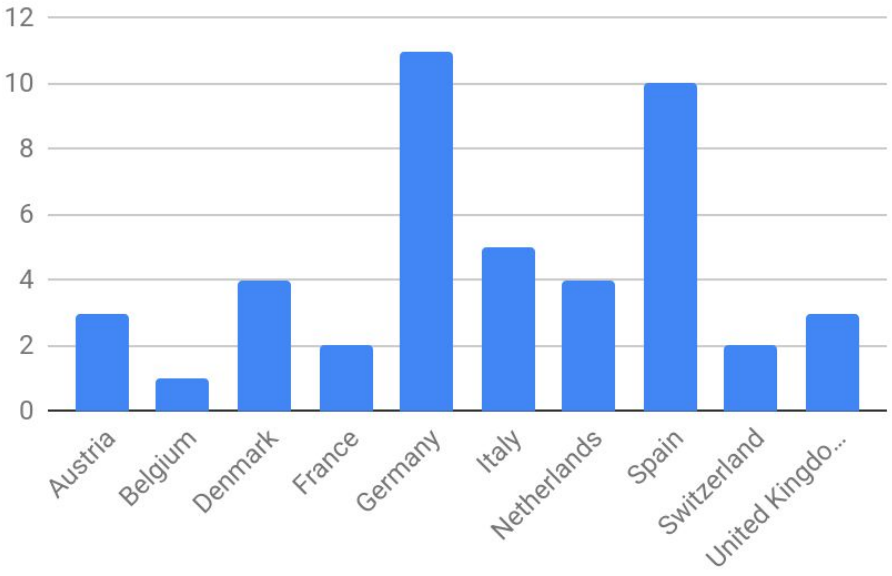
Figure 4. Country distribution of selected partners



4.1.2 Analysis of all received proposals

The majority of the proposals showed a good implementation of the Integrated Technical Project, ITP, (83% of the proposals were above 6), 79% of the proposals scored above 6 in Technical Excellence, and 79% in Expected Impact.

Figure 5. Countries involved in the proposals



There were no proposals involving countries outside of the EU, Associated Countries to Horizon 2020, and

the United Kingdom.
The total grant amount requested by all the received proposals is €4,986,611.

4.2 Second cut-off date

Upon closure of the call submission platform on November 13th, 2019 at 17:00 CEST, 15 proposals were submitted. The reasons for the non-admissibility of one (1) of the received proposals are stated in Table 12. The non-admissible proposals were not considered, either for remote evaluation nor in the panel meeting.

Table 12. Non-Admissible Proposals

Proposal ID	Non-admissibility reason
38	Incomplete: No budget, excellence, impact, implementation, KPIs, management of knowledge and IP, Ethics

The general statistics for the proposals reviewed in the remote evaluation and the panel can be found in Table 13.

Table 13. Evaluation overview

2nd Call - 2nd Cut-off date	Eligible Proposals	Above thresholds Remote Evaluation	Accepted during Panel Meeting
Number of proposals - Inst. 1	10	7	6
Number of proposals - Inst. 3	4	4	3
Total	14	11	9

The eligibility of proposals followed a two-step filtering process: first considering the score per criterion and then the overall score, obtained by arithmetic sum. The proposal will be considered as eligible for funding if each mark is not less than 6/10 and the overall score not less than 21/30.

4. Expected impact: (weight 30% and threshold 6/10)
5. Technical excellence: (weight 40% and threshold 6/10)
6. Implementation of the ITP: (weight 30% and threshold 6/10)

Overall score: threshold 21/30

After the panel, nine (9) proposals were suggested for possible funding, as shown in Table 14 below. During the panel meeting, in the evaluation of the proposal with a score of 21 or more, it was taken into consideration for Instrument # 1 the application and feasibility using RobMoSys in different robotics fields. For the selection of the proposal of Instrument # 3, it was taken into consideration the contribution of the proposal into the RobMoSys community.

Table 14. Proposals suggested for funding

Proposal-ID	Proposal Acronym	Partners		Focus
37	UWROSYS	Skarv Technologies AS	Norway	Fast Adoption - Simulation
36	MIRANDA	GMV Innovating Solutions (Robotics)	United Kingdom	Fast Adoption - Mobile Inspection
40	MR4RobMoSys	Awesome Technologies Innovationslabor GmbH (ACPS)	Germany	Fast Adoption - Mixed Reality
44	AMBSPSRR	Canonical Robots S.L.	Spain	Fast Adoption - Rehab Robot
35	HRICAR	Advanced Deep Learning Robust Basic Transactional Services SL	Spain	Fast Adoption - HRI
41	RoMan	Robotnik Automation SLL	Spain	Fast Adoption - manufacturing
39	HRC	TUDelft	Netherlands	Expert - Human-Robot Coproduction
45	OPC UA for RobMosys	Systerel	France	Expert - OPC UA
48	Planning4Papyrus	Universidad Rey Juan Carlos	Spain	Expert - PDDL Planning

4.2.1 Analysis of the selected proposals

The proposals recommended for funding, as shown in Table 14, cover a broad range of research topics and application fields, and they are in line with the expectations of the call.

Based on an intensive discussion of the panel meeting in regards to attaining the maximum benefit for the RobMosys project, scientifically and in terms of expenditure, it was recommended to the only fund for Instrument # 1 and Instrument # 3 the proposals that fulfilled the requirements of the external evaluation. The feasibility of the proposal using RobMoSys and the tools was also taken into consideration.

Table 15. The selected proposal suggested for funding for 2nd cut-off date - Instrument # 1

Proposal	External Evaluation Score	Budget
UWROSYS	8.3	60,000.00
MIRANDA	7.85	60,000.00

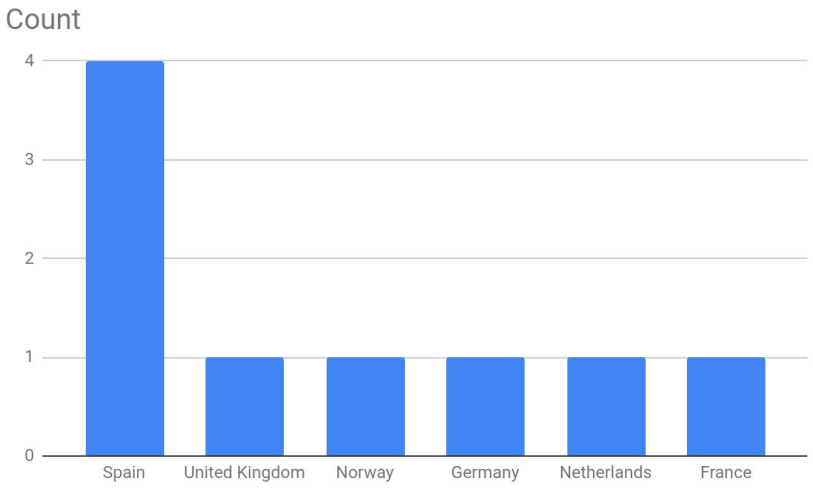
MR4RobMoSys	7.7	60,000.00
AMBSPSRR	7.35	60,000.00
HRICAR	7.1	60,000.00
RoMan	7	60,000.00

Table 16. The selected proposal suggested for funding for 2nd cut-off date - Instrument # 3

Proposal	Internal Evaluation Score	Budget
HRC	7.7	20,000.00
OPC UA for RobMosys	7	20,000.00
Planning4Papyrus	7.2	20,000.00

The nine (9) experiment consortia involve partners from six European countries; the distribution is shown in Figure 6. Out of the nine (9) new partners, two (2) are non-profit organizations. The total accumulative budget of the nine (9) selected proposals is €420,000, with the requested budget per organization ranging from €20,000 to €60,000.

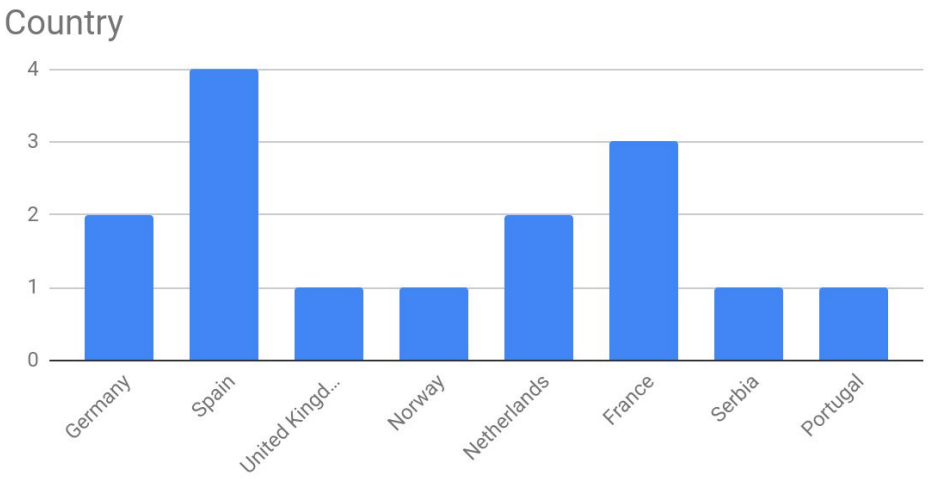
Figure 6. Country distribution of selected partners



4.2.2 Analysis of all received proposals

The majority of the proposals showed a good implementation of the Integrated Technical Project, ITP, (70% of the proposals were above 6), the 90% of the proposals scored above 6 in Technical Excellence, and 80% in Expected Impact.

Figure 7. Countries involved in the proposals



There were no proposals involving countries outside of the EU, Associated Countries to Horizon 2020 Framework Programme, and the United Kingdom.

The total grant amount requested by all the received proposals is €741,316.

4.3 Exclusive cut-off date

Upon closure of the call submission platform on March 3rd, 2020 at 17:00 CEST, 4 proposals were submitted. In this cut-off date all received proposals were considered for the external evaluation, none was rejected for reasons of non-admissibility.

The general statistics for the proposals reviewed in the remote evaluation and the panel can be found in Table 17.

Table 17. Evaluation overview

2nd Call - 3rd Cut-off date	Eligible Proposals	Above thresholds Remote Evaluation	Accepted during Panel Meeting
Number of proposals - Inst. 1	4	3	2
Number of proposals - Inst. 3	0	0	0
Total	4	3	2

The eligibility of proposals followed a two-step filtering process: first considering the score per criterion and then the overall score, obtained by an arithmetic sum. The proposal will be considered as eligible for funding if each mark is not less than 6/10 and the overall score not less than 21/30.

7. Expected impact: (weight 30% and threshold 6/10)
8. Technical excellence: (weight 40% and threshold 6/10)
9. Implementation of the ITP: (weight 30% and threshold 6/10)

Overall score: threshold 21/30

After the panel, two (2) proposals were suggested for possible funding, as shown in Table 18 below. During the panel meeting, in the evaluation of the proposal with a score of 21 or more, it was taken into consideration for Instrument # 1 the application and feasibility using RobMoSys in different robotics fields.

Table 18. Proposals suggested for funding

Proposal-ID	Proposal Acronym	Partners		Focus
49	EXAMFORA	R U Robots Limited	United Kingdom	Fast Adoption - food robots
51	STERAS	Avular B.V.	Netherlands	Fast Adoption - safe navigation

4.3.1 Analysis of the selected proposals

The proposals recommended for funding, as shown in Table 18, cover a broad range of research topics and application fields, and they are in line with the expectations of the call.

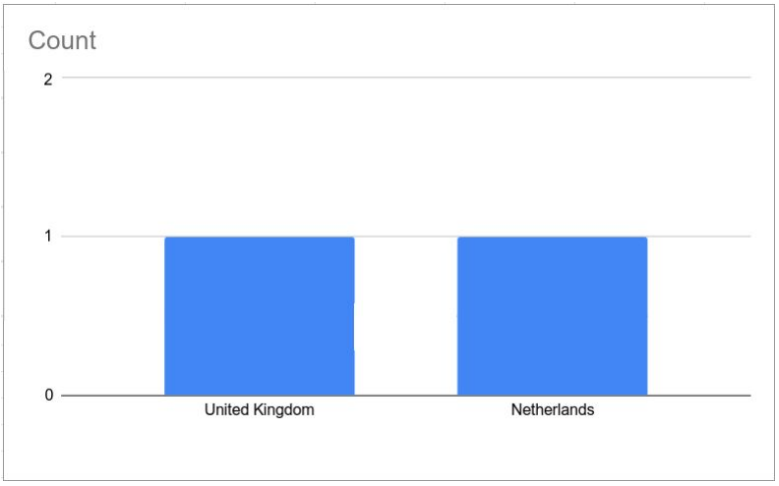
Based on an intensive discussion of the panel meeting in regards to attaining the maximum benefit for the RobMosys project, scientifically and in terms of expenditure, it was recommended to only fund the proposals that fulfilled the requirements of the external evaluation and the feasibility of the proposal using RobMoSys and the tools.

Table 19. The selected proposal suggested funding for an exclusive cut-off date

Proposal	External Evaluation Score	Budget
EXAMFORA	7	60,000.00
STERAS	8.4	60,000.00

The two (2) experiment consortia involve partners from the Netherlands and UK; the distribution is shown in Figure 8. The two (2) new partners are profit organizations. The total accumulative budget of the two (2) selected proposals is €119,895, with the requested budget per organization ranging from €59,250 to €60,000.

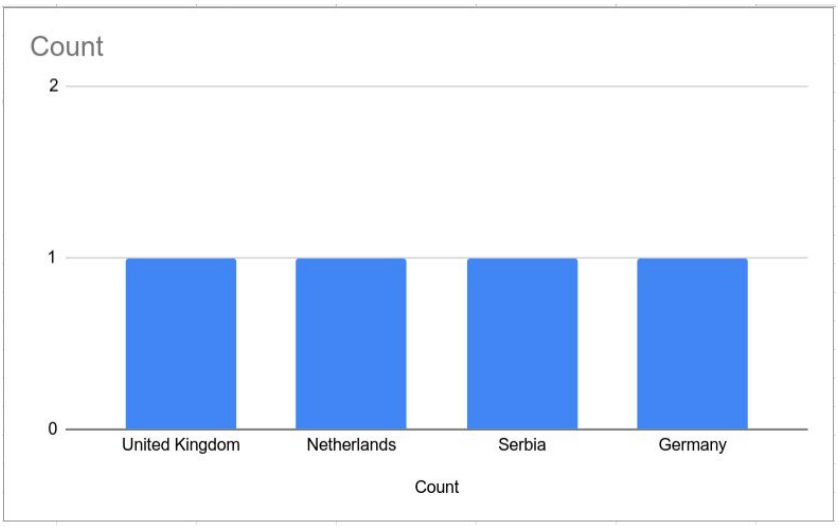
Figure 8. Country distribution of selected partners



4.3.2 Analysis of all received proposals

The majority of the proposals showed a good implementation, Technical Excellence, and Expected Impact of the Integrated Technical Project, ITP, (75% of the proposals were above 6 in these three criteria).

Figure 9. Countries involved in the proposals



There were no proposals involving countries outside of the EU, Associated Countries to Horizon 2020 Framework Programme, and the United Kingdom.

The total grant amount requested by all the received proposals is €179,145.

5 Outlook

The applicants received their notification letter and the evaluation report of the proposal from the coordinator of the project Huascar Espinoza in less than a month after each of the Panel Meetings.

Annex 1 – Guide for Applicants

GUIDE FOR APPLICANTS - CORRECTED

Second RobMoSys Open Call

Contents

Definitions

Instrument:	Type of RobMoSys third-party contract outlining the contributions a successful applicant can make to RobMoSys. This Open call distinguishes three of these "Instruments", each of them with a specific scope, an individual funding scheme and distinctive expected results & impact.
RobMoSys Ecosystem:	The collection of assets (tools, models, software components, application pilots, guidance documents) and services (e.g. for adoption, coaching) issued by RobMoSys, which are developed, maintained and evolved by the RobMoSys Community.
RobMoSys Community:	It is the keystone for the sustainability of the RobMoSys project. The functions of the RobMoSys Community include, but are not limited to: (i) developing RobMoSys models (see: https://robmosys.eu/wiki/model-directory:start) , software components and tools (see: https://robmosys.eu/wiki/baseline:start) to be released/hosted in open source, (ii) operating dedicated code repositories, (ii) build chains, test facilities, fostering exchanges between RobMoSys partners and industry partners, (iv) managing the quality and maturity of RobMoSys tools, (v) ensuring open innovation through the sharing of the research, development, and maintenance efforts as far as possible, fostering sustainable commercial services and ecosystems around the RobMoSys tools.
Integrated Technical Project (ITP):	A third-party RobMoSys-funded project composed of one or more legal entities aiming at adopting, developing or boosting the RobMoSys Ecosystem.
RobMoSys Academy:	The set of structured resources providing guidance and support for RobMoSys stakeholders, including methodological guidance, tutorials, training, demonstrators and coaching.
Coaching Support:	The RobMoSys project assigns one member of the core consortium to each ITP with the following role: to assist the assigned ITP in aligning with RobMoSys background in a consistent way; to serve as main link between the ITP and the RobMoSys consortium for questions or requests or to trigger potential collaborations or interactions between ITPs.
Project Steering Committee (SC):	The RobMoSys Project Steering Committee comprises one representative from each of the core partners of RobMoSys. The Steering Committee is involved in evaluation and selection process to ensure fit between the selected projects and overall goals of RobMoSys.
Expert Evaluators:	The experts, independent of the RobMoSys consortium and of any proposer, with the role of assessing the proposals submitted in response to the Second RobMoSys Open Call.
Expert Rapporteurs:	They are responsible for drafting the consensus report (CR), it can be either one of the evaluators involved in the evaluation of the proposal or an additional expert.

1. General Aspects

1.1. Why this Guide

This guide aims at supporting applicants addressing the *Second Open Call of RobMoSys.* It provides the relevant administrative details. The main purpose of this guide, though, is to outline to the applicants the requirements of the RobMoSys project in order to facilitate proposal matching with the three[3] different *Instruments* embraced in this Second Open Call as well as the overall objectives of the RobMoSys project. The three instruments differ in purpose and expected impact, and hence are subject to different evaluation criteria. The next sections explain the contributions expected from proposals geared to these 3 instruments which can vary considerably.

The RobMoSys Wiki (https://robmosys.eu/wiki/) provides technical details on the RobMoSys approach and on technical topics mentioned in this document. A reading guide to the wiki which is focused on the Second Open Call is available at https://robmosys.eu/wiki/open-call-2.

The a frozen copy/snapshot of the wiki is taken and the archived wiki is going to be available at http://www.robmosys.eu/wiki-sn-03/.

1.2. Objectives of the RobMoSys project

RobMoSys's vision is that of an agile, multi-domain, model-driven European robotics software ecosystem. It will consist of a specialized set of players with both vertical and horizontal integration levels, providing both widely applicable software products and software-related services. This ecosystem will be able to rapidly address new functions and domains at a fraction of today's development costs.

RobMoSys wants to coordinate the efforts and activities of the community in order to realize a step-change towards a **European ecosystem for open and sustainable industry-grade software development for robotics.** Specifically, RobMoSys addresses the following goals:

- **RobMoSys** envisions an integrated approach built on top of the current code-centric robotic platforms, by applying model-driven methods and tools.
- **RobMoSys** will enable the management of the interfaces between different robotics-related domains in an efficient and systematic way according to each system's needs.
- **RobMoSys** aims to establish Quality-of-Service properties, enabling a composition-oriented approach while preserving modularity.
- **RobMoSys** will drive the non-competitive part of building a professional quality ecosystem by encouraging the community involvement.
- **RobMoSys** will elaborate many of the common robot functionalities based on broad involvement of the community via two Open Calls.

Towards that purpose, RobMoSys **creates a consolidated EU Digital Industrial Platform for Robotics** which establishes a common methodology for software development, improves tools and fosters interoperability by model interchange and composability. The RobMoSys approach aims at solving critical issues in the area of robotics software development observed in industry. Moreover, it draws a clear migration path for a step-by-step adoption of existing model-driven software and tool assets, the so-called RobMoSys ecosystem, for interested early adopters.

[3] Upon close inspection of the regulations concerning Financial Support to Third Parties (FSTP) in Horizon2020 it turned out, that the Instrument #4 cannot be funded in its originally foreseen form. Therefore, the second RobMoSys open call had to be amended and the Instrument #4 is no longer a part of it. The budget initially allocated to this instrument has been reallocated to the other three.

The RobMoSys Open Calls are one of the means implemented by the RobMoSys core consortium to achieve this goal. The Second Open Call of RobMoSys focuses on the following aspects:

- **Industry-Driven Ecosystem.** RobMoSys defines a model-based ecosystem of assets and services to help the robotics industry to improve their software/system engineering practices. We look for proposals joining us in our effort to create this ecosystem and to demonstrate with real industrial cases your own success story.
- **Towards a Strong RobMoSys Community.** We call for expert groups willing to be coached by members of the RobMoSys core consortium, in order to implement the RobMoSys concepts. Successful applicants must be ready to advance the RobMoSys way of thinking, and to go for real world examples in line with the RobMoSys industrial pilots (developed by the RobMoSys core consortium).

1.3. RobMoSys Call Principles

RobMoSys strives for high-quality projects funded via the FSTP instrument, FSTP standing for Financial Support to Third Parties, that will facilitate the accomplishment of the goals and impact targeted in RobMoSys. Therefore, proposals will be evaluated not only on the merit of their excellence but mostly on their fit with the RobMoSys goals and approach.

Proposals applying successfully for funding under the technical instruments (see Instrument no 1 and 2 below) must deliver components and documentation that meet the *usability* and *reusability* expectations of engineers in industry who develop *reliable* and *predictable* robotic applications. The adherence of the developed components to the (re)usability expectations will be assessed and verified during the runtime of the selected FSTP projects at least within the RobMoSys Community.

The core aspects of the **technical approach** (instruments 1 and 2) that RobMoSys wants to advocate and support are:

- **better models, better tools, better software**
- rich data sheets for software components
- more inter-component communication patterns, with (richer) configuration capabilities
- horizontal and vertical composition
- system-level performance metrics and explicit dependency relations

Integrated Technical Project (ITP) proposals **must** always realise the **first ambition**, and all of the other aspects that are relevant for each specific instrument.

The cornerstones of the **Coaching Support** (see Instrument 3) by members of the RobMoSys consortium are:

- open communication forum (Discourse software): https://discourse.robmosys.eu/
- internships at RobMoSys consortium member premises
- inter-ITP workshops and workshops open to the broader robotics community (e.g., at European Robotics Forum, in Summer Schools (co)organised by RobMoSys, etc.)
- collaborative improvements of RobMoSys' technical and educational Wiki material (RobMoSys Academy).

2. Instruments

An instrument is a type of RobMoSys third-party contract outlining the contributions a successful applicant is expected to make to RobMoSys. This open call defines three (3) instruments, each of them being characterized by specific contributions, a specific funding scheme, distinct, targeted results and impact as well as own evaluation criteria. Figure 1 shows the main funding figures for each instrument.

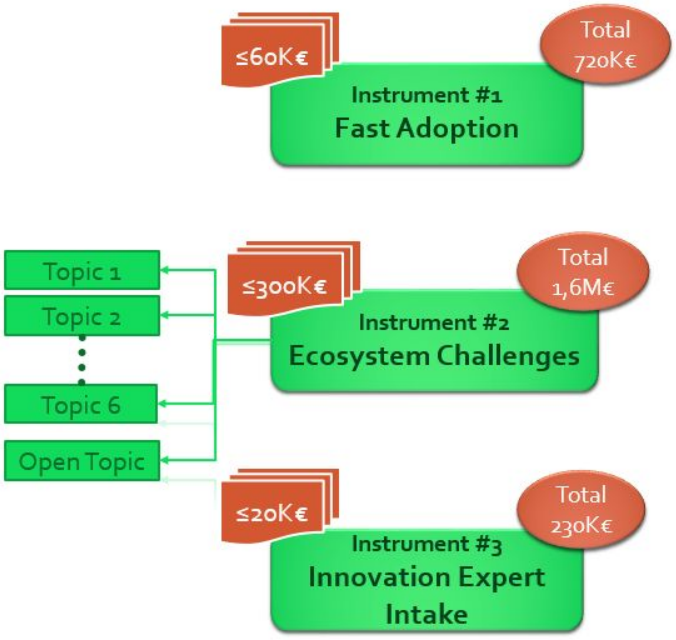


Figure 1. The RobMoSys instruments for the Second Open Call

2.1. Instrument #1: Fast Adoption

With this instrument, RobMoSys wants to boost fast adoption of the RobMoSys approach in industry. It focuses on SMEs and small teams in large industrial companies, target groups ranging from software component suppliers to robotics system builders. The funded ITPs must develop RobMoSys-conformant pilots (industrial case studies) based on existing assets (software and tools from the RobMoSys ecosystem), or provide software components conformant to the RobMoSys pilots.

Instrument #1	**Fast Adoption**
Expected runtime	≤6 months
Total Indicative Budget	720 KEUR
Max Funding per Proposal	60 KEUR
Funding rates	100% for any entity (including 25% indirect costs)
Cut-off dates	April 30, 2019 October 31, 2019
Eligible activities	- Experimentation with RobMoSys Pilots - Software development - Development of demonstrators (showcases, demos, videos) related to own industrial cases in line with RobMoSys Pilots - Co-operation with other members of RobMoSys Community - Participation in inter-ITP workshops organized by RobMoSys (at least one per project)
Expected results	- Demos (e.g., videos) - Adoption Report - Application (usage or implementation) with at least two RobMoSys-conformant components

Targeting the right scope in view of runtime and funding is key: ITPs funded under the umbrella of Instrument 1 are not expected to build applications with fully RobMoSys-conformant software components.

At least two of these RobMoSys-conformant components have to be implemented, though. An overview of RobMoSys-conformant components is provided here: https://robmosys.eu/wiki/model-directory:start. That is the baseline to demonstrate the value of the composability within RobMoSys' (data sheets, system composition patterns and communication patterns), to let the pilot application deal with relevant **cause-effect constraints** between components at the system level.

RobMoSys describes the path of gradual familiarization with the RobMoSys approach and community interaction (see Annex 1).

A project proposal must convincingly demonstrate that the project consortium is ready not to work in isolation, but achieve the targeted results in co-operation with other members of the RobMoSys Community. The RobMoSys consortium will organise dedicated workshops to help projects to achieve this goal, and to have constructively critical discussions on each other's approach, design and software. Project proposals must explicitly plan to participate in such workshops, at least one during the project runtime.

2.2. Instrument #2: Ecosystem Challenges

This instrument aims at strengthening the RobMoSys ecosystem with profound developments on the RobMoSys baseline (models, tools, components, patterns). Submissions of ITPs must fit one or more of the following technical topics:

- Topic 1: ROS 2 and Model-Driven Software Development
- Topic 2: Functional composition inside component
- Topic 3: System level composition / safety
- Topic 4: System level predictability of properties, Navigation
- Topic 5: System level predictability of properties, Manipulation
- Topic 6: OPC UA Robotics
- Topic 7: Open Topic

Further details on each of these Topics can be found at the following Annex 2.

Instrument #2	**Ecosystem Challenges**
Expected runtime	≤12 months
Total Indicative Budget	1,600 KEUR
Max Funding per Proposal	300 KEUR
Funding rates	100% for non-profit third parties (including 25% indirect costs) 70% for profit making third parties (including 25% indirect costs)
Cut-off dates	April 30, 2019
Eligible activities	- Experimentation with RobMoSys Pilots - Software development under the form of models, metamodels and tools - Development of software components for demonstrators related to own case studies or refinement of the RobMoSys pilots - Co-operation with other members of RobMoSys Community - Participation in inter-ITP workshops organized by RobMoSys (at least three per project)
Expected results	- Deliverables to be planned by each ITP (specifications, implementation releases, evaluation reports, among others) - Demonstrators (e.g. videos)

Again, finding the right scope is key: Quality beats quantity: It is much better to provide a small-scale contribution, so that the resulting reliability, predictability, usability and reusability can be developed with greater accuracy, than when diluting the project efforts on a large-scale scope.

Each project proposal must identify explicitly which demonstrator will be developed to benchmark the project's progress, and what exactly the benchmark will be. These targets can be subject to adjustments during the funded runtime of the ITPs. Adjustments may result from discussions with RobMoSys, either

in-person or using the RobMoSys Community building instruments, which are partially in place already, but will be enriched via the projects funded under Instrument 3.

A project proposal must convincingly demonstrate that the project consortium is ready not to work in isolation, but achieve the targeted results in co-operation with other members of the RobMoSys Community. The RobMoSys consortium will organise dedicated workshops to help projects to achieve this goal, and to have constructively critical discussions on each other's approach, design and software. Project proposals must explicitly plan to participate in such workshops, at least one during the project runtime. Applicants have to take this into consideration when they plan their budgets.

2.3. Instrument #3: Innovation Expert Intake

This instrument looks for experts proposals from legal entities that offer their expertise as a service. RobMoSys wants to take them on board in order to push innovation and strengthen the RobMoSys community. Expert services offered can focus on either supporting the RobMoSys Academy or the RobMoSys technology. As a precondition of their involvement, the selected experts must be willing to familiarize themselves with the RobMoSys approach, to actively participate in technical workshops, to meet with RobMoSys partners in their labs, to contribute to the RobMoSys community building, or getting involved in specific ITPs. Please mind that only applications filed by legal entities - not by individual experts - are eligible. Even though the application must be filed by a legal entity, the CV of the individual expert is a fundamental part of the evaluation of proposals under Instrument 3. Once selected for funding, the expert representing the legal entity CANNOT be replaced! Experts with the following background could make a good contribution to the RobMoSys project:

- experts solely involved in the ROS-ecosystem so far, but wanting to get actively involved in RobMoSys now
- experts in real-time embedded systems willing to link their concepts to RobMoSys
- deep software engineering experts wanting to identify how to overcome deficiencies in model-driven tooling workbenches
- experts in automotive software engineering wanting to push forward a link to their resource management
- experts in DDS middle-ware willing to push forward the mapping of RobMoSys communication patterns onto this middle-ware
- experts in world-model
- experts in robotics ecosystem

The applicants with other expertise valuable for RobMoSys are also welcome.

Instrument #3	**Innovation Expert Intake**
Expected runtime	≤6 months
Total Indicative Budget	230 KEUR
Max Funding per Proposal	20 KEUR
Funding rates	100% of personnel costs and travel expenses for any third party entity (no indirect costs)
Cut-off dates	April 30, 2019 October 31, 2019
Eligible activities	- Advising activities at the premises/laboratories of RobMoSys partners - Exploitation of all community-building channels - Identification of projects and applications in terms of suitability to expert's contribution - Co-operation with other members of RobMoSys Community - Participation to Innovation Experts workshops organized by RobMoSys (at least one)
Expected results	- Implementation of community building activities described in the project application - Final Expert Report

As a precondition of their expert involvement, the selected experts must be willing to familiarize themselves with the RobMoSys approach, to actively participate in technical workshops, to meet with RobMoSys partners in their labs, to contribute to the RobMoSys community building, or getting involved in specific ITPs. Please mind that only applications filed by legal entities - not by individual experts - are eligible. Even though the application must be filed by a legal entity, the CV of the individual expert is a fundamental part of the evaluation of proposals under Instrument 3. Once selected for funding, the expert representing the legal entity CANNOT be replaced!

For proposals in this instrument, it is an absolute **must** that the expert exploits all community-building channels offered by RobMoSys,, and identifies (pro-actively and with the help of the coaches of RobMoSys) all projects and applications that can profit most from the expert's contributions.

This instrument is, by necessity, very flexible in terms of the contribution which would be eligible if suggested. However, some contributions are considered as fundamental by RobMoSys:

- *Adoption Measures*: How to improve the fit between RobMoSys and the needs of its user community for easy adoption and how to improve the RobMoSys migration and adoption paths?
- *Digital Infrastructure*: How to improve the RobMoSys digital platform for easy accessibility to software components and for easy interoperability?
- *Market Uptake*: How to develop the RobMoSys strategy for easy management of associated ecosystem technologies (towards marketplaces), and for and for easy alignment with industrial needs?
- *Community Creation*: How to contribute to growing RobMoSys community?
- *Academy Growing*: How to enrich the concept and service portfolio of the RobMoSys Academy, including tutorial, training, methodological guidance and demonstrators

RobMoSys considers that experts with the following background could make a good contribution to the project:

- robotics or software engineering experts solely involved in the ROS-ecosystem so far, but wanting to get actively involved in RobMoSys now
- experts in real-time embedded systems willing to link their concepts to RobMoSys
- deep software engineering experts wanting to identify how to overcome deficiencies in model-driven tooling workbenches
- experts in automotive software engineering wanting to push forward a link to their resource management
- experts in DDS middle-ware willing to push forward the mapping of RobMoSys communication patterns onto this middle-ware

The applicants with other expertise valuable for RobMoSys are also welcome.

Applicants are requested to demonstrate clearly in their proposals that they are very well aware of the areas in which their specific expertise fits best the project goals and the ongoing developments. RobMoSys is interested in building a long-term relationship with the experts. Applicant are further requested to pro-actively discuss the content of their contributions with RobMoSys, using the RobMoSys communication and interaction channels.

3. Proposal submission

The proposal will be submitted via the proposal submission platform. The platform will provide:

- The functionalities to enter general/administrative proposal information and partner data.

- The functionalities to upload a completed proposal document, providing full scientific details of the proposal.
- Information which is required to avoid any potential conflict of interest
- Contacts for administrative, scientific / technical and RobMoSys-related questions
- The link to a ticketing system to address your requests / enquiries

It is the proposers' responsibility to ensure the timely submission of proposals. The complete proposal consists of (i) the completed and uploaded proposal template and (ii) the completed web forms.

