

INNOVATION IN AI, DATA AND ROBOTICS



HORIZON-CL4-2021-DIGITAL-EMERGING-01-09

- AI, DATA AND ROBOTICS FOR THE GREEN DEAL

HORIZON-CL4-2021-DIGITAL-EMERGING-01-10

- AI, DATA AND ROBOTICS AT WORK



AI, DATA AND ROBOTICS FOR THE GREEN DEAL

EXPECTED OUTCOMES:

1. Resource optimisation and minimisation of waste, energy, or greenhouse gas emissions
2. Environmental and waste management in the circular economy
3. Robotics solutions in harsh environments serving the Green Deal



(Awarding will ensure balanced portfolio coverage)



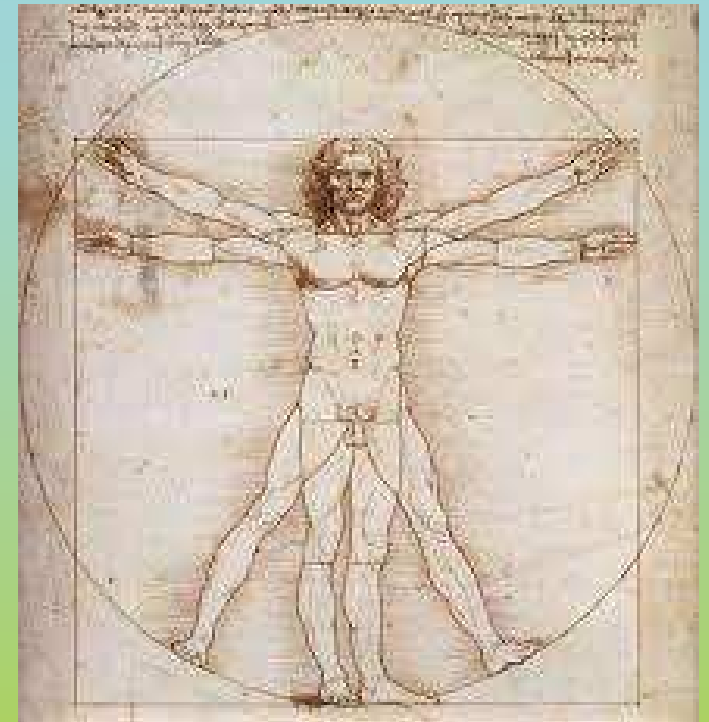
AI, DATA AND ROBOTICS AT WORK

EXPECTED OUTCOMES:

1. **Collaborative embodied (physical) AI** - keep people away from unsafe and unhealthy jobs
2. **Human-centric AI supporting professionals** in trustworthy **hybrid decision-making**, and optimising their tasks



(Awarding will ensure balanced portfolio coverage)



SCOPE: INTEGRATE AND OPTIMISE AI, DATA AND ROBOTICS SOLUTIONS TO DEMONSTRATE HOW THEY CAN CONTRIBUTE TO THE APPLICATION

- Use-cases driven
- Demonstrate technology performance and added value to the application field
- Deep involvement of stakeholders



TWO TYPES OF PROPOSALS:



OTHER REQUIREMENTS:

Build on existing
results

Connect with
stakeholders, DIH
+ PPP

User industries

Support to SMEs
and Start-ups



Work Programme topic

1. What are you looking for?

- **Integrate and optimise** AI, data and robotics solutions to **demonstrate** how they can contribute to the **Application**
- Right **mix of expertise**
- **BOTH Small (focused) and Large (FSTP) projects** → encourage GOOD FSTP as well

2. What do you NOT want?

- Major Research component → But build on latest developments
- Tech push / Invented problems → Use-case driven
- Anything artificial → Everything must be optimized towards the project objectives

Work Programme topic – topic evolution

3. Is this new or has it been called before?

e.g. How is it new / different from previous calls

What previous WP topic is it linked to?

What are the main changes?

