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Policy Recommendations for an Interconnected European DeepTech Ecosystem

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Abstract

The EU's DeepTech sector has the potential to significantly boost Europe's global competitiveness, but startups face barriers such as limited cross-border collaboration and resource access. Incubators and accelerators play a vital role in addressing these challenges, yet their impact can be amplified by aligning support structures with EU policy priorities, including sustainability and regional development. Insights from the AccelerAction EU project highlight the need for long-term funding, fostering collaboration over competition, addressing gender disparities, and standardizing performance metrics. Establishing a Pan-European coordinating body would unify best practices, promote cohesion, and enhance global visibility. By prioritizing inclusivity and strategic coordination, the EU can unlock untapped talent, drive balanced innovation, and position itself as a global leader in DeepTech, achieving meaningful economic and societal outcomes.

1. The AccelerAction EU Project

European DeepTech startups – which can be defined as pioneering firms in sectors such as advanced materials, robotics, blockchain, biotechnology, artificial intelligence, and quantum computing – are increasingly central to Europe's economic and technological future. However, they are often isolated realities that don't communicate or participate in efficient knowledge transfer efforts on the pan-European level, thus minimising EU-level connectivity and the Union's competitiveness in a globalised world (EISMEA, 2024).¹

Accelerators and incubators play a crucial role in nurturing startups, and DeepTech is no different, providing not only essential resources and infrastructure but also connections to vital social and financial networks within the entrepreneurial ecosystem (Chinonso, 2024). With this awareness, the

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¹ European Commission: European Innovation Council and SMEs Executive Agency (2024) *Impact report 2023 – Accelerating Deep Tech in Europe*.

AccelerAction project was planned to intervene in providing further support to European startup hubs. The consortium of partners spans across the European Union's 27 member states, addressing disparities in innovation capabilities and resources among countries. The consortium comprises stakeholders from a wide spectrum of innovation domains, including incubators, entrepreneurs, researchers, academia, and policymakers. The main goal of AccelerAction was to bridge the gap between strong innovating countries and emerging ones across the 27 member states through tailored research and subsequent digital tools that provide matchmaking and free-to-use training in the main areas for improvement (for example, access to funding, intellectual property rights, gender equality).

The disparities in the EU's innovation ecosystem are considered a significant issue that must be tackled. It is a concern recognized, among others, by Archibugi et al. (2022), underlining that regional disparities in technological capabilities within the EU are significant. AccelerAction was funded by Horizon 2021-2027 with a new set of expectations and understandings of the innovation ecosystem and the fragmented reality of its market.

While implementing measures which were already considered effective in assisting those hubs, through the direct observation and contact with incubators and accelerators, the AccelerAction consortium was able to observe other best practices, and consequently, formulate new policy recommendations which may enhance both the incubators and the accelerator system.

As experienced through the AccelerAction project, aligning incubator and accelerator initiatives with broader EU policy objectives, such as sustainability and regional development, can lead to more balanced growth and innovation across the Union. By embedding such goals within the EU's startup support framework, the Union could drive not only economic growth but also social and environmental progress, creating a more inclusive and resilient innovation ecosystem that reaches across all member states and regions.

The hands-on approach taken by AccelerAction prioritizes measures that guarantee long-term project sustainability and foster public-private partnerships. For instance, the AccelerAction online ecosystem called DeepTech ACT² was established as a virtual space aimed at building capacity, networking among acceleration ecosystem players, and promoting cross-fertilization. It also generates the knowledge necessary for a more balanced business environment across the EU. The platform addresses diverse needs for both incubators and accelerators. The ACT platform enables advanced startups from less innovative economies to access critical resources, including investors, opportunities for scaling, cross-country funding initiatives, and mentorship across diverse ecosystems. On the other hand, founders, investors and key players in DeepTech that come from strong innovating countries can find cost-effective solutions, talent, new markets and opportunities. This transnational support framework ensures that startups can engage with environments that offer the specific resources and expertise they require, often surpassing what may be available within their local ecosystems.

