Shaping Europe's Semiconductor Future: Regional Strengths for Global Positioning

Position Paper of the European Semiconductor Regions Alliance (ESRA)
on the revision of the EU Chips Act and
the next Multiannual Financial Framework (MFF)

Semiconductors are the driving force behind modern economies and are also essential for Europe's security and defense, ensuring strategic autonomy and resilience in critical technologies. Additionally, they play a central role in the EU's Green Transition by enabling several key sectors that are vital for reducing carbon footprints and meeting emissions reduction targets.

The European Chips Act has already been instrumental in addressing supply shortages and promoting technological sovereignty by channelling strategic investments across Europe. The publication of the Draghi Report and the EU's Competitiveness Compass has ignited renewed debate over revising the Chips Act, particularly in conjunction with the forthcoming Multiannual Financial Framework (MFF). In anticipation of these revisions, ESRA presents this Position Paper to advocate for a place-based strategy that leverages the unique strengths of the EU's regions.

To build a thriving European semiconductor industry, the EU must support the development and stimulate interconnections of regional ecosystems. Regions play a crucial role in developing regional innovative semiconductor ecosystems by enabling research, innovation and industrial investments. They foster specialized talent, research infrastructures, and collaborations across industry, knowledge institutions, and government.

The European Semiconductor Regions Alliance (ESRA) is a coalition of European regions with established semiconductor ecosystems encompassing industry, research institutions, and innovation hubs. Since adopting its first Position Paper, *Strengthen the Semiconductor Ecosystem in Europe* (2024), ESRA has dedicated itself to enhancing the sector's growth and competitiveness, actively contributing to achieving the goals set by the European Commission of strengthening Europe's global standing in semiconductor technology

This Position Paper calls for the strategic recognition of semiconductors within the 2028-2034 MFF, emphasizing the pivotal role of regions in shaping a strong EU semiconductor ecosystem. It proposes actionable recommendations to contribute to EU policies under the following key areas (detailed on the following pages):

1. **Enhancing Regional Ecosystems:** Boost inter-regional collaboration; align EU funding with regional strengths and facilitate SMEs' and startups' access; strengthen regional clusters to drive innovation; improve IPCEI's through direct EU funding, faster approval process, coordination with regional/local ecosystems; Consult ESRA in the definition of ECS-SRIA.

2. **Strengthening the Semiconductor Value Chain**: Invest in EU key industry segments and connect regional specializations to foster a resilient value chain, reduce dependencies and enhance competitiveness; expand R&D and testing infrastructures; ensure semiconductor innovation and manufacturing remains in the EU; Revise the "first of a kind" criterion to enhance resilience.

3. **Developing Skills, Talent, and Workforce**: Address the semiconductor skills gap through STEM awareness initiatives; increase cross-border training programs; attract global talent with mobility incentives, streamlined entry requirements, and faster processing; standardize industry certifications.

1. Enhancing Regional Ecosystems

Semiconductor development thrives on proximity, where co-located firms, research institutions, and supply chain partners create synergies that amplify innovation and production efficiency. The scaling effect highlights the significant advantage of connecting region-based strategies, which leverage synergies, reduce logistical inefficiencies along value chains, and accelerate knowledge transfer through the cluster networks. Furthermore, localizing semiconductor design and manufacturing is critical to the long-term economic resilience of the whole of the EU. Regions' capacity to drive local ecosystems is key to help address value chain bottlenecks. They can also mobilize existing expertise in areas that are not semiconductor-specific, like sensor technology, emerging technologies (photonics/quantum/AI), automotive applications and automation, to strengthen the semiconductor value chain further. The EU must therefore allocate funding to support cutting-edge innovations in the semiconductor industry—extending beyond silicon-based technologies—to establish global leadership in emerging technological applications. By fostering leading innovation and producing high-quality technology along the complex high-tech value chain, Regions can help shape the EU's value proposition as a premier environment for investment, making it more attractive to international players. To build a thriving European semiconductor ecosystem, Europe must support the development and interconnections of regional ecosystems, as they form its core foundation.

