Grant agreement nº: 101069994

Call identifier: HORIZON-CL4-2021

Deliverable D4.4

Report on Open call results and analytics on proposals submitted

Work Package 4

Open Call setup, implementation and selection of Application Experiments

Document Type	:	Report
Version	:	V1.1
Date of issue	:	04/07/2024
Dissemination level	:	SEN
Lead beneficiary	:	Flanders Make

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement nº 101069994.

DOCUMENT HISTORY

Version	Date	Changes	Stage	Distribution
0.1	30/04/2024	1st draft		
0.2	21/6/2024	2nd draft		
0.3	27/6/2024	3rd draft	Pre-ready	Among reviewers
1.0	1/7/2024	Internal review		
1.1	04/07/2024	Released	Released	Sensitive

EXECUTIVE SUMMARY

The present document, D4.4 "*Open call results and analytics on proposals submitted*" documents the collected inputs and data, and the analysis which have led to the 10 awarded Application Experiments over the two EARASHI Open Calls. It offers as well a helicopter view on the collected proposals overall, as well as offering insight into the details of the winning proposals.

ACRONYMS

ADR	AI, Data and Robotics	FSTP	Financial Support to Third Parties
AE	Application Experiment	KoM	Kick-off Meeting
AI	Artificial Intelligence	MSD	MusculoSkeletal Disorders
BB	Building Block	OC	Open Call
CF	Cascade Funding	ROS	Robotic Operating System
FAQ	Frequently Asked Questions		

TABLE OF CONTENTS

1 INTRODUCTION 5
2 SET-UP OF THE GENERAL PROCESS – OPEN CALL STRUCTURE & AE SELECTION PROCESS 6
2.1 Open Call scope & structure 6
2.2 Evaluation and selection of the granted AEs 7
2.2.1 Eligibility check 7
2.2.2 Feasibility check 8
2.2.3 Technical evaluation 8
2.2.4 Business evaluation 8
2.2.5 Consolidation & selection 9
3 RESULTS AND ANALYTICS 10
3.1 Setting the Scene 10
3.2 First Open Call (OC1) 11
3.2.1 General Metrics 11
3.2.2 Detailed Application Experiment Analysis 14
3.3 Second Open Call (OC2) 16
3.3.1 General Metrics 17
3.3.2 Detailed Application Experiment Analysis 20
4 CONCLUSION 25

1 INTRODUCTION

The EARASHI project, HORIZON Europe, aims to improve working conditions, trust, and acceptance of collaborative embodied AI in robotic systems, for the production machines/tools sector. This is achieved by supporting Industry, especially start-ups and SMEs, in the uptake of advanced digital and eco-responsible technologies (in particular AI, data, and robotics). This approach will help employees in their daily activities and improve their working conditions, leading to a productivity increase. EARASHI employs a worker-centric approach, prioritizing workforce well-being and health (addressing issues such as musculoskeletal disorders (MSD) and stress), utilizing design thinking methodologies for production machines, and ensuring worker acceptance and ethical considerations.

EARASHI set-up and published 2 open calls (M6 and M13) with focus areas and challenges to improve working conditions in the production machines field -health, safety and well-being- and increase productivity via human-centered collaborative embodied AI, data & Robotics. The 10 selected projects/beneficiaries will:

- benefit from Financial support to Third parties (FSTP, Cascade funding) – up to 200 k€ (100% funding rate for Start-Ups and 70% for SMEs);
- get access to EARASHI leading-edge technologies (BB) and test facilities from RTOs and industrial partners, business support, mentoring by industrial pairs, support in ethics, system integration, and user acceptance, thus lowering both their technical and business barriers.

EARASHI targets to:

- fund 10 projects;
- foster pan-European collaboration with at least 50% of selected projects being cross-border;
- enable agile responses to urgent needs and open strategic autonomy in digital and future emerging enabling technologies, with 80% of the selected AEs having market potential, and more than 20% of the selected AE reaching TRL8-9 two years after the end of their project.

To that purpose, by means of the open calls and the FSTP, EARASHI partners provide access to Technological BB and Key Competencies for the selected application experiments. The foreseen BBs available through the open calls (technology transfer support) and the key competencies that will be provided through webinars and coaching are listed on the website.

The deliverable D4.4 addresses "*Open call results and analytics on proposals submitted*":

- The scope, structure and timeline of EARASHI open calls
- The evaluation and selection process: Eligibility check, Feasibility check, Technical evaluation, Business evaluation, Consolidation and selection, Notifications to all applicants and External expert board
- Results and analytics of the two Open Calls

Before digging into the detailed analysis in chapter 3, chapter 2 recapitulates the setup, structure and definition of metrics of the Open Calls, as described in Document D4.3: "Report on open-call procedures and rules and publication summary". For more details, one can refer to this document D4.3, which is publicly available.

2 SET-UP OF THE GENERAL PROCESS – OPEN CALL STRUCTURE & AE SELECTION PROCESS

2.1 Open Call scope & structure

EARASHI, **E**mbodied **AI**/**R**obotics **A**pplications for a **S**afe, **H**uman-oriented **I**ndustry, aims at **improving working conditions, trust, and acceptance of collaborative embodied AI in robotic systems**, for the production machines/tools sector. Its outcomes are expected to help employees in their daily activities and **improve their working conditions**, leading to a productivity increase. A worker-centric approach focuses on workforce well-being and health (e.g., addressing MSD and stress), incorporates design thinking methodology for production machines, and emphasizes worker acceptance and ethical considerations.

The R&D demonstration projects targeting EARASHI challenges are expected to reach Technology Readiness Level (TRL) 7 starting form TRL 4-5, following a competitive based approach.

The demonstration projects have to target one of EARASHI 10 challenges and respecting EARASHI scope, e.g.:

- Support the industry in the uptake of advanced digital eco-responsible technologies (in particular AI, Data and Robotics)
- Support workers in their daily activities and improve their working conditions (safety, health and well-being) leading to a productivity increase
- Adopt a worker-centric approach by considering worker well-being and health at work (e.g. MSD and stress), design thinking methodology of production machines, worker acceptance and Ethics.

The 10 challenges were defined by the External Advisory board following the methodology discussed in D3.2 'Challenge preliminary Market Analysis'. The complete list of challenges is available on the website at https://earashi.eu/challenges/.

Besides funding, the selected projects benefit from EARASHI program:

- Integration of a Technical building block of your choice and associated expertise, among the Building Block portfolio offered by EARASHI.
- Coaching services such as Business, human-centered design, eco-design, cybersecurity, engineering system integration, mentoring & access to validation facility.

The granted projects are expected to have impact on:

- Decrease of the number of workers that perceive stress at work/the number of accidents at work/number of workers already suffering from MSD
- Increase of the number of ROS-users
- Improvement of trust in AI, Data and Robotics (implementation of ADR in manufacturing)
- Machine retrofit and refurbishment
- Deployment of eco-design approach
- Standardized, easy, non-hazardous dismantling processes shortened in time and costs.

Pan-European demonstration projects (EU member states or Horizon Europe associated countries are strongly encouraged, through the cross-border collaboration:

- With EARASHI partners providing the technical building blocks and expertise

- Through the companies building up the proposal

The granted projects products are expected to have market potential and reach commercialization as project's outcome.

Any Proposal must:

- Be proposed by a micro-consortium of a minimum of 1 independent legal entity (maximum 2) including exclusively Start-up or SME, established in the Member States of the European Union and its overseas countries and territories (OCT) and Horizon Europe associated Countries
- Involve an EARASHI building Block partner chosen among the Building Block portfolio.
- Address one of 10 EARASHI challenges.

EARASHI open call scope and requirements are fully detailed on the website open call page (https://earashi.eu/open-calls/), in the Guide for Applicants, in the FAQ section, in the proposal template. They are also discussed in details through the open call webinars which recorded versions are available online at *Events/past Events* (https://earashi.eu/our-events/).

