

<https://centris-ai.eu>



CENTRIS
AI.ROBOTICS

ICT-48: Centers of Excellence Network for Trustworthy Robotics and Intelligent Systems

CENTRIS: ABSTRACT (1 / 2)

The **grand challenges** of our generation range from improving working conditions, over enabling affordable yet resource efficient food production to reduce global carbon emissions. At the same time it is crucial to ensure a high quality healthcare and education service to citizens across generations as the foundation for our better future.

Obviously, technological progress and its impactful and responsible application plays a major role in determining whether we will be successful in these urgent societal matters. One of the absolutely critical **key technologies** for tackling such challenges will be the pervasive use of **physically embodied Artificial Intelligence (AI)**, linking the interconnected digital world with our physical analog world via networked AI.Robots (inter)acting in our everyday environment even with humans.

The **goal** of the Project CENTRIS is to build the **AI.Robotics network and ecosystem - AI.R** as a sustainable and impactful driving force of Europe's AI strategy in research, innovation and translation on AI.Robots. CENTRIS involves the entire European Intelligent Robotics research community, among other things giving a voice to world-renowned established researchers and young leaders alike. To achieve this goal, Europe's AI.Robotics community aims for **maximum scientific excellence** and **translational impact** along the entire value chain, including both striving and successful start-ups and global industrial players. Driven by **strategic research and innovation missions** along entire value chains, we aim to co-develop the reference platforms and AI-algorithms of tomorrow that will help answer to the grand challenges of our time. In particular, we build on existing worldwide renown strengths of the European research community on AI.Robots to serve as future benchmark on an international level.

The research vision of CENTRIS are AI.Robots that are able to i.) **learn and predict**, ii.) **know and interact** and iii.) **create and evolve** their embodiment and algorithmic intelligence in even the most complex real world scenarios. Such groundbreaking AI systems create novel opportunities that form the technological core matching the demands of the CENTRIS societal missions i.) **the future of the planet:** Create AI.Robots for a sustainable and resource-efficient food agriculture system with carbon-neutral AI greenhouses. ii.) **the future of humans:** Create the AI.Robots-based hospital and nursing home for inclusive optimal medical care and independent living for the elderly. iii.) **the future of work:** Create the AI.Robots-based self-repairing future collaborative infrastructure, manufacturing and construction site that enables **human-centered** and efficient operation and flexible production.

CENTRIS: **ABSTRACT** (2 / 2)

In order for Europe to be in a position to provide such modern AI.Robots solutions to its citizens, a **holistic and seamless translation pipeline** involving all stakeholders has to be built based on the continent's leading role in AI.Robots. This pipeline on European dimension begins with a world-class research community empowered by a strong research infrastructure that is closely connected to the industrial and strongly growing entrepreneurial side. Together with strong links into the ethical and legal communities, this is the basis to efficiently and timely bring Europe's scientific and technological advancements in the field of AI.Robots to market.

Following this approach the built up process is delineated around **five main operational axes**: Research, Innovation, Matchmaking, Training & Education, Public Outreach. Key instrument are open research and innovation calls that are distributing funds to the community within a blue sky research program as well as an innovation and startup program targeted at maturing technologies to proof-of-concept level. In parallel, the objective is to foster collaboration among the best research teams in Europe's AI.Robotics to scale up existing research capabilities towards a tight collaboration with the networks of European AI excellence centres within adjoining fields: Foundations of AI, Human Perception / Interaction and Hardware for AI. This collaboration and interaction also extends to adjoining scientific fields (e.g. machine learning, computer vision) and international communities (US, China, UK, Japan, South Korea). Special focus is laid to the interaction with the european On-Demand Platform AI4EU to ensure that research and innovation results will contribute to relevant services, platforms and reference architectures within the greater european AI community. Altogether, this unique network and ecosystem will support AI.Robotics startups in various terms like through entrepreneurship accelerators and access to leading experts or technological software and hardware building blocks. This will be essential for these hope carriers to overcome the valley of death and become successful young European companies.

In summary, the project CENTRIS aims to build the European AI.Robotics network & ecosystem - AI.R. It will establish a sustainable, community-driven and mission-oriented European AI.Robots research, innovation and translation framework that creates true impact in highly relevant fields for our continent.