Is it linked to other topics in the current WP? (e.g. in Pillar 2 or other pillars)

New:

- New: Bring AI, data and robotics together
- Build on Robotics/Big Data/AI from H2020
- Linked to the PPP related activities (CSA call on PPP/community building)
➔ connect to it

Work Programme topic – topic evolution

4. Current project portfolio *(if relevant)*

*e.g. Please mention some highly relevant projects!
Is there an overview of current project portfolio?
Are there clusters / groups of projects?*

PROJECTS FUNDED UNDER H2020 IN ROBOTICS/BIG DATA/AI (NON EXHAUSTIVE LIST BELOW)

ANNUAL BROCHURE OF ROBOTICS PROJECTS:

<https://digital-strategy.ec.europa.eu/en/library/horizon-2020-new-robotics-projects-2021>

<https://digital-strategy.ec.europa.eu/en/events/discover-new-h2020-robotics-projects-contributing-sparc-strategy>

<https://digital-strategy.ec.europa.eu/en/events/new-h2020-robotics-projects-sparc-strategy>

<https://www.eu-robotics.net/sparc/projects/robotics-projects-funded-by-horizon2020.html?changelang=2>

DIHS IN ROBOTICS: <https://ri4eu.eu/>

BDVA projects: <https://www.bdva.eu/ppp-projects>

AI-ON DEMAND PLATFORM (ICT26 + ICT49): <https://www.ai4europe.eu/>

Work Programme topic – Key actors

5. Who are the types of main stakeholders that are addressed?

- Technology developers – AI, Data, Robotics
- User industry
- Specifics (environment / workers / + non-tech: SSH, innovation, etc)

➔ Multidisciplinary

6. Is there a key group of actors (eg. Partnership or other) driving this?

PPP on A, Data and Robotics - <https://ai-data-robotics-partnership.eu/>

e.g. Relevant Partnership(s), technology platform(s), other groups ...

Work Programme topic

7. Are there any additional / background documents?

e.g. call specific background / guidance notes;

EC communications and other policy documents;

strategic research agendas, other research roadmaps;

PPP: SRIDA (BACKGROUND — NOT DIRECTLY GUIDING THESE CALLS) - <https://ai-data-robotics-partnership.eu/>

EUROPEAN AI STRATEGY: <https://digital-strategy.ec.europa.eu/en/policies/european-approach-artificial-intelligence>

Future Outlook

8. Do you have information about future trends, emerging initiatives, roadmaps, type of stakeholders in this area?
- New PPP just signed
 - Coordinated plan on AI: <https://digital-strategy.ec.europa.eu/en/library/coordinated-plan-artificial-intelligence-2021-review>
- ➔ From the lab to the market

Upcoming events / information days

9. Please list upcoming information days and other events of relevance to this area

Stay tuned: <https://ai-data-robotics-partnership.eu/>

TOMORROW'S DEPLOYABLE ROBOTS: EFFICIENT, ROBUST, SAFE, ADAPTIVE AND TRUSTED



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- PUSHING THE LIMIT OF ROBOTICS COGNITION

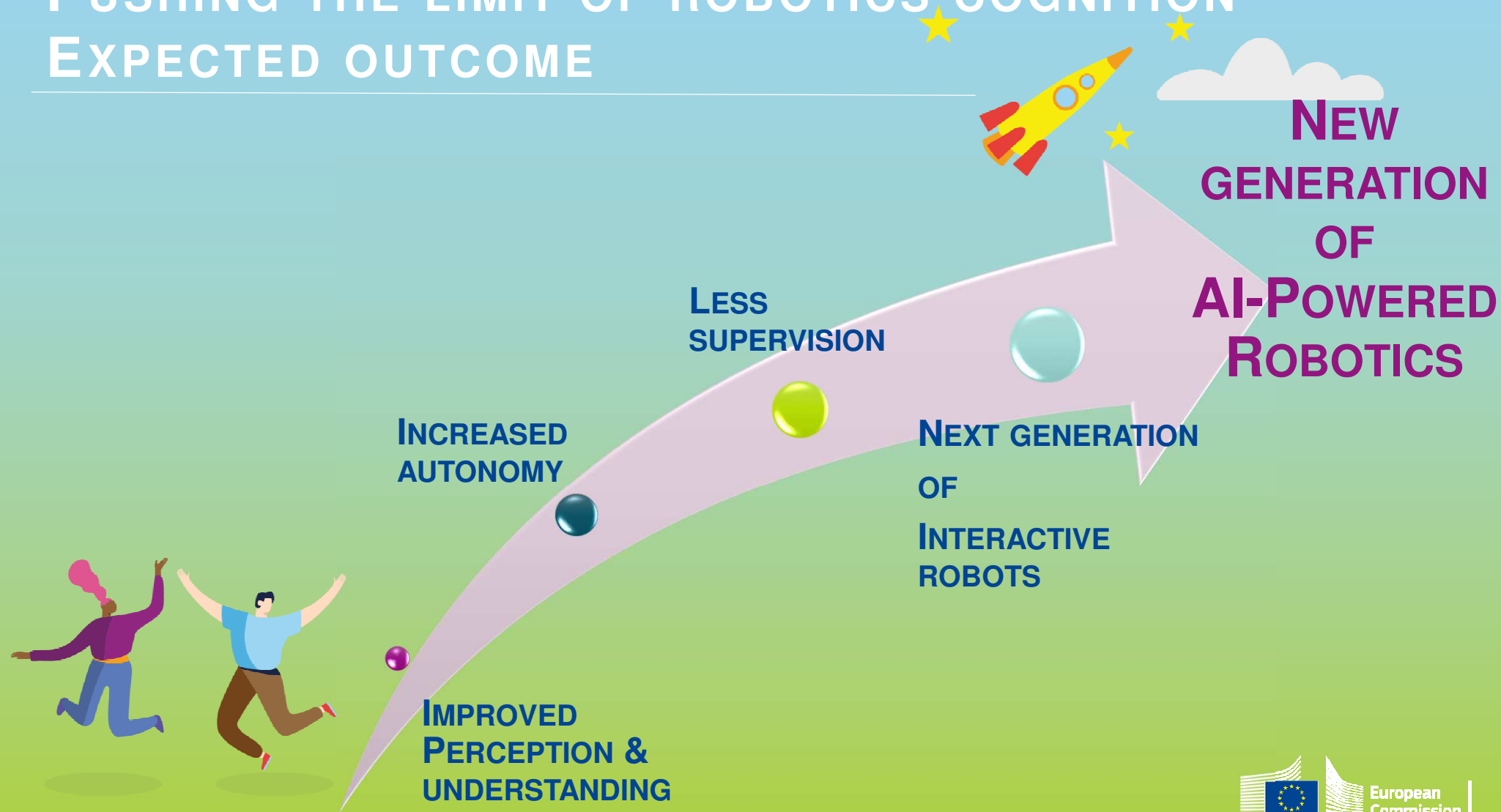
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- EUROPEAN NETWORK OF EXCELLENCE CENTRES IN ROBOTICS



