CESAER

Strengthening interdisciplinarity in the European Innovation Council

Position dated 31 March 2025

The leading universities of science and technology united within CESAER emphasise the strategic importance of interdisciplinarity within the European Innovation Council (EIC). Europe has the potential to create and scale more deep-tech start-ups—but too many opportunities are missed because key expertise is not always engaged at the right time. While the EIC is designed to be Europe's engine for breakthrough innovation, its funding mechanisms do not yet fully incentivise collaboration where it can accelerate commercialisation and adoption.

Horizon Europe Regulation Article 7.2 established interdisciplinarity as a key principle, calling for a multidisciplinary approach and the integration of SSH across all clusters and activities. However, its full potential remains underutilised within the EIC.

In the EIC, interdisciplinarity—whether between STEM (science, technology, engineering, and mathematics) and SSH (social sciences and humanities) or within these fields—is not about equal representation of disciplines. It is about strategically combining expertise where it accelerates the societal and commercial success of innovations and new technologies.

A more problem-driven approach must be adopted, that bridges challenges to be solved with new knowledge and technology. While EIC Pathfinder Open remains an essential bottom-up instrument that must retain its fully open nature, other EIC instruments—such as Pathfinder Challenges, Transition, and Accelerator—must better enable collaboration between problem owners and technology developers where it strengthens impact.

Problem owners—whether in industry, healthcare, society, or government—must be able to work alongside tech talents, technology experts, business strategists, and social scientists to combine challenges and technological solutions. Start-ups that overlook market fit, regulatory hurdles, or user acceptance risk failure.

To achieve this, the EIC's funding mechanisms must become more opportunity-driven, ensuring that projects have the right expertise at the right stage to scale successfully, enter markets, and secure investment.

To fully harness the potential of breakthrough science for innovation, the EIC should enable more interdisciplinary projects that bridge Horizon Europe's Pillar I (ERC, EIC Pathfinder Open) and Pillar III (EIC Accelerator, Transition) in both directions. This would ensure that high-risk, high-reward research can better translate into scalable innovations, while also allowing market-driven challenges to inform new frontier research.

A strategic approach to interdisciplinarity must be embedded at the planning stage and applied where relevant across EIC activities, including programme design, governance, and

evaluation frameworks. This does not replace monodisciplinary research but complements it, ensuring that deep-tech innovation is aligned with both market potential and societal needs.

Strengthening interdisciplinarity is about enabling effective collaboration, ensuring that diverse disciplines—when needed—can contribute as equal partners, shaping Europe's innovation ecosystem, competitiveness, and societal resilience.

1. Foster interdisciplinarity in EIC funding schemes

Currently, interdisciplinarity is primarily encouraged in EIC Pathfinder but not actively facilitated in EIC Transition or EIC Accelerator. This is a missed opportunity because:

- EIC Transition bridges early-stage research and commercialisation yet lacks incentives for interdisciplinary teams that could accelerate technology adoption.
- EIC Accelerator helps scale deep-tech start-ups but does not provide mechanisms to address regulatory, market adoption, or societal trust barriers, where interdisciplinary collaboration could be beneficial.

To enhance the impact of EIC investments, interdisciplinarity should be strategically integrated where it strengthens market readiness and innovation success—without becoming a rigid requirement.

We call upon the EIC to:

- Incorporate interdisciplinarity at the earliest stages of strategic planning, ensuring that funding calls are structured to identify market opportunities as well as societal needs and leverage the right mix of expertise.
- Use interdisciplinary projects for exploring various market and innovation opportunities of frontiers in science and new technologies.
- Encourage societal dimensions where relevant, ensuring they support the scaling of high-risk, high-impact technologies without diluting the core focus of the EIC Accelerator on start-ups and scale-ups.

2. Bring interdisciplinary expertise into the EIC Board

Robust governance is essential to fostering interdisciplinarity where it adds value. The EIC Board lacks sufficient representation from SSH disciplines, limiting its ability to assess where interdisciplinary collaboration could accelerate innovation, support regulatory alignment, and strengthen market adoption. To ensure evidence-based decision-making that prioritises impactful innovation, the Board must reflect a wider range of expertise across STEM, SSH, and business sectors.