Once the requested information has been entered, the portal will allow you to download a combined scientific-administrative document for your reference. You can submit as many times as you like and the version submitted most recently before the deadline will be considered for evaluation. However, the deadlines given in these guidelines are binding and proposals submitted after the deadline will not be taken into consideration.

Shortly after the effective submission of the proposal, an acknowledgement of receipt thereof will be sent to the e-mail address of the proposal coordinator named in the submitted proposal. The sending of an acknowledgement of receipt does not imply that a proposal has been accepted as eligible for evaluation. For any given proposal, the ITP coordinator acts as the main point of contact between the ITP team and RobMoSys.

Upon receipt by RobMoSys, proposals will be registered and their contents entered into a database to support the evaluation process. Eligibility criteria for each proposal will also be checked by RobMoSys before the evaluation begins. Proposals that do not fulfil these criteria will not be included in the evaluation. A proposal will only be considered eligible if it meets all of the following conditions: (i) it was received before the deadline given in the call text, (ii) template and web forms (all sections!) have been completed and (iii) the eligibility criteria set out in Section 3 – Activities, Results and Funding per Instrument are met.

4. General Conditions

The activities eligible for funding as well as the funding rates differ considerably between the different instruments. The relevant information is provided in the overview tables for each of these instruments.

Cost categories eligible for funding:

In RobMoSys open-call ITP budget, mainly address personal expenses (staff and travel).

In Instruments #1 and #2, up to 25% of the budget can be reserved for consumables needed to cover activities related to use case implementation in Pilots. Equipment costs are not eligible. Third parties are expected to provide the entire equipment necessary to perform the activities (robotic platforms, etc.) themselves.

Participants of Instruments #1 and #2 are allowed to sub-contract 10% of the budget, but sub-contracting should not cover core activities (see above overview tables per instrument). Subcontracted activities have to be specified very clearly in the proposal.

Each proposal for an ITP will include justifications of costs and resources. Checking the consistency between these costs and the expected work of the ITP will be part of the evaluation of ITPs.

Funding rates

The following funding rates apply to individual instruments of the Second RobMoSys Open Call:

Instrument #1: 100% funding rate for all entities, including 25% indirect costs.

Instrument #2: 100% funding rate for non-profit entities, 70% for for-profit entities, including 25% indirect costs.

Instrument #3: 100% funding rate of direct personnel and travel costs, **no indirect costs.**

Inter ITP workshops:

All accepted ITPs commit themselves to participate in inter ITP workshops. The purpose of these workshops is to better harmonize the contributions of the different ITPs to the RobMoSys platform and ecosystem and to strengthen cooperation among ITPs. It is intended to have a minimum number of inter ITP workshops as indicated in Section 2 (per Instrument) during the runtime of ITPs

Payment schemes:

In the RobMoSys ITPs, one or more organizations can apply for funding by submitting a proposal describing their goal, the technical plan to achieve it, and an estimate of the involved cost.

Third-party beneficiaries will receive their payments according to the following schedule:

1. One pre-financing payment of 40% of the funding, within 30 days from the entry into force of the ITP agreement;
2. Instrument #2 receives an interim payment of 40% of the funding, within 60 days from receiving an ITP progress report
3. Final balancing payment of all the funding, not exceeding the initial budget, within 60 days from receiving the final ITP report.

Key Performance Indicators:

ITP proposals suggest a limited but sharp set of individual KPIs, these KPIs will be fine-tuned during the preparation of the contract.

Entities eligible for funding:

Because of the expected step change contributions, the Call welcomes, in particular, consortia offering complementary, multi-disciplinary competences that go beyond the mainstream robotics community; for example, robotics experts teaming up with software engineering people, or tool builders, or experts from automotive, aerospace, embedded cyber physical systems.

Instrument 3 is looking for entities, both non-profit and for-profit, employing experts with a background which are described in section 2.3.

In RobMoSyS, financial support may be provided to any legal entity possessing a validated Participant Identification Code (PIC). At the moment of submission, though, the entity can apply with the provisional PIC. Once these conditions are met, financial support can be given to natural persons, public or private bodies, research organizations, non-profit organizations, small and medium enterprises, international organizations, international organizations of EU interest, established in an EU Member State or in an Associated Country.

Maximum funding and possibility to participate in several proposals:

There are no restrictions regarding the number of proposals in which an entity can participate. However, the funding for the beneficiary (as defined by the EC[4]) will not exceed 250,000€ (even if a party participates

[4] http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/amga/h2020-amga_en.pdf

in more than one ITP), restriction of shifts between partners in an ITP concerning this matter will be part of the contract.

5. Ethical issues

Research activities in Horizon 2020, and particularly in RobMoSys, should respect fundamental ethical principles, particularly those outlined in "The European Code of Conduct for Research Integrity". Therefore, questions about ethical issues are to be addressed in the proposal text, if ethical issues apply to an ITP, before and during the runtime of the research activities within RobMoSys, including the approval by the relevant committees.

6. Pre-proposals

As a special service to potential applicants, pre-proposals can be submitted via the RobMoSys Open Call Platform during the first nine weeks after publication of the call. A member of the staff of the RobMoSys Project will respond to applicants within a reasonable period, if longer than five business days the applicants will be informed. The response will be limited to clarifying whether the proposal fits into the scope of the call and is eligible with respect to avoiding conflict of interest with the core consortium. Please note that it is not mandatory to submit one and it has no influence on the evaluation of the full proposal. Pre-proposal should be based on the Proposal Template.

7. Evaluation Process

Proposal writers are strongly advised to read the accompanying document to this "Guide for Applicants", namely the "Guide to Evaluators": by understanding what the RobMoSys Consortium expects from Evaluators, proposal writers should be able to focus their ideas on what is really important, and to improve the quality with which their proposals can be evaluated.

Conflict of Interests (CoI)

The applicants must take all measures to prevent any situation where the impartial and objective implementation of the project is compromised for reasons involving economic interest, political or national affinity, family or emotional ties or any other shared interest ('conflict of interests'). They must formally notify to the RobMoSys Consortium without delay any situation constituting or likely to lead to a conflict of interests and immediately take all the necessary steps to rectify this situation.

Moreover, as the RobMoSys Core Consortium is going to be involved in the evaluation and selection process, it is necessary to ensure from the very beginning that this process remains as transparent and unbiased as possible. A clear violation of impartiality could arise from either legal or financial ties between any of the applicants and any of the members of the core consortium. Examples of such situation include (but are not limited to):

- Member of the core consortium (either institution or any of the persons involved in the implementation of the project) being shareholder of the applying institution
- Member of the core consortium (either institution or any of the persons involved in the implementation of the project) benefitting financially from success of an application
- Any employee of the applying entity being simultaneously an employee of any of the members of the core consortium.

In order to avoid such situations, the applicants will be required to state any relationships with the core consortium during the application process via the online submission platform. Reporting such relationships does not immediately mean exclusion from the call – each such case will be analysed individually, and the decision will be included in the evaluation report. On the contrary, failure to report a potential CoI in case any doubtful relationship is discovered will be automatically considered a disqualifying factor.

Annex 1: RobMoSys Adoption Path

RobMoSys defines a process for stepwisely intensified adoption levels of the RobMoSys approach and community interaction (Figure 2).

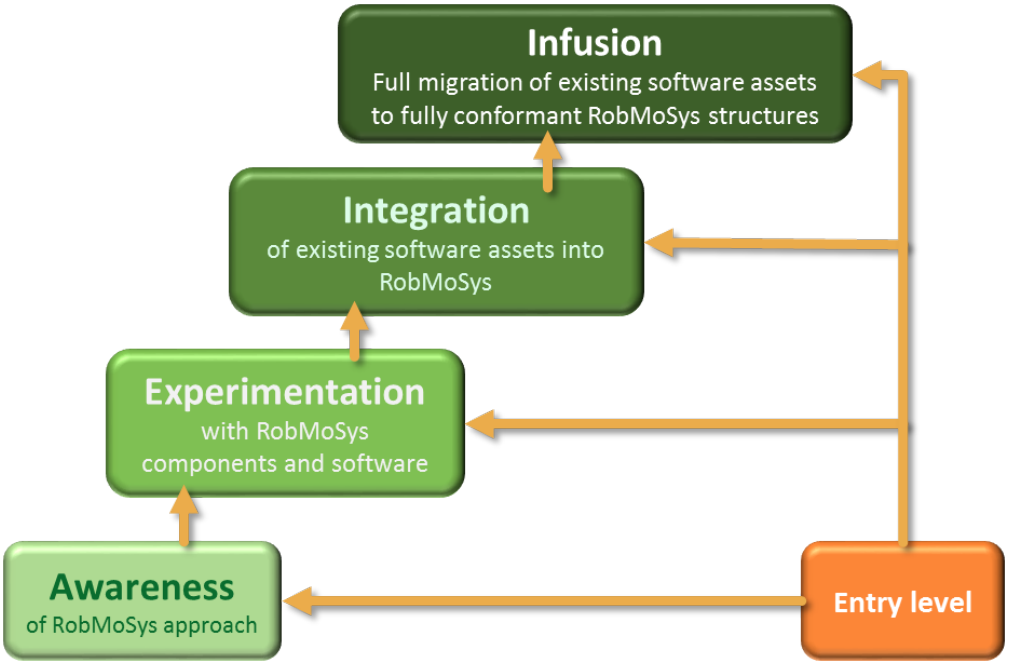


Figure 2. The RobMoSys Adoption Path

Level 1: Awareness. This is the entrance point for RobMoSys newcomers and provides basic information for adoption. RobMoSys provides a structured Tutorial, as well as User Stories (https://robmosys.eu/user-stories/). Other important RobMoSys awareness means are newsletters, Brokerage Days, workshops organized by RobMoSys partners, and Discourse Forum. The main goals of this level are to:

- stay abreast of available RobMoSys principles, modelling structures and tools,
- understand applicability and limitations of the RobMoSys approach to the development of robotics software,
- actively seek the implementation of RobMoSys to appropriate, real software engineering problems in industry, and
- touch base with potential users and verify the need for RobMoSys to adopt its approach and technologies.

Level 2: Experimentation. It implies to set up and run experimental cases to understand and test the RobMoSys approach. RobMoSys facilitates this by providing two toolchains with User Manuals and Usage Scenarios to be reproduced. In addition, a set of RobMoSys pilot skeletons (see one page descriptions of each of these pilots provided as additional information for this call) are available to work on real-world case studies. Finally, RobMoSys fosters "internships": motivated people can spend some time in RobMoSys partner labs, to get embedded in the RobMoSys approach, and to learn first-hand from the core developers within RobMoSys. The main goals stading behind this level of engagement with RobMoSys are to:

- gather hands-on experience with the RobMoSys approach,
- find answers to technical questions and hypothesis by conducting controlled experiments,
- identify any technical constraint to apply RobMoSys in real-world cases, and

- improve, fine tune and extend all RobMoSys information (tutorials, wiki,...). Not in the least by adding to a repository of "best practice designs" of concrete robotic systems.

Level 3: Integration. This is a first step of the RobMoSys migration path. It implies the usage of RobMoSys technologies (models, software components and tools) by robotics development users. These users may keep their existing assets and connect to RobMoSys by using pre-defined mechanisms such as the RobMoSys Mixed Port Component, or partially conform to /convert with RobMoSys structures. The main goals of this level of engagement with RobMoSys are to:

- start with an early adoption of the RobMoSys approach, using RobMoSys architectural patterns and associated tooling,
- support smooth transition to full RobMoSys benefits (compositionality, predictability), by still reusing existing components and systems, and
- develop or adapt (existing) pilots demonstrating the added value offered by RobMoSys in the context of real industrial settings.

Level 4: Infusion. This step implies the full migration of existing assets to fully conformant RobMoSys structures. The main goals are to:

- show full adoption of the RobMoSys approach in an organization,
- demonstrate complete business cases showing a clear Return of Investment (RoI), and
- understand pros and cons of how RobMoSys permeates (an area of) an organization.

The advantage of these different levels (different entry levels with different support from our side) is that we can produce win-win situations at various levels of engagement: migration pilots, coaching, expert advice, and incremental adoption.

Annex 2: Instrument #2 / Ecosystem Challenges

This instrument aims at strengthening the RobMoSys ecosystem with in-depth developments on the RobMoSys baseline (models, tools, components, architectural patterns). Submissions of ITPs must fit one or more of the following technical topics:

Topic 1: ROS 2 and Model-Driven Software Development

We aim for at maximum 1 ITP.

Intention (in direct and close interaction with the RobMoSys consortium):

- ROS-2 concepts shall be classified within the RobMoSys meta-models and concepts. Thereby, it shall become explicit what can / cannot be expected when using which structures of ROS-2. It is also about identifying reasonable clusters of conformance levels to understand what combinations of concepts to use to cover which need of composability, analyzability, predictability.
- The RoMoSys architectural patterns shall be introduced to ROS-2 and shall be realized within ROS-2 or on top of ROS-2 as far as possible and as far as reasonable. Thereby, it shall become explicit how to deal with left open gaps in ROS-2, e.g. how to consistently transform and configure modeled resource configurations for (hard, soft) real-time etc.
- Selected ROS-2 concepts and RobMoSys architectural patterns on top of ROS-2 shall become represented in a consistent way in RobMoSys tooling such that one of the RobMoSys technical user stories can be illustrated.
- Part of the activity is also to establish a sustainable link between the RobMoSys ecosystem and the ROS-2 ecosystem. Thereby, a cross-fertilization between both shall result in a consistent landscape of offerings with a clear understanding of their individual pros and cons as well as the links and complementarities between them.

Hints:

- ROS-2 does not yet offer model-driven composition structures based on the need for separation of roles, analyzability and predictability. Thus, right now you cannot yet get the benefits out of such structures with ROS-2.
- However, there is not always the need for the full semantic richness of the RobMoSys model-driven composition structures. Thus, this is also about identifying reasonable clusters of conformance levels and what kind of properties are covered by which conformance level.
- The focus is on ROS-2 by purpose as ROS-2 provides a much better baseline than ROS-1 for realizing RobMoSys architectural patterns. The structures of ROS-2 are more advanced and much more consistent than those of ROS-1 and they are thus much closer to the structures in the RobMoSys meta-models.
- ROS-1 (sub-)systems can be linked to RobMoSys anyway via e.g. the “Mixed Port Component” which allows for a smooth integration and migration path.

Links to Background:

- ROS-1 Mixed-Port Components in the SmartMDSD Toolchain: https://wiki.servicerobotik-ulm.de/tutorials:ros:mixed-port-component-ros

Topic 2: Functional composition inside components

We aim for at maximum 1 ITP.

Intention (in direct and close interaction with the RobMoSys consortium):

- We call for expertise to introduce further models of computation into the RobMoSys component model. This is foremost about model-driven support for linking functional blocks (function libraries

containing computations and data structures) with resources managed by the component (like communication, coordination and configuration).
- This is also about preserving semantics of data (like precedence constraints, data freshness, variances and others) when linking functional blocks with resources managed by the component. This might include, for example, the configurability of dedicated component internal schedulers at system composition time, a proper trade-off with resources assigned at deployment time and, especially, the model-driven management of constraints along these steps (e.g., the partial ordering constraints involved in the computation of cascaded control and/or estimation loops; or access constraints on data structures in shared memory, such as ringbuffers).
- Another aspect is the representation of selected details of the component internals in its according digital data sheet. This forms the basis for selecting, analyzing, and configuring components at system composition time according to the modeled (extra)functional design of an application.
- The effects and benefits shall be illustrated along selected RobMoSys technical user stories by the example of the RobMoSys pilots.

Hints:
- The RobMoSys software component model already supports computations in triggered tasks (time triggered, port-triggered, state-triggered, etc.). Triggered tasks run concurrently inside a software component and are managed by the lifecycle automaton of the software component.
- During system composition, binary software components are configured to match system level needs. A primary example is dealing with dependency graphs (like cause-effect chains): they involve ports in various components, and the composition under such constraints must result in proper configurations of the trigger settings inside all components involved in a dependency.
- RobMoSys provides first digital data sheets for software components explicating first relevant properties like variation points and data dependencies between ports etc.

Links to Background:
- Annotation and Documentation via the Digital Datasheet: https://wiki.servicerobotik-ulm.de/how-tos:documentation-datasheet:start

Topic 3: System level composition / safety

The development of robotics systems, in particular for operation in proximity to and/or in collaboration with humans, raises safety issues, which are exacerbated by the increasing complexity of software and electronics hardware. This topic asks for proposals to reinforce the RobMoSys ecosystem with model-based safety engineering methods and tools for enabling safety-aware composition of robotics modules. **We aim for one (1) ITP in this topic.**

Intention (in direct and close interaction with the RobMoSys consortium):
- RobMoSys component models must expose safety properties (e.g. potential faults and their propagation models), safety constraints (e.g., safety requirements issued from the risk identification process), and safety assurance artefacts (e.g. FMEA studies for a given module), in a way that they can be used for system-level safety assessment by robotics integrators.
- A RobMoSys modelling view for Safety is being developed and must be enriched with a compositional approach of safety-related information. This will provide versatility of robotics solutions, which will be achieved by the replacement of some components without the need of repeating the whole safety assessment process.
- To improve accessibility, reusability and compositionality of robotics building blocks, this model-based approach must focus on complementing digital data sheets with machine-readable safety-relevant information.
- Proposals must be aligned to safety standards for software and computer hardware development and deployment. Standards such as ISO 13849-1 (Safety of Machinery – Safety Related Parts of Control Systems) and (ISO) EN/IEC 62061 (Safety of Machinery – Functional Safety of safety-related

electrical, electronic and programmable electronic control systems) provide well-proven practices to evaluate risks and to define safeguards and electronics protective measures. In rehabilitation or surgical robotics, the medical devices regulation applies with or EN/IEC 62304 (Medical device software – Software life cycle processes) and functional safety levels can be defined using EN/IEC 61508 (Functional Safety of Electrical/Electronic/Programmable Electronic Safety-related Systems).
- Methodological guidance must be embedded in RobMoSys tools to follow model-based workflows in conformance to safety standards.

Hints:
- Despite the core role and awareness of standards, the usage of available safety recommendations for software and computer hardware development and deployment is rather low in the robotics industry. Proposals must focus on overcoming this situation.
- Contract-based approaches can be of high interest for supporting predictable composition of safety properties. Formalizing safety assumptions and guarantees will reinforce the modelling and validation process.
- Special focus on RobMoSys pilots is expected for example in collaborative robotics, and mobile manipulation.
- Any project in this area is expected to strongly collaborate with RobMoSys partners, as there are some background which must be used as part of any safety-related support.

Links to Background:
- RobMoSys approach for Model-Based Safety Analysis:
  - http://www.servicerobotik-ulm.de/models2018/assets/slides/RobMoSys_MODELS_Papyrus4Robotics.pdf
  - https://robmosys.eu/wiki/baseline:environment_tools:papyrus4robotics
  - https://robmosys.eu/wiki/pilots:hr-collaboration

Topic 4: System level predictability of properties, Navigation

We aim for at maximum 1 ITP.

Intention (in direct and close interaction with the RobMoSys consortium):
- We call for expertise to showcase with us predictability and management of system level properties by means of the RobMoSys model-driven composition approach in the **domain of mobile robot navigation**.
- We aim for predicting, matching and maintaining system level properties during system composition time, during deployment time and during run-time by the example of adequate navigation in different contexts. This includes horizontal as well as vertical composition applied to the navigation domain.
- Thus, the focus is on system level predictability of properties and qualities of navigation skills and composed navigation systems, the according management / reservation of resources as is required vertically (e.g. at the link between task level coordination and skill configuration) and horizontally (e.g. dependency graphs across different components).
- Examples of RobMoSys technical user stories related to this topic are: model-driven reservations of resource shares to achieve an intended quality of navigation; checking the impact of a lower resolution sensor on the outcome of a composed processing chain for navigation; to manage system mode changes with their relevant resource shares from within the task coordination layer; the consistent management of environment models and coordinate system references; policies expressed for navigational spaces which are followed by the robots in these spaces; and many more.
- This requires the implementation and migration of alternative components offering (further) navigation skills with e.g. different qualities and different resource requirements and explicating

their operating modes, variation points and resource requirements. However,, it is ***not*** about researching and developing new navigation algorithms.
- The effects and benefits are to be illustrated by the RobMoSys Application Pilots which relate to mobile navigation, e.g. the application pilot “goods transport in a company” and the application pilot “mobile manipulation for assistive robotics in a domestic environment or in care institutions”.
- In contrast to topic 3, the focus of topic 4 is ***not*** on safety.

Hints:
- RobMoSys offers a pilot skeleton for mobile robot navigation as baseline which comprises domain-specific service definitions, component models, software components and task level coordination for executing navigation tasks. The pilot skeleton is available for different mobile robots and also with a Gazebo simulation.
- Cross-Links between topic 4 navigation, topic 5 manipulation and finally mobile manipulation will be fostered and moderated via the RobMoSys coaching process.

Links to Background:
- Intralogistics Industry 4.0 Robot Fleet Pilot:
  - https://robmosys.eu/wiki/pilots:intralogistics
- Flexible Navigation Stack and its support in RobMoSys tooling:
  - https://robmosys.eu/wiki/domain_models:navigation-stack:start
  - https://robmosys.eu/wiki/baseline:environment_tools:smartsoft:smartmdsd-toolchain:navigation-stack:start
  - https://robmosys.eu/wiki/baseline:scenarios:tiago_smartsoft

Topic 5: System level predictability of properties, Manipulation

We aim at maximum for 1 ITP.

Intention (in direct and close interaction with the RobMoSys consortium):
- We call for expertise to showcase with us predictability and management of the system level properties of the performance of **manipulation applications**, by means of the RobMoSys model-driven composition approach.
- The system level performance includes the feedback to the human operator about the progress of the manipulation task.
- This requires the development of models and meta models with which manipulation tasks can be specified, their properties can be configured, and their execution can be monitored. The aim is *not* to create *the* unique language for manipulation, but to build the generic foundations: links between constraints of manipulation actions as represented by traditional assembly graphs; tooling to create constraints between manipulation actions based on models of the robots’ kinematics, the manipulated objects’ geometry and dynamics, and the available workspace; creation of monitoring actions to check the result of previous manipulations, with a configurable degree of “completeness”; creation of appropriate semantic tags to indicate which series of manipulation actions are expected to be executed atomically, and the tooling to introduce “undo” actions (semi) automatically; etc.
- Tooling to inform the operators about the intentions and predicted space occupation of the robots involved in the manipulation is a plus, considering the industrial relevance of “cobotic applications”.
- In the same context, an extra plus is the development of “shared control” task models, to allow the human operator and the robot(s) to take care of complementary parts of the manipulations, concurrently.
- The effects and benefits are to be illustrated by the RobMoSys Application Pilot which relates to multi-arm manipulation.

- There are cross-links with Topic 2, because of the high relevance of dependency graphs and cause-effect chains. And with Topic 4, because mobile navigation and manipulation have many aspects in common.

Topic 6: OPC UA Robotics

We aim for at maximum 1 ITP.

Intention (in direct and close interaction with the RobMoSys consortium):

- We call for expertise to assist in having OPC UA becoming aware of and taking up RobMoSys architectural patterns for composition. This is to contribute to the OPC UA ecosystem the benefits of the RobMoSys composition approach. This supports to match the not yet covered demands of industry for advanced system composition within the OPC UA industry driven ecosystem.
- We call for expertise in RobMoSys related OPC UA companion specifications, such as the (draft) OPC UA robotics companion specifications. This topic is about the implementation of examples which are conformant to these OPC UA companion specs. The examples shall be in the context of the RobMoSys pilots in order to push forward by concrete settings the link between the industry-driven discussions on domain-specific information models at tier-2 (called companion specs in OPC UA) and the robotics models consolidated by RobMoSys.
- A relevant part of this activity is to bring the expertise of the RobMoSys ecosystem and its advanced architectural patterns for robotics in touch with the industry-driven OPC UA working groups which define the next parts of the robotics companion specification. It is about offering the robotics principles as consolidated by the RobMoSys ecosystem and consultation about them. Thus, strong links into relevant working groups for companion specifications are necessary in order to establish reliable links between the industry driven OPC UA ecosystem for industry 4.0 and the RobMoSys robotics ecosystem. An ideal partner constellation comprises an industrial partner like a robot manufacturer which is already established in the robotics companion specification working group.

Hints:

- OPC UA has the potential to offer a uniform and standardized way to access devices like sensors, mobile platforms and manipulators and to interact in a standardized way with infrastructure outside a robot.
- The RobMoSys architectural patterns are particular strong with respect to coordination, configuration and horizontal composition including digital data sheets and describing and configuring skills. All these topics are envisioned for the next parts of the OPC UA robotics companion specification and thus, consultations and mutual exchange at the tier-2 level between the OPC UA ecosystem bodies and the robotics expertise represented by the RobMoSys ecosystem are desirable.
- An OPC UA mixed port component allows RobMoSys software components to interact with OPC UA devices. The concept, the model-driven support and examples are accessible from within the RobMoSys conformant SmartMDSD Toolchain via the open-source SeRoNet Plug-Ins. These Plug-Ins already cover a first set of OPC UA services for access from within a RobMoSys software component and vice versa.
- A mapping of selected RobMoSys architectural patterns (services, communication patterns, digital data structures) onto OPC UA mechanisms is under preparation by the SeRoNet project to be accessible from within the SmartMDSD Toolchain.

Links to Background:

- OPC UA mixed port component:
  - https://wiki.servicerobotik-ulm.de/tutorials:opcua-client:start
  - https://wiki.servicerobotik-ulm.de/tutorials:opcua-client-system:start
  - https://wiki.servicerobotik-ulm.de/tutorials:opcua-server:start

- OPC UA and RobMoSys architectural patterns:
    - https://robmosys.eu/wiki/other_approaches:opc-ua

Topic 7: Open Topic

We aim for a small numbers of ITPs, that will be selected after ITPs for Topic 1 to Topic 6 have been selected. The contents of the ITPs in this Topic 7 may be along the lines of the previous Call 1, or they should have a similar focus on generic, platform-level models, tools and software. That is, any robotics application should profit from the outcome of a Topic 7 ITP, to various extents. A non-exhaustive list of examples: the generic foundations of control or estimation algorithms and components, or of the instrumentation of components for monitoring, logging and visualization; the generic foundations of formal verification tooling for components and/or systems.

Annex 2 - Guide for Evaluators

GUIDE FOR EVALUATORS - CORRECTED

Second RobMoSys Open Call - 2nd cut-off

Contents

Definitions

Instrument:	Type of RobMoSys third-party contract outlining the contributions a successful applicant can make to RobMoSys. This Open call distinguishes three of these "Instruments", each of them with a specific scope, an individual funding scheme and distinctive expected results & impact.
RobMoSys Ecosystem:	The collection of assets (tools, models, software components, application pilots, guidance documents) and services (e.g. for adoption, coaching) issued by RobMoSys, which are developed, maintained and evolved by the RobMoSys Community.
RobMoSys Community:	It is the keystone for the sustainability of the RobMoSys project. The functions of the RobMoSys Community include, but are not limited to: (i) developing RobMoSys models (see: https://robmosys.eu/wiki/model-directory:start) , software components and tools (see: https://robmosys.eu/wiki/baseline:start) to be released/hosted in open source, (ii) operating dedicated code repositories, (ii) build chains, test facilities, fostering exchanges between RobMoSys partners and industry partners, (iv) managing the quality and maturity of RobMoSys tools, (v) ensuring open innovation through the sharing of the research, development, and maintenance efforts as far as possible, fostering sustainable commercial services and ecosystems around the RobMoSys tools.
Integrated Technical Project (ITP):	A third-party RobMoSys-funded project composed of one or more legal entities aiming at adopting, developing or boosting the RobMoSys Ecosystem.
RobMoSys Academy:	The set of structured resource providing guidance and support for RobMoSys stakeholders, including methodological guidance, tutorials, training, demonstrators and coaching.
Coaching Support:	The RobMoSys project assigns one member of the core consortium to each ITP with the following role: to assist the assigned ITP in aligning with RobMoSys background in a consistent way; to serve as main link between the ITP and the RobMoSys consortium for questions or requests or to trigger potential collaborations or interactions between ITPs.
Project Steering Committee (SC):	The RobMoSys Project Steering Committee comprises one representative from each of the core partners of RobMoSys. The Steering Committee is involved in evaluation and selection process to ensure fit between the selected projects and overall goals of RobMoSys.
Expert Evaluators:	The experts, independent of the RobMoSys consortium and of any proposer, with the role of assessing the proposals submitted in response to the Second RobMoSys Open Call.
Expert Rapporteurs:	They are responsible for drafting the consensus report (CR), it can be either one of the evaluators involved in the evaluation of the proposal or an additional expert.

1. General Aspects

1.1. Why this Guide

This guide aims at supporting the evaluation of proposals submitted to the *Second RobMoSys Open Call*. The evaluation process involves both external evaluators, hereafter called *Expert Evaluators*, and internal evaluators embodied in the RobMoSys Steering Committee (SC). The Second RobMoSys Call embraces three[5] different *Instruments* characterized by distinctive contribution goals and hence different evaluation criteria. The extent of the (external and internal) evaluator role is different depending on the Instrument. This guide will help evaluators to assess proposals, contribute to evaluation panels, and draft evaluation reports.

Further information about RobMoSys vision, principles, adoption path and Instruments can be found in the Guide for Applicants, Section 1.

1.2. Evaluators Role

The underlying principles to bear in mind during evaluation are:

- **Excellence**: projects must demonstrate a high level of quality in relation to the topics and criteria set out in the calls
- **Transparency**: funding decisions must be based on clearly defined rules and procedures, and applicants should receive adequate feedback on the outcome of the evaluation
- **Fairness and impartiality**: all proposals must be treated equally and evaluated impartially on their merits, irrespective of their origin or the identity of the applicants
- **Confidentiality**: all proposals and related data, knowledge and documents must be treated in confidence
- **Speed and efficiency**: proposals should be evaluated and grants awarded and administered as swiftly as possible, without compromising quality or breaking the rules

1.3. Evaluator's Code of Conduct and Conflict of Interest

It should always be anticipated in the Open Call that entities being part of the RobMoSys core consortium ensure the impartial and objective implementation of the action and take all measures to prevent any situation resulting in a "conflict of interests" for reasons involving economic interest, political or national affinity, family or emotional ties or any other shared interest. Therefore, the beneficiaries cannot apply.

As regards other entities who have some link (loose or not) to the beneficiary entities, these can apply to the call as long as the evaluation process (thus the evaluators) is completely independent and none of the above situations occurs and neither is the impartial and objective implementation of the action compromised. The exact procedure for avoiding such conflict is described in the Guide for Applicants of the Second RobMoSys Open Call.

This impartiality will have to be demonstrated in the reports that the European Commission and the Project Officer (EC/PO) receives from the consortium describing the process and results of the calls that have taken place. The EC/PO should as usual not be otherwise involved in the open call process.

[5] Upon close inspection of the regulations concerning Financial Support to Third Parties (FSTP) in Horizon2020 it turned out, that the Instrument #4 cannot be funded in its originally foreseen form. Therefore, the second RobMoSys open call had to be amended and the Instrument #4 is no longer a part of it. The budget initially allocated to this instrument has been reallocated to the other three.

Both external experts (independent from the RobMoSys consortium and also without a conflict of interest with any of proposers) and internal experts (being employees of the members of the RobMoSys consortium but not having a conflict of interest with any of proposers) will be involved in the evaluation process and will have confirmed their independence and neutrality before.

It is important to notice, that all experts perform evaluations in their private capacity, not as representatives of their employer, their country or any other entity. They will sign a declaration of confidentiality concerning the contents of the proposals they read and a declaration of absence of any conflict of interest. Both the confidentiality and the conflict of interest rules will follow the Code of Conduct set out in the Annex 1 of the H2020 Model Contract for experts:

(http://ec.europa.eu/research/participants/data/ref/h2020/experts_manual/h2020-experts-mono-contract_en.pdf).

In addition to a high level of competence, evaluators must not have any conflict of interests. A disqualifying conflict of interest exists if an evaluator:

- Was involved in the preparation of the proposal,
- Could stand to benefit, or to be disadvantaged, as a direct result of the evaluation carried out,
- Has a close family relationship with any person representing a participating organization in the proposal,
- Is a director, trustee or partner of any beneficiary, participating in the proposal, or by a subcontractor/third party carrying out work for any beneficiary in the proposal concerned,
- Is employed by one of the beneficiary in the proposal concerned,
- Is in any other situation that comprises his/her ability to review the proposal impartially. Evaluators with disqualifying conflicts of interest cannot take part in the evaluation of proposals. A potential conflict of interest may exist, even in cases not covered by the clear disqualifying conflicts indicated above, if any expert:
- Was employed by one of the participating organisations in a proposal in the last three years,
- Is involved in a contract or research collaboration with a participating organisation, or had been so in the previous three years
- Is in any other situation that could cast doubt on his/her ability to review the proposal impartially, or that could reasonably appear to do so in the eyes of an external third-party Evaluators cannot evaluate proposals where they have a potential conflict of interest. Also, they are excluded from the panel meeting.

2. Evaluation Process

Project proposals and individual contracts are awarded through different processes depending on the kind of Instrument. Instrument #1 and #2 follow a mixed evaluation process with external and internal evaluators contributing to the peer-review and selection activities. Instrument #3 follows a workflow managed by internal evaluators. This section describes the different roles and workflows for each of the instruments.

2.1. Who is Who

- **External Evaluators**: The experts, independent of the RobMoSys consortium and of any proposer, with the role of assessing the proposals submitted in response to the Second RobMoSys Open Call.
- **RobMoSys Steering Committee (SC)**: The RobMoSys Project Steering Committee in this document. It comprises one representative from each project partner.
- **Expert Rapporteurs**: He/she is responsible for drafting and finalizing the Consensus Report (CR).
- **Panel Moderator**: This role assists the participants of the evaluation panels to arbitrate the discussions.