2.2 Evaluation and selection of the granted AEs

The evaluation and selection process followed by EARASHI is illustrated in the following figure:

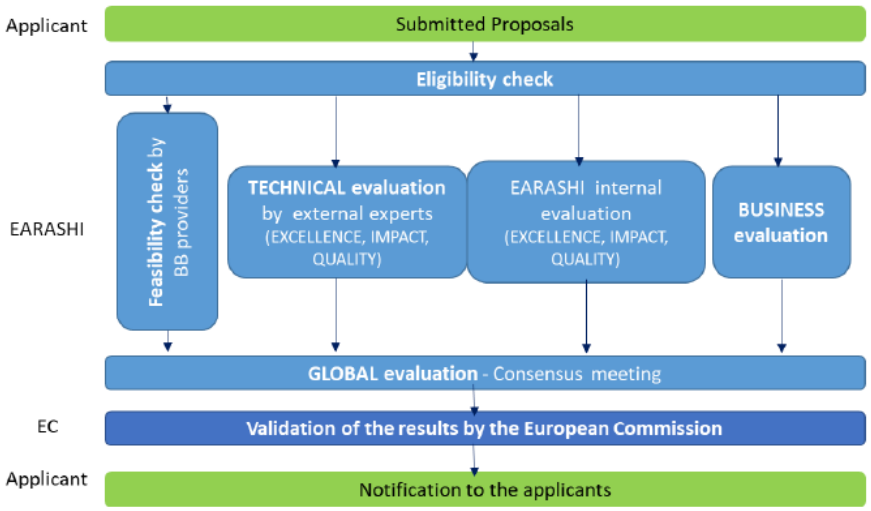

Figure 1: EARASHI – Open Call – Evaluation & selection process

After the closure of the call, the submitted proposals were evaluated within 8 weeks by the EARASHI project in light of the criteria that govern the Commission's original evaluation and selection of their projects through an Internal Evaluation Committee (IEC) with the assistance of external experts and an additional business case evaluation. The objective was to notify all the applicants 3 months maximum after the call is closed.

2.2.1 Eligibility check

The first step is to check the **ELIGIBILITY** of every proposal in order to discard the ones that are not eligible for evaluation and selection.

A proposal will only be deemed "out of scope" in clear-cut cases when there is no obvious link between the proposal and the scope of the call. If the proposal is partially aligned with the scope of the call, it will be evaluated (in any case). In parallel the feasibility check, the technical evaluation by both external expert and EARASHI internal evaluation and the business evaluation are performed.

2.2.2 Feasibility check

The **FEASIBILITY CHECK** is done by the Building Block providers in order to validate (or not) the feasibility of the submitted projects regarding the selected building block, technical feasibility in time and available resources. The output is a GO/NOGO decision.

2.2.3 Technical evaluation

The **TECHNICAL EVALUATION** is carried in the light of the criteria that govern the European Commission's original evaluation and selection of their projects. The Technical evaluation of Application Experiment proposals is based on scores given according to three basic criteria: *Excellence*, *Impact*, *Implementation Quality* of the AE.

For every proposal, each technical reviewer allocates scores from 0 to 5 in each of the three categories (Excellence, Impact, Quality of implementation) for every Application Experiment proposal. The scores indicate the following with respect to the criterion under examination:

0	Proposal **fails** to address the criterion or cannot be assessed due to missing or incomplete information.
1	**Poor**. The criterion is inadequately addressed, or there are serious inherent weaknesses/incoherences.
2	**Fair**. The proposal broadly addresses the criterion, but there are significant weaknesses/incoherences.
3	**Good**. The proposal addresses the criterion well, but a number of shortcomings are present.
4	**Very Good**. The proposal addresses the criterion very well, but a small number of shortcomings are present.
5	**Excellent**. The proposal successfully addresses all relevant aspects of the criterion. Any shortcomings are minor.

2.2.4 Business evaluation

The **BUSINESS EVALUATION** is performed by EARASHI industrial innovation partner BLUMORPHO.

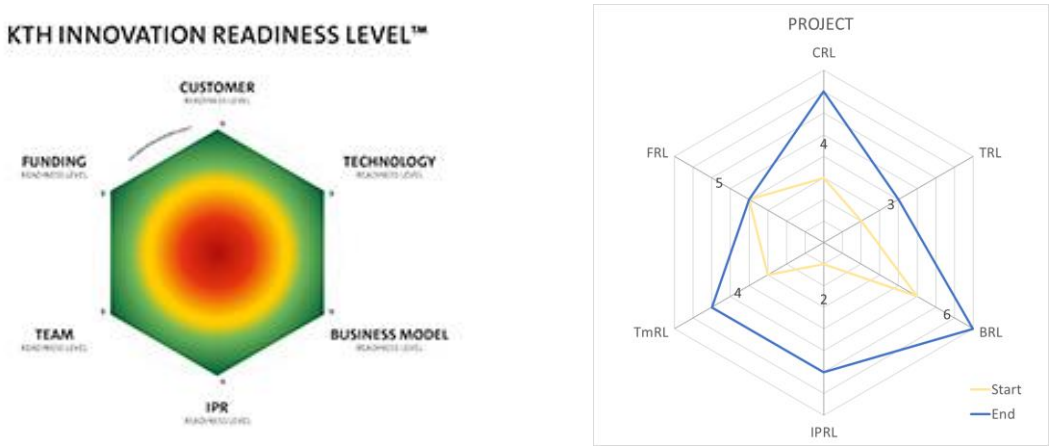

Figure 2: EARASHI business evaluation – innovation Readiness Level
(developed by KTH - KTH https://www.kth.se/en/om/innovation/kth-innovation-1.956839)

The business case evaluation is performed in parallel to the technical evaluation and allocates a score from 0-5 to each AE proposal.

2.2.5 Consolidation & selection

The final selection of the proposals is performed during the consolidation meeting, gathering all the partners at one EARASHI partners' premises.

The application score is calculated as follows

Criteria / scoring	Ext Exp. 1	Ext Exp. 2	Ext Exp. 3	EARASHI WG1,2,3	Business eval	Total for the proposal	Thresh-hold
Excellence (/5)	E1	E2	E3	E_{EAR}		$E=(E1+E2+E3+ 2*E_{EAR})/5$	3
Impact (/5)	I1	I2	I3	I_{EAR}		$I=(I1+I2+I3+ 2*I_{EAR})/5$	3
Quality (/5)	Q1	Q2	Q3	Q_{EAR}		$Q=(Q1+Q2+Q3+ 2*Q_{EAR})/5$	3
Business (/5)					Bu1	Bu=Bu1	3
Total (/20)						Tot=E+I+Q+Bu	13

Figure 3: EARASHI – Open Call – AE Overall score calculation

3 RESULTS AND ANALYTICS

3.1 Setting the Scene

The application framework is that each Application Experiment needs to address one challenge, preferably using only one Building Block. Using two Building Blocks was allowed but not recommended. One AE anyhow succeeded in submitting a proposal with 5 Building Blocks.

FSTP-funding consists out of 200KEuro for Start-ups (@ 100%) and SME (@70%). Over the two Open Calls, EARASHI will fund 10 granted projects, hence about 5 Application Experiments for OC1 and OC2 resp.

The planned Building Block support resources (the planned budget) is detailed in

BB provider	CEA	FM	MDR	INEGI	IKL	STM	Open Budget
Planned AE number	1	2	2	1	1	1	2 (AMS, ALD)
Planned Budget (PM)	5	10	10	5	5	5	10

Figure 4: Planned Building Block support resources

In total, there were 96 eligible proposals, coming out of 18 different countries. Figure 5 gives a graphical representation of the participating countries.

