



EARASHI

# EMBODIED AI/ROBOTICS APPLICATIONS FOR A SAFE-HUMAN ORIENTED INDUSTRY

EARASHI



Funded by  
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EARASHI

1st September 2022 – 28th February 2026

Budget: 5 M€, with 2M€ for Financial support to Third Parties



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- ✓ **EARASHI aims at improving working conditions, trust, and acceptance of collaborative embodied AI in robotic systems, for the production machines/tools sector.**
- ✓ **By supporting Industry, especially start-ups and SMEs, in the uptake of advanced digital and eco-responsible technologies (in particular AI, data, and robotics).**
- ✓ **Help employees in their daily activities and improve their working conditions, leading to a productivity increase.**
- ✓ **A worker-centric approach by considering workforce well-being and health (e.g., MSD and stress), design thinking methodology of production machines, worker acceptance, and ethics.**



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- ✓ **2 open calls (Feb-Jun and Sep-Dec 2023) with focus areas and challenges to improve working conditions in the production machines field -health, safety and well-being- and increase productivity via human-centred collaborative embodied AI, data & Robotics.**
  
- ✓ **10 selected projects/beneficiaries (Application Experiments) who will:**
  - **Benefit from Financial support to Third Parties (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, user acceptance and eco-design coaching, thus lowering both their technical and business barriers.**



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# The target: 10 Funded Projects (FSTP)

- ✓ 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
  - more than 20% of the selected AE reaching TRL8-9 two years after the end of their project.

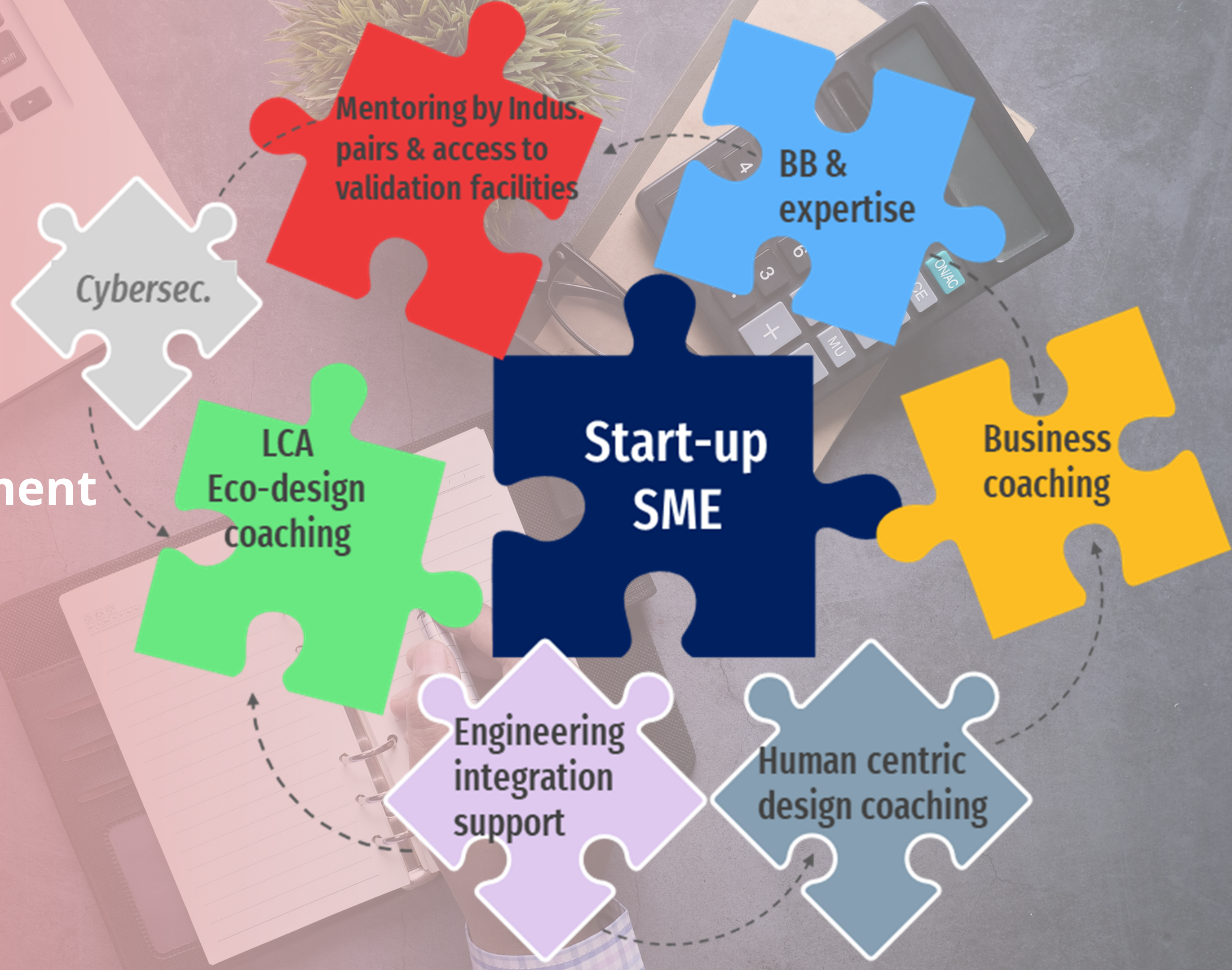


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# Application Experiment (AE) design



- ✓ EARASHI partners will provide access to Technological BB and Key Competencies for the selected AEs.
- ✓ BBs and technical expertise will be provided through dedicated monitoring.
- ✓ Key competencies will be provided through webinars and coaching.