2.2. Workflows

The sections below present the workflows of the evaluation and selection processes of the individual instruments of the Second RobMoSys open call.

Instrument #1: Fast Adoption

The evaluation will be performed in two steps. In the first step, the External Evaluators will review each proposal according to the expected impact, realistic estimations of effort and benefit, timeline, transfer potential to other domains and cost (see Section 3.1.).

Each proposal will be evaluated by at least two acknowledged evaluators with different expertise, for example in the technology field or in application area(s). Afterwards, for each of the proposals, a consensus report will be drafted by a rapporteur – one of the original evaluators – and agreed upon by all the evaluators assigned to the particular proposal.

The outcome of the first step will be a ranked list of all proposals based on the individual scores obtained by each proposal. In the second step the Steering Committee will identify the most promising candidates. The decision will be strongly based on the ranking created by the External Evaluators. However, the Steering Committee will ensure that the proposals are realistic in terms of time and effort, follow the RobMoSys approach and can have significant impact on the ecosystem. A justification for each alteration of the ranking will be provided by the Steering Committee.

The chair of the Steering Committee will inform all the participants about the results of evaluation and selection. A public summary report will be published on the project website within 30 days from the end of the selection procedure.

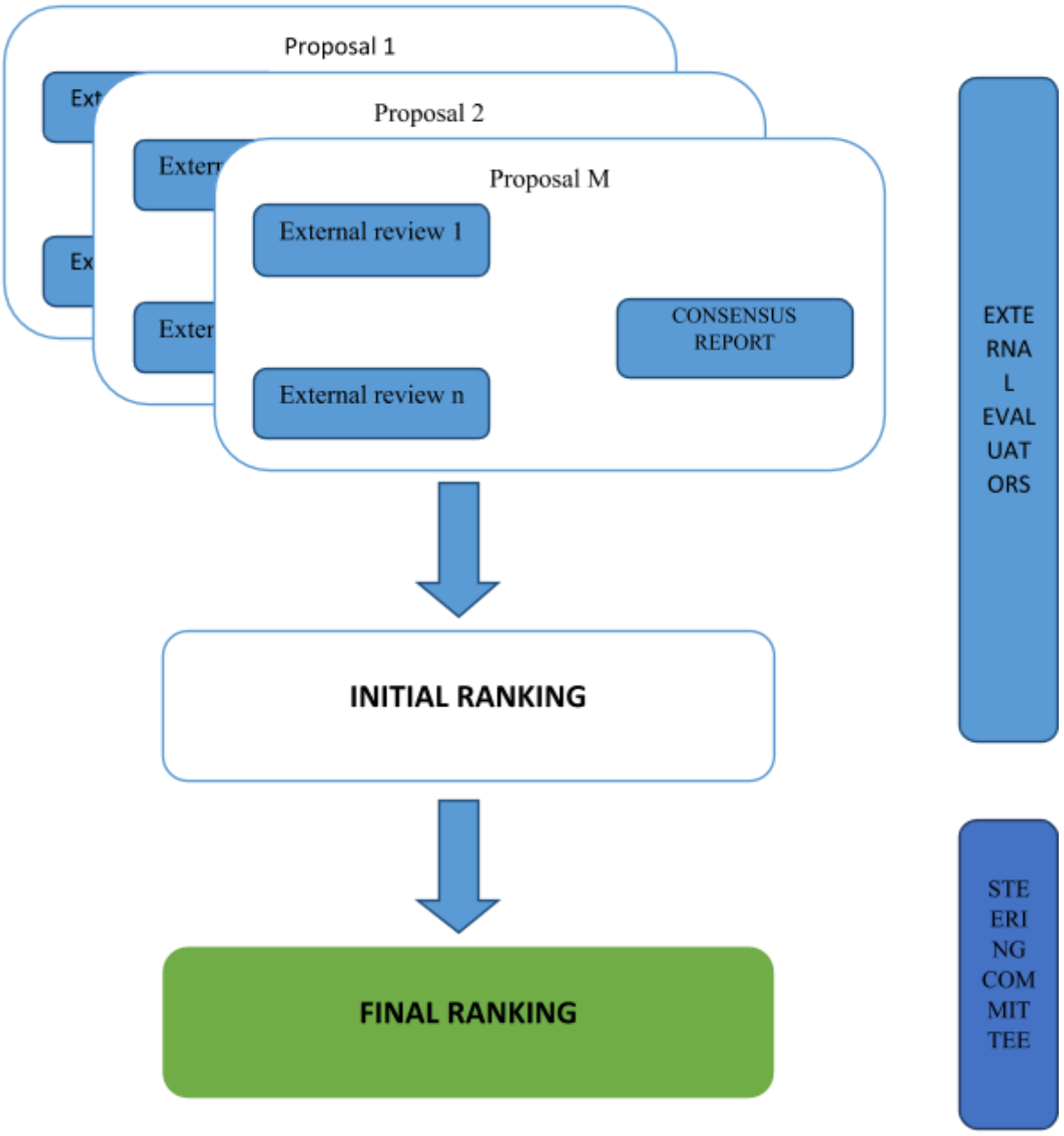


Figure 1. Evaluation workflow for Instrument #1

Instrument #2: Ecosystem Challenges

The evaluation will be performed in three steps. In the first step, both the External Evaluators and the RobMoSys Steering Committee will review each proposal according to the expected impact, technical and scientific excellence and implementation plans (see Section 3.2).

Each proposal will be evaluated by at least two acknowledged evaluators with different expertise, for example in the technology field or in application area(s). Besides assigning scores to each of the criteria the evaluators will recommend either funding of the proposal (A), rejecting it (C) or postponing the decision (B). Afterwards, for each of the proposals, a consensus report will be drafted by a rapporteur – one of the original evaluators – and agreed upon by all the evaluators assigned to the particular proposal. Similarly, Steering Committee will prepare a report in which they comment on the proposal and recommend one of

the actions – A, B or C. The outcome of the first step will be a ranked list of all proposals based on the recommendations and the individual scores obtained by each proposal from the External Evaluators.

In the second step a Panel Meeting, involving all the evaluators and members of the Steering Committee will identify the most promising candidates. Proposals assigned C by the externals evaluators are immediately rejected, whereas proposals assigned A are immediately accepted for the final consideration. Afterwards, all the proposals, for which the recommendation was B are presented by both an External Evaluator involved in the original review and a member of the Steering Committee and discussed upon. A vote involving both the External Evaluators and the Steering Committee decides whether to reject such a proposal or accept it for final round.

In the third step, the Steering Committee proposes a subset of the proposals under final consideration selected to the External Evaluators, who get to vote whether to accept the selection or reject it. Upon rejection, the Steering Committee needs to propose another set based on the recommendations of the External Evaluators. Upon acceptance, the selected proposals are finally accepted.

The chair of the Steering Committee will inform all the participants about the results of evaluation and selection. A public summary report will be published on the project website within 30 days from the end of the selection procedure.

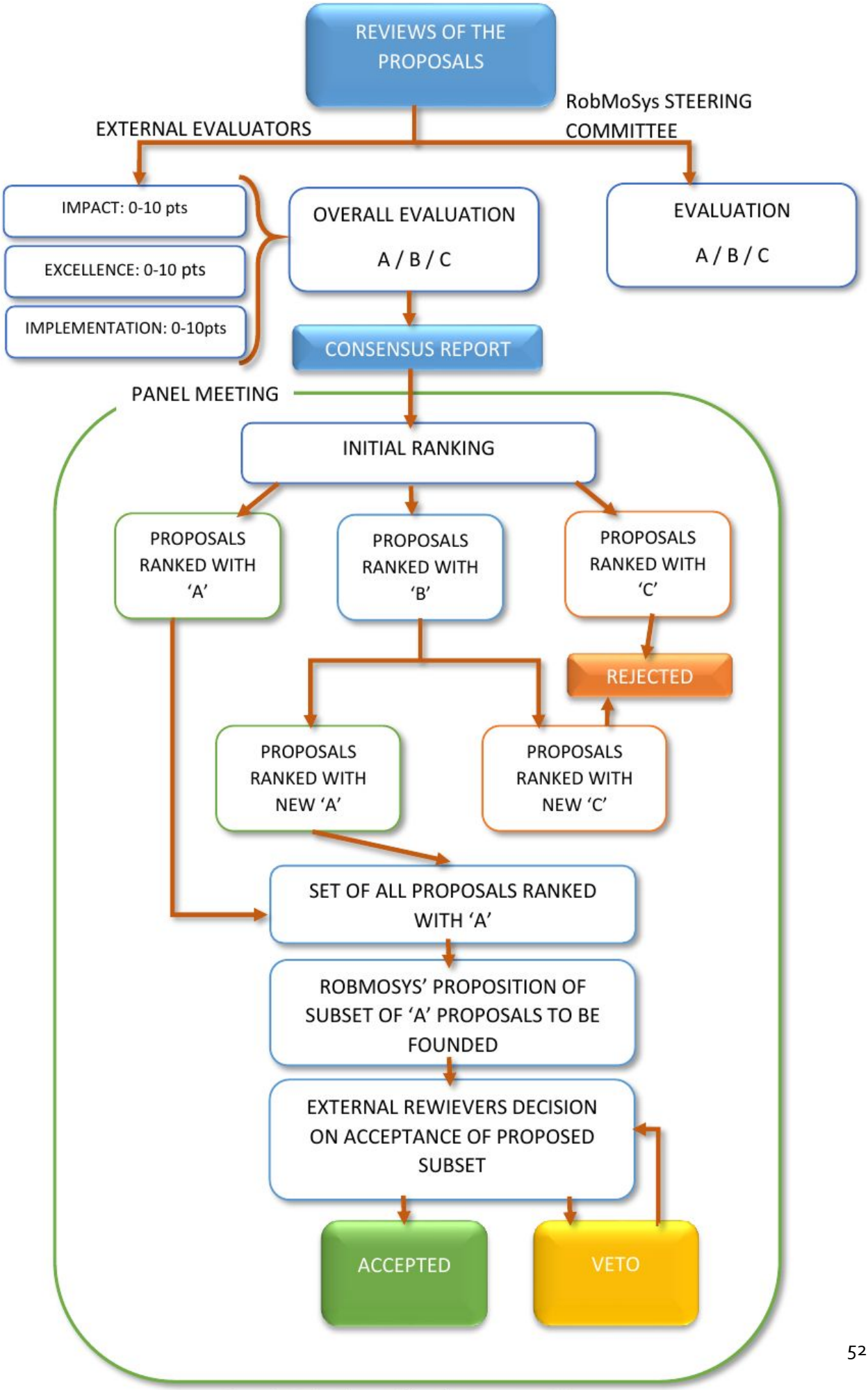


Figure 2. Evaluation workflow for Instrument #2

Instrument #3: Innovation Expert Intake

The proposals will be assigned to individual members of Steering Committee who prepare the individual evaluation reviews based on the criteria described below (see Section 3.3.). An initial ranking will be created based on scores assigned to the individual proposals. Afterwards, the final decision is taken by the Steering Committee that analyses the ranking and reports and has a chance to vote on changing the initial ranking.

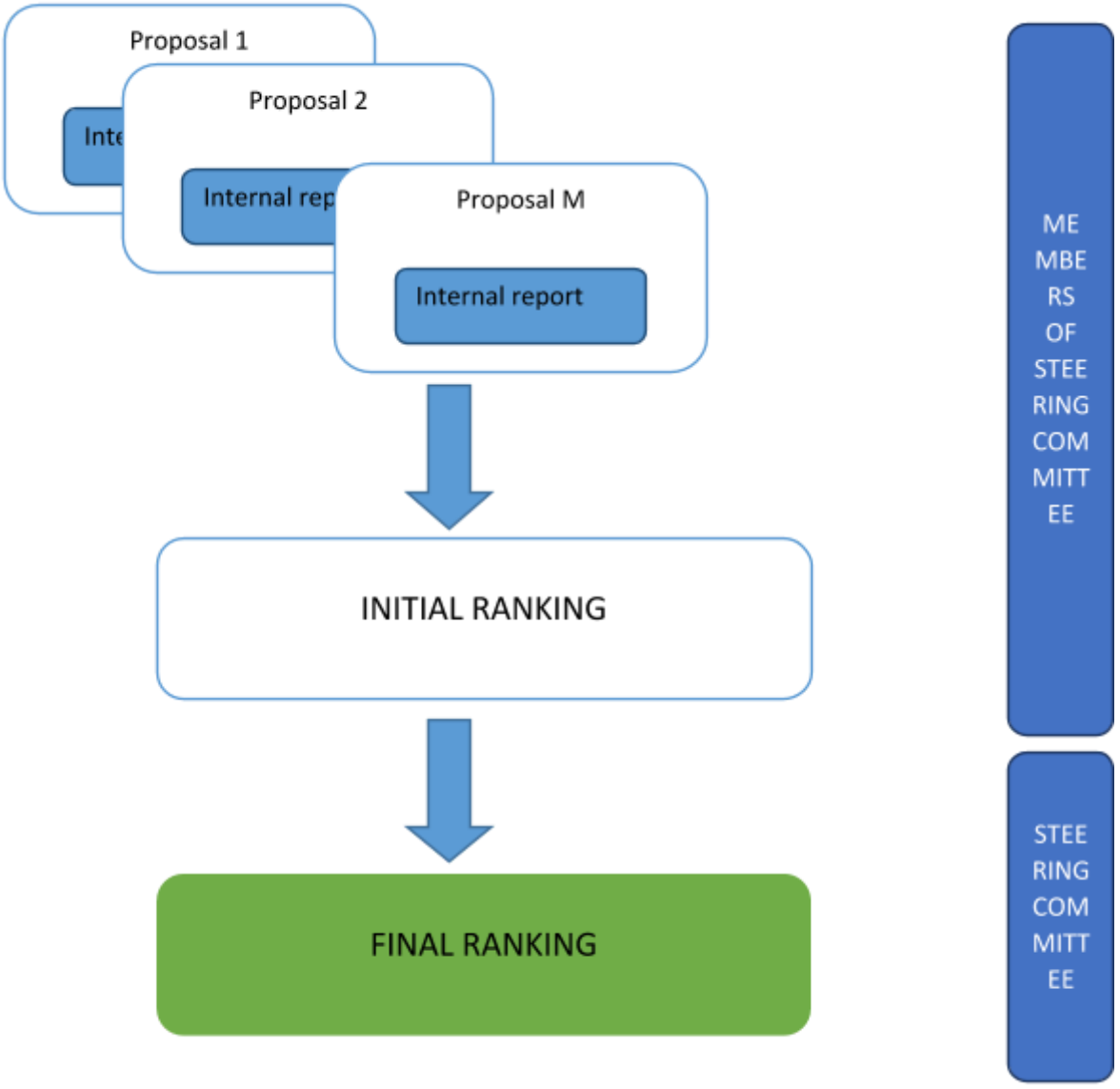


Figure 3. Evaluation workflow for Instrument #3

3. Evaluation Criteria

The sections below present the evaluation criteria for each of the individual proposals of the Second RobMoSys Open Call. The criteria reflect the expected impact of project funded under those instruments.

3.1. Instrument #1

1. Expected impact	**Weight: 40%**
• Show clear roadmap of full adoption of the RobMoSys approach in an organization, in line with the RobMoSys Adoption Path • Size of the potential users group(s) • Demonstrate complete business cases showing a clear Return of Investment (RoI) • Accessibility of the results, preferring open source licensing that enables composability similar to proven platform projects as Eclipse	Score: ? / 10 *(Threshold: 6/10)*
2. Technical excellence	**Weight: 30%**
• Compliance with the RobMoSys meta-models and methodology • Support smooth transition to full RobMoSys benefits (compositionality, predictability) • Develop or adapt (existing) pilots demonstrating RobMoSys added value in the context of real industrial settings • Quality • Envisioned Technology Readiness Level • Clarity of suggested KPIs • Describe the use case that will be developed • Describe the knowledge of the team/company in the topics of work	Score: ? / 10 *(Threshold: 6/10)*
3. Implementation of the ITP	**Weight: 30%**
• Ready not to work in isolation, but in co-operation with other members of the RobMoSys Community. • Composition of the tandem/consortium • Work Description • Risk management	Score: ? / 10 *(Threshold: 6/10)*
Remarks	
Ethical implications and compliance with applicable international, EU and national law	*Essential*
OVERALL SCORE :	Score: ? / 30 *(Threshold 21/30)*

3.2. Instrument #2

1. Expected impact	**Weight: 40%**
• Size of the potential users group(s) • Potential extension of the RobMoSys ecosystem coverage • Accessibility of the results, preferring open source licensing that enables composability similar to proven platform projects as Eclipse • Significance of the results on the development of the RobMoSys approach and community	Score: ? / 10 *(Threshold: 6/10)*
2. Technical excellence	**Weight: 30%**
• Compliance with the RobMoSys meta-models and methodology • The excellence w.r.t. the state of the art in the field • Quality • Envisioned Technology Readiness Level • Clarity of suggested KPIs • Fit to the selected challenge	Score: ? / 10 *(Threshold: 6/10)*
3. Implementation of the ITP	**Weight: 30%**
• Coherence, appropriateness, effectiveness • Composition of the tandem/consortium • Risk management	Score: ? / 10 *(Threshold: 6/10)*
Remarks	
Ethical implications and compliance with applicable international, EU and national law	*Essential*
OVERALL SCORE :	Score: ? / 30 *(Threshold 21/30)*

3.3. Instrument #3

1. Expected impact	**Weight: 40%**
• Size and significance of the community to be reached • Expected results of the planned activities • Quality and importance of events to be attended	Score: ? / 10 *(Threshold: 6/10)*
2. Technical excellence	**Weight: 30%**
• Quality of the technical idea to be analyzed with the core consortium • Experience of the expert assigned to the project • Technical correctness of the community building activities	Score: ? / 10 *(Threshold: 6/10)*
3. Implementation of the ITP	**Weight: 30%**
• Cost effectiveness • Realistic timeline	Score: ? / 10 *(Threshold: 6/10)*

● Planning of the events and/or workshops	
Remarks	
Ethical implications and compliance with applicable international, EU and national law	*Essential*
OVERALL SCORE :	Score: ? / 30 *(Threshold 21/30)*

4. Evaluation Reports

4.1. Individual Evaluation Report (IER)

The evaluators indicate if the proposal falls entirely outside of the scope of the part of the call that they are evaluating or involves ethical issues that will need further scrutiny. They evaluate each proposal considering the evaluation criteria in Section 3. For each criterion, the Expert Evaluators give a **provisional score** between **0 and 10 points**, which are detailed in Table 1 and formulate a set of positive or negative **arguments**. Each argument should be described with two or three lines of text.

Table 1. The grading criteria

0	The proposal fails to address the criterion	The proposal fails to address the criterion under examination or cannot be judged due to missing or incomplete information.
1-2	Poor	The criterion is addressed in an inadequate manner, or there are serious inherent weaknesses.
3-4	Fair	While the proposal broadly addresses the criterion, there are significant weaknesses.
5-6	Good	The proposal addresses the criterion well, although improvements would be necessary.
7-8	Very good	The proposal addresses the criterion very well, although certain improvements are still possible.
9-10	Excellent	The proposal successfully addresses all relevant aspects of the criterion in question. Any shortcomings are minor.

The eligibility of proposals follows the following two-step process: i) only the score per criterion is considered and ii) the overall score is calculated considering the weight of each criterion. The criteria used to evaluate proposals in Instruments 1-3 will be the same as the ones used by the EC, namely **Expected Impact, Technical Excellence**, and **Implementation**:

- The **Expected Impact** considers the following aspects: the foreseen degree in which goals stated in the addressed robotic challenge will be achieved, the potential to develop a ready-for-the-market solution and the potential key exploitation results of the proposed project.
- **Technical/Research Excellence evaluates** adequacy and progress with respect to state of the art in the three instruments and seven robotic topics (Instrument #2) outlined in the call.
- **Implementation (Clarity of the work plan)** considers the adequacy between objectives and allocated resources (including equipment), as well as the overall organisation of the work.

The proposal must have 6/10 per criterion to be considered eligible for funding. The weight and the threshold for each criterion are defined as follows:

1. Technical/Research Excellence: weight 40% and threshold 6/10
2. Expected Impact: weight 30% and threshold 6/10,
3. Implementation (Clarity of the management plan): weight 30% and threshold 6/10.

4.2. Consensus Report (CR)

In Instruments #1 and #2, once the evaluations are completed, the expert evaluators form a remote consensus group to come to a common view, discuss their individual evaluation reports and agree on comments and final scores. The evaluators explicitly agree on both the text and the final mark for each criterion.

The consensus group discussion results in a Consensus Report (CR) drafted by the Rapporteur including justification of scores and dissenting views, if any. It is of the utmost importance that, once the consensus is reached, each evaluator explicitly agrees with the report and the marks. This CR is the base document for the decisions to be made in the panel meeting. Moreover, the CR will be sent to the applicants whose proposals are below threshold score.

5. Ethical issues

Research activities in Horizon 2020, and particularly in RobMoSys, should respect fundamental ethical principles, particularly those outlined in "The European Code of Conduct for Research Integrity". Therefore, questions about ethical issues are to be addressed in the proposal text, if ethical issues apply to an ITP, before and during the runtime of the research activities within RobMoSys, including the approval by the relevant committees.

6. Redress procedure

Upon receiving the evaluation results the applicants have two weeks to start the redress procedure by sending complaint via the e-mail: opencalls@robmosys.eu.

Annex 3 – Model of the Notification Letter

Subject: Evaluation Summary Report
Programme/Call: RobMoSys-1FORC
Proposal: YYY [Number and Name]

Dear XXX,

You submitted the proposal "YYY" in response to the first Call for experiment proposals for RobMoSys contributions. All eligible proposals were evaluated by external independent experts in accordance with the terms of the H2020 evaluation procedures.

Please find enclosed a copy of the Evaluation Summary Report (ESR) for this proposal. The ESR reflects the comments of the evaluators.

or

[This letter is to inform you that the above-mentioned proposal is unfortunately not on the final list of proposals for possible funding, and it has not passed the evaluation thresholds on the basis of the results of the evaluation by experts. Due account was taken of the scores received and of any advice from the experts as well as the budget available.]

or

[This letter is to inform you that the above-mentioned proposal is on the final list of proposals for possible funding on the basis of the results of the evaluation by experts.]

In the coming days, the final funding decision made by the European Commission will be made available on the RobMoSys website. Let me take this opportunity to thank you and your fellow consortium members for the interest shown in RobMoSys and to wish you success in your endeavors. Kindly provide the other members of your consortium with a copy of the attached report.

Yours sincerely,

Annex 4 – Good practices and templates for organizing open calls under the H2020 Financial Support to Third Parties scheme

1. Introduction

Your call should be carried out in the light of the same basic principles which govern Commission calls:

i. **Excellence.** The proposal(s) selected for funding must demonstrate a high quality in the context of the topics and criteria set out in the call;
ii. **Transparency**. Funding decisions must be based on clearly described rules and procedures, and all applicants should receive adequate feedback on the outcome of the evaluation of their proposals;
iii. **Fairness and impartiality.** All proposals submitted to a call are treated equally. They are evaluated impartially on their merits, irrespective of their origin or the identity of the applicants[6];
iv. **Confidentiality.** All proposals and related data, knowledge and documents are treated in confidence;
v. **Efficiency and speed.** Evaluation of proposals and award of the financial support should be as rapid as possible, commensurate with maintaining the quality of the evaluation, and respecting the legal framework.

1. Preparation activities

The Call Announcement

You should prepare a brief announcement about the call (you may use the model included in Annex 1 of this document) which will be published on the Horizon 2020 Participants Portal, and on the project website. It contains a link to the section on the project website where the full call details are published. In order to ensure timely publication on the Participant Portal, please provide the call announcement at least 30 days prior to its foreseen date of publication to your Project Officer.

The Full Call Details

You should prepare a dedicated section of your project's website, which will give proposers the Full Call Details. This must be in line with the specific requirements of the work programme and contain:

- A clear and exhaustive list of the types of activities that qualify for receiving financial support.
- Any restrictions on participation in any part of the call (e.g. only certain types of organisation are required, only organisations based in certain countries etc.). Please note that the calls must have a clear European dimension which can be achieved either through cross border experiments or through expanding local experiments to European scale.
- The criteria determining the award of the financial support.

[6] In the frame of any restrictions provided for in the call

- The criteria for determining the exact amount of financial support and the form that the financial support may take (e.g. a lump sum – either pre-defined or based on estimations of the grant recipient - or the reimbursement of actual costs incurred by the recipients when implementing the supported activities).
- The specific arrangements that the beneficiaries may impose on the third parties (e.g. specific reporting and feedback obligations from the third party towards the beneficiary in respect to the implementation of the supported activities; specific arrangements for providing the financial support; specific rights for the beneficiaries to access and use the results of the supported activities).

- **The information needed to submit a proposal**
    - **The template to be used for the proposals**
    - **The coordinates (email address and telephone number) of a help facility which you must maintain for proposers during the call**
    - The email address to which proposals should be submitted and the call identifier which will be used on these emails
    - The deadline for proposal submission, clearly specifying the local time involved (normally this is local time at the website where the proposals are received).

2. Publication of the call

Following the requirement of the General Annex K of the Work Programme, you will publish the Full Call Details, at least, on the project's own website.

Your Project Officer will arrange to publish the Call Announcement and (a reference to) the Full Call Details on the dedicated web page of the Horizon 2020 Participants Portal.

The call must remain open for the submission of proposals for a period of at least three months. If call deadlines are changed, this must immediately be communicated to the Project Officer for updating the Call Announcement on the Horizon 2020 Participant's Portal. The Full Call Details must be updated on the project's own website and all registered applicants must be informed of the change.

Please make sure that all proposers receive fair and equal treatment. Information or facilities which you supply to any proposer must be equally available to all.

3. Proposal reception

Proposals should be submitted through an electronic exchange system which allows the identification of the time of submission. On receipt of each proposal you should send an Acknowledgment of receipt to the proposer (see example in Annex 2).

You may not accept late submissions; late submitters should receive by return email a "call closed" message from you.

You should evaluate the proposals as submitted: after the call closure no additions or changes to received proposals should be taken into account.

4. Proposal evaluation and selection

Evaluation criteria and procedure

You will evaluate proposals received in the light of the criteria laid down in the Full Call Details. You may use the attached form (see Annex 3).

You remain responsible for the evaluation towards the proposers, even though you may count on the

assistance of experts[7].

If you engage experts for evaluating the proposals, please ensure that they are independent from the organisations involved in the consortium and from any proposer.

The selected experts should sign a declaration of confidentiality concerning the contents of the proposals they read and they should also confirm the absence of any conflict of interest (see an example of such declaration in Annex 4).
The outcome of the evaluation will be a ranked list of all proposals, based on the scores obtained by each proposal.

Proposal selection

Whilst normally the highest ranked proposals will be selected for funding, there might be objective reasons for objecting to a specific third party, for example commercial competition. In this case the choice may pass to the next-ranked proposal.

You may conclude that even the highest scoring proposal is of inadequate quality, in which case you will make no selection. This conclusion is obligatory if all the proposals fall below the threshold scores applied at the evaluation.

In the event of no selection being made, you may re-open the call at a later date. Alternatively, you may conclude that no successful outcome can be expected and abandon the plan to hold an open call. This decision would have to be justified and be the subject of a grant agreement amendment.

5. Reporting, documentation and feedback

Reporting

Shortly after the evaluation you should publish a **public summary report** of the evaluation results on your project website within 30 days of the end of evaluation taking into account your feedback process to the proposers (i.e. the proposers should have received your individual feedback before the public summary report is published). This report should comprise an account of the call, its evaluation and its results, including dates of call, how it was published, dates of evaluation, number of proposals received, number of proposals funded, as well as a list of all selected proposers and their funding amounts (you may use the model included in Annex 5).

Documentation

Additionally to the summary report you have to keep your internal records on the evaluation as audit trail in case of e.g. contestations by proposers, audits, or checks by the commission. These records comprise as a minimum:

- A listing of proposals received, identifying the proposing organisations involved (name and address).
- All received proposals
- All communications with applicants before call closure and during evaluation
- The names and affiliations of the experts involved in the evaluation;
- For each proposal a copy of the filled forms used in the evaluation;
- A record of all incidents which occurred during the evaluation (e.g. how conflict of interest were handled if they were detected during the evaluation process) and any deviation from standard procedure (e.g if a proposer selected was not the highest scoring one, you must document the objective reasons why the highest scoring one was passed over)

[7] The selection of these experts should follow the conditions foreseen in Article 10 of the Model Grant Agreement.

Feedback to proposers

After the evaluation of the proposals, you will get into contact with the successful proposer(s).

You should communicate to the other proposers that their proposal was not successful in the call, and should enclose to each a summary of the evaluation result of their proposal addressing the respective award criteria.

Annex 1 – Call announcement format

Announcement of an open call for recipients of financial support

Project **acronym:** XXX
Project **grant agreement number:** XXX
Project **full name:** YYY

Project XXX, co-funded from the European Union's Horizon 2020 research and innovation programme under grant agreement No XXX, foresees as an eligible activity the provision of financial support to third parties, as a means to achieve its own objectives.

The types of activities to perform that qualify for receiving financial support are XXX.

Deadline: XXX
Expected duration of participation: XXX
Maximum amount of financial support for each third party: XXX
Call identifier: XXX call
Language in which proposal should be submitted: XXX
Web link for further information (full call text/proposal guidelines/call results) on your official project web site: www.xxx-project.eu/xxx
Email address for further information: XXX@XXX.com

Annex 2 - Acknowledgment of receipt

Acknowledgment of receipt

Dear XXX,

Thank you for submitting your proposal for consideration as a recipient of financial support in the frame of project XXX.

The evaluation of all proposals received will take place in the next few weeks. You will be notified as soon as possible after this of whether your proposal has been successful or not.

On behalf of my colleagues on the project, I would like to thank you for your interest in our activities.

Yours sincerely,

Annex 3 – Evaluation form

Individual evaluation/Consensus (delete as appropriate)

Proposal No. :	**Acronym :**

1. Award criterion 1	**Score:** *(Threshold 3/5; Weight)*[8]
2. Award criterion 2	**Score:** *(Threshold 3/5; Weight 1)*

3. Award criterion 3	**Score:** *(Threshold 3/5; Weight 1)*
Remarks	**Overall score:** *(Threshold 10/15)*

I declare that, to the best of my knowledge, I have no direct or indirect conflict of interest in the evaluation of this proposal

Name	
Signature	
Date	

[8] Thresholds and weights are standard values which can be adapted to the needs of the specific evaluation, if necessary

0 The proposal fails to address the criterion under examination or cannot be judged due to missing or incomplete information; 1 Poor The criterion is addressed in an inadequate manner, or there are serious inherent weaknesses; 2 Fair While the proposal broadly addresses the criterion, there are significant weaknesses; 3 Good The proposal addresses the criterion well, although improvements would be necessary; 4 Very good The proposal addresses the criterion very well, although certain improvements are still possible; 5 Excellent The proposal successfully addresses all relevant aspects of the criterion in question. Any shortcomings are minor.

RobMoSys

Annex 4 – Confidentiality and conflict of interest declaration

I the undersigned declare that, in participating as an independent expert in the evaluation of proposals received in the open call of project XXX

I undertake to treat as confidential all information contained in the proposals which I am asked to evaluate, both during the evaluation and afterwards.

I will not reveal to any third party the identity or any details of the views of my fellow evaluator(s), neither during the evaluation nor afterwards

I do not, to the best of my knowledge, have any interest in any of the proposals submitted in this call, I have not been involved in their preparation and I do not benefit either directly or indirectly from the eventual selection. Should I discover a conflict of interest during the evaluation, I undertake to declare this and to withdraw from the evaluation.

Name	
Signature	
Date	

THIS PROJECT HAS RECEIVED FUNDING FROM THE *EUROPEAN UNION'S HORIZON 2020 RESEARCH AND INNOVATION PROGRAMME* UNDER GRANT AGREEMENT NO. 732410

RobMoSys

Panel Report

First Cut-Off Date

Second Open Call for RobMoSys Contributions

July 2nd- 3rd, 2019

Panel Chair: Alois Knoll

Version: July 15th, 2019

Overview of topics

1. Introduction and methodology

This report covers the Panel Meeting for the first round of the Second Open Call for RobMoSys Contributions, held in Leuven, Belgium, on July 2nd and 3rd, 2019.
The first round of this call was opened on February 1st and closed on May 7th, 2019 at 17:00 Brussels time. The second round was scheduled to be opened on August 1st, 2019.
The call was divided into three Instruments with different scope and objectives. Details on each Instrument are available in the *Guide for Applicants*.

General statistics about the received proposals can be found in Table 1.

	Received proposals	Eligible proposals	Proposals accepted after remote evaluation	Proposals accepted after panel meeting
Instrument #1	4	4	1	1
Instrument #2	21	20	16	9
Instrument #3	1	1	1	1
Total number of proposals	26	25	18	11
Total percentage	100%	96.15%	88.46%/69.23%	42.31%

There was 1 submission of a pre-proposal for preliminary check and 1 incomplete proposal. Those proposals were not reviewed, neither during remote evaluation or in the panel meeting. Also, most submissions had more than one version of the proposal. The last uploaded to the platform version was considered for funding.