Figure 5: Geographical spread of the participating countries

44% of the companies were Industry 4.0 oriented, followed by the Manufacturing and IT & Telecom domains.

3.2 First Open Call (OC1)

3.2.1 General Metrics

The first Open Call offered 23 Building Blocks, coming from CEA, FM, MDR, INEGI, IKL and STM, to satisfy 10 challenges. These challenges were defined by a panel of 10 external European experts.

In total, for the first Open Call, there were 53 proposals submitted. Out of these 53 proposals,

- 2 proposals were from non-member states and associated countries: Belarus and Uganda were removed which lead to 51 proposals to be further investigated
- 2 were out of cascade funding budget (> 200 k€)
- 3 projects were not withheld because of being technically not feasible

This lead to a total of 46 proposals which were eligible for evaluation and selection. Out of these 46 proposals, 39 proposals (85%) were cross-border.

Looking at the configuration of the Application Experiments, Figure 6 gives the split between single, twin and triple Application Experiments. 12 AEs were submitted by two companies, and one AE comprised 3 companies.

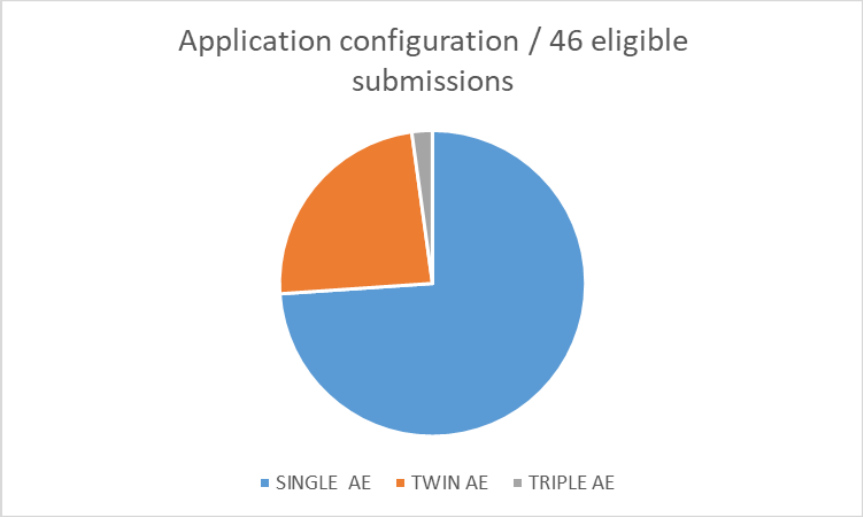

Figure 6: OC1 configuration of Application Experiments

Regarding the split per company size (Figure 7) there was a healthy mix of start-ups, small, medium and large SMEs, and even 2 mid-caps (the 2 mid-caps were then not cascade funding beneficiaries following the open call requirements).

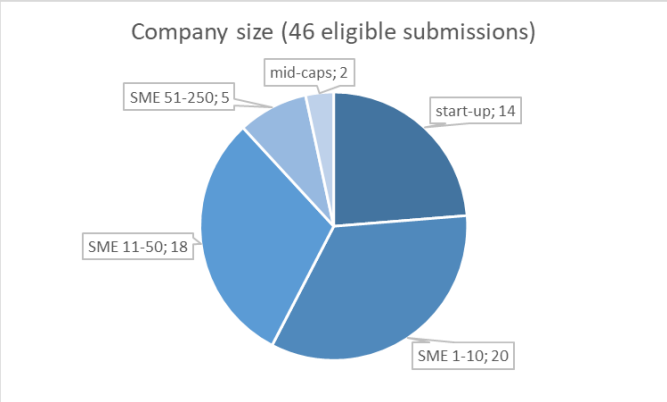

Figure 7: OC1 split per company size

Considering the split per country (Figure 8) it can be observed that apart from a few proposals from Belgium, Denmark, Ireland, Germany and Finland, the majority of the projects were originating in the Southern part of Europe.

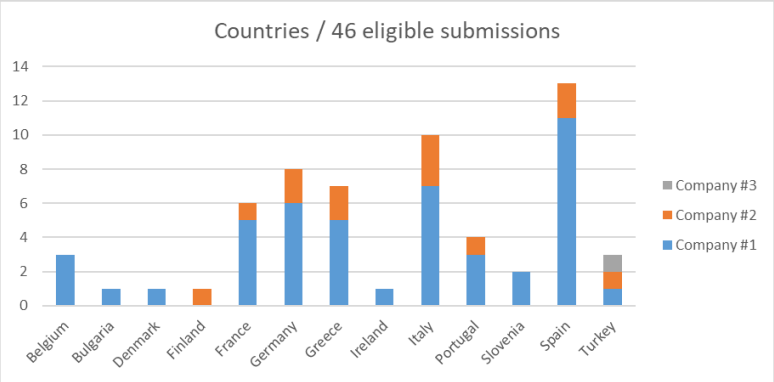

Figure 8: OC1 split per country

Figure 9 gives the partitioning per Building Block. Flanders Make was well represented here, but also submitted a significant amount of technologies. Also CEA's technology was high on the AE's preference list.

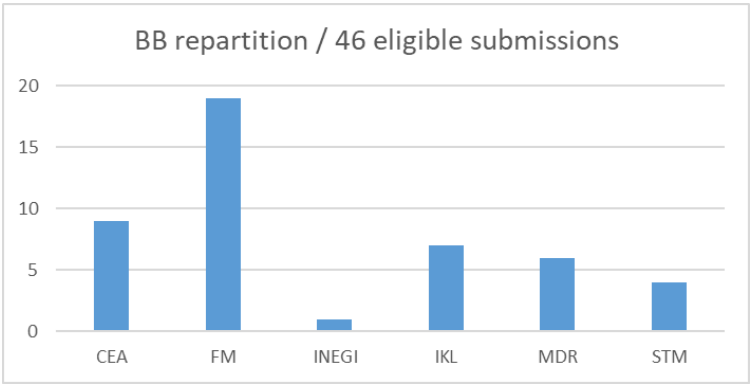

Figure 9: OC1 partitioning per Building Block

As shown in Figure 10**Erreur ! Source du renvoi introuvable.**, most of the proposals centered around Industry4.0 type of applications, and manufacturing-centered applications. On the other hand, there was only minor interest in Aerospace & Defense, and in Transportation and Smart Mobility. Several companies also did not complete this part of the submission.