ESRA calls for:

- **Advancing and Connecting Regional Innovation Ecosystems**: The revised EU Semiconductor Strategy should adopt a place-based innovation ecosystem approach and allocate funding to targeted collaborative projects, as well as to the creation of interregional networks that foster knowledge sharing, development and production partnerships, research-industry collaboration, and technology transfer infrastructures. The 2028-2034 MFF should earmark funding for the EU's semiconductor industry by establishing a dedicated budget section. This coordinated approach will: foster resource sharing and competence recirculation; facilitate joint project identification; strengthen regional and European ecosystems and fully integrate SMEs and startups; address gaps in the semiconductor value chain while increasing Europe's attractiveness for foreign investment.
- **Enhancing IPCEIs and Regional Involvement:** IPCEIs (Important Projects of Common European Interest) play a key role in deploying major semiconductor investments and must be further enhanced. To achieve this, Regions encourage the introduction of certain improvements: 1. speed up the approval process in order to keep pace with rapid technological evolution that characterizes the semiconductor industry; 2. consultation of regions as key stakeholders, enhancing their role especially in facilitating implementation and maximising benefits of IPCEIs investments; 3. integrate direct EU funding to national allocations and increase transparency, coordination and alignment all along the process; 4. establish a mechanism that encourage the integration of regional/local supply chains in IPCEIs investments to maximize their impact on regional ecosystems.
- **Recognizing the Role of Regions in ECS-SRIA**: With their intermediate dimension, regions are best placed both to implement the EU and national policies and to contribute to their definition. As such, ESRA can play an advisory role in defining the European Chips Strategic Research and Innovation Agenda (ECS-SRIA), by incorporating expertise through insights from the regional dimension to better align with regional ecosystems, capabilities and needs. ESRA should be consulted to ensure that regional semiconductor ecosystem perspectives are integrated into the shaping of the ECS-SRIA, including SMEs needs and contribution.

2. Strengthening the Semiconductor Value Chain

An integrated value chain is crucial for the long-term competitiveness of the EU semiconductor sector and for reducing strategic dependencies to enhance its resilience. To this end, it is crucial to consolidate competitive advantages in key industry segments, focus investments on the most promising segments to achieve or maintain global leadership, and support also chips in larger nodes for the benefit of European industries. Integrating a place-based approach in such a revised EU strategy will help significantly enhance the overall impact, ensuring strategic goals are met while maximizing regional expertise to strengthen the resilience and sustainability of the entire EU value chain.

ESRA calls for:

- **Value Chain Approach:** The revised EU strategy must favour a value chain approach and incorporate measures that enhance global leaders while connecting complementary specializations, identifying vulnerabilities and bridging the gaps all along the entire semiconductor value chain (design, electronic design automation, core IP, front-end, back-end, equipment and tools, materials). The regions are ideally qualified for this, as they play a key role in building on local expertise and facilitating SMEs' access to funding and support mechanisms, thus ensuring that regional players can fully benefit from the available resources. As part of the value chain approach, the next Chips Act must ensure that the technology know-how developed in the EU is effectively applied in the EU, via specific "supply chain and IP licensing laws" towards a reinforced lab-to-fab strategy. We need to optimize the regional ecosystems to facilitate the next generation of technology starts up.
- **Increasing R&D, Technology and Testing Infrastructures**: The set of tools and investments, such as pilot lines and design platforms, established by the EU Chips Act should be maintained and further enhanced, and their effective utilization needs to be ensured. To maximize impact, it is crucial to support and widen access for SMEs, address financial and regulatory barriers, concerns over R&D confidentiality, guarantee technological neutrality and foster cross-regional collaboration. In addition, a necessary condition for enhanced competitiveness is the combination of R&I excellence and manufacturing knowledge and capacity: high-tech activities across the TRL scale should be supported and facilitated, from basic research to market introduction and further to industrial deployment, in order to strengthen resilience. A structured investment approach should align EU, national, and regional strategies, ensuring efficient funding, seamless access, and stronger synergies between industry, academia, and research infrastructures.
- **Revising the 'First of a Kind' Criterion**: The shortage of semiconductors from larger technology nodes was the primary factor that temporarily slowed down industrial production worldwide. European industrial companies need secure access to all types of semiconductors to strengthen resilience and ensure security in supply and production. Only by improving the availability of semiconductors across all technology nodes – both leading-edge and mature – and supporting them accordingly Europe can strengthen its strategic industrial sectors—such as automotive, energy, defence and digital services —thus maintaining Europe's global competitiveness. ESRA therefore advocates for a revision of the current first-of-a-kind criterion and for a better alignment of semiconductors with novel application areas and cost-effective manufacturing.

