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How will the Chips Act 2.0 succeed?

Recommendations for action by German industry

November 28, 2025

Executive Summary

The EU Chips Act 2.0 offers the opportunity for a decisive **turning point in the European semiconductor industry and technology policy**. While the first Chips Act focused primarily on resilience and security of supply at a time of acute supply bottlenecks, Europe now needs a semiconductor policy that focuses on **technological leadership, competitive strength, and indispensability in the value chain** through innovative power. The focus must shift from reactive crisis management to a **long-term location strategy**. The revision of the EU Chips Act offers a unique opportunity to secure Europe's technological sovereignty, economic resilience, and industrial competitiveness.

Europe has outstanding research, strong user industries, and clusters, but it lacks speed, coordination, and investment momentum. Other regions of the world are acting more strategically and cohesively, while European procedures are still too fragmented and bureaucratic. The Chips Act 2.0 must draw conclusions from this: less complexity, more impact. An industrial policy approach that views **research, development, and manufacturing** as an **integrated value chain** is crucial. Taking into account the budget situation and priorities in financial planning, public funding should be targeted at areas where Europe can build indispensable competencies and receive the right impetus with the help of this funding. These include, above all, areas such as **power semiconductors, chip design, AI and quantum chips**, and future technologies such as **Edge AI**. The strong **supply industry** is also a key success factor for the European semiconductor ecosystem. In addition, the future technology of **photonics** should be highlighted as a strategically relevant field. At the same time, it is important to accelerate knowledge transfer between research and industry and to integrate start-ups and SMEs into the innovation ecosystem.

European semiconductor policy must not isolate itself in this regard. Resilience comes from international networking with trustworthy partners, not from isolation. Strategic cooperation with countries such as Japan, South Korea, and Singapore can stabilize supply chains, create common standards, and secure access to technologies. Equally important is strengthening the conditions in Europe: competitive energy prices, reliable framework conditions, modern infrastructure, reliable access to critical raw materials, and a determined reduction of regulatory hurdles. The EU Chips Act 2.0 can only be successful if, at the same time, the conditions mentioned above are significantly improved.

The Chips Act 2.0 can only be effective if the industry is able to help shape it as a partner. What Europe needs now is a clear strategic vision that recognizes semiconductors as a crucial factor in the resilience of the economy, society, and technological sovereignty, and that consistently anchors the aforementioned principles in its implementation.

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The European Chips Act: An Evaluation

The first European Chips Act was adopted at a time of global crisis, when the COVID-19 pandemic and supply shortages had exposed the vulnerability of international value chains. Accordingly, it was primarily aimed at overcoming supply bottlenecks and strengthening the resilience of the European semiconductor industry. The Chips Act 1.0 provided temporary momentum and marked a significant step toward greater technological sovereignty for Europe.

Despite positive impetus for manufacturing capacities, research, and innovation, the Chips Act 1.0 revealed significant **weaknesses in its implementation**. The targets set were not fully achieved, even though new momentum was brought to the European microelectronics landscape. This was mainly due to the unrealistic target of a 20 percent global production share. In addition, there was a lack of measurable interim targets. Important user industries were not sufficiently taken into account in terms of their demand structure. As a result, European semiconductor policy remained partially out of step with market needs and was unable to achieve the desired competitiveness.

While China is providing around **€143 billion** in funding for its domestic semiconductor industry until 2028 and the US is investing around **$50 billion** under the CHIPS and Science Act until 2028,[1] the European Chips Act only provides for a total volume of **€43 billion** – of which, however, only **€3.3 billion** comes directly from the EU budget.[2] These sums are not enough to establish Europe as a competitive location and remain attractive for investments. Subsidies for innovation in the microelectronics ecosystem are indispensable, as companies can hardly bear the high initial costs of many projects on their own. Transparent, competitive allocation of subsidies and degressive design in the sense of start-up financing must always be adhered to. Funding must be accompanied by significant private investment. A global subsidy race is neither financially viable nor effective. Money alone is not enough. What is crucial is targeted, strategic funding with a **focus on European strengths**, particularly in the automotive, industrial, IoT, power semiconductors, and specialty chip sectors. In addition, microelectronics in Europe needs better location conditions, for example through leaner approval procedures, competitive energy prices, and an excellent skilled workforce. This is the only way Europe can compete globally. Projects that do not require government subsidies are ideal and should become the norm through general improvements in local conditions.

Overall, it should be noted that the **first Chips Act laid important foundations**, among other things by drawing **political attention to microelectronics** and **initiating processes** such as the establishment of competence centers and national clusters. Another decisive step was the creation of a state aid framework that made it possible to subsidize semiconductor production for the first time. However, the immense progress made by global competitors means that the share of European chips in the global market is expected to remain well below the desired 20 percent, with a forecast of 11.7 percent by 2030.[3] Even this forecast will only be achieved if Europe focuses its approach strategically and coordinates it better. In particular, a significantly higher speed of implementation and decision-making must be ensured in order to strengthen Europe's position in microelectronics in the long term. A well-designed Chips Act 2.0 that takes into account the needs of user industries and learns from the mistakes of the first Chips Act could create new momentum and lay the foundation for a more powerful and resilient semiconductor industry in Europe that strengthens the region's technological sovereignty.