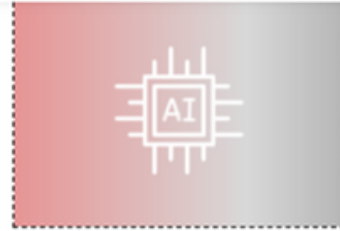
# Building Blocks



BB1: Stress Observer [CEA]



BB2: Motor Control Software Development Kit [STM]



BB3: Artificial Intelligence Solutions [STM]



BB4: IIoT Connectivity [STM]



BB5: Robot Intelligent Control (RIC) [IKL]



BB6: MBD Simulation [IKL]



BB7.1: KONNEKT - GYDA [IKL]



BB7.2: KONNEKT - MODHIST [IKL]



BB7.3: KONNEKT - WIRELESS CHANNEL EMULATOR [IKL]



BB8: Economic AI models for Industrial applications (CAD2DETECT, CAD2POSE, and CAD2DEFECT) [FM]



BB9: Operator Guidance Recommender [FM]



BB10: Explainable AI [FM]



BB11.1: Autonomy Toolbox - OASE [FM]



BB11.2: Autonomy Toolbox - FM-SLAM [FM]



BB12: Mixed Reality for Operators [FM]



BB13: Predictive Maintenance [FM]



BB14: Data Operationalization Methodologies [INEGI]



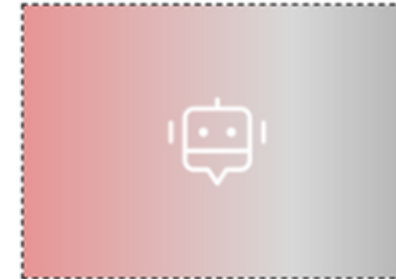
BB15: ADAPT: Context-Aware System for Collaboration Between Multiple Agents [MDR]



BB16: Deep Learning based Industrial Quality Inspection Methodology [MDR]



BB17: Deflectometry for Surface Quality Inspection for Glossy or Shiny Finish [MDR]



BB18: Fuzzy Logic-based Modelling [MDR]



BB19: LeanDfX Framework [INEGI]



BB20: MSM (Multi-Layer Stream Mapping) [INEGI]



BB21: Skill-based AI enabled Robot Programming Framework [FM]



BB22: Follow-Me principle - SmartHandler [FM]



BB23: Manual Task Recognition [CEA]



# Coaching Services



## LIFE-CYCLE ANALYSIS/ECO-DESIGN [CEA]

The eco-design approach aims to integrate the environment impact from the design stage of a product or service, and throughout its life cycle. This transversal methodological approach guarantees a global reduction of the environmental impacts of the product-service system with a life cycle vision.

The eco-design service is designed to provide support adapted to every company, depending on the eco-design maturity level: how to size the approach? Who is involved and who takes the lead? What product and up to what extend?

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## CYBERSECURITY [CEA]

As part of the open-call procedure, EARASHI consortium will propose webinars introducing various cybersecurity problematics. The goal of these webinars will be to give attendees relevant information for their open-call proposal according to cybersecurity requirements.

A first webinar of 1h will be held during the open-call will propose various information on the recent EU legislative texts regarding cybersecurity and their impact on service providers and vendors.

It will also contain an introduction to future mandatory cybersecurity evaluation frameworks. This first webinar is likely destined to CEOs and strategy makers. A second webinar will follow, focusing on more technical topics and destined to CTOs or CSOs, CISOs.



## HUMAN-CENTRIC DESIGN COACHING [MDR]

Human-centric design coaching service is a comprehensive training program that is designed to help organizations develop products and services that are truly centered around the needs and preferences of their users.

This service is unique in that it provides training in tools for evaluating human factors and assists with evaluating technology acceptance. The service consists of five online workshops that cover a range of topics, including ergonomics, usability, and human-computer interaction.

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## BUSINESS COACHING [BLU]

BLUMORPHO is a private company delivering disruptive innovation in addressing business and society challenges. We combine business, sectorial and technical expertise in deep tech as well as breakthrough creativity to design and operate ecosystems accelerating disruption.

BLUMORPHO and its team of Deep Tech Experts leverage on promising technologies and new business models to lead organizations in morphing their business.

BLUMORPHO drives innovation by bringing its understanding of economic and industrial challenges and its global connections to the smart solutions ecosystem. Unlike incubators or accelerator programs that invest in promising startups, BLUMORPHO focuses on reducing the technological market and financial risk of adopting innovation.

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## MENTORING BY INDUSTRIAL PAIRS AND ACCESS TO VALIDATION FACILITIES [STM]

Get the support from EARASHI industrial partners for the elaboration of the mentoring plan and standardisation of the contents, the definition of requirements & validation phases, with a dedicated focus on interfacing with industrial partners and grant owners. Roundtable meetings to "Exchange experiences", focusing on similar background, and relevant AE similarities, and where relevant virtual/physical visits to industrial sites will be organised.

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## ENGINEERING SYSTEM INTEGRATION SUPPORT [IKL]

In task T5.6 IKERLAN will support application experiment beneficiaries in system integration in accordance with the specific needs and requirements of the application experiment, connecting start-ups and SMEs with the partners they need support from. Typical support provided by the partners corresponds to access to CAD software, access to additive manufacturing tools, or PCB test facilities, among others.

In order to know in detail the services and facilities offered by the partners, personal meetings will be held with each of them. In this way, it will be possible to redirect beneficiaries to the right partner. In cases of doubt, partners will be contacted using the usual communication tools (email, Microsoft Teams...) to determine the most suitable partner to support the beneficiaries.

On the other hand, beneficiaries will be able to contact us by email or videoconference to inform us of any services or facilities they may need. Partners will provide support remotely where possible, although in some cases it may be necessary for partners or beneficiaries to attend each other's facilities.