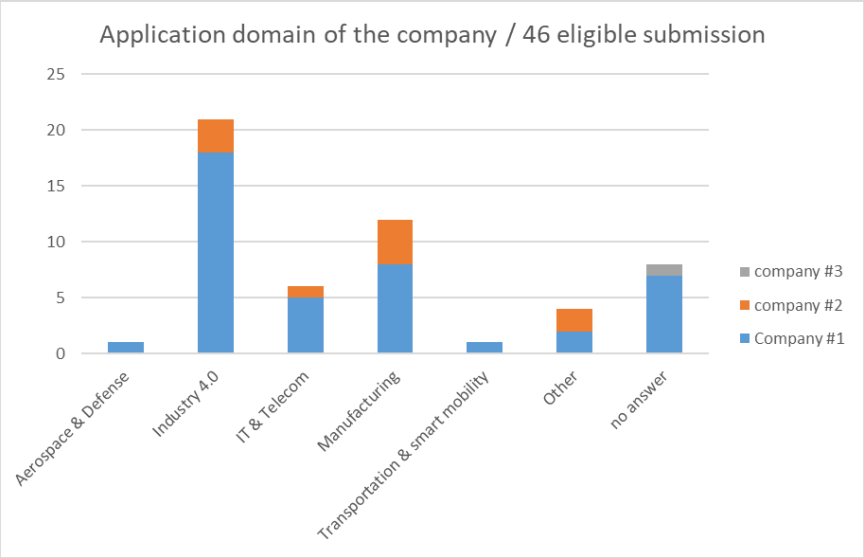

Figure 10: OC1 partitioning per Application Domain

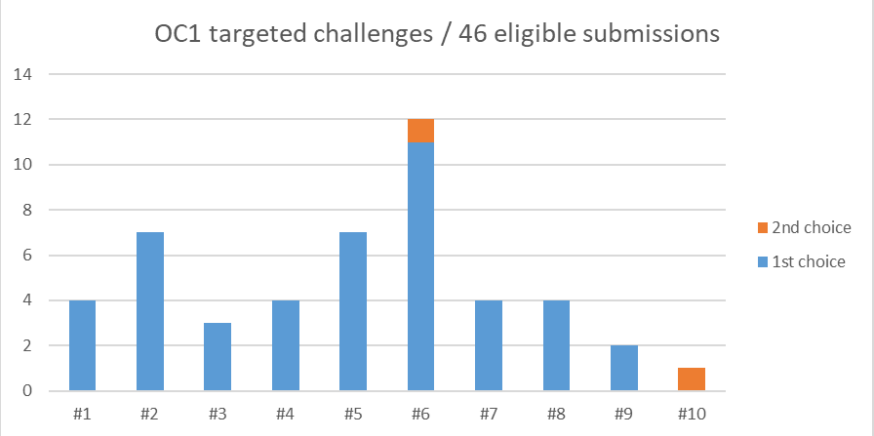

Figure 11: OC1 split per targeted challenge

Figure 11 gives the overview per targeted challenge, with Figure 12 giving a brief description of these challenges. It shows that challenges 2, 5 and 6 were the most popular. Challenge 10 on gamification was used only once, as a second choice. In the second open call, challenge 10 would be dropped.

challenge	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
	Mobile robotic assistance for repetitive tasks	Robotic assistance for heavy duty	Machine/tools for recycling goods, electronics, batteries	Digitilization procedure for production tools & machines for industry 5.0	Worker's stress monitoring & assistance to limit work-related stress	Collaboration between AI and Human supervisors to solve complex problems	Human-centric robotic assitance for assembly workcell	Automation for the optimization of intra-factory logistics	Enhanced digital planning to optimize the execution of the tasks of production operators	gamification of work tasks via the use of digital technologies

Figure 12: Description of OC1 challenges

3.2.2 Detailed Application Experiment Analysis

3.2.2.1 Technical and business evaluation

In this part, we will dig into more detail of the proposals, in order to come to the 5 winning Application Experiments.

In Figure 13: OC1 Consolidated Score of the Application Experiments, the ranking all Application Experiments is given based on their Consolidated Scores.

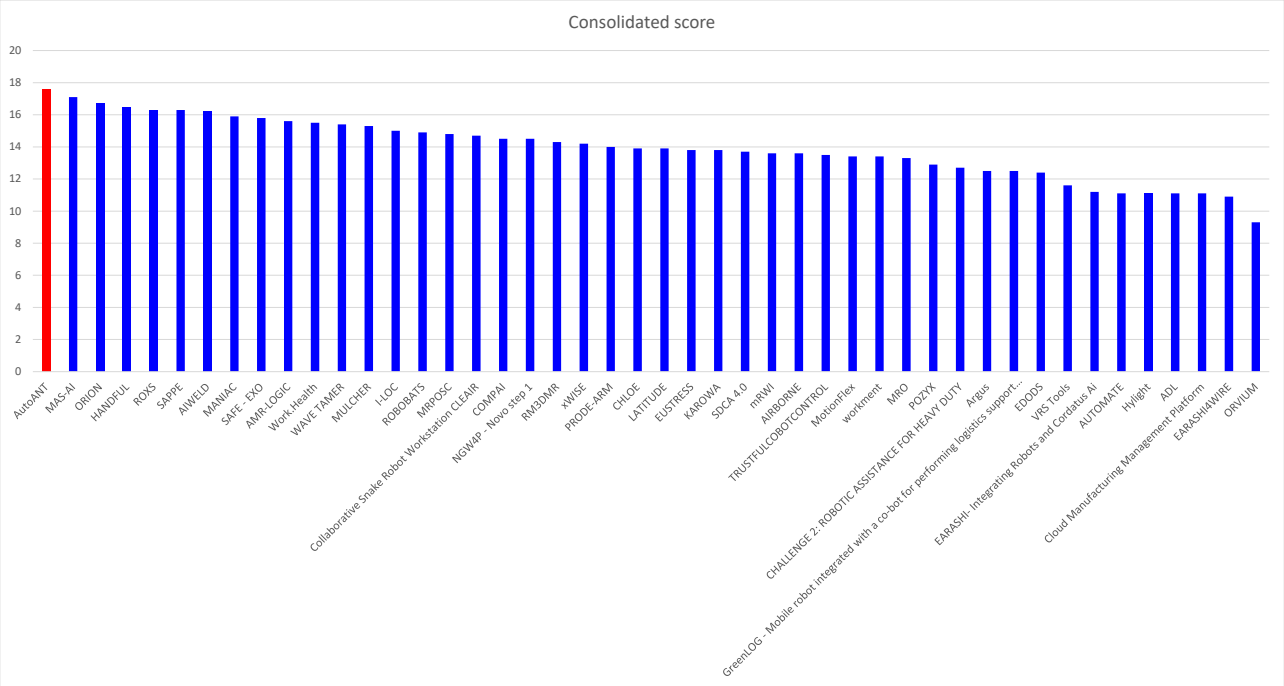

Figure 13: OC1 Consolidated Score of the Application Experiments

Details of these Application Experiments are given in Figure 14: Detailed scores of the top 15 OC1 Application Experiments. These details include the various scores as described in chapter 2.2.3, in chapter 2.2.4 and detailed in Figure 3: EARASHI – Open Call – AE Overall score calculation.

Among the first 15 proposals, we could distinguish five proposals which were submitted by two companies jointly.

ID	Project acronym	1st Company name	Consolidated score	Excellence score	Impact score	Quality score	Business score	2nd company name	Ranking	selected BB	BB partner	selected second BB	selected second BB partner	targeted challenge
7	AutoANT	ANT Maschinen GmbH	17,6	4,4	4,3	4,5	4,4		1	11	Flanders Make			8
26	MAS-AI	Spin Robotics Aps	17,1	4,2	4,2	4,3	4,4		2	3	ST Microe	2	STM	1
33	ORION	ENDITY Solutions S.L.	16,7	4,4	4,3	4,4	3,6	SAVVY DATA	3	16	Mondragon			2
19	HANDFUL	PLEGMA LABS S.A.	16,5	4	4,1	4,4	4	EL081088932P & E	4	23	CEA			6
39	ROXS	ELIF LAB srl	16,3	4,2	4,1	4,5	3,5	NuZoo Robotics	5	11	Flanders Make			6
42	SAPPE	ComSensus, komunikacije in senzorika	16,3	4,4	4,4	4,5	3	motorskins UG	6	1	CEA			5
4	AIWELD	StreamOwl Private Company	16,2	4,3	4,4	4,3	3,2		7	16	Mondragon			6
25	MANIAC	Bytefabrik.AI GmbH	15,9	3,6	4,1	3,4	4,8		8	13	Flanders Make			6
41	SAFE - EXO	Gogoa Mobility Robots S. L.	15,8	4,2	4,1	4,4	3,1		9	1	CEA			5
5	AMR-LOGIC	PAL Robotics	15,6	3,7	3,7	4,2	4		10	14	INEGI			8
47	Work.Health	iBreve Ltd	15,5	3,8	4,3	4,4	3		11	1	CEA			5
46	WAVE TAMER	Sparks Circuits and Robotics SL	15,4	4,2	4,4	4,2	2,6	Naust Marine	12	9	Flanders M	13	Flanders M	6
31	MULCHER	Ingeniarius, Ltd.	15,3	3,9	4,2	4	3,2		13	16	Mondragon			2
20	I-LOC	Alteria Automation	15	3,3	4	4	3,7		14	4	ST Microelectronics			8
38	ROBOBATS	Hiro Robotics srl	14,9	3,5	4	3,4	4		15	16	Mondragon			3

Figure 14: Detailed scores of the top 15 OC1 Application Experiments

Their average business score was 3.4. As was discussed in paragraph 2.2.4, the business score is calculated based on the following parameters: market attractiveness, differentiation, business mode, quality of the team and strategic for the company.