We call upon the EU institutions and EIC to:

- Strengthen the EIC Board's capacity to leverage interdisciplinarity effectively by ensuring it includes a balanced mix of expertise from STEM, SSH, business, and regulatory fields, enabling informed decision-making on innovation and scaling strategies.

- Ensure the EIC Board operates with greater autonomy to focus on long-term, evidence-based strategies that drive deep-tech start-up success and global competitiveness and resilience.

3. Design calls and funding to foster impactful innovation

To maximise the impact of EIC programmes, funding mechanisms must support flexibility, interdisciplinarity, and inclusivity across all stages of the knowledge value chain.

We call upon the EIC to:

- Prioritise open and competitive calls that maintain the highly valued bottom-up nature of Pathfinder Open and Transition Open while ensuring that interdisciplinary projects are properly evaluated and valued where relevant. In Pathfinder Challenge calls, interdisciplinarity should be incentivised through topic formulation rather than imposed as a requirement.
- Provide balanced support across the knowledge value chain, from frontier research to applied (social) innovation, ensuring all stages contribute to impactful, interdisciplinary outcomes.

4. Give researchers and innovators a central role in strategic planning

To address Europe's most pressing societal and technological challenges, researchers and innovators must play a central role in the EIC's strategic planning. Ensuring their meaningful involvement early in the process will help align EIC programmes with Europe's broader innovation goals, while ensuring interdisciplinarity is applied where it adds value rather than as an artificial requirement. A more inclusive approach will enable researchers, innovators, and problem owners—whether from academia, industry, or the public sector—to co-develop priorities that reflect both technological advancements and societal needs. This intelligence can then flow into the strategic planning phase. This will strengthen Europe's leadership in deep-tech innovation while ensuring solutions are not just technologically feasible but socially relevant and beneficial, ethically sound, and widely adopted.

We call upon the EIC to:

- Engage researchers, innovators, and problem owners in co-developing priorities to ensure that SSH, STEM, and business expertise work together where it enhances problem-solving and leads to impactful innovations, allowing this intelligence flowing into the strategic planning phase.
- Ensure co-development is driven by both societal and technological opportunities, allowing interdisciplinary approaches to emerge based on real challenges rather than disciplinary quotas.
- Foster meaningful dialogue with stakeholders, ensuring that strategic priorities reflect the needs of the wider research and innovation community and contribute to Europe's scientific, economic, and societal resilience.

5. Enhance support for interdisciplinary ventures

Interdisciplinary ventures—when strategically designed—help start-ups enter new markets, scale effectively, and address commercialisation barriers. Technology alone does not create market success; understanding business models, regulation, and user needs is equally critical.

We call upon the EIC to:

- Expand business acceleration services to interdisciplinary start-ups, ensuring these ventures are equipped to integrate diverse expertise, including digital and technological solutions.
- Invest in developing entrepreneurial competencies and foster closer collaboration with existing university accelerators and innovation offices, facilitating the exchange of best practices.
- Foster collaboration between SSH- and STEM-driven start-ups, promoting entrepreneurial ecosystems that deliver transformative, cross-disciplinary innovations.
- Transform the JRC tech transfer office circle into a knowledge transfer office circle.

6. Develop metrics and frameworks to support interdisciplinarity

To enhance success through interdisciplinary approaches, the EIC should evaluate its effectiveness based on market impact rather than simply counting disciplinary diversity.

We call upon the EIC to:

- Adopt metrics that reflect the strategic impact of interdisciplinarity, such as commercial success, market adoption, and societal impact, rather than measuring interdisciplinarity as a goal. We stand ready to support the elaboration of such metrics.
- Train evaluators and establish mixed panels of SSH, STEM, and business experts, ensuring that project assessments reflect the real-world conditions for innovation success.