# Benefits of participation

- ✓ **Funding:** The funding instrument will include a lump-sum grant of up to 200 00€ per project for developing solutions at demonstration scale and coaching session during and beyond their development.
- ✓ **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-centred design, eco-design, cybersecurity, engineering system integration, mentoring & access to validation facility. The total duration of a project is expected to be 15-18 months.  
Only startups and SMEs are eligible to receive such funding.



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# Expected Impact

- ✓ 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

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

# Application Recommendations

## The project 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 EARASHI challenges
- Pan-European demonstration projects (EU member states or Horizon Europe associated countries) are strongly encouraged, through cross-border collaboration either with the EARASHI partners providing the technical building blocks and expertise or through the companies building up the proposal.

# Guidelines & Recommendations

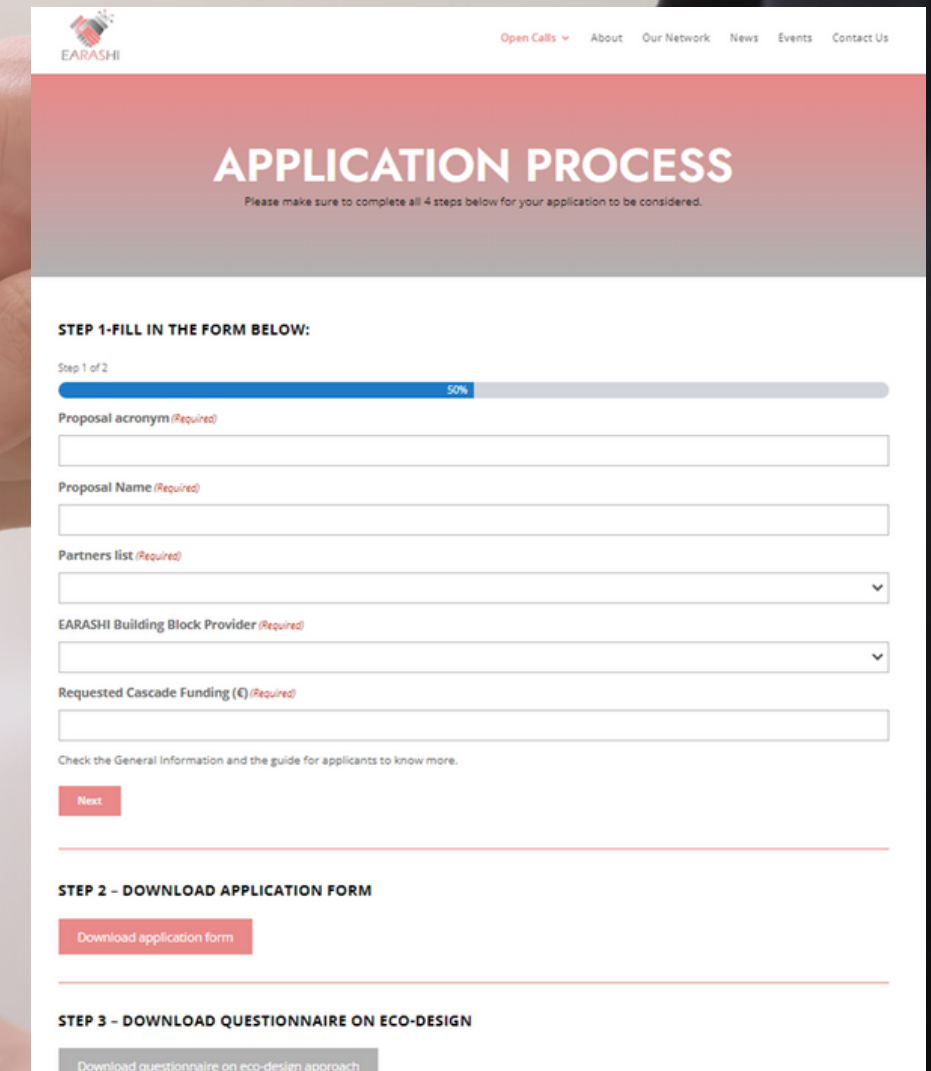
Open call page: <https://earashi.eu/open-calls/>

- *Funding only available to Startups and SMEs  
Guide for Applicants, §3.2*

**Step 1:** Registration on the webpage: <https://earashi.eu/application/>

**Step 2:** Submission phase

- *Open to Member states and HORIZON Europe associated countries*



The screenshot shows the 'APPLICATION PROCESS' page on the EARASHI website. The page has a red header with the EARASHI logo and navigation links: 'Open Calls', 'About', 'Our Network', 'News', 'Events', and 'Contact Us'. Below the header, the title 'APPLICATION PROCESS' is displayed in large white letters on a red background, with a sub-note: 'Please make sure to complete all 4 steps below for your application to be considered.' The main content area is white and contains three steps:

- STEP 1 - FILL IN THE FORM BELOW:** This section shows 'Step 1 of 2' with a progress bar at 50%. It includes several required input fields: 'Proposal acronym (Required)', 'Proposal Name (Required)', 'Partners list (Required)' (a dropdown menu), 'EARASHI Building Block Provider (Required)' (a dropdown menu), and 'Requested Cascade Funding (€) (Required)'. Below these fields is a checkbox for 'Check the General Information and the guide for applicants to know more.' and a red 'Next' button.
- STEP 2 - DOWNLOAD APPLICATION FORM:** This section has a red button labeled 'Download application form'.
- STEP 3 - DOWNLOAD QUESTIONNAIRE ON ECO-DESIGN:** This section has a grey button labeled 'Download questionnaire on eco-design approach'.