The market attractiveness score was low when neither production machine nor manufacturing was targeted.

Human centricity was not really mentioned in most of the videos. The recommendation was to further highlight this requirement in the 2nd open call.

To differentiate video timing for SINGLE (1 company) and TWIN (2 companies jointly), Application Experiments as when 2 companies are involved, they would have to present the exploitation for the 2 companies. Likewise for the application template, where a better differentiation would be needed for SINGLE and TWIN application.

It was also noted that some companies accelerated the speed of the video, in order to fit into the allotted timeframe, which is obviously not the intention. It would be notified in OC2 that acceleration of the video, to fit into the timing, would result in a lowered score.

3.2.2.2 Selection of the 5 winning Application Experiments

It should be mentioned that even though technically interesting and businesswise designed, the proposals which were not aligned with the EARASHI scope (to improve worker's condition but not to replace the worker, etc.) and which were not targeting a specific challenge (the proposals did not target the right challenge and no other was really fitting) received an EARASHI score reflecting the observed (and discussed) shortcomings.

This finally yielded the following conclusion of winning Application Experiments, as detailed in Figure 15: OC1 Granted Application Experiments.

AE reference number	AE mnemonic	BB owner	Comments
#07	AutoANT	FM	
#26	MAS-AI	STM	*They need to learn how to showcase their innovation*
#19	HANDFUL	CEA	
#4	AIWELD	MDR	*Very nice topic but they need to hire so to handle the business part. AMS will support the activity. They will have a dedicated milestone for the business/exploitation plan with an associated payment + Go/NoGo.*
#23	MANIAC	FM	*Very high business score. Investors are very interested by this kind of solution. The closed proposal to the challenge 6.*

Figure 15: OC1 Granted Application Experiments

One proposal was put on the reserve list: #05 AMR-LOGIC (with an INEGI Building Block), just in case one of the five granted Application Experiments in the end would drop out.

During the selection process, one of the reviewer was contacted to better understand his scoring and comment. This resolved the unclarities.

3.2.2.3 Lowest performing Application Experiments

For completeness, in Figure 16: OC1 Lowest performing Application Experiments are listed. The Total Score of these Application Experiments was below threshold. Multiple proposals scored also below score on individual parameters for one or more scores.

50	POZYX	POZYX	12,9	2,9	3,1	2,6	4,3		34	9	Flanders Make			9	
9	CHALLENGE 2: ROBOTIC ASSI	VORS CONTROL TECHNOLOGY SL	12,7	3,7	3,3	2,9	2,8		35	6	Ikerlan			2	
6	Argus	Robocon	12,5	3,3	3,3	2,9	3		36	1	CEA	8	Flanders M	5	
27	GreenLOG - Mobile robot in	iknowhow SA	12,5	3,1	3,1	3,3	3		37	12	Flanders Make			7	
16	EDODS	]	12,4	3,6	3,3	3,3	2,2		38	17	Mondragon			2	
45	VRS Tools	Percipio Robotics	11,6	2,6	2,6	2,9	3,5		39	13	Flanders Make			4	
14	EARASHI- Integrating Robot	OpenZeka Teknoloji A.Ş.	11,2	2,9	3,2	2,5	2,6		40	5	Ikerlan			2	
8	AUTOMATE	Lemvos GmbH	11,1	2,4	2,6	2,9	3,2		41	5	Ikerlan			4	
49	Hylight	*Hylight*	11,1	2,8	2,6	2,9	2,8		42	8	Flanders Make			6	
1	ADL	L'atelier du laser	11,1	2,6	2,7	3,2	2,6		43	9	Flanders Make			7	
11	Cloud Manufacturing Manag	1D.works	11,1	2,6	2,5	2,4	3,6		44	23	CEA			6	
15	EARASHI4WIRE	ELVEZ, proizvodnja kabelske konfekcij	10,9	3	3	1,9	3		45	3	ST Microe	16	Mondragc	6	
34	ORVIUM	ORVIUM LABS SL	9,3	2,4	2,6	2,3	2		46	3	ST Microelectronics			3	

Figure 16: OC1 Lowest performing Application Experiments

3.3 Second Open Call (OC2)

Open Call 2 was initiated to select five proposals. Certain Building Blocks (following the building block owners' request) and Challenges were removed, though the numbering remained consistent with the first Open Call. The following Challenges were eliminated (as already largely targeted through the Open Call 1 granted experiments for challenges 1, 5 and 6. Challenge 10 was not targeted during open call 1):

- Challenge 1: Mobile robot assistance for repetitive tasks.
- Challenge 5: Worker's stress monitoring and assistance to limit work-related stress.
- Challenge 6: Collaboration between AI and Human supervisors to solve complex problems.
- Challenge 10: Gamification of work tasks via the use of digital technologies.

In order to facilitate a more consistent assessment of the submitted Application Experiments, additional guidance was provided:

- There was an explicit recommendation to not accelerate the pitch video.
- Pitch video for 2 companies .
- The proposals should highlight the human centric approach and its importance for the submitted proposals.
- We adapted the template to facilitate the submission of proposals by two companies.

3.3.1 General Metrics

The second Open Call offered 20 Building Blocks, coming from FM, MDR, INEGI, IKL and STM, to satisfy six challenges. Three Building Blocks were not supported anymore, and four challenges were removed because they were overly used already in OC1.

Figure 17 gives the remaining Building Block support for Open Call 2, given the budget already used for the first Open Call, and the total allotted budget.

BB provider	CEA	FM	MDR	INEGI	IKL	STM	OPEN budget
Planned AE number	1	2	2	1	1	1	2
OC1 result	1	2	1			1	
OC2 open possibilities	0	1	1 or 2	1	1	1	0

Figure 17: OC2 remaining budget for BB support

Three proposals were considered as non-feasible:

- #02-18 '*IMSIGHT*', with IKL identified as BB owner.
- #02-04 '*ARFDSO*', with IKL identified as BB owner.
- #02-23 '*LEMVO*', with IKL identified as BB owner.

Looking at the configuration of the Application Experiments, Figure 18 gives the split between single and twin Application Experiments. Nine proposals were submitted by two companies.

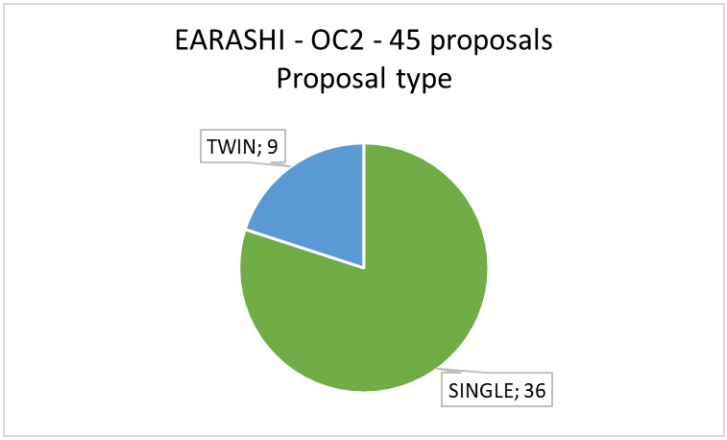

Figure 18: OC2 configuration of Application Experiments

Regarding the split per company size (Figure 7Figure 19) there was a healthy mix of start-ups, small, medium and large SMEs. In the second Open Call, we did not have any Mid-caps.