Once the requirements regarding eligibility of the proposals and absence of conflicts of interest, the evaluation process was designed as follows:

- Instrument #1
  - Two independent external experts submitted their individual evaluations via the Open Calls Platform. In case of significant differences, a third evaluator was involved.
  - One of the independent external experts wrote a Consensus Report (CR) based on the individual evaluations and the blog discussions.
  - During the Panel Meeting each proposal was presented by one independent external expert.
  - Members of the steering committee of RobMoSys discussed all proposals and decided about a final ranking.
- Instrument #2
  - Two independent external experts submitted their individual evaluations via the Open Calls Platform. In case of significant differences, a third external evaluator was involved. The score expressed in points obtained by the proposal was then translated into recommendation bins: A (recommended for funding), B (recommended for further discussions), C (immediately rejected).
  - Two internal experts, from the RobMoSys scientific members, submitted their individual evaluations expressed in recommendation bins via the Open Calls Platform.
  - One of the independent external experts wrote a Consensus Report (CR) based on the external individual evaluations and the blog discussions between him and the other external reviewer.

    - One of the internal experts wrote a Consensus Report (CR) based on the internal individual evaluations and the blog discussions between him and the other internal reviewer.
    - The remote evaluation processes of external and internal experts were kept separated. That approach ensured the impartiality of the reviewers.
    - During the Panel Meeting each proposal was presented by one internal expert.
    - Members of the steering committee of RobMoSys and independent external experts discussed proposals and decided about a final ranking.
- Instrument #3
    - Two internal experts were assigned to each proposal.
    - Aforementioned experts submitted their individual evaluations expressed in recommendation bins via the Open Calls Platform.
    - One of the internal experts wrote a Consensus Report (CR) based on the internal individual evaluations and the blog discussions between him and the other internal reviewer.
    - During the Panel Meeting each proposal was presented by one internal expert.
    - Members of the steering committee of RobMoSys discussed all proposals and decided about a final ranking.

Each proposal was evaluated according to three criterions: Expected Impact, Technical Excellence and Implementation.
The eligibility of proposals followed a two-step filtering process: first considering the score per criterion and then the overall score, obtained by arithmetic sum. A proposal was considered as eligible for next step of evaluation if each mark is not less than 6/10 and the overall score not less than 21/30. Details on each criterion:

Expected Impact: weight 40% and threshold 6/10
Technical Excellence: weight 30% and threshold 6/10
Implementation of the ITP: weight 30% and threshold 6/10
Overall score threshold 21/30.

In order to translate obtained points into recommendation bins the weighted average was calculated for each proposal. Bandwidths for recommendation bins are as follows:

- A (recommended for funding) 8-10,
- B (recommended for further discussions) 4-7.99,
- C (immediately rejected) < 3.99.

During the Panel Meeting the scores of the proposals, within each Instrument, were calibrated and the final ranking was established in agreement of the panelists, by simple-majority vote.

2. Analysis of the results of the remote evaluation

The first round of RobMoSys Second Open Call was closed on May 7th, 2019, at 17:00 Brussels time.

26 proposals were submitted as a final submission of the application. One proposal was not completed therefore not eligible and was not reviewed, neither during the remote evaluation nor in the panel meeting.

A total number of proposals evaluated in each Instrument was as follows:

- Instrument #1 – 4 proposals were evaluated by two or three independent external evaluators.
- Instrument #2 – 20 proposals were evaluated by two independent external evaluators and two internal evaluators.
- Instrument #3 – 1 proposal was evaluated by two internal evaluators.

There was only one proposal where external evaluators could not reach a consensus. Therefore, a third external evaluator was assigned to give the final review.

The ranking of the admissible proposals for first round of Second Open Call for RobMoSys Contributions after the remote evaluation is as follows:

		External evaluation						Internal evaluation		
Instrument	**Proposal acronym**	Crit.1	Crit. 2	Crit. 3	Weighted Avg	Total score	**Recomm. bins**	Ev1	Ev2	Consensus
1	AROSYS	**7**	**6.5**	**7**	**6.85**	**21**	**-**	-	-	-
1	EXAMFORA	**4**	**5**	**4**	**4.3**	**13**	**-**	-	-	-
1	ROBOX	**6**	**6**	**5**	**5.7**	**17**	**-**	-	-	-
1	SSR	**5**	**5**	**2**	**4.1**	**12**	**-**	-	-	-
2	MOCS	**6.5**	**6.5**	**7.5**	**6.8**	**21**	**B**	**A**	**A**	**A**
2	MROS	**8**	**7**	**7**	**7.4**	**22**	**B**	**B**	**A**	**A**
2	cbcb4MBE	**6**	**7**	**8**	**6.9**	**21**	**B**	**B**	**C**	**C**
2	Co-RobMoSys	**3**	**4**	**3**	**3.3**	**10**	**C**	**C**	**C**	**C**
2	COCORF	**7.5**	**8.5**	**8**	**7.95**	**24**	**B**	**A**	**A**	**A**
2	VeriComp	**7**	**8**	**6**	**7**	**21**	**B**	**A**	**A**	**A**
2	ARCAID	**7**	**5**	**6**	**6.1**	**18**	**B**	**A**	**C**	**B**
2	ForSamara	**8**	**7**	**6**	**7.1**	**21**	**B**	**C**	**B**	**B**
2	SafeCC4Robot	**7**	**7**	**6.5**	**6.85**	**21**	**B**	**A**	**A**	**A**
2	SafeCODE	**7.5**	**6.5**	**6.5**	**6.9**	**21**	**B**	**A**	**C**	**B**
2	SCOPE	**8.5**	**7**	**7**	**7.6**	**23**	**B**	**B**	**A**	**B**
2	Democratize	**8**	**8**	**8**	**8**	**24**	**A**	**C**	**C**	**C**
2	MIRoN	**9**	**8**	**7**	**8.1**	**24**	**A**	**A**	**B**	**A**
2	NavCoM	**7**	**7**	**6**	**6.7**	**20**	**B**	**A**	**B**	**B**
2	CLOTHO	**8**	**9**	**8.5**	**8.45**	**26**	**A**	**B**	**B**	**B**
2	RobMoSys-EGCS	**7.5**	**7.5**	**8**	**7.65**	**23**	**B**	**B**	**B**	**B**
2	ASTERIA	**4**	**2**	**1**	**2.5**	**7**	**C**	**C**	**B**	**B**
2	CMCI	**8**	**8**	**8**	**8**	**24**	**A**	**B**	**B**	**B**
2	MCPHRI	**9**	**9**	**9**	**9**	**27**	**A**	**C**	**B**	**B**
2	SLOG	**6.5**	**6.5**	**7.5**	**6.8**	**21**	**B**	**A**	**A**	**A**
3	SmartDDS	**9**	**8**	**8**	**8.4**	**25**	**-**	-	-	-

Comments on the results of remote evaluation:

- Instrument #1 – 3 out of 4 proposals were not eligible for next step of evaluation.
- Instrument #2 – 4 out of 20 proposals were not eligible for next step of evaluation.

- Instrument #3 – all proposals were eligible for the next step of evaluation.

3. Panel Meeting

3.1. Objective of the panel meeting

- To achieve agreed conclusion on evaluation of the proposals,
- To finalize the Evaluation Summary Reports of the proposals,
- To rank the proposals above the threshold,
- To prepare the Panel Report for the European Commission.

3.2. Participants

Panel Chair:
Alois Knoll [AK]

External Panelists:
Ali Muhammad [AM]
Iñaki Diaz Garmendia [IDG]
Javier Clvera [JC]
Loris Roveda [LR]
Panagiota Tsarouchi [PT]

RobMoSys Steering Committee:
EUnited: Georg von Wichert (proxy) [GW]
Siemens: Georg von Wichert [GW]
CEA: Huascar Espinoza [HE]
Hochschule Ulm: Christian Schlegel [CS]
PAL Robotics: Sergi Garcia [SG]
Eclipse Foundation: Gaël Blondelle [GB]
KU Leuven: Herman Bruyninckx [HB]
COMAU: absent (no proxy)
TUM: Luz Martinez [LM]

RobMoSys Back Benchers:
Siemens: Daniel Meyer-Delius [DMD]
EUnited: none
CEA: Matteo Morelli [MM]
TUM: none
Hochschule Ulm: Dennis Stampfer [DS]
PAL Robotics: none
Eclipse foundation: none
KU Leuven: Enea Scioni [ES]
COMAU: none

Panel Minutes Keepers:
Zuzanna Domagała [ZD]
Marie-Luise Neitz [MLN]

3.3. Roles of participants

Panel chair: moderates the discussion, highlights aspects which are particularly relevant for RobMoSys, casting vote in case of undecided votes, in charge of the Panel Report.

External panelists: vote on behalf of the panel, contribute to the Panel Report, generate the Evaluation Summary Reports for each of the applicants to inform them about the results of the panel (funding decision).

RobMoSys Steering Committee: One representative of each core partner, vote on behalf of the consortium (simple majority, abstentions not possible).

RobMoSys Back Benchers: Scientists of the consortium who will present the proposals to the external panelists, supporting the steering committee, no voting right.

Panel Minute Keepers: Keep the minutes during the panel which is the basis of the Panel Report and the deliverable RobMoSys on Second Open Call.

3.4. Basic rules of the panel meeting

Voting: done by simple majority.

Proxy: there is possibility to pass the voting right to another member of the steering committee in case of absence of the representative of a particular member of the consortium.

Out-of-the-room rule: The rule is applied in case of any situation where the impartial and objective implementation of the panelists' work is compromised. A panelist with conflict of interest steps outside the meeting room in order to have no impact on the evaluation process of a proposal in question.

3.5. Schedule of the panel meeting

3.5.1. July 2nd, 2019

10:00 to 10:10	Welcome and introduction of the agenda – Prof. Herman Bruyninckx
10:10 to 10:25	Short introduction round of participants – Chair Prof. Alois Knoll
10:25 to 10:45	RobMoSys – Instrument #2 – What are we looking for? – Prof. Christian Schlegel

10:45 to 11:05	Basic principles and governance of the panel meeting – Marie-Luise Neitz
11:05 to 11:20	**Coffee break**
11:20 to 12:30	Individual presentations by internal evaluators and discussion of 'B' proposals to regroup them in 'A' or 'C'. • MOCS – Huascar Espinoza • MROS – Luz Martínez • cbcb4MBE – Prof. Herman Bruyninckx • COCORF – Daniel Meyer-Delius • VeriComp – Matteo Morelli • ARCAID – Prof. Herman Bruyninckx • ForSamara – Matteo Morelli • SafeCC4Robot – Sergio Garcia • SafeCODE – Daniel Meyer-Delius • SCOPE – Prof. Christian Schlegel
12:30 to 13:30	**LUNCH TIME**
13:30 to 14:00	Individual presentations by internal evaluators and discussion of 'B' proposals to regroup them in 'A' or 'C'. • NavCoM – Dennis Stampfer • RobMoSys-EGCS – Enea Scioni • SLOG – Luz Martínez
14:00 to 14:30	Presentation of 'A' proposals. Those proposals who has been 'A' since the beginning. • Democratize – Prof. Christian Schlegel • MiRoN – Sergio Garcia • CLOTHO – Daniel Meyer-Delius • CMCI – Huascar Espinoza • MCPHRI – Dennis Stampfer
14:30 to 15:00	Discussion of 'A' proposals by members of the RobMoSys Steering Committee (external evaluators leave the room)
15:00 to 15:30	Presentation of results of discussion by Steering Committee to external evaluators.
15:30 to 15:45	**Coffee break**

15:45 to 16:10	Discussion of the suggestions by external evaluators, members of the RobMoSys consortium to leave the room.
16:10 to 16:40	Outcome of the discussion presented by external evaluators to members of the RobMosys core consortium.
16:40 to 17:45	Time slot reserved for further fine-tuning if necessary
17:45 to 18:00	Governance of the panel meeting, timeline and next steps
18:00	Farewell and invitation to dinner.

3.5.2. July 3rd, 2019

09:00 to 09:10	Introduction Instrument #1
09:10 to 09:20	Explanation of the agenda and the procedures
09:20 to 09:30	Ranking presentation
09:30 to 10:15	Presentations of proposals
10:15 to 11:00	Selection of proposals to be founded
11:20 to 11:30	**BREAK**
11:30 to 11:40	Introduction Instrument #3 and procedures
11:40 to 11:50	Presentations of proposals
11:50 to 12:10	Evaluation of proposals
12:10 to 12:30	Approval of the panel minutes and the final list
12:30 to 13:40	**LUNCH TIME**

4. Results of the Panel Meeting

Comments on Panel Meeting discussions:

- Instrument #1 – It is clear from the table of results of the remote evaluation that three out of four proposals are not eligible for the next step of review. The one, with sufficient number of points after remote evaluation, claimed for an excessive budget. In such a situation it was decided to discuss all proposals in order to analyze the content. This could improve the description of the second round of this open call and result in proposals of higher quality.

- Instrument #2 – Table with results of remote evaluation shows that 4 proposals should not be considered during the panel meeting. The reviews of internal experts were considered as auxiliary opinion. Nevertheless, in cases of significant differences between internal and external evaluations, it was decided to include particular proposals under the discussion. That decision resulted in immediate rejection of two poorly evaluated proposals and inclusion of other two into the evaluation process.
- Instrument #3 – no additional comments.

In order to create a score of the internal evaluation, each proposal receives 3 points for an A, 2 points for a B and 1 point for a 1.

Table with results of panel meeting

Proposals	Topics	External Score	Internal Score	Budget	Accepted
MROS	1	7.40	5.00	€299,999	yes
VeriComp	2	7.00	6.00	$245,000	yes
COCORF	2	7.95	6.00	€99,540	no
SCOPE	3	7.60	4.00	€250,575	yes
ForSamara	3	7.10	3.00	€282,968	yes
SafeCC4Robot	3	6.85	6.00	€91,000	yes
MIRoN	4	8.10	5.00	€291,025	yes
Democratize	4	8.00	2.00	€162,500	no
RobMoSys-EGCS	5	7.65	4.00	€275,813	yes
CMCI	7	8.00	4.00	€221,000	yes
MCPHRI	7	9.00	3.00	€246,750	no
SLOG	7	6.80	6.00	€294,381	no

Annex 1 – Summary Reports

Instrument #1

Second Open Call for RobMoSys Contributions

Evaluation Summary Reports

Proposal ID: Inst1/02	Acronym : AROSYS

Technical/ research excellence
The proposal is in compliance with RobMoSys methodology and supports the further advancement of technology to be used in industrial applications. They plan to adapt the pilot "Assistive Mobile Manipulation" to run with their Webot simulator, but the description of the benefits in real industrial setting of their demonstrating pilot is missing rather than saying that the pilot will showcase the advantages and disadvantages of the different simulators on the specific task (not defined), or mentioning that their approach is cross-platform. If the idea is a comparison against gazebo, they should mention stronger advantages on this part to evaluate the added value in the context of real industrial settings. They envision a TRL-8 system at the end of the project. It is OK if their framework can be easily extended to other use cases and pilots, and not only for the tested pilot. Quality of their developments and integration is expected to be high taking into account their background as developers, but it is not defined how it will be achieved. KPIs are more referred to post-project exploitation and dissemination than to technical development during the project. It is not clear from the KPIs, how the readiness or impact of the solution can be measured. In fact, the selection of KPIs is inappropriate for the task. Other technical KPIs are necessary to evaluate their developments rather that the number of future users or promotional content views. They will use the SmartSoft framework to develop the communication between their simulator and RobMoSys pilot. The call states that at least two RobMosys-conformant components have to be implemented, but this fact is not clearly stated in the proposal.
Expected impact
The roadmap for the adoption of RobMoSys is clearly described and it can generate a win-win situation at various levels. As the Webots is open-source and has a wide community of developers and several high profile users, the integration of this with RobMoSys can be very impactful. In addition, the developments will be directly used by Cyberbotics. The proposal also address the means of dissemination and availability of the results, which are appropriate for open-source community.

Awareness has been well achieved through the active participation in the Info and Demo Days in Barcelona. Experimentation will be carried out by experimenting on "Assistive Mobile Manipulation Pilot". However, there is no internship fostered. Integration is achieved by running the pilot with their Webots simulation, developing the interface between Webots and Robmosys. It can serve to adopt the RobMosys approach and to provide a smooth transition to full RobMoSys benefits, but the added value in the context real industrial settings is not clear from this integration. Infusion is not detailed enough.

ROI is described qualitatively, but not quantitatively. The proposal lacks the quantitative and financial impact on business or use-case.

Maximum open-source licensing will be provided since Apache 2.0 license will be used to publish code and documentation making the results of the project accessible to everyone.

Implementation (Clarity of the work plan)

Implementation plan is quite straight forward and simple. In fact, considering the amount of requested funding and length of the project, the plan is quite appropriate. One shortcoming is clearly hat the project will spend first month on understanding the RobMoSys model. While this shall have been done already. The other weakness is that entire project plan is in series. While, clearly several of tasks (such as T3, T4 and T5) can run in parallel and benefit from short iterations. Besides, there was enough space to further describe the technical tasks, T2 and T3, more in detail to understand their approach.

They state that they will cooperate with RobMoSys Community and Wiki, and that they will participate in RobMoSys Workshops, as requested by the call.

There is no description of what users are working on the project neither their roles nor background. There is no consortium. In fact, there is no explanation about the requested funding budget. In the guide for applicants, it is said "Each proposal for an ITP will include justifications of costs and resources. Checking the consistency between these costs and the expected work of the ITP will be part of the evaluation of ITPs". Looking at the budget requested, not in the proposal but at the portal, there is a budget request of 65.500 € that should be explained since the maximum funding per proposal is 60.000 €.

Risks are very general, further technical risks should be taken into account.

Remarks

The proposal is in line with RobMoSys objectives but it has multiple shortcomings in all sections. Most important ones are: 1) budget has to be reduced to maximum funding; 2) KPIs have to be redefined. See detailed description for each section with suggestions for improvement.

Second Open Call for RobMoSys Contributions

Evaluation Summary Reports

Proposal ID: Inst1/14	Acronym : EXAMFORA

Technical/ research excellence
The proposed solution is innovative and in line with the scope of the call. However, this link between the proposal and RobMoSys framework is not sufficiently substantiated. The proposed safety system remains questionable in terms of real safety, since a control system is assumed to consider the light curtain output and the maximum speed of a human for controlling the safety. For the technical point of view, the use of Kinect sensor is questionable since such kind of sensor cannot guarantee real time human motion recognition and therefore safety in human robot cooperation cases. The compliance of the proposed safety system with existing standards and certification approaches is not discussed. The expected TRL level is between 5 and 6, meaning that it is close to real industrial settings. However, the approach for the safety regarding human motion/ action prediction remains questionable. Specific and measurable KPIs for ensuring the progress of the proposal are not presented.
Expected impact
The expected impacts of the project are connected to cost-efficiency, simplicity and potential business creation. However, the statements supporting these aspects are not quite strong and are not clearly in line with expectations such as ready for-the-market solutions. The size of potential users' groups remains questionable, since the group of people using/working on the proposed method is small. The proposal fails to address new target groups that could promote the proposed system. The potential of GRAIL robot for the market (e.g. food industry) is adequately addressed. Relevant IP aspects are sufficiently discussed.
Implementation (Clarity of the work plan)
The time plan of the project is not defined. There is a description on the tasks, however role of partners and specific activities and milestones in the project timeframe are not provided. Risk management procedures are discussed. However, since there is not link to the project timeframe, these descriptions remain rather vague. The plan for cooperation with RobMoSys community is quite generic, in terms of activities and specific goals to be achieved.
Remarks
Not applicable.

Second Open Call for RobMoSys Contributions

Evaluation Summary Reports

Proposal ID: Inst1/29	Acronym: ROBOX

Technical/research excellence
The project proposes to use RobMoSys components to demonstrate safety and fault tolerance of the robot the authors manufacture. The main deliverables of the grant are video and documentation. Although this by itself is not a tremendous achievement, it is a part of a roadmap that leads to the proliferation of the proposed robot. The proposal is compliant with the RobMoSys methodology and demonstrates added value of RobMoSys in the context of industrial setting. The quality is rather low, as the full RobMoSys ecosystem is not used to the expected extend, but the envisioned technology readiness level is high. The KPIs are clear, but not ambitious enough as they only pertain to the production of video content and documentation. TRL of the proposed solution is not clear. It is not clear the expertise of the company in the proposed safety domain.
Expected impact
The impact of the resulting proliferation of the robot is relatively big, given the amount of storage and factory facilities where the system can be used. Furthermore, the Return of Investment of this particular instrument is not clear (will it lead to an increased sales of the robot?). As the output of the project a promotional video is planned. However, this video/report does not lead to proliferation of the know-how related to robots and related fields, in particular considering RobMoSys ecosystem.
Implementation (Clarity of the work plan)
Implementation plan is properly set up with the potential to work in collaboration with other RobMoSys embers. There is no risk management included in the proposal. The fact that it is not clear the expertise of the company in the safety domain makes the proposal high-risky.
Remarks
The topic is of high interest and the potential target user group is high. However, the proposal quality is low (see above). The main concern is related to the absence of risk management. Moreover, the RobMoSys ecosystem is not well included in the proposal. The ROBOX project is suggested to apply again with suggestions from RobMoSys staff.

Second Open Call for RobMoSys Contributions

Evaluation Summary Reports

Proposal ID: Inst1/32	Acronym : SSR

Technical/ research excellence

The proposal is in compliance with RobMoSys call addressing the development of demonstrators (showcases, demos, videos) related to own industrial cases in line with RobMoSys Pilots. Specifically, the proposal wants to build an autonomous robot that navigates in a supermarket and takes pictures of the shelves to improve supermarket stock managements. For that robot, they plan to use several RobMoSys components mainly for Navigation. Moreover, they plan to make the system flexible, so it can easily switch to another robotic platform, by using RobMoSys approach.

While the aim of the project, the selected industrial case and the reason of using and adopting RobMoSys seems clear, the proposal lacks of any technical detail. It is said that at the beginning of the project they expect to have a data acquisition system (a rack with cameras and electronics for data acquisition), but there is not any further detail. Moreover, there is no detail at all of the mobile robotic system for navigation they are going to use or build (in the implementation Section they mention that their robot project went through the Proof-of-Concept and first prototype stages, but again there are no further details). Finally, there is not any description of how they plan to use RobMoSys rather than listing the navigation components they will use. These comments also apply to the fact that there is no mention to the envisioned TRL that it is difficult to imagine. Without these details, it is very difficult to evaluate the quality of the implementation.

KPIs selected seem fine, but since there are not any technical details of how they pretend to implement RobMoSys in their system, or even what their system is, it will be difficult to evaluate if the high or low performance of project results is due to the RobMoSys components themselves or due to their integration and implementation effort during the project.

Expected impact

The roadmap for the adoption of RobMoSys is defined and is in line with the RobMoSys Adoption Path. The size of potential users groups is also stated and fine though very optimistic.

Business case and ROI is rather vague and very optimistic. They only talk about sales, but not costs. How much will the robotic system cost for example? They talk about selling the robot fully equipped for a price of 20k€, but how much is the margin (turnover, cash flow)? The margin is what makes a ROI realistic, not the sales.

Results seem (it is not clear at all from the text) to be open-source as enabled by the Eclipse Public License (EPL), and shared on GitHub.

Implementation (Clarity of the work plan)
Tasks, deliverables and milestones are described in a simple way. A Gantt picture may not be necessary, but at least some information of the total duration of the experiment, or even if the listed tasks are developed in series or parallel is necessary. Moreover, milestones are defined but they have not any date to accomplish them. Risks are listed. Most mitigation plans rely directly on RobMoSys team. Moreover, I miss some risk regarding the lack of their own equipment for the time the project starts (due to the lack of details found in the proposal). There is no description of what users are working on the project neither their roles nor background. They plan to cooperate with experts from RobMoSys community, but there is no mention to at least participate in one Workshop as requested by the call (and there is no travel money allocated for that). Regarding the budget requested, not described in the proposal but at the portal, there is a budget request of 81.182 € that should be explained since the maximum funding per proposal is 60.000 €. In fact, such a high difference states in some way that the project cannot be run by only 60.000 €. Looking at each cost category, 6.250 € are allocated for extra parts to be sure not to have problems during the tests. That is a 10% of the total funding for just in case. Travel costs, as said before, should be higher to attend at least to a workshop.
Remarks
The proposal targets a very interesting industrial use case with high potential both for the applicant company and RobMoSys. However, there lack of technical description of the solution and implementation make difficult to evaluate the quality of the proposal. A deeper description of the approach is necessary. Besides, the call addresses a maximum funding amount of 60 k€ while the proposal requests 81 k€.

Instrument #2

Second Open Call for RobMoSys Contributions

Evaluation Summary Reports

Proposal ID: Inst2/24	Acronym : ARCAID

Technical/ research excellence
The compliance with the RobMoSys ecosystem exists and there is clearly defined which components are available and which components will be developed in this project. The quality of the expected results, working on the very important and complex subjects „ comparation of different sensor information including reactions of the robot “„ behaviour depending user interaction “„ acquisitions of new skills from demonstration" and including the task of "benchmarking and evaluation „are very generalized and not clearly defined. It would be better

depending, from the mentioned platforms to define exactly what activities must fulfil the robot in detail in every use case, which assistant services should be learning the robot from demonstration for defining the possibilities and limits aso. Even though the proposal is unrealistic and over ambitious. The project is looking to address too many objectives and considering the goals, it seems proposer do not understand the current SoA of various technologies. The suggested KPIs are clear and are fitting to the selected challenges, and the practical testing is very important.

Expected impact

The impact is well described; however, it is very generic. The user group, which addresses this project is very great and important. Therefore, the selection of two specific use cases helps to develop useful results for the existing two proven robotic platforms. Working on the very complex and important subjects of the " comparation of different sensor information "„ behaviour depending user interaction "„ acquisition of new skills from demonstration" and including the task of "benchmarking and evaluation" could be a potential contribution to the RobMoSys ecosystem coverage and approach and community. Even though the risk is very great, that all these subjects could be too extensive for a small project like this. Maybe it would be better to focus with more quality to only one subject (f.e. very important for assistant robots is the possibility to learn service activities from demonstration!!!) The accessibility of the results is guaranteed, and the significance depends if there are concrete results of the research activities! The need and possible impact of robots in elderly care is well understood and proposal cites several of these numbers. However, it is not clear how much of it is related to the results of the project.

Implementation (Clarity of the work plan)

The coherence, appropriateness and effectiveness of this project is ok. The four very important complex subjects are too generalized to reach detailed results of high quality for every subject in a small project. For the practical use of assistant robots however all these subjects are very important! Not clear in this proposal is if there are testing apartments available in every institution and if there will be practical tests with every platform only on one place or in every location (UMH – UCBM) The number of users (5+5) for each study are too low to get any significant data or to get published in a notable journal. There is a lack of balance between the ambitious objectives of the project, and the implementation plan. Up till month 8 the project is only involved in the development. The integration and testing is left till the very end of the project, creating a high risk of failure. The tandem/consortium is with experience in the defined research area and can base his work on the expertise and experience from further projects in this area and with the existing proposed robotic platforms available in the two institutions! The risk management is defined and based on the further experience wit the mentioned robotics platforms (Tiago robot and REEM robot with two IH2 Azurra Prensilia robotic hands) but gives no real answer to the lack of balance!

Remarks

There are too many scientific objectives not focusing on the innovation. At the same time the project resources, lenght and plan are not in proportion to meet those objectives.

Second Open Call for RobMoSys Contributions

Evaluation Summary Reports

Proposal ID: Inst2/11	Acronym : ASTERIA

Technical/ research excellence
The TRL is indeed high but not assessed explicitly. This is demonstrated by the egg sorter product running a customized version of Andriod and in use in labs. The proposed project aims to develop a new software ecosystem. Compliance with the RobMoSys meta-models and methodology is not specified and very likely not provided. The excellence w.r.t. the state of the art in the field is provided just in relation to actual Android platform development. The quality of the proposal is not really convincing since no specific issue in the robot control field is targeted. Interoperability with ROS is mentioned, but it mainly seems the proposal aims to replicate at least partially the ROS features. KPIs are mentioned just as general features, but no means of evaluation or performance target is reported.
Expected impact
Impact is very limited and mainly related to increase of the applicant organisation market capabilities. No potential extension of the RobMoSys ecosystem is provided by the project. The developed software framework will be open source. The proposal pulls together a series of buzzwords without a compelling case and a clear pathway to impact (e.g. how is it planned to reach 100 organizations).
Implementation (Clarity of the work plan)
Workplan is very light in details. Objectives are a list of desired properties of the project. The proposed approach is problematic and the section looks like it was hastily prepared. The added value to the validation of the framework is not elaborated. No risks have been identified, which is, in itself, a risk! Cooperation with the RobMoSys community is really poor. The consortium includes the applicant only.
Remarks
The proposal is lightweight and does not show a clear integration with the robmosys ecosystem. The proposed Android-based solution is replicating ROS functionality. No risks have been identified, which is, in itself, a risk! Cooperation with the RobMoSys community is poor. The consortium includes the applicant only.

Second Open Call for RobMoSys Contributions

Evaluation Summary Reports

Proposal ID: Inst2/27	Acronym : cbcb4MBE

Technical/ research excellence
The proposal meets the following eligible activity -- Software development under the form of models, metamodels and tools. The goal of the project is the integration of several methods into the RobMoSys architecture, specifically: automatic translation of timed models between GPLs to DSLs, and between DSLs and state machines. However, the details of the integration into RobMoSys are not sufficiently clear. The state of the art is reasonably covered. The technology readiness level of the proposal is not analyzed. The proposed KPIs are reasonable; however, they are not quantified in sufficient detail. The proposal intends to adapt the RobMoSys's pilot Goods transport in a company to support a search of a good enough policy. The authors intend to collaborate with RobMoSys consortium, and with Papyrus4Robotics ITP in particular.
Expected impact
The proposal has the potential to extend the RobMoSys ecosystem. However, the specific details related to the integration into RobMoSys and relation to the target users are described in a generic manner, without specific details. The relation to the robotics community is also insufficiently described. The results have potential to be significant, but the lack of details makes the output uncertain. The results of the proposal are planned to be released open-source and open-access. It seems the authors misunderstood the requirements of the Impact section. The only impact that seem to be well articulated is adoption of good practices.
Implementation (Clarity of the work plan)
The work is intended for 12 months. The work plan is, in general, adequately designed, the tasks being coherent and consistent with the goals of the proposal. However, there are way too many deliverables for such a small project -- 12 deliverables. In addition, the tasks devoted to the integration into the RobMoSys ecosystem and to the pilot case study are insufficient and do not provide specific details on such aspects. The consortium has the necessary expertise to reach the goals of the proposal. However, the relation to a robotic use case is not clear, there is a lack of expertise in robotic systems and applications. The potential risks related to a project of such ambitious goals and in such a short period of time are not sufficiently addressed. The proposal clearly defines tasks that will be performed in collaboration with other ITPs.
Remarks
The proposal is very difficult to read -- it seems half of the Excellence section is dedicated to defining the issues with complex behaviour. The authors use lots of acronyms and abbreviations which also do not help clarity of the proposal.

Second Open Call for RobMoSys Contributions

Evaluation Summary Reports

Proposal ID: Inst2/12	Acronym : COCORF

Technical/ research excellence

The proposal addresses topic 2 Functional composition inside components and fits to the selected challenge. It also has indirect contributions for topics 1 and 3. Continuing with the modular approach while still keeping the application real time is a valuable contribution. The proposal clearly describe the shortcomings of current modular architectures and plans to compensate it with Microblx layer. It will provide meta-models and tools to improve development of low-level, hard real-time safe robot control. Compliance with the RobMoSys meta-models and methodology is addressed by the nature of the microblx framework itself and the implementations covered through the project. The state of the art is clearly described and the advances beyond the state of the art are well presented. The proposal also have demonsrator in the form of mobile manipulation, which is a good case to test the results. Expected TRL 6 is well defined and appropriate, and a final demonstrator will show the development of a real-time control reference architecture for the Assistive Mobile Manipulation Pilot using the PAL Robotics TIAGo robot. Testing the results on a real robot can help demonstrating the benefits of the developments. The list of given KPIs, although relevant, but its not sufficient. Considering the project is targetting the real time implementation, the KPIs shall include time. KPIs are more referred to post-project exploitation and dissemination than to technical development during the project. Other technical KPIs are necessary to evaluate their developments rather that the number of users active on the project forum or code contributors.

Expected impact

The proposal aims to combine the microblx framework with the RobMoSys composition approach, to allow the composition of hard real-time components based on the function block model of computation. The results can be of significance on the development of the RobMoSys approach and community by supporting hard real-time control and signal processing features. Expected impact for COCORF will reduce robot time to market by enabling effective reuse of individual function blocks and fostering larger scale reuse by means of composable compositions. Although it is clear that such a development can have significant impact on robotics software development, the impact is not clearly described in the proposal. Size of the potential users group is not clear, beginning from the fact that there is no data about the use of microblx framework currently or its success on specific projects or use cases. This causes some doubts regarding the final impact, that can be limited. But it is true that addressing the topic of real-time control can provide a potential extension of the RobMoSsys ecosystem coverage. Three different licenses are described for results, Mozilla Public License v2 for microblx, BSD license for standard blocks and DSL, and the CC BY-SA license for the reference architecture documents. Some unification would be desirable in order to make its use clear for the developers, and be aware of their implications.

Implementation (Clarity of the work plan)

Task description is detailed and timeframe is appropriate and well defined. Effort is described as person-days per task and even subtasks, and it seems appropriate. The implementation plan has some shortcoming, particularly too little time is dedicted for implementation and testing.

However, as the implementation and testing (Task 3) already ends at M7, it is possible to continue the development and testing till the end of the project. Deliverables and milestones are also appropriate. Technical risks for implementation are not identified properly. However, risk management is well covered. Consortium has proper background for implementation. Cooperation with the consortium is well described during the tasks and the demonstration pilot. However, there is no consortium at all since the proposal is presented why a natural person, reducing multi-disciplinary competences that could be achieved for the call. The author states that a conflict of interest may exist. From reviewers point of view, it simply allows the author to be aware of the RobMoSys project and architecture which is positive for further developments, but this fact should be discussed with the RobMoSys Steering Committee. Regarding the budget, travel expenses seem fine, but personnel cost may be a bit high. 139 person days is approximately 7.75 PM. The requested personnel budget is of 109760 € (funded would be the 70%), yielding to a quite high PM cost.