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# Guidelines & Recommendations

- ☑ Guide for Applicants ([HERE](#))
- ☑ Proposal submission with 3 documents
- ✔ **Application form**  
*Word document under PDF format written in English*  
*20 pages for sections 1 to 3 (Excellence, Impact and Implementation)*  
*Technic oriented*
- ✔ **Pitch video**  
*7 min video, in English*  
*Business oriented*
- ✔ **Eco-design questionnaire**  
*Mandatory element but not part of the evaluation*  
*Support for Application §2.2*

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OPEN CALL 1 — APPLICATION FORM

**Call Information**

Identifier	: EARASHI-01-(call-n°01)
Project full name	: Embodied AI/Robotics Applications for a Safe, Human, Industry
Acronym	: EARASHI
Grant Agreement N°	: 101069994
Deadline	: 12.05.2023, 5 pm (CET)

**IMPORTANT NOTICE!**

The maximum total length of the technical proposal (Section 1-3) must not exceed 20 pages (minimum font dimension 11, font Calibri, minimum margins 1,5 up/down -- 1,5 left/right) not including the title page, the administrative declarations and Section 4 — Ethical issues. **Proposals exceeding the page length indicated will be penalized with a discount to the final score proportional to the number of exceeded pages.** Applicants are free to provide limited additional information such as letters of support or additional data or references in the Appendix that does not count to this page count.

Recommendations and guidelines in the Guide for Applicants.

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement n° 101069994.

The dissemination of results herein reflects only the author's view, and the European Commission is not responsible for any use that may be made of the information it contains.

Guidelines through online webinars (check on our website)  
Documents can be resubmitted till the call closure  
Acknowledgement of receipt will be sent after the call closure

# Guidelines & Recommendations

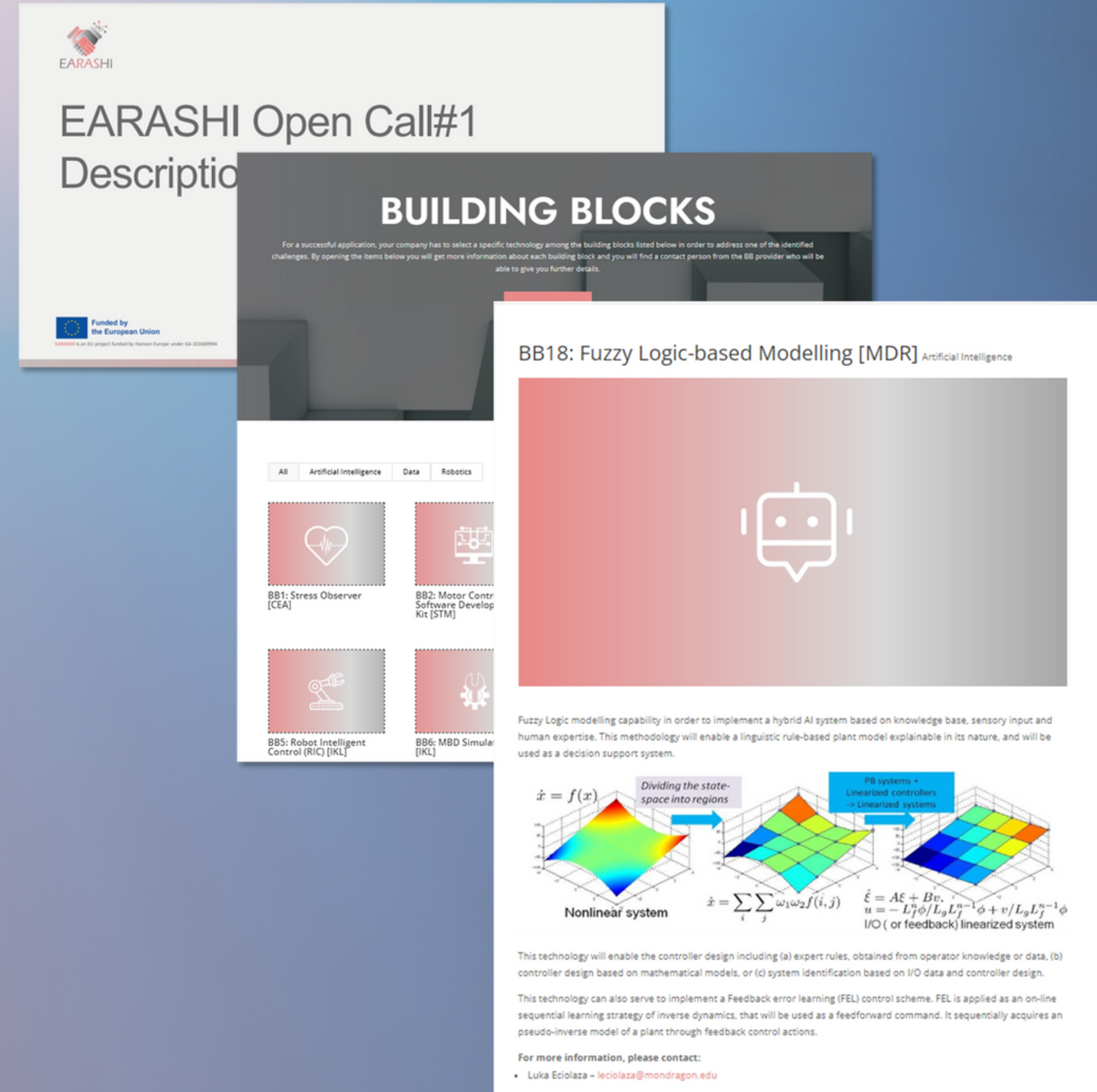
## Check list before applying:

- To make sure that 1 (out of the 10) challenge is targeted
- To select one Building Block & check the feasibility with the BB owner
- Consult with EARASHI services
- To favour cross-border collaboration
- To foster eco-design and human-centric approach
- To consider transversal criteria:
  - *Sustainability and circular economy (eco-design, refitting, refurbishing, recycling, etc.)*
  - *Environment and low carbon economy contribution (real and measurable impact)*
  - *Equal opportunities*
  - *Gender balance and diversity*
  - *Social impact*

# THE EVALUATION & SELECTION PHASE

## Evaluation stages

- ↓ **Application:**
  - Excellence, Impact, Quality
  - Pitch video: Business evaluation
- ↓ **Consolidation day**
- ↓ **Selection based on:**
  - *Ranking list*
  - *Available FSTP budget*
  - *Available resources for the technological offer (Building Blocks)*
  - *Number of eligible and fundable proposals*
- ↓ **Notification**
- ↓ **Project Standard contract signature & KOM**



**EARASHI Open Call#1 Description**

**BUILDING BLOCKS**

For a successful application, your company has to select a specific technology among the building blocks listed below in order to address one of the identified challenges. By opening the items below you will get more information about each building block and you will find a contact person from the BB provider who will be able to give you further details.

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BB18: Fuzzy Logic-based Modelling [MDR] Artificial Intelligence

Fuzzy Logic modelling capability in order to implement a hybrid AI system based on knowledge base, sensory input and human expertise. This methodology will enable a linguistic rule-based plant model explainable in its nature, and will be used as a decision support system.

Dividing the state-space into regions

Nonlinear system  $\dot{x} = f(x)$

Linearized systems  $\dot{\xi} = A\xi + Bv$   
 $u = -L_j^T \phi / L_g L_j^{n-1} \phi + v / L_g L_j^{n-1} \phi$   
 I/O ( or feedback) linearized system

This technology will enable the controller design including (a) expert rules, obtained from operator knowledge or data, (b) controller design based on mathematical models, or (c) system identification based on I/O data and controller design.

This technology can also serve to implement a Feedback error learning (FEL) control scheme. FEL is applied as an on-line sequential learning strategy of inverse dynamics, that will be used as a feedforward command. It sequentially acquires an pseudo-inverse model of a plant through feedback control actions.

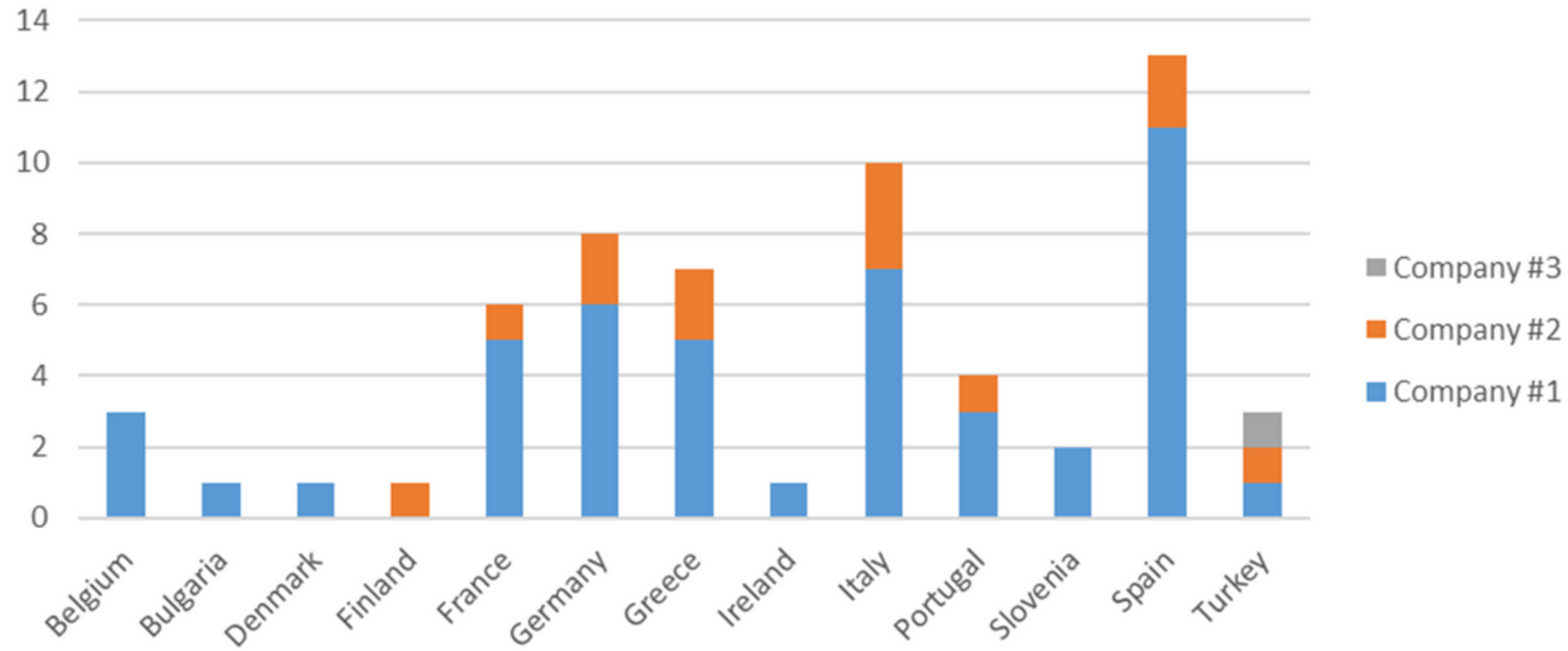
For more information, please contact:

- Luka Eciolaza – [leciolaza@mondragon.edu](mailto:leciolaza@mondragon.edu)

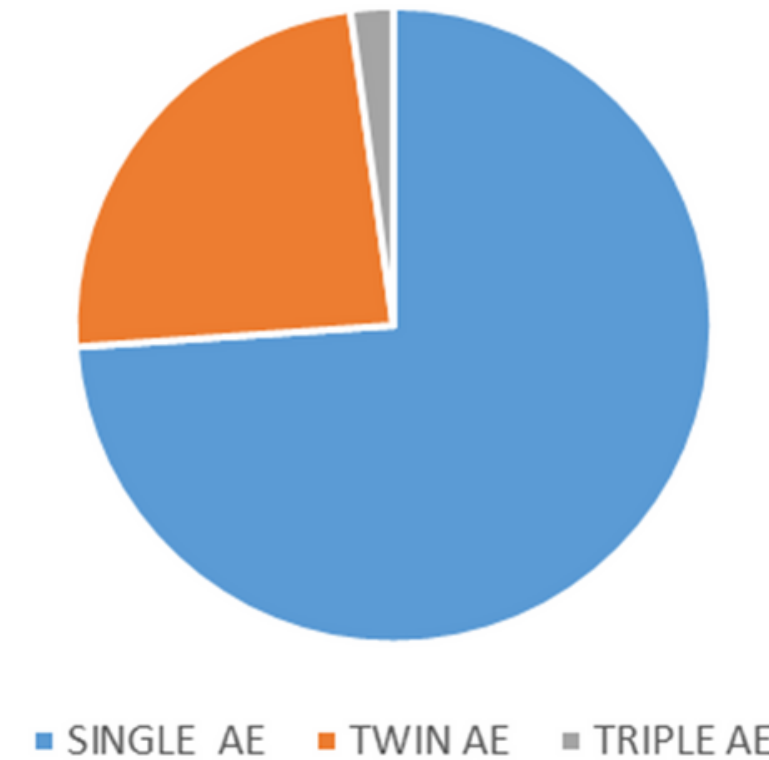


# Facts: Open Call 1 Results

Countries / 46 eligible submissions

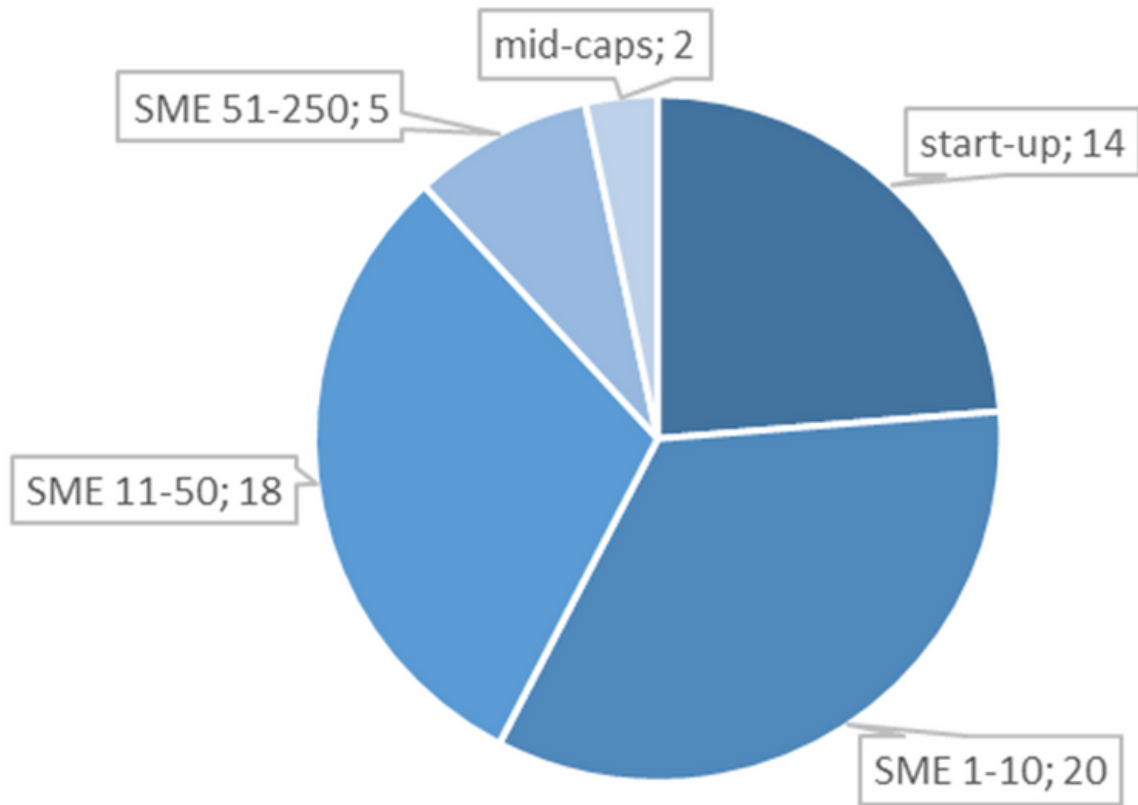


