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Recommendations for the EU Chips Act 2.0: Stronger strategy to boost technological competitiveness and resilience in Europe

To improve competitiveness globally and promote economic security, Europe must keep pace with the fast-changing realm of semiconductor technologies. Considering the risks associated with geopolitical tensions and trade conflicts, it is imperative for the EU to enhance its capabilities in information networks, defense technology, and AI processing, all of which depend on advanced chip technologies.

Against this backdrop, the EU Chips Act 2.0 must adopt a systemic and strategic approach, aligning both national and EU policies to fully exploit European semiconductor innovation by leveraging key investments, promoting collaborative research, and tackling crucial workforce challenges. Finland's pioneering chip sector, under its new national strategy [Chips from the North](#), seeks to contribute to the EU's goal of developing a robust semiconductor industry.

1 Provide excellence-based funding for high-growth chips technologies

- The EU should provide a budget for targeted subsidies, loans and equity investments, alongside public-private investment schemes, fast-track IPCEIs and simplified permitting, to support high-growth sectors such as chip design (e.g., Edge AI and 6G chips based on EUV technology), MEMS/sensors, photonics, quantum technologies, advanced materials, and process technologies (e.g., atomic layer deposition).
- Funding should be allocated based on demonstrated excellence and potential for global leadership, ensuring that only the most promising projects receive support.
- With the current IPCEI on microelectronics and communication technology concluding by 2027, it is vital to begin planning for a new IPCEI in this domain. The new "fast-track" IPCEI should focus on streamlining processes, minimizing administrative burdens, and prioritizing mobile connectivity, edge AI, and cutting-edge chip design. It should provide a level playing field for European chips and connectivity champions and emerging innovators in their ecosystems vis-à-vis competitors in Asia and North America who benefit from substantial state support. It is advisable to use funds aimed at enhancing EU companies' global competitiveness in a way that allows support for individual company initiatives.
- Finland's focus on these areas will directly complement the EU's ambition to strengthen digital sovereignty and reduce dependency on non-EU suppliers by building a robust European semiconductor ecosystem.

2 Foster cross-border R&D and chips innovation hubs with continued pilot line support

- The EU should establish chips innovation hubs as centers of excellence for semiconductor research, development, and commercialization, supporting cross-border R&D collaboration. These hubs, supported by Chip Competence Centers, should incorporate industry clusters, pilot lines and the EU design platform to enable swift prototyping and testing of new semiconductor technologies. To support the development of the hubs, an international benchmarking analysis should be performed, drawing on the best available models and practices.

- The upcoming EU R&D framework program (FP10) needs to swiftly ensure strong funding for the chip sector. By continuing to fund pilot lines, the design platform and ambitious R&D projects within the innovation hubs, the EU can ensure that breakthroughs in innovative semiconductor technologies are efficiently transitioned from research to manufacturing and deployment in digital infrastructure.
- To maintain Europe's competitiveness in quantum chip technologies, the commission should promptly start the quantum pilot lines through Chips JU calls and support their development beyond initial funding.
- Finland's focus on integrating industry and academia in its hubs and pilot lines will accelerate technology commercialization, foster start-up creation, and support EU-wide innovation ecosystems that ensure rapid scale-up and market deployment.

3 Address critical workforce shortages with relevant programs and mobility initiatives

- To meet the growing demand for talent, the EU should prioritize education and workforce development programs tailored to the needs of the semiconductor industry, in partnership with universities and Chip Competence Centers. Programs such as Erasmus+ for STEM students, Digital Europe, Horizon Europe, and European Social Fund should be leveraged to build expertise in key areas like AI and connectivity chips, quantum computing, advanced materials, and MEMS/sensors.
- Finland will also support EU-wide talent mobility initiatives, encouraging the free flow of skilled workers across Member States to strengthen the European talent pool for the semiconductor industry.

4 Lead in green semiconductor manufacturing

- Europe has an opportunity to lead in sustainable semiconductor manufacturing. EU funding, particularly in R&D, should be directed towards green technologies with the greatest possible positive hand-print effect, including energy-efficient production, water conservation, and recyclable materials, aligning with both the green transition and technological innovation.
- Finland's focus on sustainable process technologies and commitment to carbon-neutral manufacturing, exemplified by [the Chip Zero ecosystem](#) and the country's leadership in nanocarbon material technology, will contribute to the EU's leadership in environmentally friendly chip production.