Remarks

The proposal is well written and within the scope of RobMoSys. The shortcomings have been identified by the reviewers and it is expected that these will be taken care during the execution phase.

Second Open Call for RobMoSys Contributions

Evaluation Summary Reports

Proposal ID:Inst2/25	Acronym: CMCI

Technical/research excellence

The proposal meets the following eligible activity -- Software development under the form of models, metamodels and tools).

The proposal aims to apply model-driven engineering to specify compliant behaviour of advanced robots for interaction with humans, enriching the RobMoSys' composition structures (Tier 2). However, the authors did not state what TRL of the proposed solution will be.

The authors aim to build on their previous work in the H2020 CogIMon1 project -- model-driven engineering for compliant control -- and integrate it with the RobMoSys composition structures and software tools. In particular the proposal aims to provide the following: (1) composable domain specific models; (2) model transformations; (3) a controller implementation; (4) tools to synthesize the required motion control components for advanced robots from a model driven specification of compliant interaction tasks.

The proposal intends to develop the following demo: a complex multi-arm application with arms from two or more different robot vendors (Kuka, Franka), e.g. manipulation tasks, comparable to how two humans would share a task of moving boxes. This will be an extension of the authors' previous work on tetra-arm compliant handling of large and heavy objects. However, It is not clear how many behaviors will be implemented, how the task can be modeled, and how the different software levels interact.

The authors indicate willingness to communicate with other ITPs of RobMoSys (from calls 1 and 2). In particular, the authors intend to approach and collaborate with the teams of EG-IPC and e-ITUS ITPs.
Expected impact
The focus of the proposal has a very wide audience, making it very attractive. In particular, the authors anticipate the following impact: * Enhancing robotic modelling of robots based on Stack-of-Tasks (SoT) hierarchies that applies SQP (Sequential Quadratic Programming). * Providing an alternative implementation of the RobMoSys composition structure and targeting the user community of MPS. * Attracting new users to RobMoSys from humanoid robotics and multi-arm control user-groups. However, it is not really clear which part of the work will be inherited by the existing consortium project H2020 CogIMon, and if any conflict of interest may arise.
Implementation (Clarity of the work plan)
The ITP is intended for 12 months. The Work plan seems to be adequate with clear tasks, objectives, milestones, and deliverables. However, risk management is not well described and in addition to generic WP6 (Management and Outreach), the description of the Implementation would benefit from explicitly defined tasks in which the authors describe how and when they intend to co-operate with other members of the RobMoSys Community. In addition, the list of KPIs would benefit from some specific data to get an idea of what the proposal aims for. Consortium seems to be strong, but also the project seems to be very ambitious.
Remarks
The project topic is very interesting. The potential of the proposal is high. However, some crucial points (e.g. clear definition of compliant behaviors, interactions between proposed software levels, the definition of final TRL, risk management) are not well explained. It is therefore not easy to understand the feasibility of the proposal.

Second Open Call for RobMoSys Contributions

Evaluation Summary Reports

Proposal ID: Inst2/13	**Acronym : Co-RobMoSys**

Technical/ research excellence
The goal of the proposal is to develop a tool, to be incorporated to the VAR system developed by BSH, that allows experts working on factories an easy re-use of existing components. In the proposal it is said that RobMoSys models will be used and their expressiveness will be extended. Although the module re-usability is well argued and justified, the expressiveness extension is not sufficiently motivated and its meaning, reach or how much it can be improved are not sufficiently clear in the proposal. The proposal is clearly related with the challenge. However, the scientific goal of the proposal and the relation to the state of the art is not sufficiently clear. The proposal

aims to extend the expressiveness of RobMoSys models, but it is not clear in which sense or what directions. The manipulation of a cooking hotplate surface is given as an example, but the lack of expressiveness is not made explicit. The state-of-the-art solutions are not given nor described, and the proposal does not include details on how the consortium would advance them. The expected Technology Readiness Level is not detailed. The proposed KPIs are generic and do not refer to specific systems or modules. Neither the starting values for such KPIs nor the expected improvement are properly justified.

Expected impact

The impact of the proposal on the BSH factories is clear. However, extending it beyond the commercial applications in the field of factories of a given manufacturer is dubious. The impact examples mentioned in the proposal (including other commercial or research partners) are very generic. The size of the consortium is appropriate, and the partners are adequate for the proposal. The code is to be distributed within Eclipse and as open source which increases the impact potential. The management of the knowledge and the IP is not described in sufficient detail. For example, there are no details on the management of the background knowledge of the partners (this is essential, as the proposal builds on the system VAR developed by BSH). As another example, there are no details on the dissemination to scientific, technical and public audiences. The contribution to the RobMoSys community is questionable. The plans for a wide adoption of the RobMoSys system in BSH and the value of such adoption for the RobMoSys community are not sufficiently detailed. The proposal describes, in section "Cooperation with the RobMoSys Community", several requests from the community, but no efforts to contribute are planned. The significance of the results achieved might be relevant for the RobMoSys community. However, the proposal has several weaknesses that do not ensure that such results will be achieved. A clear application case is not chosen, and limitations of the state of the art are not clearly stated. IPR management and dissemination are not detailed. And there are no specific plans on how a wide adoption of RobMoSys by BSH can benefit the community.

Implementation (Clarity of the work plan)

The roadmap of the implementation is generic, there are neither specific tasks nor solutions in the proposal. As an example, task 7 does not detail a specific approach or method to extend/refine the components of the system. The proposal does not specify the application case, and plans it to be chosen as one of the tasks of the project. Although the coherence of the consortium is reasonable (research + industry), I do not see any risk management process implemented nor the likelihood that the delivery of the system will be done.

Remarks

The goals of this proposal fit the RobMoSys methodology and the challenge of the present call. The evaluators valued positively that the consortium is composed by academic and industrial partners. However, the proposal in its current state has a high number of serious weaknesses, that are respectively detailed in the evaluation of its expected impact, technical excellence, and implementation.

Second Open Call for RobMoSys Contributions

Evaluation Summary Reports

Proposal ID: Inst2/21	Acronym : CLOTHO

Technical/ research excellence
The proposal methodology is clearly defined, while the compliance with the RobMoSys meta-models is well elaborated. The case study is well explained and there is a clear alignment with RobMoSys scope. The adaptation, integration and extension of the RobMoSys ecosystem are clear, since the validation of the ecosystem via the proposed use cases has a clear added value. The investigation of the state-of-the-art solutions is sufficiently described involving a number of references. The proposal is technically sound with clear actions since the aim of the work and the target problems are well identified. Envisioned Technology Readiness Level of the proposed technologies are not sufficiently described. A list of Key Performance Indicators is reported together with clear target numbers.
Expected impact
The project impact is sound and well elaborated. Clotho has identified internal and external impacts and there is a clear pathway to the extension of the RobMoSys ecosystem. However, potential user groups with respect to the proposed solutions are not clearly identified. All developments will comply with the MIT license (open source) and a well-though plan for engagement is presented. The potential to address future and wider applications in the selected industrial use cases are well explained and have relevance to RobMoSys objectives.
Implementation (Clarity of the work plan)
The presented work plan and timeframe are coherent, effective and appropriate for the implementation and the integration of the proposal. However, the consortium is composed only by the Fraunhofer Gesellschaft, they certainly have the required competences for the success of the project. The interaction with the RobMoSys community is properly described. A suitable risk analysis and management strategy is reported but is not well elaborated.
Remarks

A major issue that doesn't allow the funding of this proposal is the exceeded budget (266k€), since it is not in line with the call expectations.

Second Open Call for RobMoSys Contributions

Evaluation Summary Reports

Proposal ID: Inst2/18	Acronym : Democratize

Technical/ research excellence
The goal of the project is the development of a DSL with a high level of expressiveness, simplicity and rigorousness, integrate it into the RobMoSys ecosystem and demonstrate its capabilities in relevant/operational environments (TRL6/7). This proposal clearly defines the goals and objectives. Its excellence is confirmed by the comparison with the state-of-the-art literature and the quality is ensured by the previous experience of the group including multiple projected supported by European grants. The Envisioned Technology Readiness Level is unclear and probably difficult to estimate at that point. It is the weakest part of the proposal. In any case, this proposal constitutes a strong outline for a research path. The KPIs are defined per Work Package and well described, although some of them are not very precise (e.g. "The integration […] should work" or "regular updates".
Expected impact
The potential results of this proposal can have an impact in a considerably large group of RobMoSys users and robotics researchers and practicioners worldwide. The added value to the RobMoSys ecosystem is considerable. The potential impact of this proposal will be strengthened by multiple goals set in the proposal related to the dissemination of the work in top-tier venues and journals, and by releasing the software as open source. However, such plans are only described at high level and details are missing.
Implementation (Clarity of the work plan)
The implementation is, in general, well aligned with the goals of the proposal and correctly detailed. The coherence of the roadmap is high. Consulting domain experts and the RobMoSys consortium to define the pilot is valuable and might lead to a better chosen application case. However, it adds uncertainty to the results of the proposal. The only partner of the consortium has the necessary expertise to develop the tasks and achieve the goals of the proposal. The risk management is well planned and if thoroughly executed, allows to mitigate the potential risks arising within the delivery of the time.
Remarks
The proposal is strong in several relevant aspects of the call: It can have a considerable impact in varied audiences; its technical definition is clear, coherent, and aligned with the call; and the

implementation is carefully designed to achieve the goals with high probability. Only a small number of minor shortcomings were detected.

Second Open Call for RobMoSys Contributions

Evaluation Summary Reports

Proposal ID: Inst2/19	**Acronym : ROBMOSYS-EGGS**

Technical/ research excellence
This proposal addresses the need for integrated energy awareness of systems with respect to motion tasks for improving safety monitoring, fault diagnosis etc. through the system energetic state recognition. The proposed method is based on existing knowledge in order to improve the performance of the system. The excellence and the improvements based on existing knowledge are sufficiently substantiated. The proposed approach is of high quality and is in line with modules of RobMoSys, since models and meta models of a component-based energy-aware motion stack extension are expected to be integrated. The proposed system will be tested in a real use case for an Assistive Mobile Manipulation pilot and the expected TRL level 4 fits very well in the selected challenge. The benefits of the system are clearly stated and supported through a number of KPIs.
Expected impact
The roadmap of the proposal is clearly defined, involving actions for embedding the project results in TNO's business unit, and promote the system in SMEs and specific stakeholders. This shows the potential of extending and enhancing the system in RobMoSys ecosystem tools. The proposal inspiration is to enhance the autonomous control of cranes with the proposed technologies for the maritime industry, targeting thus in large users' groups. The link between RobMoSys ecosystem and the proposal results is quite strong, showing the importance of the proposal benefits for RobMoSys community. IP related aspects and open source licensing are briefly discussed.
Implementation (Clarity of the work plan)

The proposal time plan is appropriate and well balanced, including 5 tasks for 12 months. The description of the tasks shows the credibility of the proposal and is in line with the description of the system components in the excellence section; however, a minor aspect is the high number of deliverables (11) for a short timeframe (12 months). The risk management is well elaborated, identifying reasonable risks with respect to the proposal activities. Cooperation with the RobMoSys community is sufficiently detailed, while the composition of the consortium includes complementary competences from both industry and academia.
Remarks
Not applicable.

Second Open Call for RobMoSys Contributions

Evaluation Summary Reports

Proposal ID: Inst2/08	**Acronym : ForSAMARA**

Technical/ research excellence
The compliance with the RobMoSys meta-models and methodology would be full. The goal of the proposal is to extend the existing RobMoSys framework by formal verification methodologies for collaborative industrial robotics, adapting adapt and extend the already developed RobMoSys Human Robot Collaboration for Assembly pilot. The proposal clearly describes the current state of the art and have the understanding of limitations when Formal Verification tools are used for complex systems. The goal of using safety standards to create the list of verification property is novel. It remains unclear though, if these goals can be achieved given the complexity of applications. Also how the safety properties described in standards can be mapped on the software control system. The KPIs are more defined like objectives. These cannot be used to monitor the progress of the project. The envisioned Technology Readiness Level is 4, in contrast with the current TRL of safety critical robotic systems, claimed in the proposal to be mostly non-existent or very low. The suggested KPIs are not fully clear, as the proposal basically lists deliverables as KPIs. For example, at least three new meta models, or the verifications results view. The fit to the selected challenge (Ecosystem Challenges topic 3: System Level composition/safety) is excellent.
Expected impact
The fundamental goal of this proposal is to identify potential safety-critical properties of new compositions of component models and to verify them formally. The formal verification will be carried out using a formal model of the system behaviour plus an enhanced logic formulation, considering also uncertainty. Introduction of Formal Validation tools can have a significant impact on the robotics applications. This can particularly valuable for collaborative robots, where the safety properties needs to be guaranteed. The size of the potential users group(s) is high. If successful, results could have widespread adoption given that safety is a critical issue in most

applications. SMEs could benefit as the proposal mentions given their limited budget for expensive safety measures. The potential extension of the RobMoSys ecosystem coverage is high, the proposal would incorporate a new method to derive safety-critical properties. Coverage would also be high in some use cases, such as human robot collaboration for assembly. The accessibility of the results (preferring open source licensing that enables composability similar to proven platform projects as Eclipse) is high, all tools and software packages would be open source licensed and freely available. The significance of the results on the development of the RobMoSys approach and community is potentially high, although the proposal is high risk due to the high ambition of formal verification of safety-critical properties. This high risk is mitigated by the ongoing work, for example VerASoS, although the difference with respect to the current proposal could have been more clear.

Implementation (Clarity of the work plan)

With respect to coherence, appropriateness, effectiveness of the work plan, this is not easy to judge given the limited descriptions. Together with the explanations in section 1, excellence, the description of the work is pretty general. For example, with respect to the consideration of uncertainty, specifics about the use of formal models of uncertainty are lacking. The composition of the tandem/consortium is very good, competent and complementary partners. Risk management includes three organizational risks and five technical risks, sufficiently specific. The management of Ethical issues is taken lightly, considering the application and use-case.

Remarks

The significance of the results of this proposal on the development of the RobMoSys approach and community is potentially high, although the proposal is high risk due to the high ambition of formal verification of safety-critical properties.

The proposal clearly describes the current state of the art and have the understanding of limitations when Formal Verification tools are used for complex systems. The goal of using safety standards to create the list of verification property is novel.

It remains unclear though, if these goals can be achieved given the complexity of applications. Also how the safety properties described in standards can be mapped on the software control system. The KPIs are more defined like objectives. These cannot be used to monitor the progress of the project.

With respect to coherence, appropriateness, effectiveness of the work plan, this is not easy to judge given the limited descriptions.

Together with the explanations in section 1, excellence, the description of the work is pretty general. For example, with respect to the consideration of uncertainty, specifics about the use of formal models of uncertainty are lacking.

Second Open Call for RobMoSys Contributions

Evaluation Summary Reports

Proposal ID:Inst2/05	Acronym: MROS

Technical/research excellence
The proposal aims to develop a system for architectural self-adaptation at runtime, in order to address contingencies in robotic tasks. The proposal is aligned with the RobMoSys ecosystem, as it plans to develop several metamodels that extend the RobMoSys ones; and to the current challenge, as it plans to develop ROS2 model-driven software. The state of the art is insufficiently detailed in its scientific aspects. However, the proposal is relevant in its technical side. The final industrial demonstrator at Bosch is very detailed, which makes the TRL analysis solid and credible. The proposed KPIs are clear and with sufficient detail in general. However, in some of them, the quantification of the expected results is missing.
Expected impact
The proposal has a potential impact in the robotics community, as it plans to develop ROS2 software. All the components developed are planned to be RobMoSys-compliant, and hence they will extend the RobMoSys ecosystem and will also have an impact in this community. The results will also be significant for this last community, as the proposal plans to decouple aspects related to the mission and aspects related to the implementation. The results are planned to be made open-source and open-access. The Bosch use-case will be kept partially confidential, which is not ideal, but understandable.
Implementation (Clarity of the work plan)
The work plan is consistent with the goals of the proposal and the funding distribution. The consortium is adequately designed, with clear roles and responsibilities, and the partners have the necessary expertise to complete the tasks. The risk management presents the most relevant risks. However, it is not exhaustive. As an example, the consortium size is significant, a foreseeable risk is setup and communication times being too large for a small duration project.
Remarks
The proposal fits the RobMoSys requirements and expectations. The ROS2 software development is very good for the RobMoSys ecosystem.

Second Open Call for RobMoSys Contributions

Evaluation Summary Reports

Proposal ID:Inst2/26	Acronym: MCPHRI

Technical/research excellence
As the proposed system is an evolution on already existing cloud based solution, the authors seems to have a high level of technical expertise. They have al already existing community containing a lot of experts and academic which prove that their product is relevant.
Expected impact
The impact can be really good because of already implemented ML algorithms that seems state of the art. The authors understand the need to have multiple level of use in order to match the expertise of the users. The only drawback maybe in the choice of the language, C++ is a good one however new kind of language can be use directly or as wrap-up in order to allow easier use for advanced user.
Implementation (Clarity of the work plan)
Open source software is stated to be released, with a warning. Since the company may consider having patents, etc., this warning can be important.
Remarks
The number of deliverables seems to high. Moreover, the proposal may better fit the RobMoSys Instrument #1 call.

Second Open Call for RobMoSys Contributions

Evaluation Summary Reports

Rejected

Proposal ID:Inst2/28	Acronym : MOCS

Technical/ research excellence
The proposal inspires to create tools and methods for human-robot collaboration by extending RobMoSys ecosystem and enhancing/improving existing knowledge of the consortium on context-based modelling. The proposed method is based on existing knowledge in order to improve the performance of the system and is clearly described. The excellence and the improvements based on existing knowledge are sufficiently elaborated. The proposed approach is in line with modules of RobMoSys, since meta-model-based representation for HRC is expected. However, it is not sufficiently detailed from the technical point of view.

The proposed method will be implemented in a service robot for a supermarket scenario, focusing on improving working conditions for humans without providing details on the processes. The expected TRL is positioned in TRL5, without substantiating this expectation with respect to existing technologies. The benefits of the system are clearly stated and supported through a number of KPIs. However, these KPIs are oriented on the performance of the system (e.g. position accuracy, path distance) and are closely to requirements definition rather than measurable indicators.
Expected impact
The roadmap of the proposal is clearly described and the technical impact is well justified, involving actions for promoting the system in specific stakeholders. This shows the potential of extending and enhancing the system in RobMoSys ecosystem tools. The proposal identifies a number of user groups that will be affected by the proposed methods, involving behavior developers, system designers, suppliers, system architects etc. and end users (e.g. super markets), targeting thus in large users' groups. The link between RobMoSys ecosystem and the proposal results is quite strong, showing the importance of the proposal benefits for RobMoSys community. Management of IP related aspects are briefly discussed, while open licensing is not sufficiently considered.
Implementation (Clarity of the work plan)
The proposal time plan is appropriate and well balanced, including 5 workpackages for 12 months. The description of the tasks is sufficiently detailed, showing the credibility of the proposal and is in line with the description of the system components in the excellence section. The partners role is well defined in the tasks description and the authors have already identified dissemination activities. The risk management is well defined, identifying reasonable risks with respect to the proposal activities.
Remarks
Not applicable.

Second Open Call for RobMoSys Contributions

Evaluation Summary Reports

Proposal ID: Inst2/33	**Acronym : NavCoM**

Technical/ research excellence
Although it is difficult to assess the excellence of the proposal w.r.t. to the state of the art, the quality of the proposal is rather high. The technology readiness level is also expected to be

relatively high, but not explicitly mentioned/assessed. Suggested KPIs deal more with what will be done than about the quality of the results, which is problematic when measuring them in time.
Expected impact
The size of the potential user group is not significant given the focus of the proposal on the space robotics, however the relative impact is significant, especially given the applications of the results to EU projects for space programmes. The text is sometimes incomplete or quoted and thus some aspects are difficult to assess. Although parts of the code will be released as open-source, significant part of the models will remain confidential. Furthermore, the proposal is mostly focused on the space robotics community, currently not involved with RobMoSys.
Implementation (Clarity of the work plan)
The consortium consisting of the RoboStar group at the University of York and the Space Applications Services in Belgium provides a comprehensive set of skills to turn this project into a success. There are still some limitations, including the simplicity of the navigational algorithms planned in the project (not including e.g. sensor fusion) or incomplete/unclear risk mitigation plans.
Remarks
Although the results of this project are predicted to touch on a very small subset of users and the ambitions of the project are not set appropriately high, the proposal contains some interesting ideas of a potentially high impact. Text of the proposal seems to be rushed, but the presented ideas and collaboration potential outweighs those limitations.

Second Open Call for RobMoSys Contributions

Evaluation Summary Reports

Proposal ID: Inst2/30	**Acronym: MIRoN**

Technical/research excellence
Compliance with the RobMoSys meta-models and methodology is clear, the modeling languages and the code generation tools would be delivered as open-source Eclipse plugins ready to be installed and used within SmartSoft, together with the results previously developed in two prior projects: RoQME and MOOD2BE. With respect to the state of the art in the field, the proposal would result in the creation of RobMoSys-compliant systems with adaptive navigation capabilities. This would be highly novel and would greatly advance the state of the art, where different navigation systems are developed for different scenarios. TRL is realistic, moving from 5 to 6-7, including the development of several demonstrators for the pilots. The proposed activities are clearly stated and feasible. The fit to the selected challenge is excellent (call (instrument #2, topics 4 and 5). Navigation is the central issue of mobile robotics. However, the connection to actual navigation algorithms and systems is not clear. Suggested KPIs include expressivity, coverage,

impact and dissemination & communication. The central KPI, expressivity, merely considers the number of examples to develop, not the quality of the resulting navigation systems.
Expected impact
This proposal is a continuation of a project funded in the first open call. The previous experience in RobMoSys is important and good. The proposal addresses the development of a model-based framework for dealing with adaptive robot navigation based on the systematic use of models for dynamically reconfiguring the robot behavior according to the runtime prediction and estimation of Quality of Service metrics. The size of potential users is huge. The potential extension of the RobMoSys ecosystem coverage is also high. Accessibility of the results is guaranteed as all the results would be made publicly available in a GitHub repository under GNU/GPL or GNU/LGPL licenses. However, this proposal has a potentially high risk.
Implementation (Clarity of the work plan)
Coherence, appropriateness, and effectiveness of the work plan are limited because there is the only consideration of the development of the model-based framework. The demonstrator tasks do not include any consideration of the navigation algorithms that will be used, and how they will be intertwined with the proposed framework. The composition of the tandem/consortium is complementary, although expertise in navigation would be desirable. Risk management is too broad and generic. Some more details on the implementation could have been given.
Remarks
The application is promising and the previous experience is a plus. However, some parts of the proposal (KPIs, demonstrator tasks, details on the implementation) are not clearly stated. Moreover, the proposal can be too much ambitious, resulting in a potential risk of failure (risk management not sufficiently well described).

Second Open Call for RobMoSys Contributions

Evaluation Summary Reports

Proposal ID: Inst2/22	**Acronym : SafeCC4Robot**

Technical/ research excellence
SafeCC4Robot proposal inspires to create a model-based methodology for robotics ensuring safety at system level and target in various roles/stakeholders. The proposed method is based on existing knowledge in order to improve the experience of different target groups with respect to robot system level safety. The excellence and the improvements based on existing knowledge are sufficiently explored. The proposed approach is of high quality and is in line with of RobMoSys tools, since metamodels, modelling views, composition structures and methodological principles are expected to be used. They plan to integrate the AMASS contract-based approach for composition of safety properties. Contract-based approaches are proposed as requested by the topic and a methodology for guidance and recommendation is proposed as an integration of previous work in AMASS project.

However, details regarding the connection between the RobMoSys tools and the proposal objectives are not clarified.

Regarding topic requests, there is no reference to how they plan to align their implementation with safety standards for software and computer hardware, rather than mentioning that they will reinforce the RobMoSys community for assurance and certification of safety-critical systems with the AMSS platform. This should be further described and detailed. There is also no information of how they plan to improve accessibility, reusability and compositionality of robotics building blocks, nor how they plan to complement digital data sheets with machine-readable safety-relevant information.

The topic clearly states that any project in this area is expected to strongly collaborate with RoboMoSys partners, as there are some background that must be used as part of any safety-related support. They only mention that are fully aware of the different disponible RobMoSys resources such as Papyrus and the possibility to apply the solution in the Human Robot Collaboration for Assembly Pilot, but there is not any explicit mention of how to carry out the collaboration.

Expected TRL 4 seems a little bit low when considering that there is already an ongoing RobMoSys approach for Model-Based Safety Analysis, and that the call expects to demonstrate developments in pilots and industrial use-cases.

They plan to benchmark their tool infrastructure using the Industrial Pilot "Human robot Collaboration for Assembly", but there are no further details of how and what they plan to benchmark and what results are targeted. KPIs are correctly addressed and both metrics and targets are well stablished for project development, but their alignment with the demonstrator is missing.

Expected impact

The proposal target in various roles/stakeholders, such as system architects, system integrators and component supplier. The link between RobMoSys ecosystem and the proposal results is quite strong, showing the importance of the proposal benefits for RobMoSys community. Besides, they already lead the eITUS project under 1st RobMosys Open Call, so they are fully aware of RobMoSys ecosystem.

However, the size of potential users group is not well addressed. Only general robotic expected market growth metrics and general statements are presented. The significance of the results on the development of RobMosys approach and community is also not stated, further than aligning their project approach with general call objectives.

Exploitation and dissemination activities are discussed sufficiently.

IP related aspects and open source licensing are sufficiently discussed in section 2 and 5. Maximum open-source licensing will be provided since they plan to share results in open-source as enabled by the Eclipse Public License (EPL).

Implementation (Clarity of the work plan)

Timeframe is appropriate and well defined, including 3 tasks for 12 months, but task description is very limited. More information would allow better evaluating the implementation of their approach, mainly in task T1.2 (main development) and task T2.2 (demonstration and benchmarking). Only general objectives are stated.

Deliverables and milestones are appropriate. Risk management is well covered.

Cooperation with the consortium is limited to the participation on two workshops. This is an important point since the call clearly states that "any project in this area is expected to strongly collaborate with RoboMoSys partners, as there are some background which must be used as part of any safety-related support." Besides, the call states that they have to attend at least three workshops for Instrument 2.

The call also welcomes consortium and multi-disciplinary competences. The project is run by an only partner. At least some description of the working group and its expertise should be provided though the alignment of previous projects presented in Impact Section is appropriate for the proposal.

Regarding the budget, 3000 € are expected for consumables, but no description is provided. Moreover, 9600 € are requested for travel that seems quite high without any explanations rather than the attendance to two workshops. At the IP management section it is stated that budged is allocated for gold open access of publications, but there is not any description of targeted publications or targeted budget for travel and dissemination.

Remarks
The proposal is of high quality and in line with RobMoSys objectives but it has multiple shortcomings in all sections. See detailed description for each section with suggestions for improvement.

Second Open Call for RobMoSys Contributions

Evaluation Summary Reports

Proposal ID: Inst2/17	**Acronym : SafeCODE**

Technical/ research excellence
Although very little effort has bee put in the proposal to clearly present the concept, but the project is an opportunity to benefit from other EU projects and large scale studies described in the proposal. The basis of the work is solid and based on previous/current work of the consortium. Activities are well described. The open access of the resulting framework needs to be clearly considered during execution. The absance of clear description of the concept is a real short coming of the proposal.
Expected impact
Faster validation of the safety of collaborative robot application is very valuable. A huge community is potentially interested in the topic of the proposal. The proposal extends the

robmosys framework. Not really clear in which form the results can be used by the community. This can be particularly useful if targeted to robot programmer.

Implementation (Clarity of the work plan)
The partners have aduquate competences to execute the project. The implementation plan is appropriate, however no resources are allocated for management, reporting and dissemination. Description and management of risks is missing. Collaboration with RobMoSys is not clear. The KPIs although ambitious, but are relevant and well defined and can be used to track the progress and verify impact.

Remarks
The project is an opportunity to combine the results from other projects and studies. However, this is not clearly described in the proposal. It is also not clear how the proposed approach will benefit from RobMoSys meta-models and methodology. Appearently results can be obtained without RobMoSys models. The demonstration focused on industrial case is a positive. In addition a general application of the results needs to be shown. Not addressing the management of risks, management of project in general and dissemination activities are major issues with the proposal.

Second Open Call for RobMoSys Contributions

Evaluation Summary Reports

Proposal ID: Inst2/6	**Acronym : SCOPE**

Technical/ research excellence
The goal of this proposal is to advance in the safety assessment of robotic systems by deriving it from the properties of the individual skill components and the environment. As more particular contributions, the proposal addresses reasoning in terms of real-time constraints and resources. The proposal fits the topics of RobMoSys Instrument #2, in particular those related to system level composition related to predictability and safety. Compliance with the RobMoSys meta-models and methodology is clear. The proposal builds on CARVE ITP, already integrated in the robmosys ecosystem. With respect to the state of the art in the field, the quality of the proposal is difficult to assess as there is no state of the art per se, no references. The proposal mostly mentions building on CARVE. The Envisioned Technology Readiness Level is 5 for most components, 6 for BTs. This proposal is high risk because ensuring the correct execution of a pick and delivery task is much more complex considering time, safety distances, or resources. There list of KPIs is clear and quantitatively specified. The KPIs are aligned with the objective of

the proposal. All are however dependent on the complexity of the scenario, and this is not clearly specified. Fit to the selected challenge is very good, related to Topic 3: System Level Composition/Safety, and also addressing Topic 4 and 5, increase system level predictability of safety properties on a navigation and manipulation scenario.

Expected impact

The goal of the proposal is to provide tools that analyze and derive properties of a task by composing the properties that describe its skills and the environment, and, at runtime, ensure the correct execution of a task by monitoring it and propagating anomalies detected at the level of the skills. The proposal builds on RobMoSys CARVE project, and involves determining quantitative properties such as time, safety distance, resources. The scenario involves an indoor pick-up and delivery robot. The goal of the proposal meets one of the goals of the RobMoSys ecosystem, which is having system-level guarantees for robotic tasks by compounding the information and conditions from individual skills. The proposal addresses aspects related to extending the RobMoSys ecosystem satisfactorily. The consortium plans regarding accessibility of results is releasing the software, models and tools under BSD license and publishing the scientific results in robotics conferences and journals. Such approach is appropriate to ensure the dissemination of the results of the project. The size of the potential users group(s) and the potential extension of the RobMoSys ecosystem coverage are high, many robotic systems would benefit from system-level verification of autonomous behaviors, if successful. With respect to the accessibility of the results (preferring open source licensing that enables composability similar to proven platform projects as Eclipse), the says that "Wherever applicable, and compatible with the Consortium IPR, software, models and tools produced will be made available as open source through public online repositories." IPR is mentioned to be in line with H2020 guidelines. The significance of the results on the development of the RobMoSys approach and community could be high if the proposal is successful.

Implementation (Clarity of the work plan)

The implementation is coherent with the objectives and the short time allowed to reach them. However, there is a lack of detail in the core technical activities of the project. For example, Task 3 refers to the development of languages with certain capabilities, but it is not clear how easy or difficult such developments are with respect to the state of the art. Also, it is not fully clear in the workplan (task 2) the complexity of the validation scenario. The size and members of the consortium are appropriately designed to meet the goals of the project. Risk management includes the consideration of 7 risks. Technical risks 5 and 6 related to complexity of the validation scenario, are very high.

Remarks

The goal of the proposal meets one of the goals of the RobMoSys ecosystem, which is having system-level guarantees for robotic tasks by compounding the information and conditions from individual skills.
The quality of the proposal is difficult to assess as there is no state of the art per se, no references. The proposal mostly mentions building on CARVE.
This proposal is high risk because ensuring the correct execution of a pick and delivery task is much more complex considering time, safety distances, or resources.

There list of KPIs is clear and quantitatively specified. The KPIs are aligned with the objective of the proposal. All are however dependent on the complexity of the scenario, and this is not clearly specified. There is a lack of detail in the core technical activities of the project. For example, Task 3 refers to the development of languages with certain capabilities, but it is not clear how easy or difficult such developments are with respect to the state of the art. Also, it is not fully clear in the workplan (task 2) the complexity of the validation scenario. Risk management includes the consideration of 7 risks. Technical risks 5 and 6 related to complexity of the validation scenario, are very high.

Second Open Call for RobMoSys Contributions

Evaluation Summary Reports

Rejected.

Proposal ID: Inst2/16	Acronym :SLOG

Technical/ research excellence
The proposal presents an interesting model-based approach focusing on good-quality logging for understanding the behavior of systems, especially oriented in logging processes valuable for commercial applications, both in the domain of industrial and service robotics. The quality of the proposed objectives is high and the description of the proposed models is well defined, presenting the benefits compared to existing logging mechanisms (e.g. rosbags). There is link with RobMoSys metal-models and is well justified, while the integration to RobMoSys ecosystem is well explained, as well as the link to other research activities. The proposed approach is substantiated given specific and measurable KPIs provided in section 4. Justification of the expected TRL level of the system is not presented.
Expected impact
The impact of the proposal is connected with solving problems in data logging processes and improve productivity within RobMoSys ecosystem. However, the envisaged roles are not sufficiently described. The size of the target groups is presented as large; however specific users' groups are not identified. Potential return of investment is presented to be very fast, however it is not substantiated. The significance of the results for RobMoSys community is not substantiated. Management of IP data and open source licensing are briefly described in section 5.
Implementation (Clarity of the work plan)
The time plan of the proposal activities is reasonable and well balanced. However, the description of the WPs is oriented on the importance of some aspects related to data logging rather than identification of real activities for the partners to be executed.

