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Deep-Tech Innovators in Europe

Will the EU meet its climate targets without focused support for its innovators?

KEY ISSUES

- » **The EU set ambitious climate-related targets. To achieve these targets Europe needs start-ups and smaller enterprises as they can adapt quicker than larger industries.**
- » **Existing funding instruments have limitations, which prevent deep-tech start-ups from using this funding for their innovative projects.**
- » **There is little consistency in guidance and mentoring for the start-ups.**

Deep-tech has a profound enabling power to bring about real change. Its focus is to pioneer new technological solutions addressing major societal challenges such as chronic diseases, food production, climate change, and energy demand. Deep-tech start-ups are well positioned to bring significant scientific advances and are expected to have a large influence over the achievement of the UN Sustainable Development Goals (SDGs).

The EU set ambitious climate-related targets and recently published its [Green Deal Industrial Plan for the Net-Zero Age](#), addressing some of the challenges faced by European innovators.

However, deep-tech start-ups in the EU see themselves confronted with additional and specific barriers that hinder their work.

This policy brief focuses on the current limitations of the EU instruments, which are designed to support European start-ups. Our attention is on deep-tech innovation and why the existing instruments should be improved if the EU wants to achieve its green targets.

The recommendations we set out here have been drawn up by a selected group of EuroTech innovators to guide policy makers in developing more effective funding and support programmes to improve the EU innovation ecosystem. Those very innovators are ambitious early-stage researchers with inventions categorised as deep-tech.

SETTING THE SCENE

Deep-tech¹, or deep technology, refers to those start-ups whose business model is based on high-tech innovation in engineering, or significant scientific advances. Deep-tech can span across many technological areas and can impact diverse applications. It harnesses cutting-edge technologies to create tangible societal shifts, and never has it been more relevant. The global pandemic, the urgency of the climate crisis and the rapid expansion of global populations have placed added strain on already fragile systems, and it is these fundamental issues that deep-tech is designed to address.

Innovators with a sustainable approach are crucial for the green transition. Larger companies are often financially limited only to pursuing innovations that are aligned with their current infrastructure. Entrepreneurs can take tangential risks; can be more agile and are therefore able to work on solutions not covered by traditional players. Hence, they are much needed in our endeavours towards achieving climate neutrality.

To flourish and to address the EU challenges, European start-ups, especially in deep-tech fields, need instruments that are both agile and responsive as European society needs them to be.

Deploying sustainable solutions from within Europe, within the existing European framework, should be maintained and further encouraged. As President von der Leyen reiterated in Davos in January 2023, Europe is the world's largest single market and has been a frontrunner in setting ambitious climate-related targets.

Now the US, among others, is re-entering the competition with the introduction of the Inflation Reduction Act, and this naturally brings the risk of European innovators moving to the US to set up their companies there under more attractive conditions. The EU-level Green Deal Industrial Plan for the Net-Zero Age addresses these worries somewhat by proposing to establish regulatory sandboxes 'to allow for rapid experimentation and disruptive innovation to test new technologies.'

The following recommendations should be seen as suggestions on how to make it more attractive for innovators to develop and deploy sustainable solutions in Europe. Some useful instruments like the EIC Pathfinder have already been developed at the EU level. This is a step in the right direction. However, we consider it important to improve the EIC instruments by fully understanding their downsides, which currently prevent deep-tech start-ups from using them. Furthermore, we also see opportunities to create innovative, new initiatives and improve framework conditions for innovators.

RECOMMENDATIONS

- 1. Revisit eligibility criteria and ticket size for EIC Pathfinder and Transition**
- 2. Create a "Cyclotron Road.EU" or "Activate.EU"**
- 3. Provide more training and support to local ecosystems**

¹ Deep-tech definition following the European Institute of Innovation and Technology:
Cutting-edge technology solutions combining fields of science and engineering in the physical, biological and digital spheres.

1. REVISIT ELIGIBILITY CRITERIA AND TICKET SIZE FOR EIC INSTRUMENTS

Creating a consortium – either small or large – is not realistic to expect of a non-incorporated start-up, especially if they have not achieved a first viable prototype yet. Furthermore, a consortium requires grounded insight into legal aspects of any possible findings. Young innovators usually do not have access to, or resources for, lawyers and administrative staff. The transaction cost for them is therefore very high, and they expose themselves to unnecessary risks when it comes to possible future IP.

In the EIC Pathfinder, the current ticket size and consortia set-up are often not needed at the earliest stage. Therefore, it would be advisable to shift the eligibility criteria to mono-beneficiary for TRL 1-3 and to reduce the ticket size to 0.5-1.5 million EUR (currently 3-4 million EUR).

In the EIC Transition on the other hand, the ticket size could be slightly higher (around 3-4 million EUR). Furthermore, making it mandatory to use around 30% of the funds as cascade funding for European suppliers could be a viable alternative to the requirement of setting up a consortium. This would avoid potential conflicts around IP while ensuring that instruments and equipment will come from European collaborators.

Lastly, simplifying the administration for smaller grants would further reduce the barriers to innovation, enabling innovators to use more resources on concrete activities and reduce overheads.

2. CREATE A “CYCLOTRON ROAD.EU” OR “ACTIVATE.EU”

There are several examples internationally that could serve as an inspiration for new EU programmes. For example, the University of California, Berkeley created separate entities called Cyclotron Road and Activate, which enabled PhDs and postdocs only to focus on creating minimum viable products and demonstrators in rolling cohorts of two years. Fellows can work across eight industries (agriculture, chemicals, computing, electricity, manufacturing, transportation, building and defence), aligned with a broader mission to address climate change and other global challenges by reinventing the economy to be sustainable, resilient, and equitable.

At Cyclotron Road, founders would be paid full-time and receive 150,000 USD for access to laboratories and equipment. That principle has been adopted successfully in the Faculty of Impact of the Netherlands, which is a kind of “Cyclotron Road.NL,” demonstrating that creating “Cyclotron Road.EU” or “Activate.EU” within Europe is possible.

A natural home for this kind of initiative would be the DeepTech Valleys in collaboration with either EIT communities or universities with innovation hubs (like DTU Skylab, UnternehmerTUM, Drahi X-Novation Center, The Gate in Eindhoven, EPFL’s Startup Launchpad, Technion’s t:hub and equivalents).

3. PROVIDE MORE TRAINING AND SUPPORT TO LOCAL ECOSYSTEM

The journey from being a student to founding a start-up is not always an easy one. Innovators need support and guidance. It is useful that almost each funding instrument offers support from a business developer, a mentor, or a trainer during the funding period.

However, it could be even more beneficial to the start-ups if they had access to a more long-lasting solution and continuous access to mentoring from one organisation or an individual, a relevant professional who knows the field, invention, and the whole European landscape. This could be installed for instance within the European Enterprise Network or other EU-approved institutions that could help locally. It would also be helpful if cross-cutting topics like tax and legal matters could be part of the mentoring support.

CONCLUSION

We see this as the critical moment for getting the actions right and making the EU the best place to create and support European sustainable deep-tech ventures. We welcome ‘A Green Deal Industrial Plan for the Net-Zero Age’ as it sets concrete actions aiming to achieve the EU’s green transition ambitions. However, there should be a sharper focus on the clean-tech start-ups in order to launch and grow the European net-zero industries of the future.

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