Europe's AI.Robotics Success Stories

Projects
(excerpt)



| ACTION | PLATFORMS |
|-----------|-----------|
| Eccerobot | ECCERobot |
| Handle | ROBOCUB |
| Stiff | IURO |
| THE | EUROPA |
| TOMSY | MONARCH |
| Xperience | WALKMAN |
| JAMES | ... |
| CYBERLEG | |
| iCuB | |
| HUMAVIPS | |
| EFAA | |
| ALIZ-E | |

Key
Technologies
(excerpt)



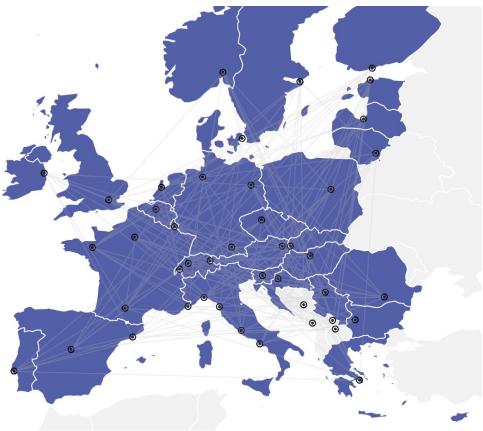
CENTRIS:
WE ARE ...

- ...the **European AI.Robotics community**
 - > **500** renowned researchers from **24** European member states
- ...including its **international leaders in science and innovation**
 - **23** ERC laureates
 - **25** prestigious science awards (IEEE Fellows, Leibnizpreis, Alexander von Humboldt, ...)
- ... the most **promising young scientists and research leaders**
 - **9** prestigious young researcher awards (IEEE/RAS Early Career Awards, George Giralt Awards)
- ... the most **successful young robotics companies** in Europe
- ... the **leading global industrial partners** in Europe
- ... the **leading robotics Public-Private Partnerships (PPPs)**
- ... the **leading standardization bodies** in Europe
- ... the world's **best technical museums** as multipliers for dissemination and outreach
- ... the most **profound connections into complementary disciplines**, e.g. Ethics & Philosophy

AND NOW WE CREATE CENTRIS



- Labs of Excellence
- Research Roadmap
- Network
- Research Missions
- Innovation Missions
- Education
- Public Outreach
- ...



CENTRIS: VISION

Trustworthy AI.Robots for a better human future...

The [grand challenges of our time](#) such as the demographic change, inhumane labor or preserving our planet's ecosystem cannot be tackled by Europe's member states alone. Only [united as an inclusive European community](#), aligned along mission-oriented research, innovation and translation we can write the next chapter of our [continent's success story](#):

[Make Europe the home of trustworthy AI.Robots for a better future of us humans, the planet where we live together and the way we work.](#)

developed within AI.R...

The goal of Project [CENTRIS](#) is to build the [AI.Robotics network and ecosystem - AI.R](#) as a sustainable and impactful driving force of Europe's AI strategy in research, innovation and translation on trustworthy AI.Robots.

To achieve this goal Europe's community in AI.Robots aims for [maximum scientific excellence](#) and [translational impact](#) along the [entire value chain](#). On the one hand, we are driven by [strategic human-centered innovation missions](#) that aim to develop the reference AI-algorithm and robot system platforms of tomorrow derived from demands of societal missions in food, health and work. On the other hand, we follow [strategic research missions](#) that aim for creating [trustworthy AI.Robots](#) that are able to i.) **learn and predict**, ii.) **know and interact** and iii.) **create and evolve** their embodiment and algorithmic intelligence in even the most complex real world scenarios. Altogether, this synergistic approach is designed to help answer the grand challenges of our time with the right balance between research and innovation.

How Researchers get involved.