Application configuration / 46 eligible submissions

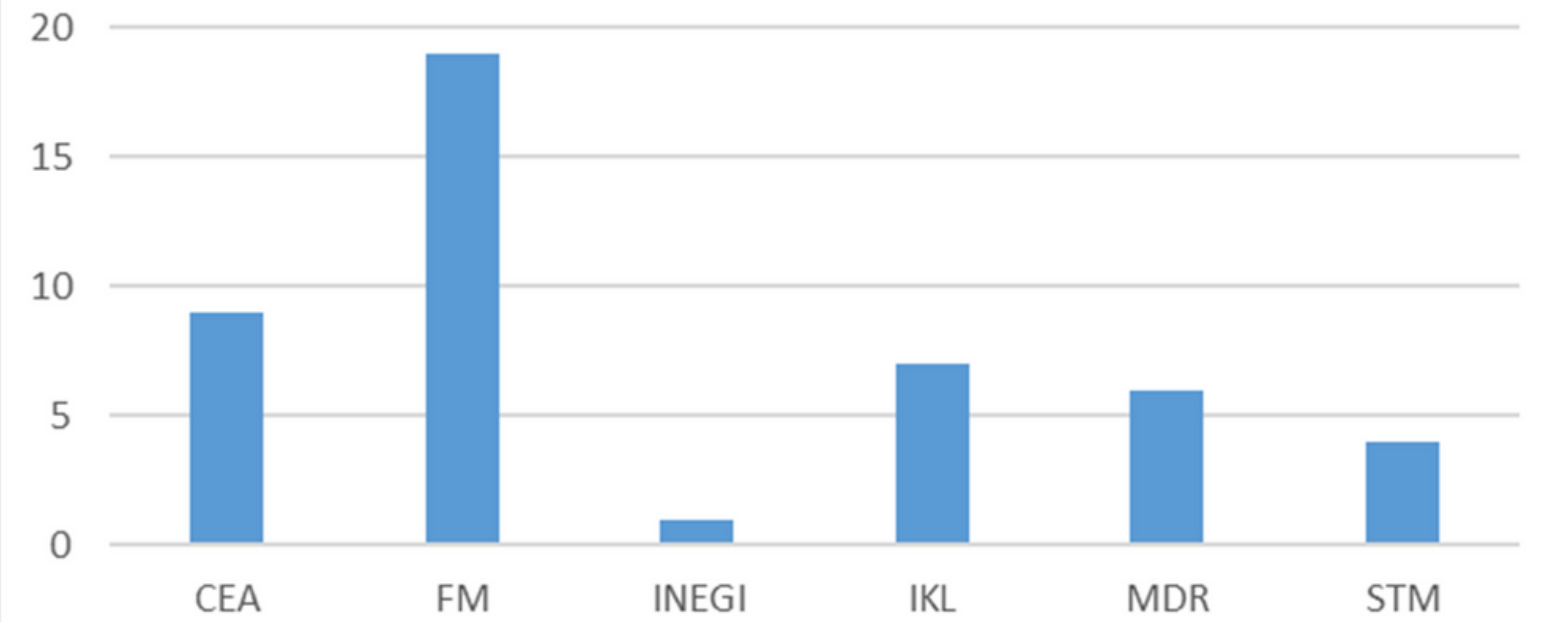


# Facts: Open Call 1 Results

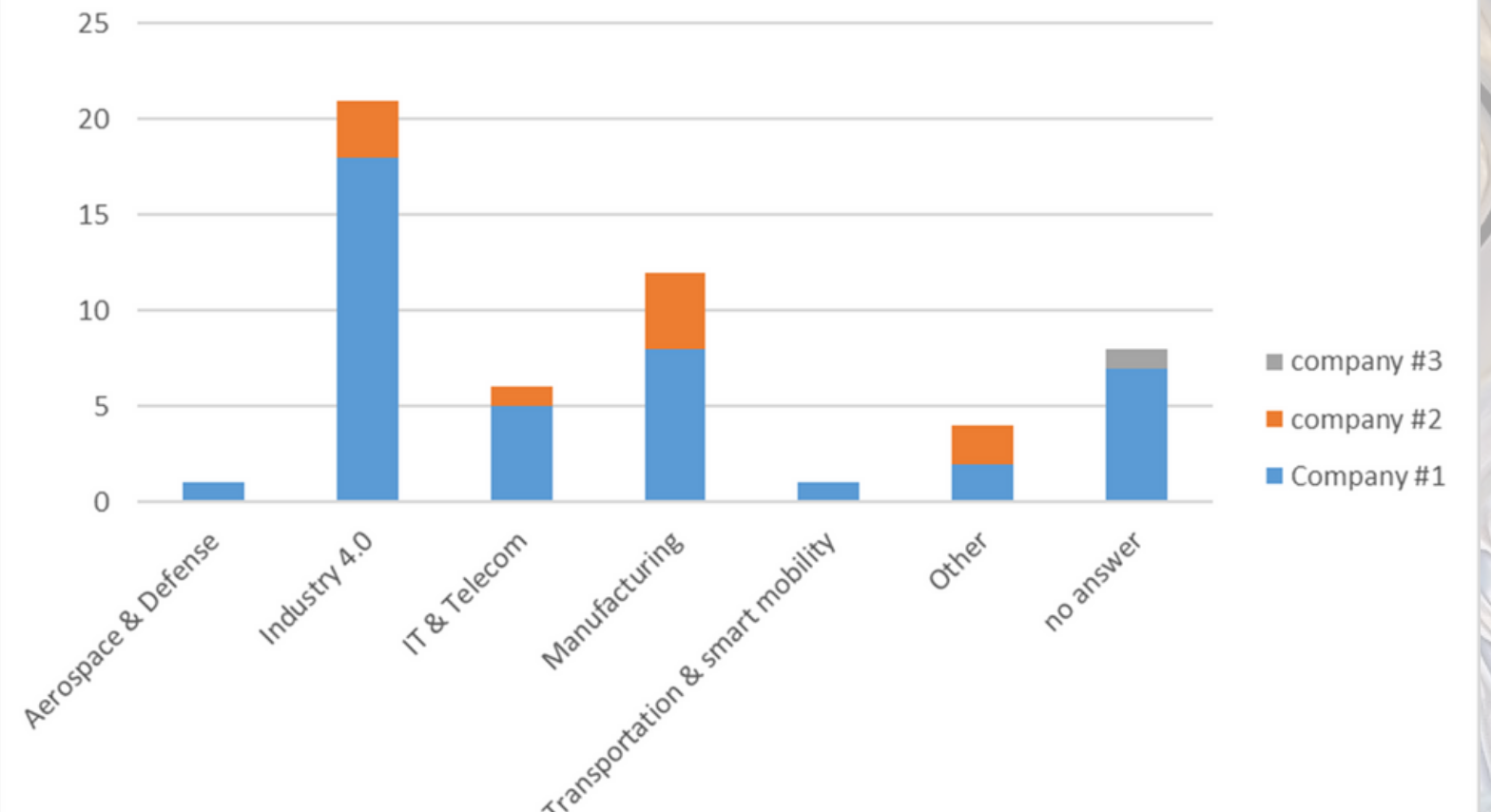
Company size (46 eligible submissions)



