

EU Chips Act: priorities, geopolitics, resources – the debate goes on

Article 3- Resources – enabling the Chips Act goals

This third article in our series on the continuing debate around the proposed [EU Chips Act](#) explores the issue of resources. Where will the public money come from to fund the EU's ambitions? And equally important, can the EU source the necessary materials and skills?

The funding question

From the outset, many observers including non-EU actors, have suggested that the budget proposals for the EU Chips Act lack clarity. The American Chamber of Commerce echoed the words of many in its [analysis](#), of the EU Chips Act. *“While the EU’s plan to mobilise €43 billion is encouraging, the financial breakdown remains vague, and the Member States will need to take concrete actions to allocate appropriate resources.”*

MEPs, in particular, have called for fresh funding rather than money being re-allocated from existing programmes. Following discussions in the European Parliament (EP) in November 2022, MEP Eva Maydell, tweeted: *“A thriving #Chips economy is a game of two halves. 1: Increased production of current #tech 2: Investment in #innovation. Proper funding for R&D are vital to keep pace with global competitors & partners. The Chips JU & EU #budget must help secure this.”*

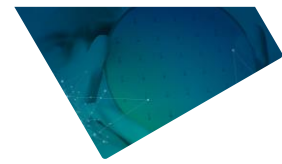
New money?

Earlier in the summer 2022, MEP Dan Nica, rapporteur for the EP on the proposed regulation for the EP's Industry, Research and Energy (ITRE) Committee had been [reported](#) as saying *“... since chip manufacturing is a highly capital-intensive endeavour, the Chips Act should receive fresh budgetary resources and not draw them from existing programmes, as has so far been the case for the EU's flagship research programme Horizon Europe.”*

Similarly, following [publication](#) of a series of recommendations from the European Committee of the Regions (CoR), in October 2022, its rapporteur MEP Thomas Schmidt, was quoted as saying: *“Overall, the EU and the member states must invest more fresh money to give a strong impulse for the European semiconductor industry. That is why the funding of the Chips Act should be part of the next MFF from 2028 on. The main benefit of the European Chips Act is a secure supply of semiconductors for the European industry. All regions in Europe will benefit from this.”*

The formal draft [report](#) of the European Parliament's ITRE Committee noted: *“Appropriate levels of funding are essential for the Chips Joint Undertaking to contribute to the successful achievement of the Chips Act and Chips for Europe Initiative”.*

The Rapporteur is therefore concerned about the ongoing discussions regarding possible reductions in the upcoming budgetary cycle, the lack of planning for the transition to the next MFF, continuing uncertainty around the use of de-commitments, and the lack of clarity for those within the R&D&I community regarding the exact amount of funding available under this scheme.



... when science, research and innovation can help the EU achieve its broader security and economic goals, future annual budgets and the Multiannual Financial Framework (MFF) should ensure there are no real-term cuts and reductions in this area.

Industry associations such as Orgalim have likewise [called](#) for new funding: *“We welcome increased funding for R&D in semiconductors, although we regret that this comes at the expense of funding allocated to other priorities.”*

The possible reallocation of some 400 million euros in funding from the Horizon Europe programme has proved particularly [contentious](#). And for many industry leaders, analysts and policy makers, the headline figure of 43 billion euros in funding is itself far too little.

How much and where to spend it?

In August 2022, a report from the Brookings Institute covering the situation in the US as well as Europe [argued](#): *“... the semiconductor market [will require huge investments](#), with capital expenditure between now and 2030 estimated at \$825 billion. ... To achieve the EU’s target of 20% production share, total semiconductor capital expenditure in Europe would have to be roughly \$164 billion. For the United States to get back to the 37% share that it had in the 1990s from the current 12% would require over \$300 billion. ... Further strategic financial planning must be done to shore up the credibility of efforts to achieve strategic autonomy.”*

In addition, there has been considerable debate over how funding will be allocated among the EU Member States. Is it better to concentrate funds in countries with existing strengths in semiconductors, or to spread funding more widely?

MEP, Dan Nica, has been [quoted](#) as saying: *“the Chips Act should “reduce disparities between the levels of development” of EU countries”*. In other words, the Act should not just benefit larger member states with established semiconductor industries.

And what of access for SMEs? Silicon Europe, an alliance for SMEs, has welcomed the Act. But it has also [called](#) among other things for easier access to leading research facilities for small and medium companies.

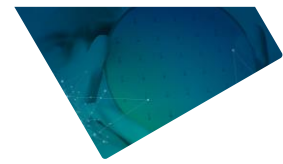
Raw materials and sustainability

Even if the EU raises sufficient funding through public and private investment, other resource hurdles remain. As shown by the EU’s proposed [Critical Raw Materials Act](#), raw materials are a particular concern.

Does Europe have the ability to source the necessary raw materials for increased chip manufacturing, particularly those from sensitive regions of the global? And how does increased fabrication fit with European ‘green deal’ goals and the circular economy?

In its [opinion](#) on the EU Chips Act, the EU’s Committee of the Regions noted. *“The need for more circular production of semiconductors in Europe is another one of the main demands of the opinion. Regarding chips production, the opinion argues that circularity would boost the EU’s strategic autonomy.”*

CoR members further highlighted the importance of the European Green Deal in the semiconductor sector and its potential for circular economy, reuse, recycling and energy efficiency.



Indeed, both the EU and the US see potential benefits in a more 'sustainable' chips industry. An article in the Fall [edition](#) of Issues in Science and Technology highlights some of the possibilities for the US, which are equally pertinent to the European situation.

"... focusing on sustainability in semiconductor R&D could also reinforce national security goals. Researching ways to repair and recycle chips and related components, for example, can result in designs that avoid dependence on foreign suppliers or scarce resources, increasing the security of domestic supply chains. Likewise, leading the world in repairable, low-impact chips could turn out to be a competitive advantage."