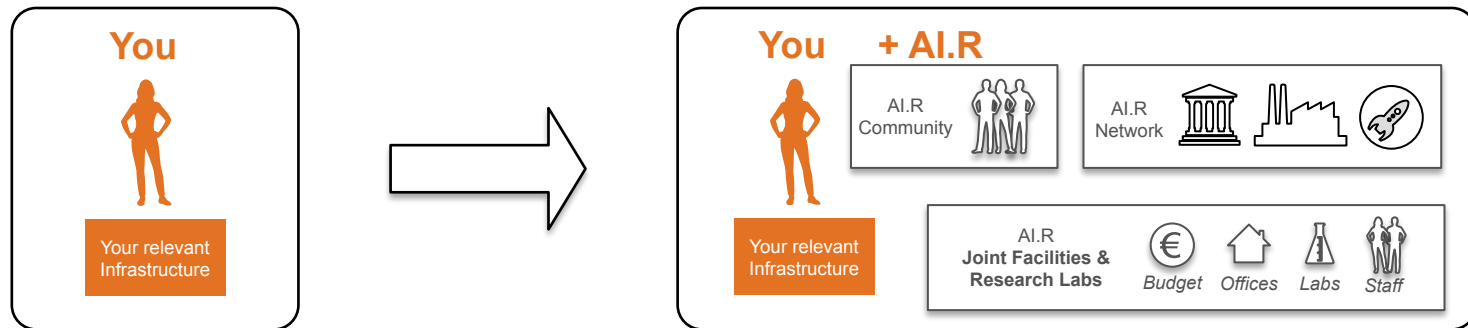
CENTRIS: OPERATIONAL PHILOSOPHY

The proposal philosophy of CENTRIS is to be inclusive in the sense that all significant groups should be and feel involved, in one way or another. The main management scheme will be cascade funding for a number of promising agile seed projects, mainly oriented to young PIs from research, startups and SMEs. There will be an important involvement of successful and renown researchers and established companies in drafting the strategies of the network, which has the ambition to lay the fundamentals of research and Innovation in robotics and intelligent machines for the next decades. There will not be very significant funding for any single partner. The conceptual idea is that groups of larger dimension (in the order of 5 independent PIs) should be members of the (large) consortium. They will not have direct funding, however, will be able to participate in calls for projects within the consortium. The internal projects will be roughly 50k - 300k€ in size.

We estimate that at least 60 % of the total funding will go towards these funds. Smaller groups will not be beneficiaries from the start, however, be able to participate in external calls for projects, of similar size as the internal ones. We estimate that about 20 % of the total funding will be dedicated to these external calls. The rest of the resources will be invested in the management of the network, staff, travel and overhead of the beneficiaries that will make the network management.

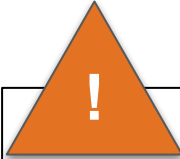
Researchers involved in the strategy and management will not be eligible for participation to the cascade funding schemes. The philosophy behind all that is that the marginal utility of participation in any of the roles (management partners, research partners, and external) is the same. That is, everyone should be equally happy (and unhappy).

CENTRIS: WHY DO I WANT DO GET ENGAGED?



I can...

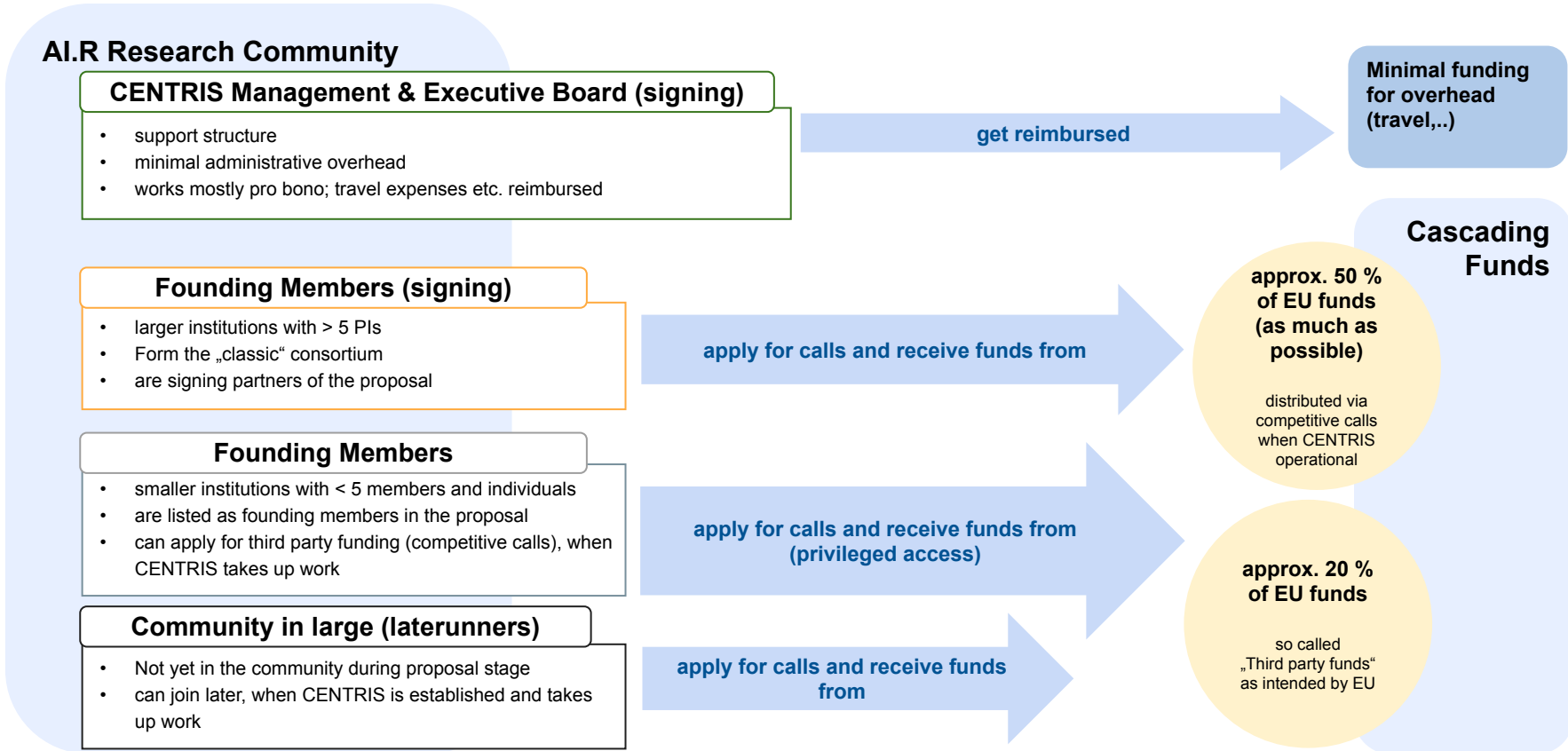
- ... get the support of all colleagues on european level
- ... get access to infrastructure beyond my own university/region/country
- ... apply for and access funds with the support of a strong community/network
- ... get the support and expertise of the whole european robotics community
- ... get access to the best labs
- ... be a founding/signing member of the proposed network
- ... improve my chances for successful proposals, research, ideas