This methodology facilitates cross-border knowledge sharing and resource optimization. It ensures that less innovation-intensive regions gain access to the tools, mentorship, and infrastructure needed to advance, thereby bridging gaps between high-innovation and emerging-innovation nations. This

² DeepTech ACT can be found online at: <https://deeptechact.acceleraction.eu/>

balance is essential for the EU to remain competitive globally while fostering cohesion and equity among its members.

Building on insights from the AccelerAction EU project and OECD data featuring successful practices from Estonia, France, Ireland, Portugal and Sweden (2024), this paper underscores the importance of EU-level policies rather than national initiatives to maximize the impact of incubators and accelerators for diverse, specialized ventures.

2. Incubation Models and the Role of Governments

Business incubators, commonly described as shared office-space facilities, play a vital role in fostering new ventures by providing strategic interventions—monitoring, tailored assistance, and resource management—to enhance their development and minimize failure risks. These interventions include access to infrastructure, administrative and financial resources, process-oriented support, and networking opportunities, all aimed at addressing the challenges of newness and improving survival odds (Schwartz, 2013). More recently, accelerators have emerged as an advanced model of incubators, with over 8,000 worldwide facilitating investments exceeding \$50 billion in 2018, driven by the success of startups like Dropbox and Airbnb. Brad Feld (2012) describes this shift as a start-up revolution, with accelerators poised to thrive in urban areas globally.

It is true that governance and coordination between national policies that tackle incubation and acceleration can present nuances. However, a shared characteristic among leading EU countries as strong innovators is their establishment of centralised bodies to coordinate incubator and accelerator activities, rather than rely on the single entity itself (OECD, 2024). In countries such as France, Portugal, and Sweden, robust public networks support a cohesive entrepreneurial ecosystem. For example, France has implemented special visas, tax incentives, and funding schemes to attract global talent and foster a vibrant startup culture. Similarly, Sweden's National Incubator Programme (NIP) acts as a central hub for networking, facilitating both national and international partnerships. This centralised approach promotes alignment with a nation's strategic goals, creating an ecosystem in which public and private accelerators can co-exist and collaborate effectively. Such centralisation in the EU context could involve a regional coordinating body to guide and resource DeepTech hubs across Europe, fostering a cohesive environment for incubators and accelerators that work towards shared goals, attract global talent, and enhance regional competitiveness.

Another approach in, geographically, smaller EU countries such as Estonia and Ireland has been early internationalisation driven by topographical constraints. Startups in these nations often target global markets from the outset, receiving essential guidance on navigating international challenges from accelerators. France, too, as previously mentioned, has developed internationally appealing policies, including startup visas and tax incentives, to attract foreign entrepreneurs and encourage cross-border collaboration. Additionally, expanding initiatives like visa schemes, tax breaks, and funding opportunities across the EU would enhance Europe's appeal as a hub for DeepTech innovation going beyond the 27 countries to Asia, Africa and the Americas.

Successful ecosystems also emphasise the importance of specialised, well-trained support staff. In Sweden and Estonia, for instance, incubators and accelerators employ highly qualified staff with deep knowledge across various fields, enabling them to offer tailored guidance to startups. Estonia's incubators, for example, focus on matching startups with mentors who have expertise in specific technological domains, helping these businesses to develop specialised products and address technical challenges. Learning from this successful practice, EU governments could support training programmes for an incubator and accelerator workforce with expertise in emerging tech fields, as well as grant access to mentoring sessions by experts in the public and private sectors, enhancing the quality and effectiveness of startup support across Europe.

Sectoral diversity within incubators and accelerators also enriches the innovation ecosystem, as seen in Portugal and Sweden. The Swedish National Incubator Programme (NIP) promotes collaboration among startups in diverse industries, facilitating cross-pollination of ideas and creating innovations with potential cross-sectoral benefits. Public policy should be encouraged to incentivise this diversity by offering grants for interdisciplinary projects and encouraging incubators to foster a dynamic, innovative environment with broad economic and societal impacts.