Advancing Europe's innovation, competitiveness, and societal resilience

A challenge-driven, interdisciplinary approach will enable Europe to unlock untapped innovation potential, strengthen scientific and technological leadership, and ensure that breakthrough technologies are both commercially scalable and socially responsible. By fostering collaborations where they add value, the EIC can accelerate deep-tech start-ups, open new market opportunities, and enhance public trust in innovation by, for instance, more efficiently integrating user needs, ethical considerations, and societal adoption strategies into innovation development.

As the collective voice of Europe's leading universities of science and technology, CESAER is committed to working alongside the EIC to shape a dynamic, inclusive, and impactful

innovation ecosystem. By ensuring that interdisciplinarity is strategically applied to address real-world challenges, we can reinforce Europe's industrial competitiveness, scientific excellence, and societal resilience.

For more information and enquiries, please contact our Senior Advisor for Innovation & Sustainability Louise Drogoul.

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Rooted in advanced engineering education and research, CESAER is an international association of leading specialised and comprehensive universities with a strong science and technology profile that advocate, learn from each other and inspire debates. Our Members champion excellence in higher education, training, research and innovation, contribute to knowledge societies for a sustainable future and deliver significant scientific, economic, social and societal impact.

Appendix

To provide tangible evidence of how interdisciplinarity can accelerate start-up success, we provide case studies from CESAER Members available in this appendix.

Case studies

Aalborg University (Denmark)

Pull & GO – Helping Wheelchair Users Live with Less Pain

Pull & GO is an innovative company that has developed a solution for manual wheelchairs to help users live with less pain.

Approximately 250,000 Danes live with a mobility impairment and many of them are fully or partially dependent on a wheelchair. Up to 75 percent of manual wheelchair users suffer from shoulder pain.

So far manual wheelchairs have been designed so that users only push to move forward. This primarily engages the muscles on the front of the upper body, and not the back muscles, which can lead to pain. The company Pull & GO was founded by Mikkel Krogshede and Jonas Koefoed Petersen because they wanted to develop a solution to that problem.

By combining expertise in sports science and mechanics, Mikkel Krogshede and Jonas Koefoed Petersen have developed a pull function with detachable handles, allowing users to both push and pull themselves forward in the wheelchair. This flexibility can reduce strain on the shoulders and thereby lower the risk of chronic pain.

Research and a bright idea

The idea for the invention emerged in 2019 when Mikkel Krogshede was studying Sports Science at Aalborg University. During a semester project, he investigated how strength training could alleviate shoulder pain for wheelchair users. He discovered that pulling exercises - such as those performed with rowing machines or resistance bands - were particularly effective in reducing pain. Mikkel Krogshede was surprised that no one had previously developed a wheelchair with a pull function. In 2021, he joined the AAU Startup Program to validate his idea and receive support in bringing it to life.

Two fields unite to form a company

To realise the project, Mikkel Krogshede needed a partner with technical skills. At a Startup Dating event at AAU, he met mechanical expert Jonas Koefoed Petersen, who was studying Mechanical Engineering at the university. Jonas already had experience in product development. This interdisciplinary collaboration was crucial to Pull & GO's success: Mikkel Krogshede contributed his knowledge of anatomy and physiology, while Jonas Koefoed Petersen transformed the ideas into a smart, technical solution. In December 2022, the first prototype was completed, marking a significant milestone as it proved that the concept could work in practice.

Grants and growth ambitions

Pull & GO was awarded the AAU Startup Grant in 2023. In the summer, company founder Mikkel Krogshede, along with co-owner and CTO Jonas Koefoed Petersen, received the first

prize of 6.700 euros and gained direct access to the Nordea Start Up Match after winning Nordea Handipreneur 2024.

Since its establishment three years ago, the company has operated from its base at AAU Innovate, a hub for research, innovation, and entrepreneurship at Aalborg University. Pull & GO aims to continue improving the quality of life for manual wheelchair users while also helping to address socioeconomic challenges in the disability sector. The two business owners dream that their product will one day help wheelchair users worldwide and that users' challenges, experiences, and needs will result in the development of additional products.