Milestones and deliverables are well defined and are appropriate for the project timeframe and scope. The proposal identifies the need for cooperation between the partners as well as the connection between the proposal actions and the RobMoSys community. Risk management related aspects are well identified and are relevant to the project activities.
Remarks
Not applicable.

Second Open Call for RobMoSys Contributions

Evaluation Summary Reports

Proposal ID: Inst2/15	**Acronym : VeriComp**

Technical/ research excellence
The proposal addresses topic 2 Functional composition inside components and fits to the selected challenge. It addresses the development of a domain-specific extension of a formalized meta-model of computation towards modeling robotics motion control algorithms, as well as their implementation at the functional level which enables the functional composition inside components and the optimization and verification of non-functional attributes such as timing for composable motion control components. Significant review of the state of the art in the field is reported, with clear connections with the envisioned work. The description of work and its link with RobMoSys call requirements, meta-models and methodology is well addressed and described. The "Flexible Assembly Cell" pilot has been selected to demonstrate their approach, and the different tests and targeted objectives are well addressed. Besides, they plan to demonstrate their approach on a KUKA KMR IIWA platform. They envisioned TRL is 6, which seems appropriate with the objectives and targeted results. They start from their CoSiMA framework that is at TRL 4. Information regarding the success or impact of the CoSiMA framework and alternative state of the art in the field is missing. Most Key Performance Indicators are post-project metrics and only a couple are mentioned concerning the evaluation of the demonstrator and tooling. More KPIs should be defined to be able to verify the work during the project timeframe. Besides, there is no target measure for any listed KPI. Some % of improvement or some goal should be stablished to evaluate the ambition and impact of the proposal developments. The Flexible Assembly Cell pilot is targeted, but the proposal lacks of a clear definition of the target application, use case and mean of verification.
Expected impact
The proposal has contributions on all three RobMoSys Tiers. MMoC as an additional composition structure on Tier 1, meta-models for motion control on Tier 2, and their use case and its realization

with specific Tier 3 models and their implementations. These contributions can extend RobMoSys ecosystem.

The size of the potential users groups is not discussed rather than stating general comments, and a clear identification of the potential users groups is missing. Description of application and/or market impact is also missing. The potential impact of the project is not well detailed. Information regarding CoSiMA framework impact would also be valuable to understand the potential extension of RobMoSys ecosystem with the presented implementation.

Accessibility of the results is in line with the Call. Software and software tools produced within the project will be made available as open source through public online repositories (e.g. GitHub) under licensing schemes such as the GNU General Public License.

Implementation (Clarity of the work plan)

Task description and timeframe seem appropriate and well defined though sub-heading titles (or tables location) make the text sometimes confusing. Regarding deliverables, we miss at least a final report deliverable showing all results from the project and the demonstration tasks.

We also miss a Milestone at the middle of the project, since besides the MS1 at M2 regarding a website available for the project, the nest milestone is at M10 that we think is too late to evaluate the progress of project. The consortium consists of two universities and their description is provided. However, it is not described how complementary they are. Tasks are divided between both partners but it is not stated how they are complementary (or even if they are inter-disciplinary) and why they represent a good tandem.

There is no risk management. It is just mentioned that it will be carried out as ongoing process. This should have been explicitly described.

To actively cooperate with the RobMoSys consortium they plan to approach the ITPs EG-IPC and e-ITUS for collaboration that can be very positive. However, explicit mention to attendance to 3 RobMoSys workshops is missing at the dissemination task or elsewhere as requested by the call.

Regarding the budget, travel expenses seem fine and equal for both partners, but there is a budget request of 2.500 € per partner for consumables, described as “minor technical equipment for scenario development”.We guess it is a description problem, but equipment costs are not covered by the call, just consumables. The authors should clarify the purpose of this equipment, and also, why do both partners need the same amount. Finally, UniBI requests a budget of 98.400 € for personnel costs and BRSU 81.600 €, with 15 and 12 PM effort, which seems appropriate. A significant overlapping exists between WP3 and WP4, highlighting a potentially conflicting relation between implementation and verification of the execution environment.

Remarks

The basic idea behind the proposal is good but the identification of use cases and a clear verification strategy is missing. The impact is also described in a poor way. KPIs and Risks have to be redefined.

Instrument #3

Second Open Call for RobMoSys Contributions

Evaluation Summary Reports

Proposal ID: Inst3/01	Acronym : SmartDDS

Technical/ research excellence
Integrate another middleware will increase the Smartsoft community and the DDS middleware would allow us to reach the community of ROS2. Prof. Jesus Martínez research topics are the design of communication protocols and high-performance critical software. He also worked in the previous RoQME ITP, which gave him experience with the robmosys approach and the SmartMDSD tool. He has the background to finish successfully this proposal.
Expected impact
DDS is a very hot topic in the robotics community, not the least due to the current activities of using DDS as the underlying middleware for ROS 2. Moreover, at several RobMoSys public meetings (such as at ERF), some of the RobMoSys core members have been questioned about DDS in RobMoSys. Therefore, making progress with respect to DDS in RobMoSys potentially has a huge impact, not only within RobMoSys, but for the entire robotics community. Also, the proposed meeting together with RTI, and ROS 2 experts sounds very interesting and has the potential to reach out and to link more to these communities.
Implementation (Clarity of the work plan)
Overall costs seem to be reasonable. The project timeline is well planned and the planned events are certainly worth the costs.
Remarks
Overall, this collaboration can be very useful for RobMoSys and has high impact on the robotics community as a whole and on the ROS 2 community in particular. It can be very helpful to establish links in these communities and thus to promote RobMoSys in general. The costs are minimalistic and well spent in the high impact events.

RobMoSys

Minutes of the Panel Meeting

Second Open Call for RobMoSys Contributions

First Cut-Off Date

July 2nd- 3rd, 2019

Leuven, Belgium

Version: July 23rd, 2019

Overview of topics

1. Objective of the panel meeting

- To achieve agreed conclusion on evaluation of the proposals,
- To finalize the Evaluation Summary Reports of the proposals,
- To rank the proposals above the threshold,
- To prepare the Panel Report for the European Commission.

2. Participants

Panel Chair:
Alois Knoll [AK]

External Panelists:
Ali Muhammad [AM]
Iñaki Diaz Garmendia [IDG]
Javier CIvera [JC]
Loris Roveda [LR]
Panagiota Tsarouchi [PT]

RobMoSys Steering Committee:
EUnited: Georg von Wichert (proxy) [GW]
Siemens: Georg von Wichert [GW]
CEA: Huascar Espinoza [HE]
Hochschule Ulm: Christian Schlegel [CS]
PAL Robotics: Sergi Garcia [SG]
Eclipse Foundation: Gaël Blondelle [GB]
KU Leuven: Herman Bruyninckx [HB]
COMAU: absent (no proxy)
TUM: Luz Martinez [LM]

RobMoSys Back Benchers:
Siemens: Daniel Meyer-Delius [DMD]
EUnited: none
CEA: Matteo Morelli [MM]
TUM: none
Hochschule Ulm: Dennis Stampfer [DS]
PAL Robotics: none
Eclipse foundation: none
KU Leuven: Enea Scioni [ES]
COMAU: none

Panel Minutes Keepers:
Zuzanna Domagała [ZD]
Marie-Luise Neitz [MLN]

3. Roles of participants

Panel chair: moderates the discussion, highlights aspects which are particularly relevant for RobMoSys, casting vote in case of undecided votes, in charge of the Panel Report.

External panelists: vote on behalf of the panel, contribute to the Panel Report, generate the Evaluation Summary Reports for each of the applicants to inform them about the results of the panel (funding decision).

RobMoSys Steering Committee: One representative of each core partner, vote on behalf of the consortium (simple majority, abstentions not possible).

RobMoSys Back Benchers: Scientists of the consortium who will present the proposals to the external panelists, supporting the steering committee, no voting right.

Panel Minute Keepers: Keep the minutes during the panel which is the basis of the Panel Report and the deliverable RobMoSys on Second Open Call.

4. Basic rules of the panel meeting

Voting: done by simple majority.

Proxy: there is possibility to pass the voting right to another member of the steering committee in case of absence of the representative of a particular member of the consortium.

Out-of-the-room rule: The rule is applied in case of any situation where the impartial and objective implementation of the panelists' work is compromised. A panelist with conflict of interest steps outside the meeting room in order to have no impact on the evaluation process of a proposal in question.

5. Schedule of the panel meeting

5.1. July 2nd, 2019

10:00 to 10:10	Welcome and introduction of the agenda – Prof. Herman Bruyninckx
10:10 to 10:25	Short introduction round of participants – Chair Prof. Alois Knoll
10:25 to 10:45	RobMoSys – Instrument #2 – What are we looking for? – Prof. Christian Schlegel
10:45 to 11:05	Basic principles and governance of the panel meeting – Marie-Luise Neitz

11:05 to 11:20	**Coffee break**
11:20 to 12:30	Individual presentations by internal evaluators and discussion of 'B' proposals to regroup them in 'A" or 'C'. • MOCS – Huascar Espinoza • MROS – Luz Martínez • cbcb4MBE – Prof. Herman Bruyninckx • COCORF – Daniel Meyer-Delius • VeriComp – Matteo Morelli • ForSamara – Matteo Morelli • SafeCC4Robot – Sergio Garcia • SafeCODE – Daniel Meyer-Delius • SCOPE – Prof. Christian Schlegel
12:30 to 13:30	**LUNCH TIME**
13:30 to 14:00	Individual presentations by internal evaluators and discussion of 'B' proposals to regroup them in 'A" or 'C'. • RobMoSys-EGCS – Enea Scioni • SLOG – Luz Martínez
14:00 to 14:30	Presentation of 'A' proposals. Those proposals who has been 'A' since the beginning. • Democratize – Prof. Christian Schlegel • MiRoN – Sergio Garcia • CLOTHO – Daniel Meyer-Delius • CMCI – Huascar Espinoza • MCPHRI – Dennis Stampfer
14:30 to 15:00	Discussion of 'A' proposals by members of the RobMoSys Steering Committee (external evaluators leave the room)
15:00 to 15:30	Presentation of results of discussion by Steering Committee to external evaluators.
15:30 to 15:45	**Coffee break**
15:45 to 16:10	Discussion of the suggestions by external evaluators, members of the RobMoSys consortium to leave the room.
16:10 to 16:40	Outcome of the discussion presented by external evaluators to members of the RobMosys core consortium.

16:40 to 17:45	Time slot reserved for further fine-tuning if necessary
17:45 to 18:00	Governance of the panel meeting, timeline and next steps
18:00	Farewell and invitation to dinner.

5.2. July 3rd, 2019

09:00 to 09:10	Introduction Instrument #1
09:10 to 09:20	Explanation of the agenda and the procedures
09:20 to 09:30	Ranking presentation
09:30 to 10:15	Presentations of proposals
10:15 to 11:00	Selection of proposals to be founded
11:20 to 11:30	**BREAK**
11:30 to 11:40	Introduction Instrument #3 and procedures
11:40 to 11:50	Presentations of proposals
11:50 to 12:10	Evaluation of proposals
12:10 to 12:30	Approval of the panel minutes and the final list
12:30 to 13:40	**LUNCH TIME**

6. Results of the remote evaluation

		External evaluation						Internal evaluation		
Instrument	**Proposal acronym**	Crit.1	Crit. 2	Crit. 3	Weighted Avg	Total score	**Recomm. bins**	Ev1	Ev2	Consensus
1	AROSYS	**7**	**6.5**	**7**	**6.85**	**21**	**-**	-	-	-
1	EXAMFORA	**4**	**5**	**4**	**4.3**	**13**	**-**	-	-	-
1	ROBOX	**6**	**6**	**5**	**5.7**	**17**	**-**	-	-	-
1	SSR	**5**	**5**	**2**	**4.1**	**12**	**-**	-	-	-
2	MOCS	**6.5**	**6.5**	**7.5**	**6.8**	**21**	**B**	**A**	**A**	**A**
2	MROS	**8**	**7**	**7**	**7.4**	**22**	**B**	**B**	**A**	**A**
2	cbcb4MBE	**6**	**7**	**8**	**6.9**	**21**	**B**	**B**	**C**	**C**

2	Co-RobMoSys	3	4	3	3.3	10	C	C	C	C
2	COCORF	7.5	8.5	8	7.95	24	B	A	A	A
2	VeriComp	7	8	6	7	21	B	A	A	A
2	ARCAID	7	5	6	6.1	18	B	A	C	B
2	ForSamara	8	7	6	7.1	21	B	C	B	B
2	SafeCC4Robot	7	7	6.5	6.85	21	B	A	A	A
2	SafeCODE	7.5	6.5	6.5	6.9	21	B	A	C	B
2	SCOPE	8.5	7	7	7.6	23	B	B	A	B
2	Democratize	8	8	8	8	24	A	C	C	C
2	MIRoN	9	8	7	8.1	24	A	A	B	A
2	NavCoM	7	7	6	6.7	20	B	A	B	B
2	CLOTHO	8	9	8.5	8.45	26	A	B	B	B
2	RobMoSys-EGCS	7.5	7.5	8	7.65	23	B	B	B	B
2	ASTERIA	4	2	1	2.5	7	C	C	B	B
2	CMCI	8	8	8	8	24	A	B	B	B
2	MCPHRI	9	9	9	9	27	A	C	B	B
2	SLOG	6.5	6.5	7.5	6.8	21	B	A	A	A
3	SmartDDS	9	8	8	8.4	25	-	-	-	-

7. Minutes – July 2nd, 2019

HB gave a short overview of the agenda and organization of the panel meeting.

All participants of the meeting introduced themselves and explained their role during the panel meeting and/or field of expertise relevant during the evaluation process.

CS gave presentation on "Instrument #2: What are we looking for?" with detailed explanation of:

- The big picture of RobMoSys – objective of the project and its final impact,
- Instrument #2 – Building the ecosystem – definition of the RobMoSys ecosystem and objectives of Instrument #2,
- Instrument #2 – Ecosystem Challenges – detailed description of Instrument #2,
- Instrument #2 – What we are (not) seeking for? – description of requirements to be met by ideal proposal in order to fully enrich the RobMoSys project.

MLN presented "RobMoSys: Governance of the panel meeting" which included following topics:

- formal information on Instrument #2,
- timeline of the open call for Instrument #2,
- evaluation process for Instrument #2,
- explanation of the roles of participants of the panel meeting,
- basic rules of the panel meeting and principles during evaluation process,
- conflict of interest for applicants and evaluators,
- evaluation criteria for remote evaluation,
- results of the remote evaluation.

[coffee break]

AK set the maximum time per presentation of the proposals and following discussion to 5min each.

7.1. Presentation and discussion over B-graded proposals.

MROS: presented by LM
Initial grade: 22points
Discussion:
AM: 12 months is too short time for such a complicated project with so many (5) partners.
JC: Agrees with AM.
HB: The consortium of the proposal has visited a lot of RobMoSys workshops.
PT: The proposed concept will not work.
AK: The technical excellence was ranked 8. It is high.
HB: Connection to RIS is important.
Votes: 3 x A, 2 x C
Result: A

MOCS: presented by HE
Initial grade: 21 points
Discussion:
IDG: Does it make sense to spend 36k€ for subcontracting? This expense is not well declared.
AM: The proposal promises to deliver a limited number of tasks and therefore is more focused on them. This is an advantage over the previous proposal which has too broad a spectrum of objectives.
PT: The minor issue is that the proposal is not specific regarding tools to be used.
LR: Which TRL is expected for this proposal?
HE: This is an innovation action (TRL5-TRL7) at the end it should be TRL 6 to 7.
JC: The proposal doesn't have specific goals; it is rather broad in terms of objectives. It doesn't contribute enough to RobMoSys ecosystem. Lack of open license.
Votes: 2 x A, 3 x C
Result: C

cbcb4MBE: presented by HB
Initial grade: 21 points
Discussion:
AK: There is only one partner in the proposal.
LR: There is no connection to the RobMoSys project.
AM: It seems that the proposal is about what applicants want to do anyway and has nothing to do with RobMoSys.
Votes: 0 x A, 5 x C
Result: C

COCORF: presented by DMD
Initial grade: 24 points
[HB leaves the room even though there is no conflict of interest because one applicant is a former PhD student of his.]
Discussion:
AK: The proposal is highly ranked by both external and internal evaluators and has few minor weaknesses. I suggest it is A if you agree.
AM: It is a good proposal.

IDG: The only concern is that the only applicant is a freelancer. Is it ok from a legal point of view?
[Legal concern will be checked later and in case of no obstacle the result of voting will be upheld.]
Votes: 5 x A, 0 x C
Result: A
[HB re-enters the room.]

VeriComp: presented by MM
Initial grade: 21 points
Discussion:
CS: Proposal may be of high value for RobMoSys. Applicants participated in a lot of RobMoSys workshops.
JC: KPIs and Impact are not well described and a little bit disappointing. Benefit to RobMoSys is not clear.
Votes: 5 x A, 0 x C
Result: A

ForSamara: presented by MM
Initial grade: 21 points
Discussion:
GW: If there is any area where we need model-driven design, then it is safety. I would even risk a failure. There is a lack of robotic expertise – this is a minor issue.
AM: High risk due to the high ambition.
CS: Valuable verification results.
Votes: 5 x A, 0 x C
Result: A

[SafeCC4Robots was postponed to after lunch due to absence of SG]

SafeCODE: presented by DMD
Initial grade: 21 points
Discussion:
AK: Fraunhofer IFF is a leading entity regarding safety issues and a lot of standards are their work.
IDG: Formal remark – description of the implementation was written on 6 pages instead of 4.
LR: Consortium in this proposal is strong.
AM: The project can be conducted also outside of RobMoSys. It is hard to see a benefit for RobMoSys.
HE: Applicants are dealing with electronics and RobMoSys coach would need to link electronics and collaborative robotics. It may not entirely fit RobMoSys' scope.
AK: If it is possible to incorporate this proposal into RobMoSys than the RobMoSys would gain the safety aspect.
JC: There is no clear KPI description. Applicants want to discuss them later.
GW: Applicants want to use RobMoSys as a safety validator.
Votes: 2 x A, 3 x C
Result: C

SCOPE: presented by CS
Initial grade: 23 points
Discussion:

CS: The proposal has broad scope not evenly described. It is not clear which topic the applicants apply for.
LM: Proposal may be assigned not only to topic 3 – this needs to be corrected.
MM: We can guide this proposal into the topic that is the most relevant for RobMoSys.
Votes: 3 x A, 2 x C
Result: A

[Lunch break]

SafeCC4Robot: presented by SG
Initial grade: 21 points
[Out-of-the-room rule: HE left the room to ensure impartiality during the discussion of this proposal]
Discussion:
CS: The architecture of the proposal is opposite to what RobMoSys stands for. It is not clear what exactly is a novelty. What is different from what they have done in the first open call?
PT: The proposal is in line with RobMoSys due to safety in robotics. Proposal is well prepared. Weaknesses are minor in comparison to strengths.
IDG: This is another proposal addressing the safety issue.
Votes: 5 x A, 0 x C
Result: A
[Out-of-the-room rule: HE re-entered the room]

RobMoSys-EGCS: presented by ES
Initial grade: 23 points
Discussion:
ES: Some of the details are missing. Applicants mentioned about creating a pilot but there is no effort indication in budget or business plan. Business plan is not clear but this is the only proposal having a business plan.
PT: The business plan is very generic.
CS: Having an isolated business plan doesn't bring any benefit.
AM: How to incorporate this proposal into RobMoSys business plan?
HB: Due to experience with applicants during previous open calls it is fair to say that the team is trustworthy and reliable. Proposal is focused on a small number of goals which can be delivered.
ES: Alignment with RobMoSys is not clear – doubtful benefit for RobMoSys.
DS: Additional requirement of making RobMoSys tools and pilots should be added to the proposal if the project gets funded. Coaching would need to compensate for aforementioned weaknesses.
Votes: 4 x A, 1 x C
Result: A

SLOG: presented by LM
Initial grade: 21 points
Discussion:
[AM admitted to collaborate with one applicant in another project. MLN decided it is not a conflict of interest]
AM: It is hard to find a connection between the proposal and RobMoSys.
HB: Control framework is the connection.
PT: In general the proposal is good, although there is no description of integration actions (Impact).

DS: Applicants were involved in previous open calls and proved to have a tendency to create an "island" – to work in isolation to RobMoSys. If the proposal is getting funded, then we have to make sure that this does not happen again. Apart from that, applicants provided a nice tool and may be a good add on for the RobMoSys.
Votes: 5 x A, 0 x C
Result: A

7.2. Presentation of originally A-graded proposals.

AK: I propose to present each originally A-graded proposal together with three buzzwords best describing its nature.

Democratize: presented by CS
Buzzwords: user-friendly vision, DSL, transformation into LTL semantics

MIRON: presented by SG
Buzzwords: combining behavioral models, quality of service in real time

CLOTHO: presented by DMD
Buzzwords: error checking, human-machine interaction for contact-rich manipulation tasks, transparent offline decisions- support offline programming
MLN: Proposal's budget is 266k€ which is above threshold (250k€). We need to ask applicants to cut the budget.

CS: The evaluation is not transparent and fair since there is a correlation between tasks and a budget. If they cut the budget they will probably reduce tasks. We are evaluating proposed objectives, how to evaluate proposals if we don't know which tasks remain?

CMCI: presented by HE
Buzzwords: framework for interaction-control modelling, compliant motion control, controller code generation

MCPHIR: presented by DS
Buzzwords: connecting Fiona community, HRI domain models, conformant components and tools

7.3. Subset of A-graded proposals to be funded

[Out-of-the-room rule: HE left the room to ensure impartiality during the discussion over proposals to be funded – CoI with SafeCC4Robot. MM is replacing HE as a CEA representative.

GB, SG are absent.

External evaluators are absent due to evaluation process rules.]

AK: Let's have a separate table with original points for all A-graded proposals from external and internal evaluators. Information on budget is also needed. Let's decide on the basis of buzzwords and, if available, indication given by applicants to which topic a particular proposal fits.

Assignment proposals to particular topic:

Topic 1: MROS
Topic 2: VeriComp, COCORF
Topic 3: SafeCC4Robot, SCOPE, ForSAMARA
Topic 4: MIRON, Democratize
Topic 5: CLOTHO, RobMoSys-EGCS
Topic 6: *none*
Topic 7: SLOG, CMCI, MCPHRI

MLN: In Guide for Applicants we stated that we want to fund at least one proposal in each topic.

AK: Let's solve the evaluation topic by topic.

Topic 1: MROS

- MROS: is the only one proposal in this topic, may have a huge impact due to high reusability if applicants make a real connection to RobMoSys
- **MROS is recommended for funding**

Topic 2: VeriComp vs. COCORF

- VeriComp has three times larger budget and better coverage than COCORF
- COCORF: better value for money
- **VeriComp is recommended for funding**

Topic 3: SafeCC4Robot, SCOPE, ForSAMARA

- SafeCC4Robot: has expertise in safety, is compliant with RobMoSys, has relatively low budget which allows to fund another project
- SCOPE: Is ranked high both by external and internal evaluators,
- ForSAMARA: has a big community, Pilz (real safety specialist) is a partner in this consortium, it is ranked lower by both external and internal evaluators than the other two proposals in this topic.
- **SafeCC4Robot and SCOPE are recommended for funding**

Topic 4: MIRON, Democratize

- MIRON: has higher grades from both external and internal evaluators
- Democratize: It has uncertainty in the realization of all the results
- **MIRON is recommended for funding**

Topic 5: CLOTHO, RobMoSys-EGCS

- CLOTHO: has a higher grades from both external and internal evaluators, fits to Instrument #1 – introduction RobMoSys into applicants' world, budget is too high (266k€) – [rejection due to formal mistake]
- RobMoSys-EGCS: is the only eligible proposal in this topic
- **RobMoSys-EGCS is recommended for funding**

Topic 6: *none*

Topic 7: SLOG, CMCI, MCPHRI

- SLOG: has low grades from external evaluators,
- CMCI: has high grades from both external and internal evaluators,
- MCPHRI: RobMoSys is just a mean to improve applicant's platform, should apply for Instrument #1
- **CMCI is recommended for funding**

7.4. Final decision of external evaluators on recommendation for funding.

AM: After the discussion the final decision should be taken by members of the core consortium.

All external evaluators agree with this suggestion.

MLN presents further actions regarding finalizing the evaluation process in the second RobMoSys open call.

[End of the first day of the panel meeting]

8. Minutes – July 3rd, 2019

[Present Steering Committee members: AK, GW, HB, LM, GB, HE, CS]

8.1. Instrument #1

CS gives a short introduction and explanation on Instrument #1:

- The objective is not to create something new,
- Designed for industry to give RobMoSys a trial.

AK: There are too few proposals [4] to discuss, let's postpone the discussion to the second cut-off date.

CS: If we go through all proposals then we can see their weaknesses and it may be beneficial for shaping the next cut-off date during the General Assembly.

AK: External evaluators will present the proposals from this Instrument.

AROSYS: presented by IDG

EXAMFORA: presented by PT
ROBOX: presented by LR
SSR: presented by IDG

AK: Three proposals [EXAMFORA, ROBOX, SSR] are below the threshold [21 points – Guide for Evaluators]. Three proposals [AROSYS, EXAMFORA, SSR] are above budget [max. 60k€ - Guide for Applicants]. So the only proposal which has enough points is AROSYS and the only proposal with an eligible budget is ROBOX. All proposals should re-apply with suggestions from RobMoSys what needs to be improved.

GW: We need to know if we can bend a rule regarding maximum budget or points.

HE: We do not have enough resources to coach twice as many ITPs in the same time. So if we decide to postpone Instrument #1 to the next cut-off date we don't have enough coaches to do their job.

GW: We need to ask the Project Officer if it is possible to negotiate the budget.

[Voting by Steering Committee on AROSYS proposal since it is the only one with sufficient points]

All members of the Steering Committee are in favor of funding AROSYS under condition of reducing budget. The rest of the proposals were rejected due to not receiving enough points in the evaluation process.

AM: Well established and known companies will not go for Instrument #1 since the budget is small. Start-ups may be better targets.

GW: I agree but start-ups do not have any experience therefore cannot provide any valuable feedback.

CS: If someone has robotic business then RobMoSys should provide solutions easy to exploit. I would like to see such user cases. Why not to extend a target group to universities because from yesterday we noticed couple of proposals which would fit to Instrument #1 but since they have academic partner they applied to Instrument #2.

AM: You need to simplify proposals and give to applicants a video or some story or coaching to follow because it is only 60k€ and 6months of project's runtime.

IDG: Maybe pre-proposals would be beneficial for making sure that proposals are in scope and do not violate any rule?

MLN: We had pre-proposal checking but not many pre-proposals were submitted. We must promote pre-proposal checking more.

Pre-proposal checking becomes mandatory.

HE: I propose to allocate some of the budget from Instrument #1 to Instrument #2 because we cannot coach 12 ITPs on the next cut-off date.

External evaluators and the Steering Committee agree with HE suggestion.

CS: I propose to fund ForSAMARA and COCORF from Instrument #2.

IDG: ForSAMARA will be the 3rd proposal from the same topic. COCORF has a low budget so it is ok to fund it, but is freelancer eligible for funding?

HE: We need to check that.

CS: ForSAMARA complements the other two projects from this topic in respect to safety.

IDG: As it was agreed yesterday, we will support all your suggestions regarding funding in Instrument #2.

External evaluators and Steering Committee agree with CS proposition to fund ForSAMARA and COCORF if there are no legal contradictions.

[Coffee break]

8.2. Instrument #3

IDG: The best approach regarding this Instrument is to reach for people who actually have some experience with RobMoSys. No-one who is not familiar with this concept will make a good promoter.

HB: We are looking for experts with some experience.

AM: People from Instrument #2 are the option for successful dissemination.

CS: Instrument #3 is about participating in a workshop and visiting Ulm's lab in order to know RobMoSys in detail. Then, experts are expected to return to other communities to spread a word about this project.

IDG: You need to reach for particular experts, otherwise no-one will apply out of nowhere.

CS: I agree.

AK: Let's see the only proposal in this instrument.

SmartDDS: presented by LM

Steering Committee approves to suggest this proposal for funding.

[The end of the second day of panel meeting.]

RobMoSys

Panel Report

Second Cut-Off Date

Second Open Call for RobMoSys Contributions

December 03rd, 2019

Panel Chair: Luz Martínez

January 29th, 2020

Panel Chair: Daniel Meyer-Delius

Version: February 5th, 2020

Overview of topics

1. Introduction and methodology

This report covers the Panel Meeting for the second round of the Second Open Call for RobMoSys Contributions, held in Barcelona, Spain, on December 3rd 2019 for instrument #3 and on a virtual meeting on January 29rd 2020 for instrument #1.
The second round of this call was opened on August 1st and closed on November 13th, 2019 at 17:00 Brussels time.
The call was divided into three Instruments with different scope and objectives. Details on each Instrument are available in the *Guide for Applicants*. For this round only instrument #1 and #3 were available due the runtime of twelve month of the instrument #2.

General statistics about the received proposals can be found in Table 1.

	Received proposals	Eligible proposals	Proposals accepted after remote evaluation	Proposals accepted after panel meeting
Instrument #1	10	10	7	6
Instrument #3	5	4	4	3
Total number of proposals	15	14	11	9
Total percentage	100%	93.33%	73.33%	60.00%

There were 3 submissions of a pre-proposal for preliminary check and 1 incomplete proposal. Those proposals were not reviewed, neither during remote evaluation or in the panel meeting. Also, most submissions had more than one version of the proposal. The last uploaded to the platform version was considered for funding.

Once the requirements regarding eligibility of the proposals and absence of conflicts of interest, the evaluation process was designed as follows:

- Instrument #1
  - Two independent external experts submitted their individual evaluations via the Open Calls Platform. In case of significant differences, a third evaluator was involved.
  - One of the independent external experts wrote a Consensus Report (CR) based on the individual evaluations and the blog discussions.
  - During the Panel Meeting each proposal was presented by one member of the consortium.
  - Members of the steering committee of RobMoSys discussed all proposals and decided about a final ranking.
- Instrument #3
  - Two internal experts were assigned to each proposal.
  - Aforementioned experts submitted their individual evaluations expressed in recommendation bins via the Open Calls Platform.
  - One of the internal experts wrote a Consensus Report (CR) based on the internal individual evaluations and the blog discussions between him and the other internal reviewer.
  - During the Panel Meeting each proposal was presented by one internal expert.
  - Members of the steering committee of RobMoSys discussed all proposals and decided about a final ranking.

Each proposal was evaluated according to three criterions: Expected Impact, Technical Excellence and Implementation.
The eligibility of proposals followed a two-step filtering process: first considering the score per criterion and then the overall score, obtained by arithmetic sum. A proposal was considered as eligible for the next step of evaluation if each mark is not less than 6/10 and the overall score not less than 21/30. Details on each criterion:

Expected Impact: weight 40% and threshold 6/10
Technical Excellence: weight 30% and threshold 6/10
Implementation of the ITP: weight 30% and threshold 6/10
Overall score threshold 21/30.

During the Panel Meeting the scores of the proposals, within each Instrument, were calibrated and the final ranking was established in agreement of the panelists, by simple-majority vote.

2. Analysis of the results of the remote evaluation

15 proposals were submitted as a final submission of the application. One proposal was not completed therefore not eligible and was not reviewed, neither during the remote evaluation nor in the panel meeting.

A total number of proposals evaluated in each Instrument was as follows:

- Instrument #1 – 10 proposals were evaluated by two independent external evaluators.
- Instrument #3 – 4 proposals were evaluated by two internal evaluators.

The results of the admissible proposals for second round of Second Open Call for RobMoSys Contributions after the remote evaluation is as follows:

		Remote Evaluation				
Instrument	**Proposal acronym**	Crit.1	Crit. 2	Crit. 3	Weighted Avg	Total score
1	Cyclone-TOVE	**5.5**	**6.5**	**5.5**	**5.8**	**17.5**
1	AMBSPSRR	**7.5**	**7.5**	**7**	**7.35**	**22**
1	HRICAR	**8**	**7**	**6**	**7.1**	**21**
1	MR4RobMoSys	**8**	**7.5**	**7.5**	**7.7**	**23**
1	MIRANDA	**8**	**8.5**	**7**	**7.85**	**23.5**
1	RoMan	**7**	**6.5**	**7.5**	**7**	**21**
1	ROBOX	**0**	**0**	**0**	**0**	**0**
1	RALM	**5**	**6**	**6**	**5.6**	**17**
1	SmartAPS	**7**	**7**	**7**	**7**	**21**
1	UWROSYS	**8**	**9**	**8**	**8.3**	**25**
3	Planning4Papyrus	**6**	**8**	**8**	**7.2**	**22**
3	HRC	**8**	**8**	**7**	**7.7**	**23**
3	OPC UA for RobMosys	**7**	**7**	**7**	**7**	**21**
3	TRACTION	**8**	**7**	**6**	**7.1**	**21**

Comments on the results of remote evaluation:

- Instrument #1 – 3 out of 10 proposals were not eligible for the next step of evaluation.
- Instrument #3 – all proposals were eligible for the next step of evaluation.

3. Panel Meeting

3.1. Objective of the panel meeting

- To achieve agreed conclusion on evaluation of the proposals,
- To finalize the Evaluation Summary Reports of the proposals,
- To rank the proposals above the threshold,
- To prepare the Panel Report for the European Commission.