Sweden also demonstrates the value of aligning incubators and accelerators with broader national goals, such as sustainable development and regional economic growth. By fostering regional hubs and science parks that support local innovation, Sweden has built an inclusive entrepreneurial ecosystem that extends beyond major cities. EU countries could adopt similar alignment strategies, linking incubator and accelerator policies with broader societal goals, such as environmental sustainability and regional development.

Considering these examples from key innovating countries and their public approach to DeepTech innovation, it is clear that in order to foster a thriving ecosystem, EU governments must get involved. A preliminary set of policy recommendations emerges. Policymakers should prioritize targeted support for training programmes that equip incubator and accelerator professionals with the up-to-date expertise needed to guide startups in emerging tech fields, complemented by mentoring opportunities from public and private sector experts. Public policies should further incentivize diversity by funding interdisciplinary projects and encouraging incubators to cultivate dynamic environments that drive innovation with significant economic and societal benefits. Additionally, linking incubator and accelerator policies to overarching societal goals, such as environmental sustainability and regional development, will ensure that the DeepTech sector contributes meaningfully to long-term, inclusive progress.

DeepTech SMEs play a pivotal role in driving the dual transitions of traditional SMEs. By adopting a sector-specific approach, they offer customized digitalization solutions tailored to industry-specific needs. These industrial partnerships between digital and traditional SMEs are essential for shaping a robust and future-ready SME ecosystem in Europe. Policymakers must empathize with the experiences of modern SMEs to gain a deeper understanding of their path to establishing and maintaining a competitive technology-driven business.

Europe's digital SMEs, including DeepTech start-ups and scale-ups, play a key role as providers of software and services that drive the digital transformation of other businesses and public administrations. They are uniquely positioned to offer a more sustainable, ethical, and human-centric

approach to technology. Moreover, digital SMEs foster economic progress by decentralizing wealth, enhancing market competition, and promoting innovation from the ground up. They also help combat social inequalities by diversifying the EU's industrial landscape and bridging the divide between rural and urban areas, thereby reducing both wealth and social disparities across European communities.

The AccelerAction EU project has researched the disparities in Europe's innovation landscape in order to formulate targeted policy recommendations taking into account the experience of EU startups from all 27 countries. Incubators, accelerators, and various forms of 'company-builders' undoubtedly play a crucial role in all European ecosystem regardless of the level of innovation. However, the uneven development of DeepTech ecosystems across Europe has created significant challenges. Start-ups in well-connected regions benefit from superior access to local accelerators, funding opportunities, and high-quality business support services. In contrast, those in less-connected ecosystems often face limited resources, compelling many to relocate to established hubs. This geographic imbalance hinders scale-up opportunities, disrupts equitable business activity, and creates disparities in employment and economic development.

Delving deeper into the issue, a key topic that has been identified concerns gender balance in incubators and accelerators across the European Union. The analysis of Brimpou. et al. (2024) regarding gender diversity in European DeepTech accelerator programmes, presented and published in the proceedings of ISPIM Connects Osaka 2024, highlighted several key findings. First, the participation of women in accelerator entrepreneurial programmes is notably limited, reflecting the broader underrepresentation of female founders and invested startups. This disparity stems from cultural and social barriers that hinder women's access to resources such as funding and mentorship (Brush et al., 2010). However, accelerators lacking female leadership demonstrated reduced effectiveness in accessing customers and partners, underscoring the need for tailored inclusion strategies. The findings of Brimpou. et al. (2024) underscored the importance of targeted mentoring programmes for female entrepreneurs. Accelerators that implement initiatives directed at women, including mentorship and appropriate financial tools, achieve higher investment success rates and improved access to critical networks (Dixit and Sinha, 2024). The inclusion of women in the DeepTech entrepreneurship field can generate not only economic benefits but also significant social advantages. Institutional efforts to create a more inclusive environment, alongside tailored support mechanisms, will enhance the tools available to all entrepreneurs and promote a balanced, innovative ecosystem.

Indeed, women across the board in 2024 are subject to a competitive disadvantage compared to men right from the beginning when it comes to obtaining fundings to initiate their startups, and this is an immense obstacle that can prevent the growth of female-led enterprises. Moreover, some studies showed that occupational segregation still exists in this field and, although incubators and accelerators provide advanced infrastructures indifferently to men and women, they may still vertically integrate women in lower working positions. Consequently, there remain highly gendered environments (Brush et al., 2010).