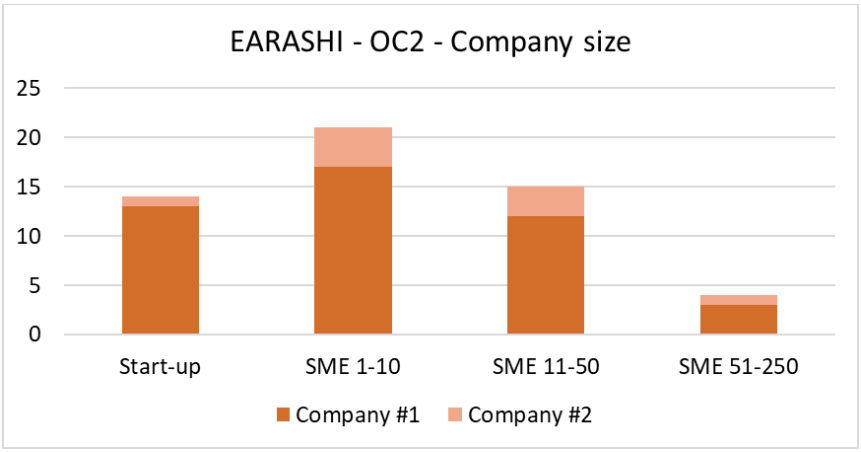

Figure 19: OC2 split per company size

Considering the split per country (Figure 20) it can be observed that apart from a few proposals, the majority of the projects were once more originating in the Southern part of Europe, with the majority of the proposals coming from Spain, Italy, Greece and France.

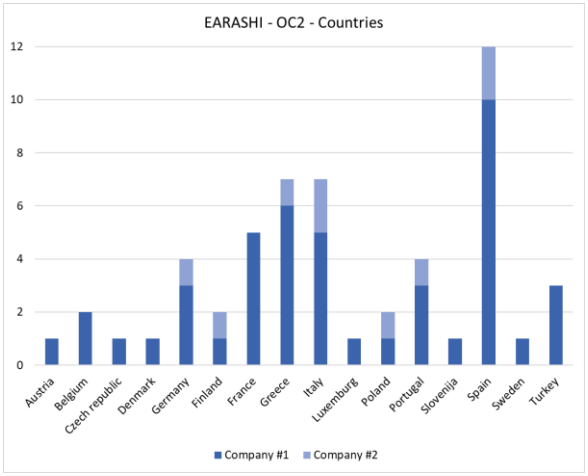

Figure 20: OC2 split per country

Figure 21 gives the partitioning per Building Block. Flanders Make was well represented here, but also submitted a significant amount of technologies. Contrary to the first Open Call, also Ikerlan's Building Blocks were in high demand. As mentioned before, CEA did not participate with a Building Block in OC2.

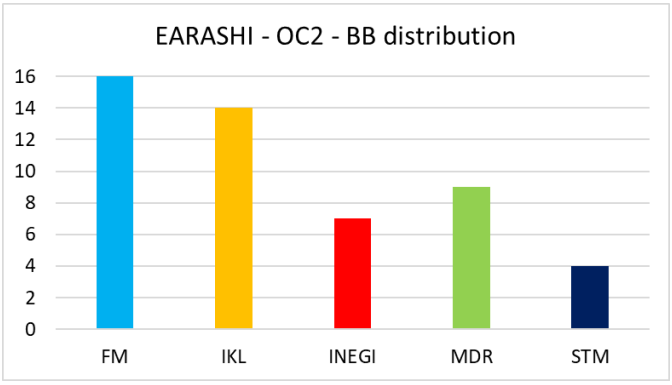

Figure 21: OC2 partitioning per Building Block

As shown in Figure 22, most of the proposals centered around Industry4.0 type of applications, and manufacturing-centered applications. On the other hand, there was only minor interest in Energy, and in Health. Several companies also did not complete this part of the submission.

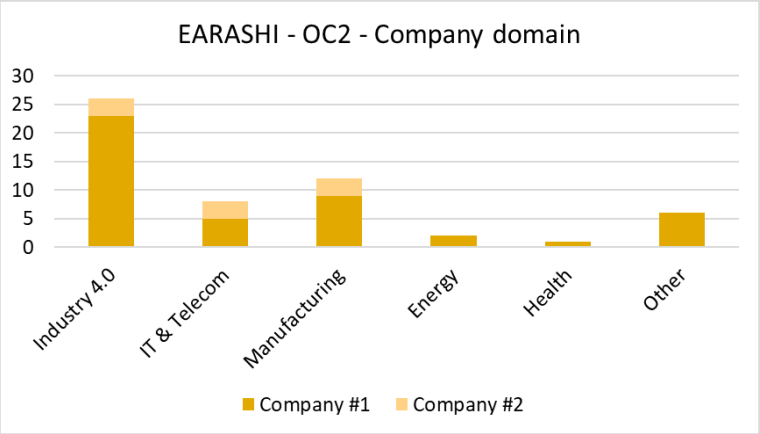

Figure 22: OC2 partitioning per Application Domain

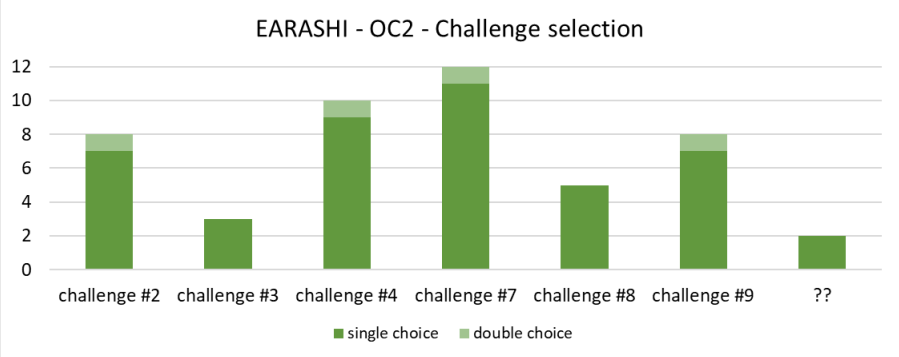

Figure 23: OC2 split per targeted challenge

Figure 23 gives the overview per targeted challenge, with Figure 24 giving a brief description of these challenges. It shows that challenges 2, 4, 7 and 9 were the most popular. As mentioned before, challenges 1, 5, 6 and 10 were dropped based on the inputs of the first Open Call

challenge	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
	Mobile robotic assistance for repetitive tasks	Robotic assistance for heavy duty	Machine/tools for recycling goods, electronics, batteries	Digitilization procedure for production tools & machines for industry 5.0	Worker's stress monitoring & assistance to limit work-related stress	Collaboration between AI and Human supervisors to solve complex problems	Human-centric robotic assitance for assembly workcell	Automation for the optimization of intra-factory logistics	Enhanced digital planning to optimize the execution of the tasks of production operators	gamification of work tasks via the use of digital technologies

Figure 24: Description of OC1 challenges

3.3.2 Detailed Application Experiment Analysis

3.3.2.1 Technical and business evaluation

In this part, we will dig into more detail of the proposals, in order to come to the five winning Application Experiments. In Figure 25: OC2 Consolidated Score of the Application Experiments, the ranking all Application Experiments is given based on their Consolidated Scores.