3.2. Participants

3.2.1. December 3rd, 2019

Panel Chair:
Luz Martínez [LM]

RobMoSys Steering Committee:
Siemens: Daniel Meyer-Delius [DMD]
CEA: Huascar Espinoza [HE]
Hochschule Ulm: Christian Schlegel [CS]
PAL Robotics: Sergi Garcia [SG]
Eclipse Foundation: Gaël Blondelle [GB]
KU Leuven: Herman Bruyninckx [HB]
COMAU: Alfio Minissale [AM]
TUM: Luz Martínez [LM]

RobMoSys Back Benchers:
Siemens: Bernd Kast [BK]
CEA: Matteo Morelli [MM]
TUM: Anna Principato [AP]
Hochschule Ulm: Dennis Stampfer [DS]
PAL Robotics: none
Eclipse foundation: Marco Jahn [MJ]
KU Leuven: Enea Scioni [ES]
COMAU: none

Panel Minutes Keepers:
Luz Martínez [LM]

3.2.2. January 29th, 2020

Panel Chair:
Daniel Meyer-Delius [DMD]

RobMoSys Steering Committee:
Siemens: Daniel Meyer-Delius [DMD]
TUM: Luz Martínez [LM]
PAL Robotics: Sergi Garcia [SG]
Technische Hochschule Ulm: Christian Schlegel [CS]
CEA: Ansgar Radermacher [AR]
KU Leuven: Enea Scioni [ES]
COMAU: none
ECLIPSE FOUNDATION: Gael Blondelle [GB]

RobMoSys Back Benchers:
None

Panel Minutes Keepers:
Luz Martínez [LM]
Dayana Ramírez (DR)

3.3. Roles of participants

Panel chair: moderates the discussion, highlights aspects which are particularly relevant for RobMoSys, casting vote in case of undecided votes, in charge of the Panel Report.

External panelists: vote on behalf of the panel, contribute to the Panel Report, generate the Evaluation Summary Reports for each of the applicants to inform them about the results of the panel (funding decision).

RobMoSys Steering Committee: One representative of each core partner, vote on behalf of the consortium (simple majority, abstentions not possible).

RobMoSys Back Benchers: Scientists of the consortium who will present the proposals to the external panelists, supporting the steering committee, no voting right.

Panel Minute Keepers: Keep the minutes during the panel which is the basis of the Panel Report and the deliverable RobMoSys on Second Open Call.

3.4. Basic rules of the panel meeting

Voting: done by simple majority.

Proxy: there is possibility to pass the voting right to another member of the steering committee in case of absence of the representative of a particular member of the consortium.

Out-of-the-room rule: The rule is applied in case of any situation where the impartial and objective implementation of the panelists' work is compromised. A panelist with conflict of interest steps outside the meeting room in order to have no impact on the evaluation process of a proposal in question.

3.5. Schedule of the panel meeting

3.5.1. December 3rd, 2019

11:50 Proposal Planning4Papyrus - KUL, Enea Scioni

12:00 Proposal HRC - CEA, Huascar Espinoza

12:10 Proposal OPC-UA for RobMoSys - ULM, Christian Schlegel

12:20 Proposal TRACTION - TUM, Luz Martínez

12:30 Discussion of proposals

12.55 Approval of the final list - TUM, Luz Martínez

3.5.2. January 29th, 2020

14:00 Summary Instrument #1 - TUM, Luz Martínez

14:10 Proposal RoMan - TUM, Luz Martínez

14:25 Proposal HRICAR - PAL, Sergi Garcia

14:40 Proposal SmartAPS - ULM, Christian Schlegel

14:55 Proposal AMBSPSRR - Siemens, Daniel Meyer-Delius

15:10 Proposal MR4RobMoSys - CEA, Ansgar Radermacher

15:25 Proposal MIRANDA - ULM, Christian Schlegel

15:40 Proposal UWROSYS - KUL, Enea Scioni

15:55 Approval of the final list - Siemens, Daniel Meyer-Delius

4. Results of the Panel Meeting

Comments on Panel Meeting discussions:

- Instrument #1 – It was discussed the contribution of the proposal to the RobMoSys community and the factibility of the proposal in the runtime of 6 months.
- Instrument #3 – It was discussed the contribution of the proposal to the RobMoSys community and the factibility of the proposal in the runtime of 6 months.

Table with results of panel meeting

Instrument	Proposal acronym	Budget	Accepted
1	Cyclone-TOVE	€60,000	no
1	AMBSPSRR	€60,000	yes
1	HRICAR	€60,000	yes
1	MR4RobMoSys	€60,000	yes
1	MIRANDA	€60,000	yes
1	RoMan	€60,000	yes
1	ROBOX	€60,000	no
1	RALM	€60,000	no
1	SmartAPS	€59,250	no
1	UWROSYS	€60,000	yes
3	Planning4Papyrus	€20,000	yes
3	HRC	€20,000	yes
3	OPC UA for RobMosys	€20,000	yes
3	TRACTION	€19,977	no

Annex 1 – Summary Reports

Instrument #1

Second Open Call for RobMoSys Contributions

Evaluation Summary Reports

Proposal ID: Inst1/46	Acronym : Cyclone-TOVE

Technical/ research excellence
The authors plan to explore new paths through RobMoSys identifying that ADLINK and RobMoSys approaches are different. However, since model driven oriented approach will not be followed in the proposal, it remains questionable if RobMoSys benefits will be adopted. The verification of the models rather than the development of the modules puts at risk the success of the project, even with a world-class set of experts in the field.
Expected impact
The impact of the work is rather limited, given the popularity of the current GitHub implementation of the relevant Eclipse Cyclone DDS project (counted in tens of forks, as per the check of the reviewer). The results will be thoroughly available through the open source implementation and the corresponding report. The expected impacts of the project are oriented in delivering open source software (based on ROS2 and Eclipse) and the focus in rather given on communication /dissemination activities (academia and industry), while the IP aspects are not discussed. The statements provided in the proposal do not support the condition that the proposed result of the project will be "market-ready".
Implementation (Clarity of the work plan)
The description of the plan of the project are missing details and are not sufficiently discussed. Specific actions are missing which limits down the chance of success. Furthermore the risk mitigation plans, although enumerated, do not provide enough information to truly protect the project from failing.
Remarks

Second Open Call for RobMoSys Contributions

Evaluation Summary Reports

Proposal ID: Inst1/44	Acronym : AMBSPSRR

Technical/ research excellence
The proposal aims to develop a RobMoSys-compliant pilot using the company medical robot called "Rehab Robot". It will take as starting point the existing CEA_Pilot and eITUS and will focus on modeling and safety. Although the use case is interesting, the compliance with the RobMoSys methodology is insufficiently described. The idea is interesting and credible, and the "Rehab Robot" is a good platform for testing RobMoSys. However, the proposal does not detail the added value of RobMoSys for this particular application. The technology readiness level also lacks detail; it is not clear if the "Rehab Robot" is currently under development or is already a commercial product. The proposal aims to adapt several existing components of the "Rehab Robot" to RobMoSys. This is reasonable given the short timeframe of the project. However, the gain on using RobMoSys is not clear and there are no plans for further integration into the RobMoSys ecosystem. Again, the missing references make hard to evaluate the state of the art in the field and the claims made in the proposal.
Expected impact
The "Rehab Robot" is an interesting application case, as it has the potential to become a product of impact. The proposal describes, actually, the potential future impact of the "Rehab Robot", but does not give details on the current status of the platform, its short-term impact, or a roadmap and timings to achieve it. The proposal does not contain references that support its claims. The proposal does not consider the full adoption of the RobMoSys approach in the organization or in a wider array of its products. It makes clear that the pilot documents and multimedia material documenting it will be made available.
Implementation (Clarity of the work plan)
Considering the complexity of the system proposed, the implementation is insufficiently focused. Instead of adopting RobMoSys for the "Rehab Robot", the goal of the implementation plan is to contribute further functionalities to RobMoSys. The description of the experiment and the objectives should be further elaborated. For example it is not described what will be the "prototype" in D3.1. WP2 seems to be oversized if its goal is just the selection, does it include also implementation? Apart from this last comment, in general, the work packages, tasks and deliverables are reasonably planned. The risk assessment is also reasonable. Although T1.3 mentions the coordination with other projects, the cooperation with other members of the RobMoSys community is in general insufficiently addressed and detailed.

Remarks
The proposal contains several strong points, in particular the potential relevance and impact of the application. However, it also has several weaknesses mainly related to the details of the specific implementation, references to the state of the art, insufficiently detailed ethical issues and dissemination, and an unclear relation of the implementation with the RobMoSys ecosystem. Please, find more details and feedback on the reviews and the consensus report.

Second Open Call for RobMoSys Contributions

Evaluation Summary Reports

Proposal ID: Inst1/35	Acronym : HRICAR

Technical/ research excellence
Based on the experience of the company and based on the nature of FIONA, all the proposed steps to translate FIONA components into the RobMoSys environment seems feasible. However, use cases proposed to be developed within this proposal are rather general (a reference in human-machine interaction, solutions at the center of service to people). Overall, it is not clear if any significant scientific or technical challenge will be addressed within the proposed project. It will be rather an adaptation/reimplementation work.
Expected impact
The project has a very high impact since it will extend the available RobMoSys components while extending also the FIONA environment. The users working with FIONA are expected to grow since the new available features. The new HR interaction modules are also of high importance.
Implementation (Clarity of the work plan)
Implementation seems to be feasible. However, the work description (similarly to the other parts of the proposal) is too general and does not have enough depth to assess its quality. Potential risks are briefly described and mitigation methods are enumerated without any specific analysis of the reasons behind using a specific way.
Remarks

Second Open Call for RobMoSys Contributions

Evaluation Summary Reports

Proposal ID: Inst1/40	Acronym : MR4RobMoSys

Technical/ research excellence
Proposal aims to deploy the RobMoSys framework on the "Intralogistics Industry 4.0 Robot Fleet Pilot" at University of Ulm. The aim is to integrate AR/VR technologies into the pilot which can be used along the pilot line. The proposal aims to address advanced human-robot and human-infrastructure AR and VR interfaces and incorporate them to the RobMoSys ecosystem. Specifically, the proposal bridges the platform Unity and RobMoSys. The proposal does not contain sufficient detail on how to align its idea with the RobMoSys methodology, but plans to collaborate with the University of Ulm to fill this gap. Specifically, they plan to work with the "Intralogistics Industry 4.0 Robot Fleet Pilot" at the University of Ulm. Although the proposal proposes 4 interesting use cases, it also comments quite reasonably that not all of them can be addressed in 6 months and hence they will prioritize them. Hence, the description of the use-case is very generic, it is not clear what exact problem will be solved. The expected TRL is not clearly stated.
Expected impact
The seamless use of AR/VR technologies in manufacturing holds a good potential of innovation. The proposal presents good number of channels for the dissemination of results. The proposal has potential to have a significant impact. The potential of AR/VR technologies is huge and transversal to many applications. It can be relevant in robotics in particular in many different ways, for example for teleoperation, maintenance or visualization. The proposal plans to make the code available, which is a practice of the company. However, as a negative point, it does not include a plan for the adoption/continuation of RobMoSys in other products or after the project ends. A lack of clear use case and objectives may reduce the impact.
Implementation (Clarity of the work plan)
Awesome technologies plan to work cooperatively with the University of Ulm, from whom they will take their experience in RobMoSys and the pilot. The company and the key members of the team have a wide experience in AR/VR, in particular with the framework Unity, and in ROS. Their previous project Rviz2AR, that integrates ROS and the Hololens glasses is particularly relevant, as it has many similarities with the current proposal. The list of risks only contains 1 item, this is clearly very limited. The task list, planned in several sprints around a chosen use case, is not standard but might be successful in a project of such small duration. The proposal employs the scrum methodology for the implementation, which is acceptable given the innovation approach. There is clear lack of progress tracking. It may have been better to produce a short update on Prototype deliverable at the end of each iteration.
Remarks

The proposal clearly presents the deployment and added value of RobMoSys framework. There is significant innovation potential, but it is not clearly described in the Impact section. The implementation plan needs more details.

Second Open Call for RobMoSys Contributions

Evaluation Summary Reports

Proposal ID: Inst1/36	Acronym : MIRANDA

Technical/ research excellence
MIRANDA plans to use RobMoSys to integrate GMVs Brain autonomy software with the BEAST robotic platform. The project is in line with RobMoSys open call and objectives. The proposal intends to adapt Intralogistics Industry 4.0 Robot Fleet. In particular, the team intends to use inspection of a representative nuclear site use case which includes automated survey and monitoring of the nuclear site on Harwell Campus checking infrastructure such as fences, buildings and storage warehouses and detecting simulated intrusion and interference. The compliance with the RobMoSys meta-models and methodology is achieved by GMVs experience and background with model-driven approaches, but it is not demonstrated by describing a technical approach of how to implement it for the specific use-case presented. In fact, there is no explicit mention of the application of at least two RobMoSys-comformant components. The only technical details are that the authors plan to adapt the existing Pilot Intralogistics Industry 4.0 and use SmartMDSD to integrate GMVs Brain software. More technical details would make this part more excellent. The team, their knowledge and previous projects presented are solid to develop the project. To demonstrate that they have provided short descriptions of 6 projects they were involved in.
Expected impact
The impact for GMV is clearly defined. But, the size of the user group only considers the exploitation of GMV Brain Applications. 5000 units a year in 3 years' time. These will come from three pilot projects the company is currently involved in the areas of robotic infrastructure monitoring of pipelines, mapping cavities after explosive extraction of mines, and monitoring of nuclear power plant inspection. We miss how other SMEs / RobMoSys potential users could benefit from this project's results, or the estimation of this potential user group. It is important to measure the impact of the project on RobMoSys adoption and potential users. The measuring impact (time spent doing integration activity) should be somehow reflected at the validations tasks in the implementation section, or by defining some KPIs to be reflected on the Final Report. Regarding the accessibility of the results, the project only holds the minimum dissemination level requested by the call. It would also be interesting to know whether the authors would allow the publication of the new components and modifications to existing blocks in the SmartMDSD Toolchain during their implementation on a public git repository for example, along with

documentation for the functionality and setup of each component. This would be very interesting for other RobMoSyS potential users and the RobMoSyS Community in general.

Implementation (Clarity of the work plan)
The description of work focuses on what the company's robots are capable of doing already, rather than discussing how the integration with RobMoSys will be done. It seems the team does not know yet which exactly RobMoSys components they are going to use, as Analysis of existing RobMoSys Components is Task 1. Some details of how the project plans to integrate GMV Brain and BEAST platforms with RobMoSys shoud be addressed and some technical details of how they plan to modify the Intralogistics Pilot. Tasks list, description and work seems reasonable, as well as the proposed timing. Proposed deliverables, their nature and dissemination level are appropriate. I just miss one deliverable or milestone at mid-project, KO+12, that could reflect T4 and T5 interfaces implementation. T7 and T8 are for lab and filed testing, but there are not any details of how they plan to validate the developments and the project objectives. The authors don't explicitly plan to participate in RobMoSys workshops, only training is mentioned. Risks and mitigation actions are well described. It is difficult to judge this point as there is not any indication of personal effort per task.
Remarks
The main concerns with MIRANDA are the lack of specific technical details on how they plan to use RobMoSys, and the lack of a rigorous validation plan or at least some KPIs to measure if the integration and use of RobMoSyS obtains some specific results of project objectives (also for RobMoSys to later evaluate project performance).

Second Open Call for RobMoSys Contributions

Evaluation Summary Reports

Proposal ID: Inst1/41	**Acronym : RoMan**

Technical/ research excellence
This proposal discusses about adopting RobMoSys architecture metamodel and robotic behavior metamodel for standardizing the configuration and commissioning of robots to the customers. However, this link between the proposal and RobMoSys framework is not substantiated but it is assumed (e.g. compositionality). • Technologies such as flexible Navigation Stack domain models are mentioned as a good opportunity to be adopted without explained in detail the benefits that will be achieved. • The use case description is ambitious for the duration of the proposal (six months). The selected pilot case TRL is expected to be high, since technologies will be adapted to real industrial settings within lighting manufacturing environment. However, this is not

substantiated with strong arguments. • The selection of the RobMoSys components perfectly fits the presented use case.
Expected impact
• The expected impacts of the project are connected to cost-efficiency, simplicity and potential business creation, since standardization of ROBOTNIK robots' programming is expected. However, the statements supporting these aspects are not quite strong and are not in line with expectations such as "ready for-the-market solutions". • It is not clarified whether the developed software will be available (even as a product) to other developers or integrators or used internally by ROBOTNIK in their future system integration projects. • The size of potential users' groups is adequately substantiated and the group of people using/working on the proposed method is large. The proposal succeeds to address new target groups that could promote the proposed system. • Relevant open access and IP aspects are not discussed. However, accessibility to results has been substantiated (e.g. wiki page, YouTube channel).
Implementation (Clarity of the work plan)
• The work is split into three phases corresponding to familiarizing with the RobMoSys approach, developing the demonstrator, and validating it in industrial facilities. • The description of the activities and time plan of the project are sufficiently defined. The description of the tasks is quite detailed; however specific activities and milestones in the project timeframe are not provided. • Risk management procedures are discussed and there is specific link to the project tasks (and thus to the project timeframe). The mitigation strategy of testing components separately may not be sufficient to cope with the integration of the complete system. •
Remarks
The proposal is generally well structured, while the impact and implementation section are sufficiently explained. However, in the technical part the link between the proposal and RobMoSys framework is not substantiated but it is assumed.

Second Open Call for RobMoSys Contributions

Evaluation Summary Reports

Proposal ID: Inst1/34	**Acronym : ROBOX**

Technical/ research excellence
The main objective of the project is to perform safety analysis and failure tolerance of the company's robot using the tool Papyrus from RobMoSys components. Then, to evaluate the safety and failure tolerance of the company's robot, techniques helping to get safety certifications for the robot will be developed. While the proposal acknowledges the need for reusability and composability of robotic systems it does not give any insights on how the RobMoSys meta-models are going to be used. None of the existing components is selected for integration.

Rather than the Applicant expects to learn about RobMoSys in the first part of the project and select suitable components then. It is unclear whether the robot is already available and in what environment the demonstrator will be deployed. The capacities of the team are described very superficially and it is not possible to establish whether the necessary knowledge is available. There is no mention of any experience in model driven development.
Expected impact
The market size presented in the proposal represents the global market with no additional considerations regarding the actual reach of the potential results of the experiment. Moreover, it is questionable whether "handling operations" mentioned in the section correspond to the capabilities of the logistics robot presented in the proposal. The impact may be further limited by the potential lack of the actual robot. The declared accessibility of results, involving sharing the source code and providing detailed documentation is commendable. Finally, a big issue related to the project is that the company seems to have not much knowledge of safety aspects for robotics.
Implementation (Clarity of the work plan)
The workplan is hardly realistic with the assumption of gaining sufficient knowledge about RobMosys AND designing the layout of the implementation AND gathering the necessary hardware AND preparing the robot in the first month. It is also unclear how the experiments (Task 7) are to be performed before the implementation of the system (Task 5) Risk management is superficial and focuses on one hand on availability of the robot and personnel on the other on understanding the RobMoSys software. No consideration is given to difficulties in integration, potential incompatibility of software etc.
Remarks

Second Open Call for RobMoSys Contributions

Evaluation Summary Reports

Proposal ID: Inst1/42	**Acronym : RALM**

Technical/ research excellence
The proposed RobMoSys implementation of the rover will probably improve the modularity and extensibility of the system. However, it appears the proposer has no clear idea of how the RobMoSys ecosystem can help extending their solution. The relation between the "digital control" and the RobMoSys methodology for the embedded microcontroller is not explained. The team has an extensive expertise in mobile robots, in- and our-door drones, and embedded systems and other related areas that enabled them to successfully develop their own robot brain and

various localization systems. The team has 20+-years experience with MATLAB Simulink, ROS, and embedded programming.
Expected impact
The application has a great potential. However, there is no explicit information about the size of the user-group. The authors rather talk about their main potential user which is a company. They proceed with providing some statistics about sector's revenue (total from professional lightning -- EUR2.6Bn). They then somehow calculate EUR20Mn and EUR60Mn. The numbers look nice and impressive, but it's not clear how these are related to the light measuring robots the company develops and intends to use in the use cases. The team intends to produce "plenty of photo and video material" from testing. It is also not clear how the proposed RobMoSys implementation of the rover will address the new scenarios. Information on the advantages introduced by the RobMoSys- based rover with respect to the impact objective is missing.
Implementation (Clarity of the work plan)
The team intends to build on the existing autonomous lighting measurement Rover for sports stadiums by enabling it to conduct lighting measurements in various new use cases, such as industrial warehouses, tunnels, public roads, and airfields. They first intend to analyse compliancy between RobMoSys and Curiosity core and then substitute existing rover modules with the one offered by RobMoSys. The team appears to be quite confident in the success due to the modularity nature of both systems. However, the proposer clearly already has a solution to the problem and the reason it can't be used in the proposed new scenarios is not specified. In tasks T2, T3 and T4 the proposer says that the parts of their software solution that will result "appropriate" to be substituted with the RobMoSys components will be adapted, this basically means that potentially no adaptation/change will be performed if the RobMoSys components will turn out to be not "appropriate" since no minimum features set that the proposer want to reimplement by means of the RobMoSys components is identified. The risk management table clarifies that it is very likely that large part of the effort is needed to adapt the current solution to the new implementation without a clear benefit from the point of view of new features. The major risk here is that the company may realize that it is not convenient to port the solution to RobMoSys and divert the effort elsewhere with little benefit for RobMoSys.
Remarks
The proposal appears promising, but it lacks details in all three aspects. Therefore it is not clear whether the outcome of the proposal will be beneficial to either or both the company and the RobMoSys project.

Second Open Call for RobMoSys Contributions

Evaluation Summary Reports

Proposal ID: Inst1/47	**Acronym : SmartAPS**

Technical/ research excellence
The team intends to integrate PathNavigation Server and Client, and Sequencer Knowledge Base from RobMoSys ecosystem. In addition, RobMoSys tools will be used for development and deployment of application and components. The company will use Intralogistics Industry 4.0 Robot Fleet Pilot. The use case is a warehouse management system equipped with SmartAPS. In particular, the use case will demonstrate an autonomous preparation of orders for distribution, where SmartAPS continuously receives orders, generates plan for robot fleet taking into account the required products, current system state, and constraints. It is unclear if actual robots are going to be used in the experiment. The proposal does not focus on the robotic side of the use case. The team appears experienced in software engineering, but no robotic experience is presented.
Expected impact
The proposal claims to bring the Model Driven Software Engineering concept to larger community of Enterprise Application Development. The experiment will provide excellent accessibility to its results by releasing the source code under open source licenses, the demo version of the application and the demonstration videos. However, it is what is the size of the target group (the authors provide the numbers of jobs available on a job market website indeed.com). It also seems that the target group is not the robotics community at all.
Implementation (Clarity of the work plan)
The workplan is in principle reasonable and consists of design and implementation, deployment of the pilot and demonstrating the use-case. However, there is no time dedicated directly to familiarizing the team with the RobMoSys environment. The majority of the effort is allocated in Task 1 which concerns with "retrieving" relevant RobMoSys components and integrating them with SmartAPS. The team also intends to produce a user manual to facilitate repeatability of the experiments. The team also intends to develop an "experiment movie" for future promotions and presentations. The reporting is adequate to a project of this size and duration. The risk management is superficial and does not tackle technological issues other than “lack of understanding of complexity of RobMoSys”. At the same time this is the risk with the highest likelihood and severity in the plan which may jeopardize the success of the project
Remarks

Second Open Call for RobMoSys Contributions

Evaluation Summary Reports

Proposal ID: Inst1/37	**Acronym : UWROSYS**

Technical/ research excellence
UWROSYS plans to use RobMoSys to develop a high fidelity underwater robotic simulator with advanced sensors into the framework of RobMoSys. Their aim is to adopt RobMoSys in their company to reuse modular code between projects and get a clear ROI by using RobMoSys tools. Thus, the project is in line with RobMoSys open call and objectives. The compliance with the RobMoSys meta-models and methodology is achieved by compatibility with several of the existing SmartMDSM toolchain blocks. Advantages of the adoption of RobMoSys are clearly defined. The project intends to develop the simulator based on the Gazebo/TIAGo/SmartSoft Scenario and the Intralogistics Industry 4.0 Robot Fleet Pilot. The description of components and blocks to be used is provided. The use case is described in detail. The team, their knowledge and previous projects presented are solid to develop the project.
Expected impact
The impact on the specific application field is clearly identified but there is not any information about how they plant to exploit the project results, or the impact in their organization. Besides the need of advanced test platforms for this applications is justified by the risk-averse scenarios, the size of the user group is described also in a generic way, and it is not extrapolated to other potential users of RobMoSyS that could use project results for other domains. The innovation brought by collaboration between platforms with different capabilities and how RobMoSys can facilitate is is properly described. The accessibility of the results is excellent for RobMoSys Community and totally in line with the open call objectives.
Implementation (Clarity of the work plan)
Work is well described and with enough technical details. Task list, description and work seems reasonable, as well as the proposed duration for tasks and personal effort. However, a little explanation whether all tasks are sequentially implemented would be desirable. Moreover, it is suggested to name T7 Validation or Demonstration rather than Deliverables, and plan some validation points or KPIs that would clearly allow showing that the project meets the expected results. List of deliverables is fine, but the deliverable scheduling (3 deliverables at the end of the project) could be improved. Some additional deliverable or at least a milestone at mid-project would allow evaluating the correct performance of the project. Risk list and mitigation are rather generic. Technical risks should be considered. Travel and personnel costs seem reasonable. But consumables are not clear to me. Simulating servers and hardware such as Occulus Rift are equipment rather than consumables (unless they are properly justified as consumables or their amortization is charged).
Remarks
The proposal addresses properly all the required aspects. Some concerns are raised from the point of view of the project impact and implementation.

Instrument #3

Second Open Call for RobMoSys Contributions

Evaluation Summary Reports

Proposal ID: Inst3/48	Acronym : Planning4Papyrus

Technical/ research excellence
The author has a clear understanding of the topic and its positioning within the RobMoSys context. This includes previous proven contributions to AI and logical planning by means of PDDL, applied to ROS systems (ROSplan). Being member of MROS ITP also ensures effort, continuity and consistency. The overall proposal is evaluated positively, but it has some minors that should be considered in the refinement of the project and its execution.
Expected impact
Introducing logical planning features in a concrete RobMoSys toolchain (namely P4R) has a considerable impact. This could help us reach the ROS community and will strengthen this tool. However, the suggested language is PDDL, which is mostly an academic tool, not easy to understand and to debug. This limits the potential impact of the project: it is expected a potential impact in existing AI and planning community, and academy-side of the ROS community, but very minor impact regarding a possible impact in industry. Francisco plans to participate in one huge conference: ICRA, IROS, Ro-MAN or ERF. - Also, since he is probably going to ERF as part of the MROS team, he could also present there his advance.
Implementation (Clarity of the work plan)
Implementation technically sounds, realistic timeline and budget costs. Low risk expected. Positive the existing relation with ITP MROS. Community building activities are in-line and realistic. Some minors, to be mitigated with the coach/during project execution: - concrete events to disseminate the results - responsibilities ITP/CEA partner not clearly defined - interactions with other ITPs that concern safety in task programming may be considered.
Remarks
• None

Second Open Call for RobMoSys Contributions

Evaluation Summary Reports

Proposal ID: Inst3/39	Acronym : HRC

Technical/ research excellence
The proposal is very clear and demonstrates a good understanding of the RobMoSys ambition. The motivation is well documented and provides a realistic objective for the project duration and kind of activities. The author of the proposal is well-aware on human-in-the-loop scenarios, and it may aid the development of current ITP and pilot cases. In particular, human factors are key for any robotics approach and must be stressed in RobMoSys. The proposed expertise has a great potential to impact in the RobMoSys ecosystem and its users. Community building activities are in-line with what expected, and technically sound. The proposed expert has the sufficient skills and experience to successfully exectute the project. The proposed activities are sound w.r.t the expected results, including an awareness phase, face-to-face meetings with some core RobMoSys technical partners and outreach worldwide. It would be worth reading some examples of potential RobMoSys improvements regarding human factors, but this can be managed during the expert awareness phase.
Expected impact
This proposal targets any CPS-related application where the involvement of the human is relevant from system design (ergonomics, usability, documentation, etc.), operation (re-configuration, execution) to maintenance (upgrades, etc.). This is relevant for most of robotics domains with particular relevance to manufacturing/production, which seems to be the focus of the proposal. The applicant is involved in a relevant EU programme: EIT Manufacturing (400 MEUR), in which the impact might be very high. The expected results (report, potential publication) and participation in RobMoSys internal meetings and other initiatives/events (Journal and conferences), as well as potential EIT Manufacturing events could create an important impact for RobMoSys. Thre is a foreseen impact on defining KPIs of existing ITP projects and core activities. These events are of good quality and relevance in robotics, manufacturing and service industry. The proposal lacks of concrete activities to get impact in the EIT Manufacturing community.
Implementation (Clarity of the work plan)
The activities seem well selected and technically sound, including potential meetings with partners from other RobMoSys ITPs. There is no tentative timeline/schedule of activities in the 6 months with concrete tentative dates. There is no indication of the effort in person-months to understand the budget estimation. This must be refined in the negotiation phase.
Remarks
None

Second Open Call for RobMoSys Contributions

Evaluation Summary Reports

Proposal ID: Inst3/45	Acronym : OPC UA for RobMosys

Technical/ research excellence
Experts from the OPC UA domain are highly welcome. As Systerel is a member of OPC foundation, the expert is expected to present RobMoSys to the OPC foundation members (and not just attending meetings as RobMoSys already has strong links to OPC e.g. via VDMA) and to bring into OPC UA discussions or associated companion specifications RobMoSys best practices.
Expected impact
RobMoSys is middleware and platform agnostic and there are already working examples of how to use OPC UA in a way fully conformant to RobMoSys. This is even already included into the SmartMDSD tooling. Thereto, the proposal is not fully aligned with RobMoSys as the expert proposes to follow a bottom-up approach to enrich RobMoSys concepts with OPC-UA communication protocol and its information model. The proposed approach could be completed with a top-down approach where OPC-UA information model integrates RobMoSys principles.
Implementation (Clarity of the work plan)
The implementation is coherent and well structured. However, it is needed to emphasize the alignement of OPC UA implementation with respect to RobMoSys and not the other way around.
Remarks
Nevertheless, the proposal leaves enough room to align that with the expert during the course of the activity. there is a need to shape this for best benefits for RobMoSys.

Second Open Call for RobMoSys Contributions

Evaluation Summary Reports

Proposal ID: Inst3/43	**Acronym : TRACTION**

Technical/ research excellence
The focus is on cross-fertilization of results in European projects by promoting the organization of interproject informative events, workshops, hackathons between different EU-funded R&D projects and RobMoSys development teams. However, this is foremost an organizational effort. It is not clear how many of the scarce resources of the RobMoSys development team are considered necessary to make these formats a success.
In this proposal, the private non-profit research institution INESC TEC is offering expert services to foster the reachability of the RobMoSys technology, taking advantage of synergies with ongoing R&D initiatives of comparable size and scientific domain, funded by the European Commission. INESC TEC has more of 20 years of experience in scientific research and technological development projects. This proposal would help a lot to the RobMoSys community to be more known for other European projects. They plan a diverse participation in multiple events helping the RobMoSys project create more relations with industrial communities. However, it does not get clear

why which of the proposed channels should now work with greater success when driven by INESC TEC.
Overall, INESC ITEC has experience in robotics research projects and in the robotics community.

Implementation (Clarity of the work plan)
It is not clear who will be the expert, it is just the "INESC TEC research team". This is not in line with our requirements for instrument #3. The financial details mention two different salary categories and it is not clear how these relate to expertises and tasks. It is a lot about moderation between two European projects, for which they are coordinator, and RobMoSys, unfortunately without a concrete set of outcomes. At the end, it is just about providing feedback about e.g. the quality of RobMoSys documentation etc. The dissemination activities that they present (including trade fairs and industrial workshops) would help the project to find the right message to promote RobMoSys in industry. However, the list of conferences that they plan to participate and the KPI of the proposal are not defined.
Remarks
The proposal did not specify an expert in the model-driven field, critical for disseminating RobMoSys. This would demand extensive training and guidance for the expert about the RobMoSys approach which might likely outweigh the potential benefits derived from the participation of the ITP.

RobMoSys

MINUTES OF THE PANEL MEETING

Second Open Call for RobMoSys Contributions

Second Cut-Off Date

December 03rd, 2019

January 29rd, 2020

Version: February 15rd, 2020

Overview of topics

1. Objective of the panel meeting

- To achieve agreed conclusion on evaluation of the proposals,
- To finalize the Evaluation Summary Reports of the proposals,
- To rank the proposals above the threshold,
- To prepare the Panel Report for the European Commission.

2. Participants

2.1. December 3rd, 2019

Panel Chair:
Luz Martínez [LM]

RobMoSys Steering Committee:
Siemens: Daniel Meyer-Delius [DMD]
CEA: Huascar Espinoza [HE]
Hochschule Ulm: Christian Schlegel [CS]
PAL Robotics: Sergi Garcia [SG]
Eclipse Foundation: Gaël Blondelle [GB]
KU Leuven: Herman Bruyninckx [HB]
COMAU: Alfio Minissale [AM]
TUM: Luz Martínez [LM]

RobMoSys Back Benchers:
Siemens: Bernd Kast [BK]
CEA: Matteo Morelli [MM]
TUM: Anna Principato [AP]
Hochschule Ulm: Dennis Stampfer [DS]
PAL Robotics: none
Eclipse foundation: Marco Jahn [MJ]
KU Leuven: Enea Scioni [ES]
COMAU: none

Panel Minutes Keepers:
Luz Martínez [LM]

2.2. January 29th, 2020

Panel Chair:
Daniel Meyer-Delius [DMD]

RobMoSys Steering Committee:
Siemens: Daniel Meyer-Delius [DMD]
TUM: Luz Martínez [LM]
PAL Robotics: Sergi Garcia [SG]
Technische Hochschule Ulm: Christian Schlegel [CS]
CEA: Ansgar Radermacher [AR]
KU Leuven: Enea Scioni [ES]
COMAU: none
ECLIPSE FOUNDATION: Gael Blondelle [GB]

RobMoSys Back Benchers:
None

Panel Minutes Keepers:
Luz Martínez [LM]
Dayana Ramírez (DR)

3. Roles of participants

Panel chair: moderates the discussion, highlights aspects which are particularly relevant for RobMoSys, casting vote in case of undecided votes, in charge of the Panel Report.