Reminder

- The **funds** I can access via AI.R are not funds I can access alone.
- The **infrastructure** I can access via AI.R is not infrastructure I can access alone.
- The **AI.R network** is not a network I can access alone.

CENTRIS: RESEARCH COMMUNITY INVOLVEMENT



CENTRIS: How do I get involved

To join our network as a founding member please register here:

<https://www.centris-ai.eu/join-our-community/>

For further information on the Network:

<https://www.centris-ai.eu/>

If you have any questions please contact us: info@centris-ai.eu

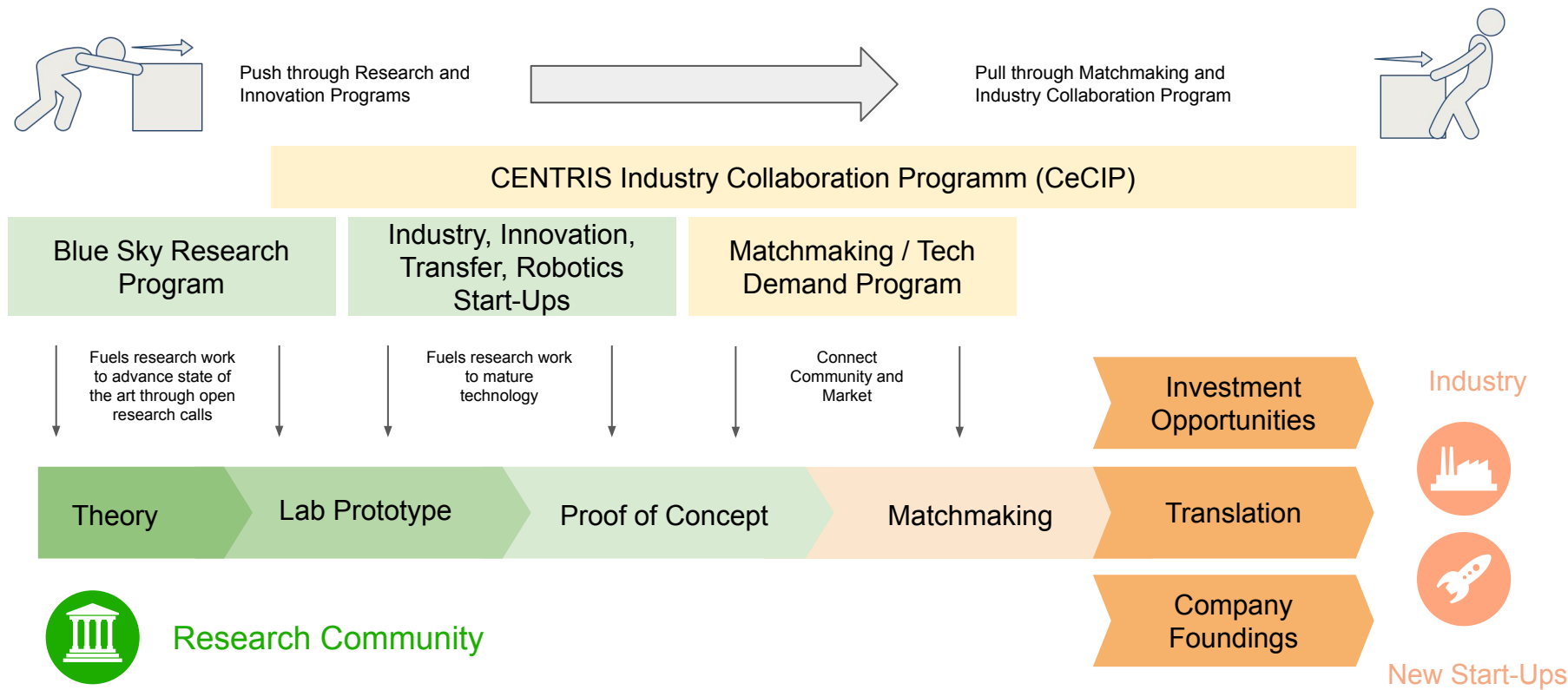
<https://www.centris-ai.eu/contact/>

All members will receive regularly updates. As soon as the network operates you get actively involved in our programs and you become eligible for our calls.

How Industry gets involved.

1. Industrial Liaison Program - CeICP
2. Startup Liaison Program - CeSUP

CeICP: Benefits for industry and academia



CeICP: CENTRIS Industry Cooperation Program



Idea

- program addresses industry involvement, services and connections
- targets spin-offs as well as SMEs, midcaps and big industry
- builds on years of robotics ecosystem generation of euRobotics
- high quality research as creative and prosperous source for complete innovation chain: win-win-situation for both



Strategy

- Built upon and learn from already existing successes
- Create a value proposition for industry targeted to different needs of spin-offs, SMEs, midcaps and large scale industry.
- Incentivize academic world to invest time to take new ideas to market based on industry proposition.



What are the program's benefits for academia?

- Have *means* to do research and implement the identified scientific vision, e.g. through Infrastructure Sharing Program
- *Learn about society and industry needs* so that ideas will address concrete challenges, e.g. through Industry Challenges
- *Learn from industry* what is important when aiming for higher TRL levels and how to optimize certain development processes
- To *lead the future of innovation* and feel being part of it, e.g. through Industry day



What are the program's benefits for industry?

- Capitalise on Industries day, Industry Training Program, Industry Challenge, Internship Program, Ph.D. Program, RoadMap Definition, Spin-offs support Enterprise Fund, AI4EU-Industry Computing Alliance and many more...
- Freely choose your possible involvement and advantages classified in 3 different membership levels: *silver, gold, platinum*

CeICP: Industry benefits*

1

Become eligible for our external calls and related funding. If you become a partner (Platinum level) you are actively involved in the development of our strategic research roadmap and also in internal calls.

2