However, when women achieve a leading position in start-ups, they have shown to outperform their male counterparts, given their different approach to business. Moreover, factual results demonstrate that they are able to create more revenues and higher job growth. Nevertheless, focusing, especially, on the DeepTech sector, the gender imbalance is still alarmingly evident. In fact, less than a tenth of

DeepTech startups or consolidated businesses are founded by all-women teams and only 15% are founded or co-founded by women (Nowshin, 2024). Again, this data is a spontaneous consequence of the low rate of women's presence in STEM academic courses and of gendered education that bleeds into career choices and priorities.

Thus, it is clear that in order to tackle the gender gap problem in the European society as a whole, a leading and innovative sector such as the entrepreneurship one cannot be overlooked. As a result, it should be considered as a priority and urgent need to address those obstacles which create differences in the investors' treatment towards male and female entrepreneurs. To conclude, the inclusion of women in the DeepTech entrepreneurship field may bring not only economic but also significant social benefits. It is a matter of broadening the range of action of institutions and creating a more inclusive environment that can really enhance the tools at the disposal of entrepreneurs.

Promoting gender inclusivity is vital, with the EU urged to implement policies such as affordable childcare, financial literacy programmes, and entrepreneurship training in schools and universities, in all 27 countries. Persistent gender discrimination in education and workplaces requires attention, and public policies should focus on fostering women's participation in entrepreneurship for broader social and economic benefits.

Focusing now on EU-level policy, the findings and conclusions drawn from the AccelerAction EU project underscore the necessity of a dual approach that not only strengthens modest and moderate regional, local and national innovation ecosystems but also fosters cross-border connectivity to cultivate a cohesive and resilient European innovation landscape.

Digital and tech sovereignty is essential for building a strong and independent Europe in the contemporary era. It ensures that businesses, governments, and society can depend on reliable hardware, software, and digital services provided by European companies for their core operations. By fostering technology developed within Europe, the Union can safeguard the continent's prosperity and strengthen its technological resilience as a competitive business hub for the future. Digital sovereignty embodies freedom of choice in the global marketplace rather than promoting protectionism or isolation. To achieve this, governments and policymakers – national and European - must prioritize the DeepTech sector with tailored initiatives that support its growth and innovation.

At the EU level, there are policies in place that have the goal of contributing to a stronger startup landscape such as the measures foreseen in the New European Innovation Agenda (e.g. innovation procurement), the establishment of the EIC Accelerator by the European Innovation Council, or the Startup Europe initiative, both launched in 2024.

AccelerAction is clearly a perfect fit for this direction and philosophy aiming to connect innovators across different local, regional and national ecosystems.

To further strengthen Europe's innovation ecosystem, governments should begin to envision collaboration towards a Pan-European coordinating body that should standardize incubator and accelerator practices, align cross-border goals, and enhance internationalization resources for DeepTech startups. EU-wide startup visas, tax incentives, and funding for foreign talent are proposed, alongside specialized accelerator staff training and funding interdisciplinary challenges to boost

sectoral diversity. Adopting project-based funding and aligning policies with sustainability and regional development goals can further support startups.

3. Policy Recommendations

Summing up all that was discussed through the comparative analysis and experience of the AccelerAction project, this policy brief proposes the following eleven points to be considered as policy recommendations for the improvement of the DeepTech innovation ecosystem on an EU-level, expanding European interconnectivity:

1. **Long-Term Funding Commitments:** To build strong networks and a reputation within the entrepreneurial ecosystem, public funding programmes should provide at least three years of financial support for incubators and accelerators. This duration would allow them to plan strategically and establish themselves effectively, while also reducing administrative burdens related to frequent funding applications.
2. **Selective Funding for Impact:** National funding programmes should prioritise incubators and accelerators with proven track records, strong ecosystem connections, and core competencies. Less experienced incubators can receive smaller grants and capacity-building support to enhance their performance and integration within the ecosystem.
3. **Focus on Programme Expansion, Not Overhead:** Funding should specifically target incubation and acceleration programme improvements and expansions rather than core operating expenses. This ensures that funds directly benefit start-ups and scale-ups, keeping incubators focused on client support over securing operational funding.
4. **Tailor Funding to System Needs:** Recognising that each incubation and acceleration ecosystem has unique challenges, funding programmes should address specific bottlenecks by, for example, allocating resources for sector-specialised activities, mentorship, or internationalisation support.
5. **Promote Collaboration Over Competition:** Funding programmes should encourage cooperation by favouring joint applications or consortia, reducing competition for limited resources, and fostering a more cohesive entrepreneurial ecosystem.
6. **Align with Broader Policy Goals:** Public funding for incubators and accelerators should be aligned with national and regional policies, complementing broader entrepreneurial and economic priorities for greater coherence and impact.
7. **Establish Coordinated Networks:** Governments should create formal networks of incubators and accelerators to encourage collaboration, resource-sharing, and peer learning. These networks should facilitate strategic alignment, host capacity-building activities, and foster connections with investors and large corporations. Membership criteria and regular events can help maintain active engagement and a cohesive community.

8. **Implement Quality Standards and Labels:** To ensure credibility and quality within the ecosystem, governments should introduce a certification or quality label for incubators and accelerators that meet specific standards. Building the reputation of these labels within the entrepreneurial ecosystem can enhance credibility for both incubators and their clients, fostering trust among investors, customers, and ecosystem partners.
9. **Develop Performance Measurement Frameworks:** In order to address the lack of comparable data on incubator and accelerator performance, governments should establish standardised performance metrics. These frameworks should require periodic data collection from incubators on core activities, client outcomes, and ecosystem impact, while minimising administrative burdens by focusing on essential metrics. This data supports evidence-based funding decisions and helps start-ups identify programmes that best fit their needs. The standardised performance metrics should also be coordinated at the EU-level in order to have comparable data that serves the 27 countries equally.
10. **Create High-Profile Focal Points:** Governments should promote visible hubs or focal points within the incubation system, co-locating numerous start-ups, support programmes, and ecosystem actors. These hubs foster resource-sharing, enhance networking opportunities, and raise the profile of the incubation ecosystem, establishing a collaborative environment that supports start-up growth and innovation. Circling back to the main goal of AccelerAction EU, establishing a Pan-European coordinating body could standardise support and best practises across national incubator and accelerator networks, promoting goal alignment across borders.
11. **Tackle gender fairness in DeepTech:** The EU should prioritize policies that promote gender inclusivity in entrepreneurship by addressing systemic barriers. Key actions include affordable childcare, financial literacy programmes, and training in entrepreneurship-oriented skills from an early age. Targeted initiatives should increase women's access to funding, leadership roles, and STEM education to balance representation in sectors like DeepTech. These measures will drive economic growth, social equality, and innovation.
12. **Capacity building:** focus on sustained support for training programmes that equip incubator and accelerator professionals with up-to-date knowledge and skills especially in disruptive GPTs and new tools and best practices.
13. **Ecosystem networking for access and synergies:** The EU should, building on the AccelerAction experience, establish a European accelerator network that will facilitate access of startups and scaleups, as well DeepTech SMEs across Europe. The aim would be to reduce the time and cost of access to markets, partners and funding. The EU could subsidize the networking services provided by the accelerators, at both ends, launching and receiving startups across Europe. The European Acceleration Network would cooperate with the European Enterprise Network in meeting the needs of industry and creating new markets for DeepTech. There is also scope for learning from the experience of the EEN.

All these measures are identified as crucial for the future development and enhancement of incubators and accelerators. These policy recommendations are based on the successful results of implemented schemes in different EU countries. Consequently, where there are adequate conditions, the adoption of such measures should be a priority. Indeed, it is only through the provision of the appropriate financial

and non-financial support that entrepreneurial systems can thrive and continue to innovate. As remarked in the comparative analysis from the latter section, it is exactly in those countries where institutional intervention and support is stronger, and entrepreneurs find fertile ground to concretise their business projects.

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