3. Developing Skills, Talent, and Workforce

Europe's semiconductor strategy faces a severe and structural talent shortage that could slow innovation and affect competitiveness in this key sector. To secure long-term growth and technological leadership, strong and sustained investment in skills development will be essential. While the European Commission's Union of Skills initiative provides a foundational framework, ESRA asks for more targeted and timely measures to address this pressing challenge.

ESRA calls for:

- **Enhancing STEM Awareness:** To build a skilled and sustainable semiconductor workforce a concerted effort to promote STEM careers at both the EU and regional levels is essential. ESRA supports the reinforcement of existing initiatives and launching coordinated EU-wide campaigns that emphasise the pivotal role of microelectronics in driving key megatrends. Hands-on demonstrations, industry showcases, and targeted early outreach, particularly to underrepresented groups, are essential to engaging young talent. The STEM Education Strategic Plan and the establishment of the EU Skills Academy on Semiconductors are important instruments equipping future professionals with the necessary expertise, ensuring that educational curricula remain aligned with industry needs.
- **Addressing Skills Gaps:** To tackle the shortage of skilled workers, targeted educational programmes should provide upskilling and reskilling opportunities, ensuring workforce adaptability to technological advancements. ESRA aligns with the Union of Skills framework, supporting a cross-border approach that encourages universities and businesses to collaborate on joint study programmes, as a step toward a standardized European degree. It also supports the expansion of micro-credentials and the standardization of qualifications across the EU. Regions can play a crucial role by strengthening ties between industries and educational institutions, aligning efforts with EU initiatives such as the European Chips Skills Academy.
- **Attracting and Retaining Global Talent and Enhancing Regional Attractiveness:** To effectively address talent shortages, a comprehensive programme promoting mobility and international exchanges is required, including fiscal incentives, fast-track visas, and regional support for highly skilled foreign workers. The Tech Skills Acquisition Programme, as proposed in the Draghi report, serves as a valuable blueprint for investing in talent development within the semiconductor industry. Additionally, enhancing the attractiveness of European regions through improved infrastructure, quality of life incentives, and tailored policies is essential to drawing and retaining talent, thereby fostering a welcoming and conducive environment for skilled professionals.

Europe must leverage the development and interconnections of regional ecosystems for a timely and efficient uptake of the ongoing and upcoming investment efforts to guarantee the technological sovereignty of a European semiconductor industry. ESRA has highlighted the most critical points: advancing and connecting regional ecosystems, enhancing and improving IPCEIs and ECA with a regional involvement throughout the EU funding landscape, especially within the ECS-SRIA**.** Europe must oversee the entire value chain and provide needs-based support, including in larger nodes. Regions, as intermediaries between EU institutions and local realities, are best positioned to strengthen the semiconductor value chain through a holistic approach to ensure that the ecosystems' needs for R&D and infrastructure are met, while also integrating the rapidly changing labour market. Priorities presented in this Position Paper, and in general the success of Europe’s semiconductor strategy, depend on the availability of a skilled workforce. Therefore, it is critical to invest in education, training, and industry collaborations to sustain Europe's semiconductor growth and ensure its long-term competitiveness.

Semiconductors are vital for Europe's competitiveness, resilience, security, and green digital transition, and regions as home to the ecosystems must play a key role in shaping policies to strengthen the European value chain and workforce. As a key partner of the European Commission, ESRA is ready to contribute to the design, development and implementation of future policies.