BB repartition / 46 eligible submissions

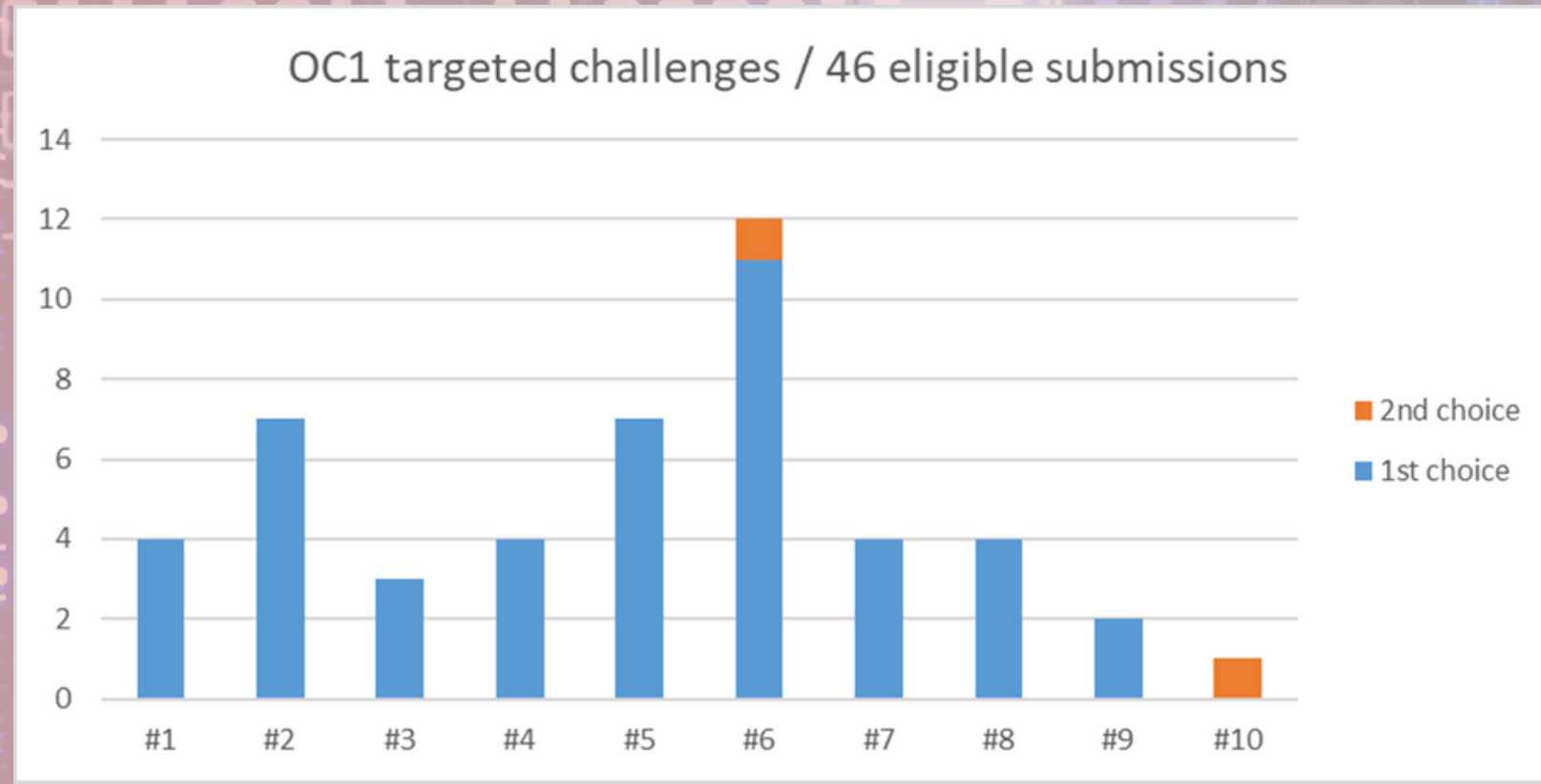


Application domain of the company / 46 eligible submission





# Facts: Open Call 1 Results



challenge #1	#2	#3	#4	#5	#6	#7	#8	#9	#10
Mobile robotic assistance for repetitive tasks	<b>Robotic assistance for heavy duty</b>	Machine/tools for recycling goods, electronics, batteries	Digitilization procedure for production tools & machines for industry 5.0	<b>Worker's stress monitoring &amp; assistance to limit work-related stress</b>	<b>Collaboration between AI and Human supervisors to solve complex problems</b>	Human-centric robotic assistance 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

# Further questions, reach us here?



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