5 Forge closer international partnerships

- Partnering more closely with likeminded countries like the US, Japan, Korea, and Taiwan to strengthen supply chains and drive innovation is vital for enhancing Europe's technological innovation and resilience and should be prioritized in the EU's revised chips strategy. This should include permitting third-country companies to join joint ventures with EU firms and access EU-funded R&D infrastructure. By establishing strong international collaboration, Finland aims to facilitate the exchange of knowledge, technologies, and best practices.

6 Execute an ambitious Quantum Chips plan

- Europe needs a bold Quantum Chips plan. To build a 1M-qubit quantum computer, a strong and scalable public-private manufacturing infrastructure is required. Public fabs should innovate new fabrication methods to mitigate risks, while private fabs should scale proven processes for large-scale industrialisation.
- Funding should better consider the private sector to enhance production capacity for advanced quantum chips and meet future volume demands. Ultimately, Europe needs large commercial quantum chip fabs.
- The plan should address the IP concerns of commercial operators to encourage quantum chip companies to use pilot lines or the collaborative network for mass production. Investment should prioritize capabilities and ensure that industry-friendly supply and IP conditions are required for funding.
- Finland hosts more than 10 leading quantum technology companies and receives significant investments in the sector. Finland has already attracted 10% of the top 20 investments in quantum technology within Europe.

7 Leverage Finland's strengths to advance the EU chips agenda

- Finland seeks active participation in the European Semiconductor Board to contribute its expertise in emerging chips technologies. Industry representatives should also be involved in the Board's activities to offer perspective in guiding EU chips initiatives.
- By reflecting Finnish strengths in policy decisions and investment allocations, Finland and its chips industry can significantly contribute to advancing the broader EU semiconductor agenda. Additionally, Finland is committed to supporting the standardization and regulatory frameworks needed to ensure that Europe sets global benchmarks in semiconductor technologies, security, and intellectual property protection.

Chips from the North: Finland's commitment to EU competitiveness and technological sovereignty

Released in April 2024, Finland's industry-driven semiconductor strategy aligns with the EU's vision of strengthening technological sovereignty and global competitiveness. By focusing on key areas such as chip design, MEMS and sensors, photonics, quantum technologies, advanced materials, and process technologies, Finland aims to foster innovation that benefits the entire European semiconductor ecosystem. Finland's strategy includes a goal to triple the semiconductor industry's revenue to €5-6 billion by 2035, supporting the growth of a competitive and resilient sector. Finland is committed to R&D collaboration, workforce development, and attracting strategic investments to ensure Europe's leadership in the semiconductor industry.

- [Chips from the North – Semiconductor Strategy for Finland](#)
- [Chips from the North – Summary](#)

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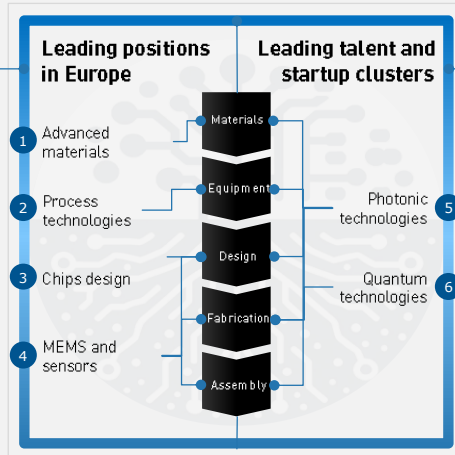
Chips from the North: Semiconductor Strategy for Finland

2035

€1,6B industry revenues
 90 companies across value chain
 7,000 direct employees

€5B to €6B in industry revenue
 €90B to €180B indirect value
 20,000 direct employees

Finland's six growth opportunities



Competitive advantages

- Societal predictability and infrastructure
- Mobile network expertise
- System chip design
- Sensors and MEMS
- Process and material technologies
- Photonic technologies
- Quantum technologies

Enabling outcomes

- Industry-academia-public collaboration
Effective collaboration structures and resources
- Competitive R&D ecosystem
Joint R&D funding of €5B over ten years
- Over 15,000 new employees
Elevated education output and talent attraction
- New established R&D and design centers
Promotion of talent, startup and technology clusters
- Over €1B manufacturing site investments
Public-private collaboration and public instruments

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