Have your industrial challenges solved through top scientific support, e.g. at Matchmaking events, at organized B2B meetings with Spin-offs and SMEs or via the participation in the Spin-offs Enterprise Fund

3

Be the first to get informed about new scientific results and concepts, network with the “best of the best” in the Intelligent Robotics community, e.g. at our CeICP community events

4

Develop your workforce: Attract new talents from Robotics academia, train and educate existing employees, e.g. in joint PhD-programs, Industry Trainings, bilateral internships etc.

*The mentioned benefits differ according to the chosen membership level.

CeICP: Industry benefits according to commitment level

**Silver
Level**

Involvement

- you will politically support the CENTRIS initiative
- you will allow CENTRIS to put your logo on the webpage
- you will write a letter of support for the network of excellence (AI.R)
- you will not be part of the initial consortium and will not have an active role in the preparation of the proposal

Advantages

- you will be invited to all CeICP events at a reduced fee

**Gold
Level**

Same involvement and advantages as “silver member” PLUS the following:

Involvement

- you will coach spin-offs (time invest)
- you will be involved in general ideas resulting from academic research within CENTRIS

Advantages

- you can require time from CENTRIS for trainings or other initiatives defined in CeICP (equivalent to you time invest in coaching spin-offs)
- you will be invited to all CeICP activities at no fee

**Platinum
Level**

Same involvement and advantages as “silver member” and “gold member” PLUS the following:

Involvement

- you will play an active role in the organisation and coordination of CeICP together with CENTRIS and euRobotics
- you will have an active role in the preparation of the proposal and take the lead in a number of activities

Advantages

- you participate in our matchmaking days
- you participate in organized B2B meetings with Spin-offs and SMEs
- you will be invited to all CeICP activities at no fee

CeICP: CENTRIS Industry Cooperation Program

How do I get involved:

CENTRIS wants to specifically address industry needs and their relation with academia. If you support this initiative and if you are interested in joining the Network you can leave a letter of support on our homepage:

<https://www.centris-ai.eu/join-industry/> (you can also find a detailed description of the CeICP on this page)

Please note: In case you choose to join as a platinum member and join the proposal as a partner there is not much time left (Proposal Deadline Nov. 13th.). In this case please contact Tanja Robnik (tanja.robnik@tum.de) directly. We do not assign any budget to you in this state of the proposal so the administrative efforts are manageable.