Chalmers University of Technology (Sweden)

The success of Adsorbi AB stemmed from a research collaboration that was seamlessly integrated with entrepreneurial expertise nurtured within the venture creation ecosystem at Chalmers Ventures.

https://chalmersventures.com/startupstories/adsorbi-purifies-air-with-climate-smart-supermaterial/

KTH Royal Institute of Technology (Sweden)

How Knowledge or Tech Transfer Offices (KTOs/TTOs) integrate interdisciplinary expertise, particularly in business, regulatory, and market development:

At KTH Innovation, we are a “one-stop shop” which provides 360 supports to students and researchers, all in one place. This includes business development coaching, IP strategy and patent support including licensing. We have mentors, programs, co-working, funding support (both grants/soft money and investors) including the university holding company, business lawyers for contracting such as shareholder agreements, recruitment and team development support, internationalization efforts for startups, network and facilitation of startup-industry partnerships and a variety of events and activities that bring everyone interested in innovation and entrepreneurship into our building, ranging from open events for mingling to “by invitation only” demo days and curated industry events. All of this is organized through one department with a staff of 20 people (excluding the holding company), located in one office with our own event space and co-working in the same building as well.
Please see: KTH Innovation, KTH Holding, KTH Innovation Readiness Level (KTH IRL)

By integrating all interdisciplinary expertise into one offer, we believe we create the optimal conditions for getting research to market and fostering a living culture of entrepreneurship among both students and faculty.

There are three integral components that allow us to do commercialization at our university in such a manner:

1. Low barriers to entry and tailored support**:** students and researchers can enter our innovation process at any time during the year and have only one contact person for their team as their contact point for all the offers we give and/or introduce to them when suitable, namely their business development coach. Our business development coaches are in-

house staff in our innovation office. They have founder experience and industry vertical knowledge as well as training in how to coach the right way.

2. Our framework, the KTH Innovation Readiness Levels, developed in-house, which approaches early-stage innovation support from a 360 perspective. The KTH IRL include readiness levels in terms of; tech, customer, team, business, funding, intellectual property rights. The KTH IRL is the starting point in our coaching, enabling the startups to set milestones, goals and roadmaps, evaluate themselves and get objective assessment and understandable discussion with their coach, and the KTH IRL can also be used to understand selection criteria for programs and funding options in an objective manner ("you need to be at this level"), as well as smarter and more efficient ecosystem collaborations. The KTH IRL framework is used by thousands of organizations around the world and specifically in Sweden, our startups will meet the readiness levels when applying for government funding, when being selected for accelerators, and so on.

3. The KTH IRL is also a good example of understanding how your startups scale in a sustainable way with maximal positive impact on the society, as the above-mentioned six readiness levels all include checkpoints for sustainability. By understanding your weak spots already from the start, and having an impact mindset, SSH and STEM interlink in the business development efforts we support

4. In Sweden, we have a national law, the professors' privilege, also known as the teacher's exemption (lärarundantaget) which means that all IP and research results per default is fully owned by the researchers themselves (including PhD students). This means that as a the KTO/TTO/innovation office/entrepreneurship center, we do not seek to control and maximize profits from the IP generated at the university, but rather look at how we can support and enable innovation to happen, making relevant and interesting offers for students and faculty to want to come to us for business development support

Examples of start-ups that successfully scaled using interdisciplinary collaboration, identifying where SSH, STEM, and business expertise were critical to commercial success:

This is a difficult question to answer, as all of our successful teams developed to commercial success by taking interdisciplinarity into account. About 85-90% of all teams in our innovation process are positively contributing to the UN SDGs, and the general trend in Sweden is that in the last couple of years, non-impact startups attract less money, both from grants and private sector.
All of the KTH Innovation spin-offs are STEM And business expertise combined, as we put much effort into moving beyond technology and into the market with an understanding for

customer needs (market validation) from the very start. The mantra for the KTH IRL is the following:
Successful innovation addresses a customer/market need in a profitable and sustainable way, developed by diverse teams that have the necessary resources at hand to commercialise their ideas and results