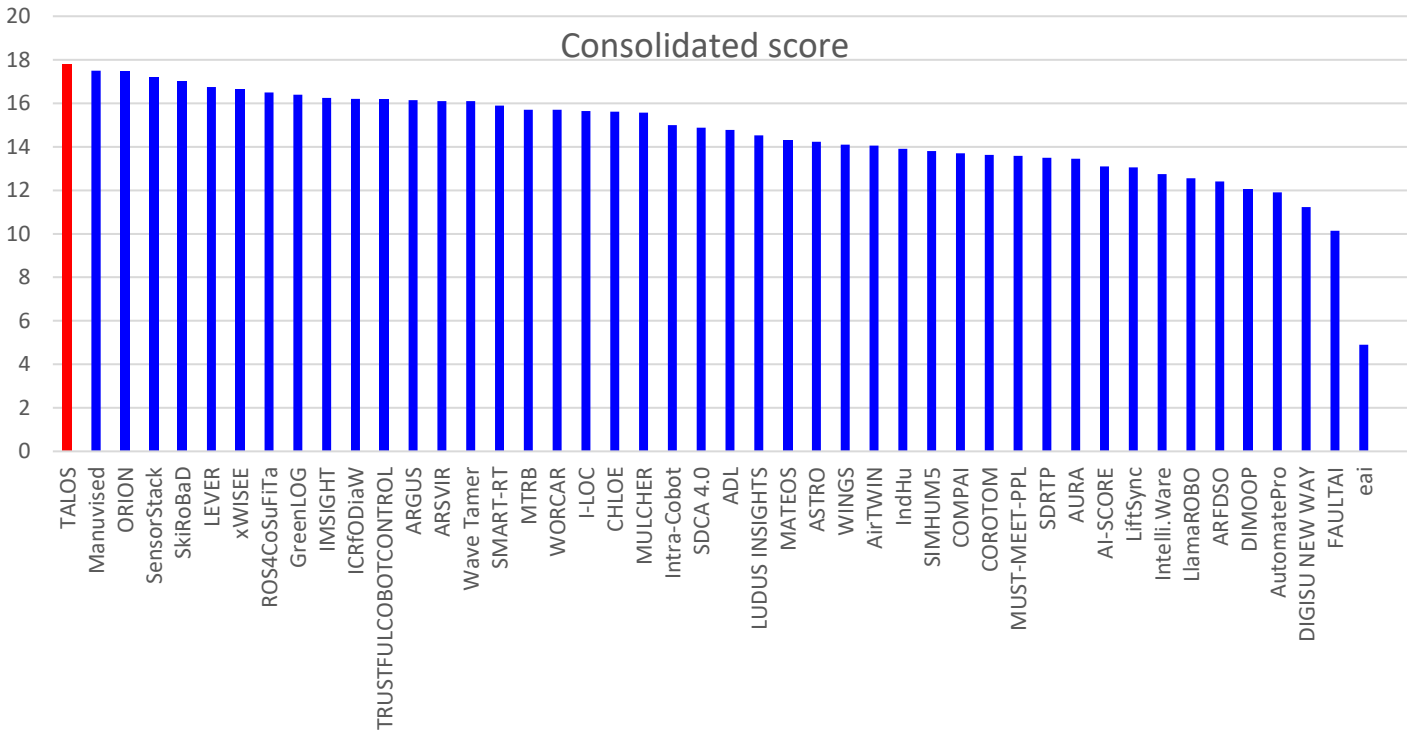

Figure 25: OC2 Consolidated Score of the Application Experiments

Details of these Application Experiments are given in Figure 26. These details include the various scores as described in chapter 2.2.3, in chapter 2.2.4 and detailed in Figure 3: EARASHI – Open Call – AE Overall score calculation. Among the first 15 proposals, we could distinguish five proposals which were submitted by 2 companies jointly.

ID	Project acronym	Resubmission	1st Company name	Consolidated score	Excellence score	Impact score	Quality score	Business score	2nd company name	Ranking	selected BB	BB partner	selected second BB	selected second BB partner	targeted challenge	targeted challenge
02_43	TALOS		EUREKA SYSTEM s.r.l.	17,807	4,44	4,117	4,65	4,6	ELIF LAB s.r.l.	1	14	Inegi			9	9
02_28	Manuvised		RoboTwin s.r.o.	17,5	4,5	4	4,2	4,8		2	5	Ikerlan			4	4
02_34	ORION	Y	ENDITY Solutions S.L.	17,477	4,46	4,567	4,65	3,8	SAVVY DATA SYSTEMS S	3	16	Mondragon			2	2
02_39	SensorStack	Y	Pumacy Technologies AG	17,2	4,5	4,1	4,6	4		4	12	Flanders Make			7	7
02_41	SkiRoBaD		Circu Li-Ion S.A.	17	4,1	4,2	4,3	4,4		5	21	Flanders Make			3	3
02_24	LEVER		Progressive Robotics	16,75	4,25	3,75	3,95	4,8		6	5	Ikerlan			2	2
02_48	xWISEE	Y	Muvu Technologies Lda	16,64	4,49	4,417	4,133	3,6	SIMPLASTIC – Sociedade	7	16	Mondragon			4	4
02_35	ROS4CoSuFiTa		ROICO Solutions ApS	16,5	3,9	4,1	3,9	4,6		8	5	Ikerlan			2	2
02_50	GreenLOG	Y	iknowhow SA	16,4	4,2	3,9	4,5	3,8		9	12	Flanders Make	5	Ikerlan	7	7
02_18	IMSIGHT		INTERMODALICS BV	16,25	4,1	3,75	3,6	4,8		10	7	Ikerlan			8	8
02_16	ICRfODiaW		Canonical Robots	16,2	3,9	3,9	4,4	4		11	8	Flanders Make			8	8
02_44	TRUSTFULCOBOTCONTRO		Acceleration Robotics	16,2	4,1	4	3,8	4,3	Olive Robotics GmbH	11	5	Ikerlan			2	2
02_05	ARGUS	Y	Robocon BV	16,14	3,84	3,933	3,867	4,5		13	8	Flanders Make	dance re	– FM-SLA	4	4
02_06	ARSVIR		Video Systems Srl	16,1	3,95	4	3,75	4,4		14	16	Mondragon			3	3
02_45	Wave Tamer	Y	Sparks Circuits and Robotics	16,1	3,8	3,8	3,9	4,6	Naust Marine SL	14	9	Flanders Make			9	9
02_42	SMART-RT	Y	EXANODIA	15,9	4,1	3,733	3,867	4,2		16	16	Mondragon			4	4

Figure 26: Detailed scores of the top 15 OC2 Application Experiments

Their average business score was 3.86, which was higher than the average business score in OC1 (3.4). As was discussed in paragraph 2.2.4, the business score is calculated based on the following parameters: market attractiveness, differentiation, business mode, quality of the team and strategic for the company.

The OC2 proposals were evaluated by two teams of external reviewers. The general quality of the submitted proposals was much improved compared to OC1, with 15 projects reaching an average score above 16.

Resubmitted proposals were displayed all along the whole ranking. They generally improved from OC1, taking into consideration the notification comments but the competition was high. The resubmissions can be found here below in Figure 27: OC2 resubmitted projects.