For further information on the Network: <https://www.centris-ai.eu/>

If you have any questions please contact us: info@centris-ai.eu
<https://www.centris-ai.eu/contact/>

All supporting industry partners will receive regular updates. As soon as the network operates you get actively involved in our trainings, programs and competitive calls.

CeSUP: Benefits for startups

CENTRIS Startup Liaison Program (CeSUP) goal:

generate a new wave of innovative AI.Robot technologies to be conveyed to the market to have a real impact in the digitalization transformation of industry and services



Research transfer projects

- Access to EU/national funding
- Coaching to develop business model, IP protection, pitch
- Coaching for financial planning
- Access to market data
- Support for prototyping to demonstrator level
- Demonstrator at industry fairs
- Brokerage event
- Match making with available R&D
- Access to cascading funds



Established start-ups (early stage)

- Access to BA financing, VC seed investment
- Access to equity-free loans
- Coaching to develop business model, business plan, IP protection, pitch
- Coaching to set up production
- Certification processes support
- Coaching in marketing and sales
- Brokerage event & exhibitions
- Match making with available R&D
- Access to cascading funds



Established start-ups (scale-up stage)

- Access to late stage VC investments, private equity financing
- Access to equity-free loans
- Management coaching for scale-up
- Support in internationalisation
- Brokerage event & exhibitions
- Match making with available R&D
- Access to cascading funds

CeSUP: Benefits for startups

1

Become eligible for calls (and related funding)

2

Find the right partners: Match making with possible investors

3

Join our various coaching programs and get support in internalisation

4

Develop your workforce: Match making with available R&D, network with the “best of the best” in the Intelligent Robotics community

CeSUP: Benefits for startups

How do I get involved:

CENTRIS wants to specifically address start-up needs and their relation with academia. To ensure communication and improve the possibilities for start-ups to get from lab to market we established a Startup Liaison Program as well as a Strategic Board Startups. If you support this initiative and if you are interested in joining the Network you can leave a letter of support on our homepage:

<https://www.centris-ai.eu/join-our-community/>

For further information on the Network:

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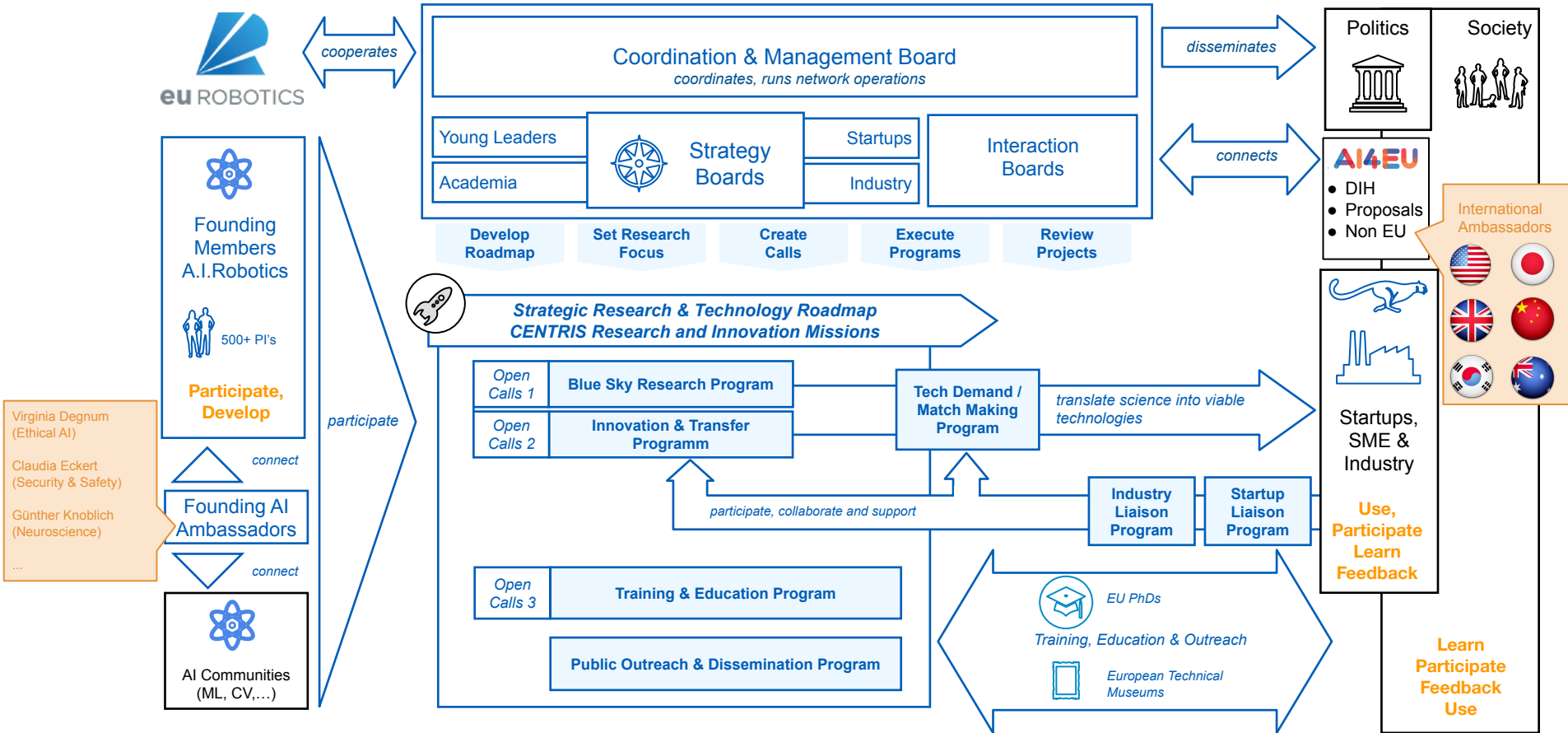
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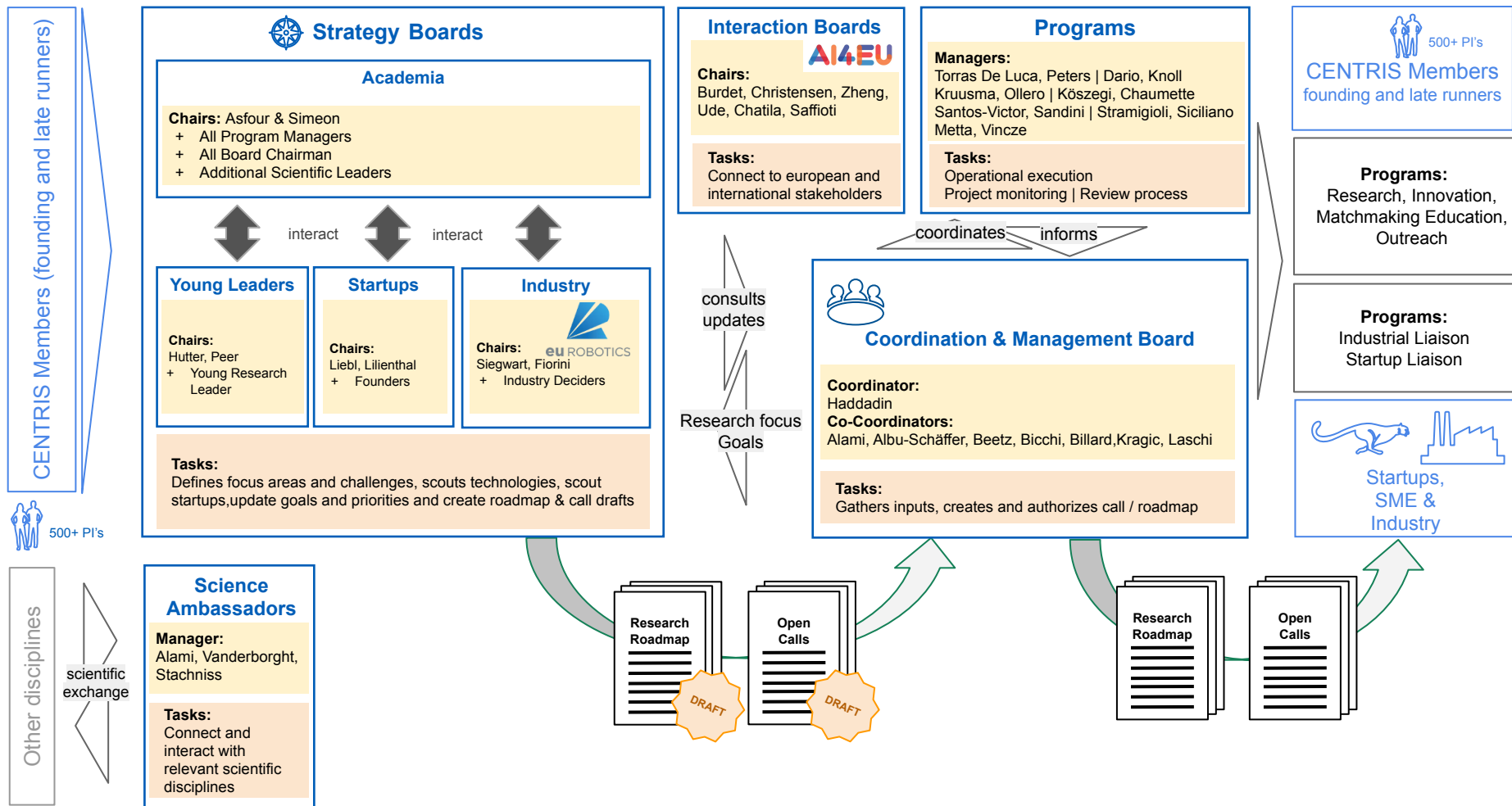
All supporting startups will receive regularly updates. As soon as the network operates you get actively involved in our trainings, programs and competitive calls.