RobMoSys Steering Committee: One representative of each core partner, vote on behalf of the consortium (simple majority, abstentions not possible).

RobMoSys Back Benchers: Scientists of the consortium who will present the proposals to the external panelists, supporting the steering committee, no voting right.

Panel Minute Keepers: Keep the minutes during the panel which is the basis of the Panel Report and the deliverable RobMoSys on Second Open Call.

4. Basic rules of the panel meeting

Voting: done by simple majority.

Proxy: there is a possibility to pass the voting right to another member of the steering committee in case of absence of the representative of a particular member of the consortium.

Out-of-the-room rule: The rule is applied in case of any situation where the impartial and objective implementation of the panelists' work is compromised. A panelist with conflict of interest steps outside the meeting room in order to have no impact on the evaluation process of a proposal in question.

5. Schedule of the panel meeting

5.1. December 3rd, 2019

11:50 Proposal Planning4Papyrus - KUL, Enea Scioni

12:00 Proposal HRC - CEA, Huascar Espinoza

12:10 Proposal OPC-UA for RobMoSys - ULM, Christian Schlegel

12:20 Proposal TRACTION - TUM, Luz Martínez

12:30 Discussion of proposals

12.55 Approval of the final list - TUM, Luz Martínez

5.2. January 29th, 2020

14:00 Summary Instrument #1 - TUM, Luz Martínez

14:10 Proposal RoMan - TUM, Luz Martínez

14:25 Proposal HRICAR - PAL, Sergi Garcia

14:40 Proposal SmartAPS - ULM, Christian Schlegel

14:55 Proposal AMBSPSRR - Siemens, Daniel Meyer-Delius

15:10 Proposal MR4RobMoSys - CEA, Ansgar Radermacher

15:25 Proposal MIRANDA - ULM, Christian Schlegel

15:40 Proposal UWROSYS - KUL, Enea Scioni

15:55 Approval of the final list - Siemens, Daniel Meyer-Delius

6. Results of the remote evaluation

		Remote Evaluation				
Instrument	**Proposal acronym**	Crit.1	Crit. 2	Crit. 3	Weighted Avg	Total score
1	Cyclone-TOVE	5.5	6.5	5.5	5.8	17.5
1	AMBSPSRR	7.5	7.5	7	7.35	22
1	HRICAR	8	7	6	7.1	21
1	MR4RobMoSys	8	7.5	7.5	7.7	23
1	MIRANDA	8	8.5	7	7.85	23.5
1	RoMan	7	6.5	7.5	7	21
1	ROBOX	0	0	0	0	0
1	RALM	5	6	6	5.6	17
1	SmartAPS	7	7	7	7	21
1	UWROSYS	8	9	8	8.3	25
3	Planning4Papyrus	6	8	8	7.2	22
3	HRC	8	8	7	7.7	23
3	OPC UA for RobMosys	7	7	7	7	21
3	TRACTION	8	7	6	7.1	21

7. Minutes – December 3rd, 2019

Instrument #3

Presentations of each proposal and principal concerns for each of them.

Planning4Papyrus: presented by ES

No extra comments or discussion

HRC: presented by HE

HE: She is assistant professor at TUDelft, she was working in robotics in the last years and was involved not only in research also in other activities in Human machine Interaction. She proposed to improve the life cycle of RobMoSys from modeling to how the Human factor should be considered

for the systems that would be designed. However, she doesn't propose a schedule, we should ask her to make it clear and feasible.

ES: She proposed 3- 4 meetings which is nice to have, but I have some doubts that could be too dispersed, also we need to check with the agenda to see if it is feasible. Maybe more focus on 1 or 2 groups, not on everybody because otherwise it would be very diverse.

CS: I didn't see the benefit for RobMoSys, because it is someone coming up with KPI selecting that by their one and applying with RobMoSys and after that we need to live with those results. And she proposes in a way that we have a lot of resources for educating her.

HE: It is going to be difficult to find people already with a strong awareness of RobMoSys. We should take into account that we will need to invest in educating these people. This is the kind of feedback we need, people who can tell us that there are a lot of issues/factors to improve.

CS: The evaluation doesn't help us at all in the dissemination, it is completely off of our target group.

HE: This is the kind of thing that the coach needs to manage.

OPC-UA for RobMoSys: presented by CS

CS: It is not wrong to have some one of OPC-UA on board, but it could be too much knowledge from us to him and only one type of knowledge from him to us and it would be basic an effort in dissemination to open a other channel and let see if the person is strong enough in that community.

GB: Maybe the reason that doesn't appear an expert name is because it is a french company and they hardly name a specific person in a proposal. Because in France they have some rules, where if you put the name of a person in a proposal you are a different kind of company. I think that is some legal reason why they don't mention the name.

CS: Basically if they hire a student and they send the student to us, the company has knowledge and activities in OPC-UA, but the student is useless. Our requirements are that they need to name a person.

HE: We will be open to say that your support could be positive, we could see this focus?

CS: This proposal realizes that there exist some hooks that could start and make sense, It 's not a promise that we would do all of them. The attitude is to be open enough to cover a discussion with the expert intake.

TRACTION: presented by LM

DS: It is going to be tough. It needs guidance, a lot of influence from our side, telling them, educating them and also a lot of time in figuring out how they really can support us. I am not sure that the effort is worthy. The content of all their activities depend on us, so we would spend a lot of time.

CS: Why should their activities in their direction work better than us?

LM: We are in the final year and the dissemination in this stage if we want to continue the project, the dissemination is really important.

HE: Maybe the interest of all the partners is not possible, but if somebody finds some weight, for me is something valid.

Discussion about Planning4Papyrus

ES: For me there is no critical concern, only CEA agrees.

CS: For PPDL language, I don't care about the solution, as soon as it gets interesting that the plan does something that swallows. I don't think that this person is strongly linked to the planning community.

DM: Another baseline for discussion is the modelling part. You can model any problem, but it is a theoretical discussion.

ES: doing this work with papyrus for robotics it will have some connection with the world model.

HE: He have publications related to PPDL in his webpage

AP: He is also a member of MROS

LM: Someone doesn't agree with the selection of PPDL for Papyrus proposal?

(no reply)

Planning4Papyrus proposal is accepted

Discussion about each proposal and voting in case of being necessary.

Discussion about HRC

HE: I agree that it is not clear of what she could actually do. The positive thing is that she could disseminate in this community, but some of us should work with her in the message so that she will transmit an aligned message. Regarding the concrete work, I can say that for the team of CEA is something that could be useful for us, having an expert in human factors that can tell us what can be improved. I agree that trying to disperse and meet with a lot of partners could be too much. Maybe, for all this proposal we should select one partner, not couch, that ensures that the focus of their contribution is aligned.

LM: Let's vote, who agrees with HRC is accepted?

Votes: 7 x yes, 1 x no

HRC proposal is accepted

Discussion about OPC-UA for RobMoSys

CS: OPC-UA is one with the lowest score. The principal problem is that we don't see the expert.

If the expert feat to the CV or they will designate someone that feat in the CV.

HE: We can leave it conditional to the expert.

(We received the name of the expert and the CV was the same of the proposal)

OPC-UA for RobMoSys proposal is accepted

Discussion about TRACTION

LM: In this case they have a lot of experts in dissemination, so it shouldn't be difficult to ask them to define an expert as in OPC-UA, where we don't know if it's going to be new.

HE: At this point it is not clear, who is going to work with them.

LM: I said us, but ULM said that we need someone with more scientific knowledge.

DS: If we weigh the effort with what we get, I think it is too less. Yes, it is about multiplication, spreading the word and finding people to help us to disseminate, but there is always some trade-off and I don't see it really full fit here.

HE: Is there any motivation? Why are they interested in this technical topic?. They are strongly involved in modelling or some related community?

LM: They said they have experience in robotics and they find interesting RobMoSys

CS: Basically it sounds like they are a partner as CEA, basically they are between academia and Industry. In this case they are getting paid for being educated and in exchange they make dissemination activities.

LM: Let's vote, who agrees with TRACTION is accepted?

Votes: 1 x yes, 7 x no

TRACTION proposal is rejected

8. Minutes – January 29th, 2020

Instrument #1

In the first part, each proposal was presented by one of the members of the SC.

RoMan: presented by LM

HRICAR: presented by SG

SmartAPS: presented by CS

AMBSPSRR: presented by DM

MR4RobMoSys: presented by AR

MIRANDA: presented by CS

UWROSYS: presented by SC

In the second part, the main insights were discussed and a voting was done in case of be necessary.

RoMan

LM: RoMan mentions that technologies such as flexible Navigation Stack domain models can be adopted. The description of the activities and time plan of the project are sufficiently defined. The description of the tasks is quite detailed; however specific activities, KPIs and milestones in the project time frame are not provided. Results will be published on the RobMoSys wiki and in the YouTube channel.
Votes: 7 x yes, 0 x no.
RoMan proposal is accepted

HRICAR

SG: HRICAR is likely to have a high impact. However, significant technical improvements are not expected. The implementation is described vaguely, but I think it is feasible that they succeed because they already developed a software.
Votes: 7 x yes, 0 x no.
HRICAR proposal is accepted

SmartAPS

CS: This proposal plans to put SmartAPS on top of robot fleet, which is reasonable and will be made available as Open Source. However, they conduct model-driven software development outside the robotics community. I do not see that they clearly aim to address the robotics community, and they do not propose to work on robots beyond the lab. Their user group arguments are not a match, just GAZEBO / THU lab testing, they seem not to have robots. I think they do not aim that much to contribute to robotics, but in scheduling / link to enterprise applications.
Votes: 0 x yes, 7 x no
SmartAPS proposal is rejected

AMBSPSRR

DMD: The proposal aims to develop a RobMoSys-compliant pilot using the company medical robot called "Rehab Robot". The use case is interesting and credible, but the compliance with the RobMoSys methodology is insufficiently described. So the description of the experiment and the objectives should be further elaborated. External evaluators agreed that the "Rehab Robot" is a good platform for testing RobMoSys. It is also positive that proponents make clear that the pilot documents and multimedia material documenting it will be made available.
Votes: 4 x yes, 3 x no
AMBSPSRR proposal is accepted

MR4RobMoSys

AR: The use of AR/VR technologies in manufacturing holds a good potential of innovation.
Proposal aims to deploy the RobMoSys framework on the "Intralogistics Industry 4.0 Robot Fleet Pilot" at THU. The aim is to integrate AR/VR technologies into the pilot which can be used along the pilot line. The proposal aims to address advanced human-robot and human-infrastructure AR and VR interfaces and incorporate them to the RobMoSys ecosystem. Thus, The proposal has potential to have a significant impact. However, it does not include a plan for the adoption/continuation of RobMoSys in other products or after the project ends. But they have good and several dissemination channels of results.
Votes: 4 x yes, 3 x no
MR4RobMoSys proposal is accepted

MIRANDA

CS: This proposal wants to check benefits of RobMoSys in an already existing system, they also keep the modularity of their „GMV Brain S/W " with RobMoSys. This „GMV brain " seems to be added to RobMoSys flexible navigation stack just via ROS Mixed Port Bridges. There are concerns with respect to size of and benefits for RobMoSys user group, but it is already fine since this application serves as an example of what maturity is there in RobMoSys. They lack KPIs and a validation plan, but it is about achieving at least a „mixed system.
Votes: 7 x yes, 0 x no
MIRANDA proposal is accepted

UWROSYS

ES: They have a feasible and concrete plan. Also, they have a list of involved SmartMDSD components and good accessibility of the results. They also have the know-how. However, they will work only on a simulator.
Votes: 5 x yes, 2 x no

UWROSYS proposal is accepted

RobMoSys

Panel Report

Exclusive Cut-Off Date

Second Open Call for RobMoSys Contributions

April 2nd, 2020

Panel Chair: Daniel Meyer-Delius

Version: April 13rd, 2020

Overview of topics

1. Introduction and methodology

This report covers the Panel Meeting for the exclusive cut-off date of the Second Open Call for RobMoSys Contributions, held on a virtual meeting on April 2nd 2020.
The second round of this call was opened on February 11st and closed on March 12nd, 2020 at 17:00 Brussels time.
The call was divided into three Instruments with different scope and objectives. Details on each Instrument are available in the *Guide for Applicants*. For this round only instrument #1 and #3 were available due the runtime of twelve month of the ITPs of instrument #2.

General statistics about the received proposals can be found in Table 1.

	Received proposals	Eligible proposals	Proposals accepted after remote evaluation	Proposals accepted after panel meeting
Instrument #1	4	4	3	2
Instrument #3	0	0	0	0
Total number of proposals	4	4	3	2
Total percentage	100%	100%	75%	50%

There were 0 submissions of a pre-proposal for preliminary check and 0 incomplete proposal in this cut-off date. All proposals were reviewed during remote evaluation and later 3 of them were reviewed in the panel meeting. Also, most submissions had more than one version of the proposal. The last uploaded to the platform version was considered for funding.

Once the requirements regarding eligibility of the proposals and absence of conflicts of interest, the evaluation process was designed as follows:

- Instrument #1
  - Two independent external experts submitted their individual evaluations via the Open Calls Platform. In case of significant differences, a third evaluator was involved.
  - One of the independent external experts wrote a Consensus Report (CR) based on the individual evaluations and the blog discussions.
  - During the Panel Meeting each proposal was presented by one member of the consortium.
  - Members of the steering committee of RobMoSys discussed all proposals and decided about a final ranking.
- Instrument #3
  - Two internal experts were assigned to each proposal.
  - Aforementioned experts submitted their individual evaluations expressed in recommendation bins via the Open Calls Platform.
  - One of the internal experts wrote a Consensus Report (CR) based on the internal individual evaluations and the blog discussions between him and the other internal reviewer.
  - During the Panel Meeting each proposal was presented by one internal expert.
  - Members of the steering committee of RobMoSys discussed all proposals and decided about a final ranking.

Each proposal was evaluated according to three criterions: Expected Impact, Technical Excellence and Implementation.
The eligibility of proposals followed a two-step filtering process: first considering the score per criterion and then the overall score, obtained by arithmetic sum. A proposal was considered as eligible for the next step of evaluation if each mark is not less than 6/10 and the overall score not less than 21/30. Details on each criterion:

Expected Impact: weight 40% and threshold 6/10
Technical Excellence: weight 30% and threshold 6/10
Implementation of the ITP: weight 30% and threshold 6/10
Overall score threshold 21/30.

During the Panel Meeting the scores of the proposals, within each Instrument, were calibrated and the final ranking was established in agreement of the panelists, by simple-majority vote.

2. Analysis of the results of the remote evaluation

4 proposals were submitted as a final submission of the application. A total number of proposals evaluated in each Instrument was as follows:

- Instrument #1 – 4 proposals were evaluated by two independent external evaluators.
- Instrument #3 – 0 proposals were evaluated.

The results of the admissible proposals for second round of Second Open Call for RobMoSys Contributions after the remote evaluation is as follows:

		Remote Evaluation				
Instrument	**Proposal acronym**	Crit.1	Crit. 2	Crit. 3	Weighted Avg	Total score
1	EXAMFORA	**7**	**7**	**7**	**7**	**21**
1	ROBOX	**2.5**	**4.5**	**3**	**3.45**	**10**
1	STERAS	**9**	**7**	**8**	**7.9**	**24**
1	SmartAPS	**8**	**9**	**8**	**8.4**	**25**

Comments on the results of remote evaluation:

- Instrument #1 – 1 out of 4 proposals were not eligible for the next step of evaluation.

3. Panel Meeting

3.1. Objective of the panel meeting

- To achieve agreed conclusion on evaluation of the proposals,
- To finalize the Evaluation Summary Reports of the proposals,
- To rank the proposals above the threshold,

- To prepare the Panel Report for the European Commission.

3.2. Participants

Panel Chair:
Daniel Meyer-Delius [DMD]

RobMoSys Steering Committee:
Siemens: Daniel Meyer-Delius [DMD]
TUM: Luz Martínez [LM]
PAL Robotics: Sergi Garcia [SG]
Technische Hochschule Ulm: Christian Schlegel [CS]
CEA: Ansgar Radermacher [AR]
KU Leuven: Herman Bruyninckx [HB]
COMAU: Alfio Minissale [AM]
ECLIPSE FOUNDATION: Gael Blondelle [GB]

RobMoSys Back Benchers:
KU Leuven: Marco Frigerio [MF]
CEA: Huascar Espinoza [HE]

Panel Minutes Keepers:
Dayana Ramírez (DR)

3.3. Roles of participants

Panel chair: moderates the discussion, highlights aspects which are particularly relevant for RobMoSys, casting vote in case of undecided votes, in charge of the Panel Report.

External panelists: vote on behalf of the panel, contribute to the Panel Report, generate the Evaluation Summary Reports for each of the applicants to inform them about the results of the panel (funding decision).

RobMoSys Steering Committee: One representative of each core partner, vote on behalf of the consortium (simple majority, abstentions not possible).

RobMoSys Back Benchers: Scientists of the consortium who will present the proposals to the external panelists, supporting the steering committee, no voting right.

Panel Minute Keepers: Keep the minutes during the panel which is the basis of the Panel Report and the deliverable RobMoSys on Second Open Call.

3.4. Basic rules of the panel meeting

Voting: done by simple majority.

Proxy: there is possibility to pass the voting right to another member of the steering committee in case of absence of the representative of a particular member of the consortium.

Out-of-the-room rule: The rule is applied in case of any situation where the impartial and objective implementation of the panelists' work is compromised. A panelist with conflict of interest steps outside the meeting room in order to have no impact on the evaluation process of a proposal in question.

3.5. Schedule of the panel meeting

10:15	Proposal EXAMFORA - TUM, Luz Martínez
10:25	Proposal STERAS - CEA, Ansgar Radermacher
10:35	Proposal SmartAPS - THUlm, Christian Schlegel
10:45	Discussion of proposals
10:55	Approval of the final list - Siemens, Daniel Meyer-Delius

4. Results of the Panel Meeting

Comments on Panel Meeting discussions:

- Instrument #1 – It was discussed the contribution of the proposal to the RobMoSys community and the factibility of the proposal in the runtime of 6 months.

Table with results of panel meeting

Instrument	Proposal acronym	Budget	Accepted
1	EXAMFORA	€59,895	yes
1	ROBOX	€60,000	no
1	STERAS	€60,000	yes
1	SmartAPS	€59,250	no

Annex 1 – Summary Reports

Second Open Call for RobMoSys Contributions

Evaluation Summary Reports

Proposal ID: Inst1/49	Acronym : EXAMFORA

Technical/ research excellence
Pros: - the use case is well described, with an appropriate level of detail and adequate motivation for the parts that they are addressed; - the platform was chosen for the proposal, the GRAIL robot, is an excellent choice for several reasons. It will allow testing the suitability of RobMoSys in a very realistic platform; - the automation of food assembly is a very relevant industry for robotics. The company has long-term plans for general assembly, which boosts the potential interest of the proposal. The proposal plans to implement 3 components (and 1 wrapper) that are RobMoSys-compliant; - the components are described with sufficient detail and are relevant for the RobMoSys ecosystem.
Expected impact
Pros: - the proposal addresses the food assembly industry. Such an industry is relevant within the whole robotics market, and the company seems adequately positioned in this segment. - the team seems to have the required expertise related to the project; - the proposal plans to make public the 3 components developed during the project, which is aligned with the RobMoSys principles and will foster the accessibility of the results, its visibility and the benefit for the whole RobMoSys community. Cons: - the target user-group is not very well specified.
Implementation (Clarity of the work plan)
Pros: - the quality of the implementation plan is very high. In particular, the tasks combine high-level aspects with very specific details, which is appreciated; - risk management is adequately addressed; - IP management is very reasonable, retaining RUR the IP of work previous to the start of the project, and making public the IP of the developments associated with the project. Cons: - while tasks are well described, it seems that too many activities are proposed for the duration of the project; - it is not clear why Task 4.1 and Task 4.2 are foreseen; - KPIs are not useful in the way they are written. KPIs should consider measurements of improved efficiency/safety wrt the current solution, measurements of reduced stop-time of the robot, measurements of the reduced number of safety issues, etc.; - the proposal does not detail the resources devoted to the project, it is advised to revise carefully this aspect to guarantee that the

work planned is done without delays; - it is surprising that the list of deliverables does not contain code releases, as the proposed plans to develop it and make it public;
Remarks

Second Open Call for RobMoSys Contributions

Evaluation Summary Reports

Proposal ID: Inst1/52	**Acronym : ROBOX**

Technical/ research excellence
The proposal aims to utilize RobMoSys to enhance the safety and reliability of mobile robots specifically developed for warehouse logistics, which is a large market yet to be exploited. In addition, the results are directly generated and exploited by a startup company, so there is a significant innovation potential. The use case, however, is not defined with sufficient clarity. The Robox solution is said to have 4 components (navigation, manipulation, interaction and safety), but it is not explicitly said which ones of this components are going to be made RobMoSys-compliant and in which manner. Also, from the description it is not clear where the robot will be integrated within the logistics chain. The scenario described in Figure 1 is very generic. It can be read in the proposal that, currently, only the robot base has been built and the picking assembly is just designed, making the feasibility of the proposal questionable. Even though the proposal aims to evaluate the safety and eventually certify the system, it is not clear if they are following any safety standards, which essential for their success. The team seems to have expertise in a wide array of topics relevant to their vision; however, more focus on mobile robotics in particular would be desirable.
Expected impact
In general, it is true that robots might have a significant presence in the logistics market share in the future. However, the market data presented is very generic and the specific impact of the company and the proposal in such market is insufficiently detailed. The ROI is presented without sufficient details, and no business case is presented. The results will be provided as source code, documentation and a demonstration video. However, for the code, the functionalities are not described in sufficient detail. The impact lacks any measureable KPIs. Details on IP are also missing. The general lack of detail in the proposal makes also difficult to predict the size of the potential user group of the developed technologies. Finally, the impact is also expected to be low due to deficiencies in the excellence and implementations sections
Implementation (Clarity of the work plan)
The implementation plan has several experiments described. The global goal for such experiments is, however, not sufficiently clear. The tasks are poorly designed, and they do not

contain technical details on the work to be done. Milestones and deliverables are empty of technical descriptions. KPIs are not-technical and non-measurable, they just refer to the completion of the tasks without clear metrics or indicators of such completion. The Description of Work contains a list of expected features in a new generation of AGVs, but it is not detailed which ones of these features are going to be implemented in the project. Risk management is insufficiently addressed, only three general risks are mentioned and the mitigation measures seem insufficient. Indicating no ethical issues while experimenting with mobile robots in the presence of workers is viewed as a negative point.

Remarks

The proposal has a promising topic and starting point. However, as it progresses, it loses focus and it is difficult to understand what exactly will be achieved and delivered.

The experiments should refer to some industrial safety requirement standards. Also, considering the limited resources and time frame of the project, each experiment should contribute to a smaller set of goals.

Second Open Call for RobMoSys Contributions

Evaluation Summary Reports

Proposal ID: Inst1/51	**Acronym : STERAS**

Technical/ research excellence

The proposal aims to fully develop and certify a SLAM solution based on data fusion from radar and stereovision. The obvious advantages are low cost and robustness. The proposal understands the need of certification for such a system; addressing the challenge directly and with a credible approach using the standards and Safety Integrity Level (SIL). As another goal, it is planned to make the full navigation system RobMoSys-compliant, so that it can be use in RobMoSys-compliant robots with small integration effort, and can also be more easily integrated with future developments. The proposal suggests that the product is currently under development within the company, hence positive synergies and momentum are expected. The described use-case addresses safety, faster development and user-friendliness. The company has the required expertise related to mobile robotics to develop the project, and it is obvious that they are very familiar with the challenges. The pilot and use case are nicely selected and detailed in the proposal, and they fit the expertise of the team and the RobMoSys methodology.

Expected impact

The user-group for such a SLAM solution can be significant, although specific details on how to reach such potential are missing. Besides mobile robots, automotive industry and other mobile machines working in industrial environments can benefit from the technology. The results will

only be accessible as a video demonstration, which might be insufficient. The access to the navigation system will be then limited, according to the proposal. There are no plans to maximize such visibility, which is a weakness regarding the impact of the proposal. However, considering that company have clear business goals, it is also understandable if the results are not made public. As a few suggestions, a tighter engagement with the RobMoSys community, longer-term plans and communication and dissemination strategies would be advisable in order to enhance the visibility of the developments of the proposal.

Implementation (Clarity of the work plan)

The implementation plan is in general well described and has an appropriate number of tasks. The task list is in general sufficiently detailed and is reasonable to achieve the goals of the project. Formal verification and validation of the software should have been addressed further, as it is the key for the certification. Also, some of the tasks are less developed than others. For example, "explore different sensor fusion mechanisms through Machine Learning" is a very generic sentence difficult to understand. The number of deliverables is reasonable, but half of them are confidential, raising concerns about the potential of this proposal for the development of the RobMoSys community. There are no KPIs given in terms of comparing the performance of new SLAM solution with a state-of-the-art LIDAR-based solution. Hence, it will be difficult to measure the success of the project. The risk management is reasonable and detailed. However, it shall be noted that machine learning algorithms cannot be formally validated, hence the risk level shall be quite high. IP is not discussed, and there are no actions planned for continuing with the RobMoSys adoption in the future.

Remarks

The proposal has clear goals, and sufficient detail in the high-level vision and the low-level tasks to be credible. A SLAM solution is viewed by the reviewers as a relevant and potentially impactful topic.

Although the proposal has a number of shortcomings, that have been detailed, in general the reviewers valued it positively. The potential impact of a certified RobMoSys-compliant SLAM solution can be high. The trajectory and expertise of the team and the implementation details make the proposal credible and the probability of success high.

Second Open Call for RobMoSys Contributions

Evaluation Summary Reports

Proposal ID: Inst1/50	**Acronym : SmartAPS**

Technical/ research excellence

The proposal wants to develop a Smart Advanced Planning and Scheduling system, which in essence is a fleet management system. There is a clear mention of the RobMoSys modules which will be used for this purpose. The proposed project describes sufficiently the target use-case, highlighting the use of the RobMoSys ecosystem. The use of the RobMoSys framework is well described. Considering that there are several fleet management systems exists in the market, particular progress beyond the state of the art is not clear. However, having it open source available for many companies to use can be positive. The company seems to have experience in software development, while it is not clear its experience in robotics.

Expected impact
The proposed project impact is expected to be high, since the project focus on a wide sector, that is the logistic one. The achieved results will be available in many forms, including open-source software. The RobMoSys framework is expected to be highly advertised. All the results are accessible as open source along side demonstration video. The described market data is very generic and the impact on the market for this development is not clear. There is no direct industrial exploitation of the project results is mentioned.
Implementation (Clarity of the work plan)
The implementation plan is very well described with credible details. The proposal already starts with the architecture clearly describing the combination of RobMoSys modules. The use-case has not been described for the experiment, hence it is not clear how the results will be validated and demonstrated. There are no measurable KPIs. Maybe some expected results on productivities and efficiency could have been highlighted. Risk management is properly addressed and no major issues are highlighted wrt the one discussed in the proposal. The task description is appropriated wrt a 6 months project.
Remarks
The use-case shall be described in further details. The use-case must show the progress beyond the state of the art with measurable KPIs. The use- case is missing an application in the real world. The robots proposed for this use-case is far of the application domain. Their expertise in scheduling is high. Unfortunately, they do not propose mayor contributions that target the robotics community in a sound way.

RobMoSys

MINUTES OF THE PANEL MEETING

Second Open Call for RobMoSys Contributions

Exclusive Cut-Off Date

April 2nd, 2020

Version: April 13rd, 2020

Overview of topics

1. Objective of the panel meeting

- To achieve agreed conclusion on evaluation of the proposals,
- To finalize the Evaluation Summary Reports of the proposals,
- To rank the proposals above the threshold,
- To prepare the Panel Report for the European Commission.

2. Participants

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Daniel Meyer-Delius [DMD]

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TUM: Luz Martínez [LM]
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CEA: Huascar Espinoza [HE]

Panel Minutes Keepers:
Dayana Ramírez (DR)

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10:25 Proposal STERAS - CEA, Ansgar Radermacher

10:35 Proposal SmartAPS - THUlm, Christian Schlegel

10:45 Discussion of proposals

10:55 Approval of the final list - Siemens, Daniel Meyer-Delius

6. Results of the remote evaluation

		Remote Evaluation				
Instrument	**Proposal acronym**	Crit.1	Crit. 2	Crit. 3	Weighted Avg	Total score
1	EXAMFORA	**7**	**7**	**7**	**7**	**21**
1	ROBOX	**2.5**	**4.5**	**3**	**3.45**	**10**
1	STERAS	**9**	**7**	**8**	**7.9**	**24**
1	SmartAPS	**8**	**9**	**8**	**8.4**	**25**

7. Minutes

In the first part, each proposal was presented by one of the members of the SC.

EXAMFORA: presented by LM
STERAS: presented by AR
SmartAPS: presented by CS

In the second part, the main insights were discussed and a voting was done in case of be necessary.

EXAMFORA
LM: EXAMFORA is likely to have a huge impact in the assembly line of food products working alongside human coworkers. But one of the evaluators set all the scores to zero for exceeding the number of pages specified in the template. However, the other reviewer gave it a high score. Both of the external evaluators later agreed that this proposal should be discussed in our panel meeting.

I consider R U Robots has expertise in the food assembly industry, the use case is very well described, their results are accessible and risk management is well addressed. However, they stated too many tasks for a 6-month project, their KPIs are not concrete and they aim to learn RobMoSys in one month, which is too optimistic. They also did not specify which RobMoSys toolchain they aim to use. But I think these weaknesses can be overcome with coaching.

CS: I think R U robotics, we can learn from them how to open up to other industries, what do industries demand from RobMoSys to actually implement our tools. Additionally, this company has followed RobMoSys.

DMD: food domain is interesting in the industrial context. Maybe the only problem with EXAMFORA is that we have to justify why the proposal got zero and was chosen.

HE: We only must respect our own rules, if we go above the threshold, there is no problem. So the proposal is eligible.

Votes: 8 x yes, 0 x no.
EXAMFORA proposal is accepted

STERAS

AR: The external evaluator assessed STERAS positively. It has a clear goal, sufficient details in the high-level vision and the low-level tasks are credible. I think this proposal has an innovation potential because it proposes

a cheaper navigation in dynamic environments. They have a detailed work plan, a good risk assessment and the team is experienced with ROS. However, they do not provide much information about the formal UML model, I mean the usage of Papyrus for Robotics is unclear. They also do not give information about the license of the developed components. And they did not give KPIs in terms of comparing the performance of the new SLAM solution with SOTA, the Lidar system.
DMD: Which company?
AR: Avular
SG: The proposal wants to combine stereo vision and AI, how can they certify something like this?
DMD: Let's check the next proposal and then discuss and decide.

It was decided that the SmartAPS proposal will be discussed first and then decide about which proposal is accepted.

SmartAPS
CS: They moderately improved their proposal, they borrowed the user group to logistics, mentioned the pilot should be done with "Turtlebot3" robots, slightly arranged tasks and deliverables. However, their approach does not fit with RobMoSys' separation of roles, a core principle. They removed the THU lab testing. And still as in the first round, there is not that much contribution in robotics but in scheduling and link to enterprise applications, and it's still not clear if they want to develop a "SmartAPS Plan Generator" or do they just want to wrap a "Taser Planner".
HE: So, impact no high and not involved in robotics.

Discussion of STERAS and SmartAPS

SG: Regarding STERAS, benefits for the community are not clear, what will they provide, which kind of demonstrator.
HE: maybe we are too strict with industrial demonstrator, we can ask to provide an educational demonstrator/material within the ros community to get feedback
DMD: I think these guys can project it to mobile robotics (laser+ cameras). Industrial application is not clear but is material, it's tangible.
HE: So STERAS could be better.
DMD: Then, should we ask for that specification to STERAS.
CS: We don't have time to negotiate. We can correct that via coaching to do it in their direction.
HE: Ask them to adjust their proposal. Condition their acceptance to our condition, no negotiation possible. In this way, we are fair with others.
DMD: STERAS is accepted with conditions, then?
HE: SmartAPS could be a good project, I agree with that. But what do we expect from STERAS to improve, concretely?
MF: seems they are interested in making safety more measurable, they do not claim.
HE: we don't expect they certify anything. I don't think what they wrote in the proposal contradicts requests from robmosys. Their main request would be: demonstration, they don't have any IP consideration so no conflicts on that. And results are accessible.
AR: they mentioned videos, data recorded of the demonstration. Not very concrete

HE: Models they develop, and demonstration in a reproducible way. The way to reproduce their results, with simulations?
CS: we do not require to have it open. One of their models must be RobMoSys compliant. How can some KPIs improve? Good enough to have models, videos, needed expertise. They have scheduling planning tools. We have linked with robmosys, we interface it with ours, is that feasible or not?
LM: we don't ask for certifications to anyone
HE: so the evaluation is not clear how open results are, so there is not a real problem with that.
DMD: This is towards certification. IP companies have their own IP. But somehow they have to demonstrate they are using RobMoSys. So do we want to ask them to do that change directly or can it be done during the coaching.
HE: IP and certification are not issues, from the discussion. And the rest can be adjusted during coaching. So it seems we can accept them without any conditions.

Votes for STERAS: 6 x yes, 2 x no.
Votes for SmartAPS: 3 x yes, 5 x no.

STERAS proposal is accepted
SmartAPS proposal is rejected