Access to skills – the vital ingredient

But, for many commentators the most critical resource will be a highly skilled workforce.

In the words of the McKinsey Technology Gap [report](#): "Europe can, and should, continue to leverage its many strengths. They include its high-quality education systems, which produce leading science, technology, engineering, and math (STEM) talent as well as some of the most productive vocationally educated workers."

Yet, the size of the demand is challenging in all settings: academia, research institutions and manufacturing. For instance, an [analysis](#) by US talent company Eightfold.ai suggests the creation of 18 to 20 fabs in the US would generate some 70-90,000 total fab jobs.

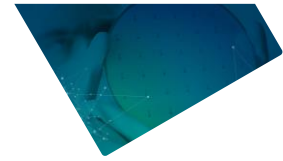
Whatever the actual number required in Europe, the EU [recognizes](#): "Demand for talent in electronics has been increasing in the last 20 years, with the microelectronics industry in Europe being directly responsible for 455,000 high-skilled jobs in 2018. One of the main challenges for the sector is to attract and retain highly skilled talent."

The EU-wide [METIS](#) consortium (MicroElectronics Training, Industry and Skills), "bridging the skills gap in the microelectronics sector", notes on its website:

- *The sector's talent pipeline is not diverse and inclusive enough, women participation going down from 40% to 10% along the occupational hierarchy.*
- *The workforce average age is 45-50+ in many segments, causing problems of trans-generational knowledge flow.*
- *The image of the sector: learners and future workforce do not connect microelectronics (hardware) with data technologies (AI & software) and with its contribution to societal and environmental issues*

European projects like METIS aim to strengthen the EU's ability to compete in the global war for talent. And the 'Chips for Europe Initiative' set out in the EU Chips Act proposals will further support education, training, skilling and reskilling initiatives.

However, programmes like these call for resources in their own right, as Henryk Schoder, member of the SEMI Pact for Skills Executive Board noted in an [interview](#) in May 2022. (The '[Pact for Skills](#)' is a European programme, with a focus on upskilling and reskilling in key industrial ecosystems including microelectronics.)



“The Pact for Skills is a great initiative and needs to be backed up with substantial funding for the industry by the European Commission. The global Industry Branding Campaign, the network for Universities and VET [Vocational Educational Training] Schools and the industry’s Diversity, Equity and Inclusion (DEI) initiatives must be pushed strongly and financed by the industry as well as government bodies. This will be necessary to support Europe’s ambitions in microelectronics design and manufacturing to double Europe’s market share by 2030 as laid out in the European Chips Act.”

Digital Europe has also stressed the importance of [women](#) in these efforts. *“Women represent just 19% of ICT specialists and about only 30% of STEM graduates in the EU. Better integrating them into the ICT job market would help Europe’s economy and create a more inclusive technology industry and a more inclusive society in turn. And from an economic standpoint, improvements to gender equality would generate up to 10.5 million additional jobs by 2050. GDP per capita could increase up to nearly 10% by the same date.”*

At a more regional and local level, there may be other levers to help fill Europe’s talent pipeline. For instance, Thomas Schmidt, rapporteur for the European CoR recommendation, has [suggested](#) measures such as Semiconductor Academies and Knowledge and Innovation Communities.

Will these various initiatives enable the EU to succeed in the global war for talent? A [report](#) from the Brookings Institute in August 2022 said: *“Policy measures [on skills and talent are underdeveloped](#) and do not address underlying causes of brain-drain, such as the European innovation environment and salaries.”*

On the other hand, the EU has [designated](#) 2023 as the ‘European Year of Skills’, demonstrating its determination to address the issue. As countries around the world seek to fill their own technology talent gaps, these initiatives from the EU – in partnership with academia and industry – will be crucial to its digital future.



Final remarks

What does the future hold?

Despite the ongoing debates over the details, the EU Chips Act proposals have been welcomed by industry, policy makers and EU member states alike. In [article](#) for the World Economic Forum, Frans Scheper, President and General Manager, Intel EMEA expressed some of the optimism around the proposals: *“By harnessing some of the world’s greatest talent in Europe, we can translate the region’s existing [excellence in research into industrial innovation](#) for consumers globally. In fact, Kearney estimates that the overall European economy would experience between €77 billion and €85 billion in additional GDP over the next decade through chip investment alone.”*

Some analysts have ventured potential scenarios for the future of Europe’s semiconductor industry. An [analysis](#) from Deloitte, November 2022, offered four scenarios. Europe might become a global leader, a ‘tech desert’ or a pure purchaser of technology. But “most likely” and a “good outcome” would be ‘Greatness divided’ – essentially current situation of “a continent where a minority of countries are centres of excellence”.

The European Parliamentary strategic research [paper](#) similarly set out four scenarios: ‘Rise’, ‘Continuity’, ‘Decline’ and ‘Collapse’. The risks would come from failed investments in a European megafab and resources spread too thinly. Or more dramatically, from a massive disruption of chip supply chains from Taiwan. Success, according to this paper, would be Europe being a world leader in advanced semiconductor technology.

Only the future will show which of these scenarios comes closest to reality. In the meantime, the discussions around the proposals for EU Chips Act continue. Although the diverse stakeholders may hold differing views, they share a desire to ensure the best possible outcome for Europe’s semiconductor industry and Europe’s wider competitiveness and socio-economic well-being.

- For more details on the legislative process:
[https://www.europarl.europa.eu/legislative-train/theme-a-europe-fit-for-the-digital-age/file-european-chips-act-\(semiconductors\)](https://www.europarl.europa.eu/legislative-train/theme-a-europe-fit-for-the-digital-age/file-european-chips-act-(semiconductors))