PUSHING THE LIMIT OF ROBOTICS COGNITION

EXPECTED OUTCOME



ADDITIONAL EXPECTED OUTCOME DEPENDING ON THE FOCUS OF THE PROPOSAL



Smarter robots:

↗capabilities

- complex functionalities
- increased autonomy



Smooth and trustworthy
human-robot collaboration
➔ safe & reliable

- Advanced reactivity
- Mutual understanding
- Human-centric adaptation

ALL PROPOSALS EXPECTED TO

DEMONSTRATE
IMPROVEMENTS

improvement in
robotics cognition in 3
real-world scenarios

measurements of
functional
performance



TOMORROW'S DEPLOYABLE ROBOTS: EFFICIENT, ROBUST, SAFE, ADAPTIVE AND TRUSTED



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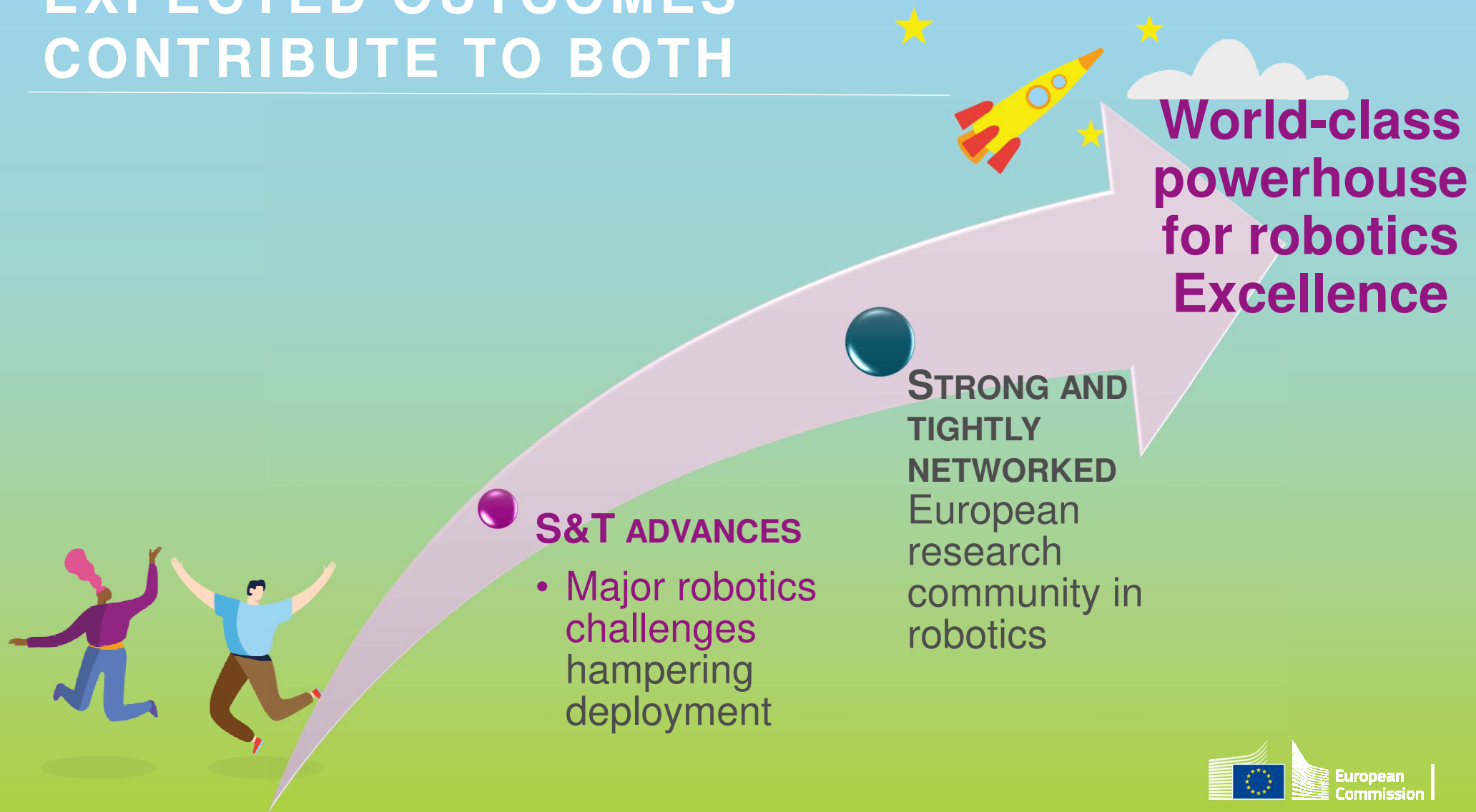
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EXPECTED OUTCOMES CONTRIBUTE TO BOTH





SCOPE



Best scientists from academia and industry
join forces

Major challenges hampering robotics deployment

Reinforce excellence throughout Europe

Network of collaboration

Research excellence

Future industrial needs.



European
Commission

Work Programme topic: What are you looking for?

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- PUSHING THE LIMIT OF ROBOTICS COGNITION

Substantial improvement in AI-Powered Robotics → Ambitious

HORIZON-CL4-2021-DIGITAL-EMERGING-01-12

- EUROPEAN NETWORK OF EXCELLENCE CENTRES IN ROBOTICS

Bring the Best Scientists & develop strong collaborations

Bring all European labs to the top → scientific advances

2. What do you NOT want?

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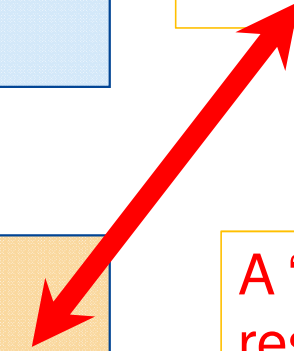