ID	Project acronym	Resubmission	1st Company name	Consolidated score	Excellence score	Impact score	Quality score	Business score	2nd company name	Ranking	selected BB	BB partner	selected second BB	selected second BB partner	targeted challenge
02_34	ORION	Y	ENDITY Solutions S.L.	17,477	4,46	4,567	4,65	3,8	SAVVY DATA SYSTEMS S	3	16	Mondragon			2
02_39	SensorStack	Y	Pumacy Technologies AG	17,2	4,5	4,1	4,6	4		4	12	Flanders Make			7
02_48	xWISEE	Y	Muvu Technologies Lda	16,64	4,49	4,417	4,133	3,6	SIMPLASTIC – Sociedade	7	16	Mondragon			4
02_50	GreenLOG	Y	iknowhow SA	16,4	4,2	3,9	4,5	3,8		9	12	Flanders Make	5	Ikerlan	7
02_05	ARGUS	Y	Robocon BV	16,14	3,84	3,933	3,867	4,5		13	8	Flanders Make	dance re	– FM-SLA	4
02_45	Wave Tamer	Y	Sparks Circuits and Robotics	16,1	3,8	3,8	3,9	4,6	Naust Marine SL	14	9	Flanders Make			9
02_42	SMART-RT	Y	EXANODIA	15,9	4,1	3,733	3,867	4,2		16	16	Mondragon			4
02_17	I-LOC	Y	Alteria Automation	15,65	4,35	4	4,1	3,2		19	4	ST Microelectronics			8
02_09	CHLOE	Y	Stam s.r.l.	15,614	3,68	3,267	4,167	4,5		20	21	Flanders Make			7
02_32	MULCHER	Y	Ingeniarius, Ltd.	15,564	3,83	3,867	3,967	3,9		21	16	Mondragon			2
02_37	SDCA 4.0	Y	Efficiencyriing, LDA	14,88	3,53	3,567	3,783	4		23	9	Flanders Make	14		9
02_01	ADL	Y	L'atelier du laser	14,78	3,38	3,533	3,267	4,6		24	21	Flanders Make			7
02_10	COMPAI	Y	Smart Process Management SL (	13,7	3,15	3,4	3,55	3,6		32	7	Ikerlan			4
02_23	AutomatePro	Y	Lemvos GmbH	11,9	2,15	2,85	3,1	3,8		43	5	Ikerlan			2

Figure 27: OC2 resubmitted projects

Regarding the business evaluation, the pitches were generally of good quality, indicating that companies have improved their ability to present their ideas effectively. As an exception, one company delivered a 26-minute pitch. However, assessing the human-centricity aspect of the projects proved challenging. Additionally, evaluating the quality of the teams was not always straightforward, as the projects primarily highlighted individuals with technical profiles, with less emphasis on the business side.

Three proposals were below threshold (3), 23 proposals scored above 4.0. A business score above 4.0 is considered a good proposal with market access and a sound business strategy. A business score below 4.0 is considered not so good.

The best pitch was made by *ADL*, with a business score of 4.6. Unfortunately the technical score is more medium, e.g. 3.86, so that in total, the company was not in the top 5.

The top 4 (score = 4.8) proposals from a business perspective were:

- *IMSIGHT* → logistics
- *LEVER* → Car recycling, robot collaboration
- *MANUVISED* → digitalization of know-how
- *WORCAR* → a real human-centric technology & use-case scenario

3.3.2.2 Selection of the 5 winning Application Experiments

This finally yielded the following conclusion of winning Application Experiments, as detailed in Figure 28: OC2 Granted Application Experiments.

AE reference number	AE mnemonic	BB owner	Challenge
#02-43	TALOS	INEGI	9
#02-28	MANUVISED	IKL	4
#02-34	ORION	MDR	2
#02-39	SENSORSTACK	FM	7
#02-24	LEVER	IKL	2

Figure 28: OC2 Granted Application Experiments

Three proposals were put on the reserve list, to fit with the Building Block resources. These can be found in Figure 29: OC2 reserve Application Experiments

AE reference number	AE mnemonic	BB owner	Challenge
#02-35	ROS4COSUFIRA	IKL	2
#02-05	ARGUS	FM	4
#02-06	ASVIR	MDR	3

Figure 29: OC2 reserve Application Experiments

This leads to the following allocation of Application Experiments to the various consortium partners, as shown in Figure 30: Final allocation of Building Blocks.

BB provider	**CEA**	**FM**	**MDR**	**INEGI**	**IKL**	**STM**	**Open**
Planned AE number	*1*	*2*	*2*	*1*	*1*	*1*	*2*
OC1	1	2	1	0	0	1	
OC2	0	1	1	1	2	0	
Total granted AEs	**1**	**3**	**2**	**1**	**2**	**1**	

Figure 30: Final allocation of Building Blocks

3.3.2.3 *Lowest performing Application Experiments*

For completeness, in Figure 31, OC2 lowest performing Application Experiments are listed. The Total Score of these Application Experiments was below threshold. Multiple proposals scored also below score on individual parameters for one or more scores.

02_08	AURA		FlexSight s.r.l.	13,45	3,15	3,25	3,05	4	Natural Intelligent Tech	36	15	Mondragon			7	7
02_03	AI-SCORE		LORAMENDI, S.COOP	13,1	3,3	3	2,6	4,2		37	16	Mondragon			4	4
02_25	LiftSync		Ideas Forward P.C.	13,05	2,65	3,3	3,7	3,4		38	4	ST Microelectronics			9	9
02_20	Intelli.Ware		Embneusys PC	12,75	2,9	3,15	3,3	3,4	Rhoé PC	39	licroelectr	ST Microelectronics			4	4
02_26	LlamaROBO		Zavod 404	12,55	2,65	3,3	2,6	4		40	5	Ikerlan			7	7
02_04	ARFDSO		Openzeka Teknoloji A.Ş.	12,4	3	2,9	3,1	3,4		41	5	Ikerlan			2	2
02_13	DIMOOP		TALKME	12,05	2,95	2,75	3,15	3,2		42	14	Inegi			9	9
02_23	AutomatePro	Y	Lemvos GmbH	11,9	2,15	2,85	3,1	3,8		43	5	Ikerlan			2	2
02_12	DIGISU NEW WAY		DIGISU MUHENDISLIK ISI SANAY	11,23	2,58	3,033	2,417	3,2		44	8	Flanders Make			7	7
02_15	FAULTAI		Cogninn	10,133	3,25	2,833	2,65	1,4		45	8	Flanders Make			7	7
02_14	eai		JP Electronix AB	4,9	1,1	1,85	0,95	1		46	?	ST Microelectronics			?	?

Figure 31: OC2 Lowest performing Application Experiments

4 CONCLUSION

Out of 96 eligible proposals, the EARASHI consortium awarded 10 Application Experiments across 2 Open Calls, with 5 Application Experiments assigned in each Open Call. Regarding the 1st Open Call, the selected companies and their corresponding Building Block owners are as follows:

Selected project	Selected company	Associated challenge	Associated Building Block	Building Block owner
AutoANT	ANT Maschinen (Germany)	8: Automation for the optimization of intra-factory logistics	BB11.2: Autonomy Toolbox – FM-SLAM	FLANDERS MAKE
Mas-AI	Spin-robotics (Denmark)	1: Mobile robotic assistance for repetitive tasks	BB3: Artificial Intelligence Solutions	ST
Handful	PLEGMA (Greece) Helios Bakery (Greece)	6: Collaboration between AI and Human supervisors to solve complex problems	BB23: Manual Task Recognition	CEA
AIweld	StreamOwl Private Company (Greece)	6: Collaboration between AI and Human supervisors to solve complex problems	BB16: Deep Learning based Industrial Quality Inspection Methodology	MONDRAGON
Maniac	Bytefabrik.AI GmbH (Germany)	6: Collaboration between AI and Human supervisors to solve complex problems	BB13: Predictive Maintenance	FLANDERS MAKE

For the second open call (OC2), the selected companies and their corresponding Building Block owners are as follows:

Selected project	Selected company	Associated challenge	Associated Building Block	Building Block owner
TALOS	Eureka Systems s.r.l.	9: Enhanced digital planning to optimize the execution of the tasks of production operators	14: Data Operationalization Methodologies	INEGI
MANUVISED	RoboTwin s.r.o.	4: Digitalization procedure for production tools & machines for industry 5.0	5: Robot Intelligent Control	Ikerlan
ORION	Endity Solutions S.L.	2: Robotic assistance for heavy duty	16: Deep Learning based Industrial Quality Inspection Methodology	Mondragon
SensorStack	Pumacy Technologies AG	7: Human-centric robotic assistance for assembly work cell	12: Mixed Reality for Operators	Flanders Make
Lever	Progressive Robotics	2: Robotic assistance for heavy duty	5: Robot Intelligent Control	Ikerlan