To list some of our alumni companies that tie SSH, STEM and business expertise together, please see below:

- DigiExam
- Furhat Robotics
- Funki
- Help to Help
- Imagi
- Kitocoat
- Klimato

RWTH Aachen (Germany)

RWTH neuromorphic hardware with broad AI application potential

The BMBF-funded RWTH Cluster4future 'NeuroSys' is developing a completely new computer architecture that uses much less energy than conventional computers and involves a broad interdisciplinary spectrum of expertise: physicists, neuroscientists, microelectronics engineers and computer scientists work on the technical issues and collaborate with economists, social scientists and ethicists to create innovations. At the same time, cluster members build bridges to society and politics. RWTH Aachen University works closely with Forschungszentrum Jülich and the NRW State Institute AMO GmbH. Sixteen companies contribute industrial expertise, knowledge of market and customer requirements and institutions such as the Aachen Chamber of Industry and Commerce, industry and the university's technology transfer office, RWTH Innovation GmbH, complement the cluster and thus facilitate the direct transfer from science to industry. An Advisory Board made up of scientists and 17 local companies and global players supports the project from basic and applied research through to transfer.

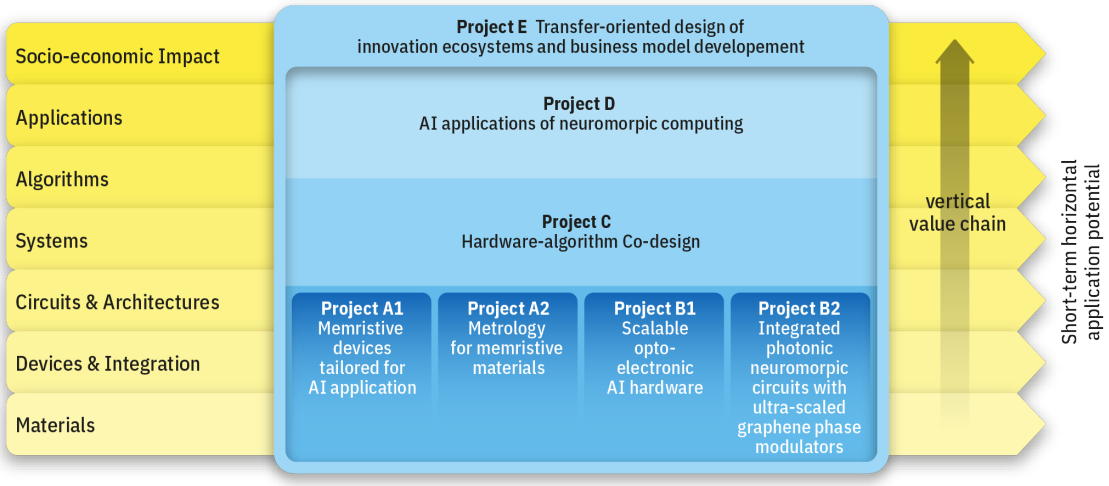

Figure: The NeuroSys project diagram illustrates the interlinking of basic and applied research (technology push), product development and industrial (application pull) through to knowledge and technology transfer.

From the cluster ‘NeuroSys’, the RWTH spin-off ’RooflineAI’ has emerged, which has created a platform for software development for AI systems in mobile devices such as robots and smart gadgets. The software enables the execution of the latest AI algorithms on this specialised hardware. Until now, end-users, such as robot manufacturers, have not been able to utilise these AI models due to outdated and inflexible development platforms. As a result, they were unable to implement functions like context recognition for robots. RooflineAI's innovation thus closes that gap and makes a key contribution to the “ChatGPT moment for general robotics”, which Nvidia CEO Jensen Huang predicts for 2025. The innovation is positioned horizontally and can be used for all mobile AI applications beyond robots.

As a result, a highly interdisciplinary project has resulted in a highly technical special application that in turn addresses almost all disciplines and markets.