- PUSHING THE LIMIT OF ROBOTICS COGNITION

Incremental progress

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- EUROPEAN NETWORK OF EXCELLENCE CENTRES IN ROBOTICS

A “Talk show” without substantial research progress / a standard research project



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New:

- New: next level of ambition in AI-based robotics ➔ New generation!
- Build on Robotics projects from H2020
- Networks of Excellence centers ➔ H2020-ICT48: must connect to these
- Linked to the PPP related activities (CSA call on PPP/community building)
➔ connect to it

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DIHS IN ROBOTICS: <https://ri4eu.eu/>

ICT48 – NETWORKS OF EXCELLENCE CENTERS IN AI: <https://www.vision4ai.eu/community/>

AI-ON DEMAND PLATFORM (ICT26 + ICT49): <https://www.ai4europe.eu/>

Work Programme topic – Key actors

5. Who are the types of main stakeholders that are addressed?

- **Robotics Scientists + AI**

- User industry, as appropriate (use-cases / connect industry to scientists in the Network of Excellence centers call)

➔ **multidisciplinary Research** (robotics, AI, human-centric ⇔ SSH/ ethics...!)

6. Is there a key group of actors (eg. Partnership or other) driving this?

PPP on A, Data and **Robotics** - <https://ai-data-robotics-partnership.eu/>

& **euRobotics**

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Work Programme topic

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 - ➔ From the lab to the market
 - ➔ Robotics Strategy

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