How CENTRIS operates.

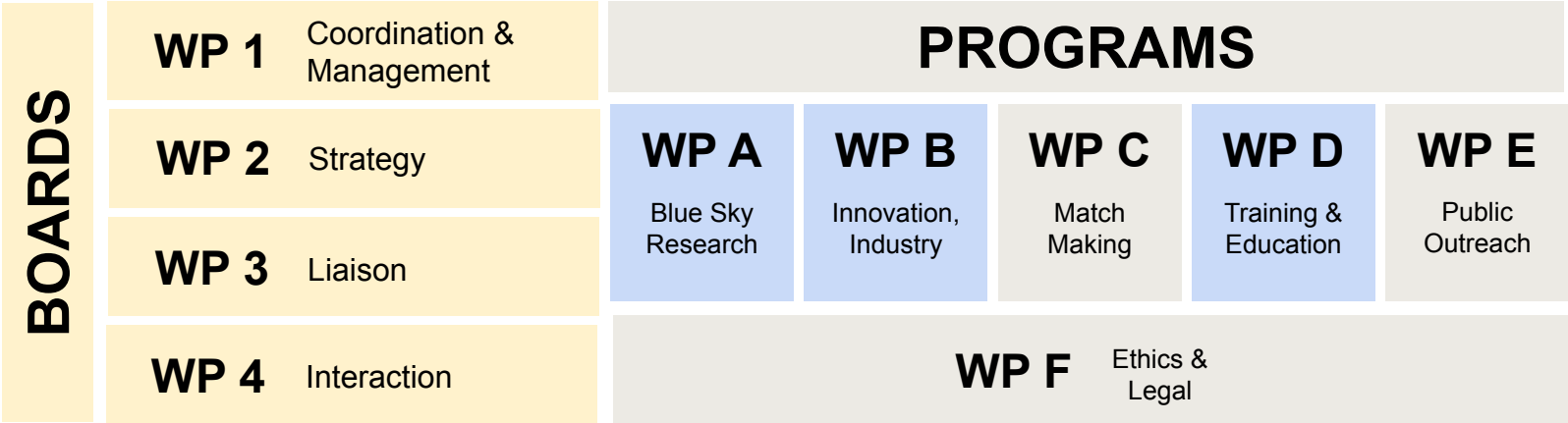
CENTRIS Engine I: ... this is how the philosophy operates ...



CENTRIS Engine II: ... this is how the governance works ...



CENTRIS: Tentative Work Packages & Budget



| | |
|--|---------------------|
| WP 1 - C&M Board | 500.000 € |
| WP 2 - Strategy | 500.000 € |
| WP 3 - Liaison | 1.000.000 € |
| WP 4 - Interaction | 500.000 € |
| WP A - Research | 4.700.000 € |
| WP B - Innovation | 2.000.000 € |
| WP C - Matchmaking | 500.000 € |
| WP D - Training & Education | 1.500.000 € |
| WP E - Public Outreach | 500.000 € |
| WP F - Ethics & Legal | 300.000 € |
| Sum | 12.000.000 € |

Open Calls
(WP's A,B & D)
~ 68 %

The End.

join CENTRIS at

<https://centris-ai.eu>