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[1] CHIPS FOR AMERICA | NIST
[2] European Chips Act | Shaping Europe’s digital future
[3] Report on the state of the Digital Decade 2024 | Shaping Europe’s digital future

Industry demands for the Chips Act 2.0

European industry supports the goal of strengthening the semiconductor industry in Europe and expanding technological sovereignty. The Chips Act 2.0 is seen as an opportunity to overcome the strategic weaknesses of the first act and establish a forward-looking, more resilient, and competitive microelectronics policy. Experience in recent years has shown that simply increasing funding is not enough. Rather, a reorientation of industrial policy is needed, encompassing strategic focus, realistic objectives, improved location conditions, international cooperation, and close integration with economic and security policy measures.

Strategic focus and industrial relevance

The industry is calling for future funding to focus on strategically relevant segments of microelectronics. Not all areas need to be addressed equally. It is crucial that Europe invests where it can become **indispensable in the global value chain** – for example, in AI chips for edge applications or physical AI, chip design, quantum chips, power semiconductors, and advanced packaging. Greater consideration must be given to **industrial applications** in order to provide targeted support for innovation in key European industries such as automotive, mechanical engineering, energy, and communications. The development of AI chips – especially for edge AI applications, which require high energy efficiency for local data processing – is particularly important in order to remain competitive in the face of current technological developments. Their development should be embedded in cooperation with partners in other regions. **Quantum computing** is also considered a necessary technology of the future that should be specifically promoted.

Many innovative medium-sized companies are ready to develop the manufacturing technologies of tomorrow together with large companies and start-ups. European mechanical and plant engineering plays an important role here. This brings competitive advantages for new products, creates strategic independence from established US and Asian manufacturers, and promotes the competitiveness of European companies in the global market, especially when local suppliers are considered for advanced assembly.

Realistic objectives and measurable impact

The target of a 20 percent global market share, as formulated in the first Chips Act, is considered ambitious and hardly achievable under current conditions. Nevertheless, such a target can serve as a **strategic reference point**, provided it is underpinned by **realistic interim targets** and **concrete metrics**. However, targets should not be defined arbitrarily but should be based on a realistic alignment with industrial needs and market conditions in order to consolidate Europe's role in the global value chain. Industry advocates a funding policy that is effective by targeting investments and making progress transparent and measurable. The strategic focus should be on areas where Europe currently has a relevant base and can take on a leading role in international competition in the future. The implementation of the Chips Act 2.0 should therefore be strictly monitored, for example through regular feedback from industry or scientific studies (and not through reporting requirements for industry), to ensure that funds are used efficiently and the desired effects are actually achieved.

Improving location attractiveness and investment climate

Europe must become an attractive location for international companies. In 2025, global semiconductor production will reach a volume of around **€695 billion**. Of this, around 60 percent was accounted for by three major suppliers, only one of which invested in Europe. The EU should take targeted measures

to remedy its weaknesses as a location (e.g., in terms of energy prices, availability of skilled workers, speed of approval, and bureaucracy) and strategically leverage its strengths, such as political stability, industrial expertise, and the European single market. Tax incentives and political support for user industries, as successfully implemented in the US, could also be an effective tool in Europe, given that they are coordinated and implemented in a coordinated manner at the EU level.

Ensure the availability of skilled workers, infrastructure with sufficient energy supplies, and raw materials.

A key obstacle to growth remains the shortage of skilled workers. Industry is calling for targeted training initiatives, international recruitment, attractive conditions, and close links with the business community. Financial investment in training infrastructure and programs to retain skilled workers are essential, including, in particular, the expansion of dual training structures. The energy infrastructure must also be strengthened, in particular through investments in the storage and use of renewable energies, in order to ensure a sustainable and cost-efficient supply. Location conditions such as energy prices, approval procedures, and access to raw materials must be systematically improved in order to enhance Europe's competitiveness. In addition, private and public investment can have a greater impact if location conditions enable increased value creation.

Simplify funding instruments and make them accessible

The existing funding instruments – both under the Chips Act and separately for IPCEIs – are considered too complex and difficult to access, especially for small and medium-sized enterprises. Industry is calling for a **reduction in bureaucracy and simplification of procedures** to enable faster and broader innovation. Funding must be more readily available, and procedures should be transparent, digitized, and efficient. With its binding deadlines in Articles 9 and 16, the Net-Zero Industry Act offers a good example of legal planning security and investment clarity. In addition, **project approval processes must be shortened** so that innovations can generate value as quickly as possible, ideally before the project is completed. Although the first-of-a-kind approach in the EU Chips Act sets important priorities but it should be made more flexible and extended to the entire value chain to also include suppliers, equipment manufacturers, end-user joint ventures, and start-ups.

In addition, the industry is calling for an **EU semiconductor budget** within the EU Competitiveness Fund, as recommended by Mario Draghi, to support strategic projects with centralized, rapid decision-making and flexible funding criteria. This budget would supplement national funds, for example as “top-ups” for FOAK projects, and focus on areas where Europe can gain significant market share within three to eight years and which are essential for strategic autonomy. This would also significantly increase the predictability of investment measures, which is particularly important for the industry.

At the same time, **cooperation between businesses and academia** should be strengthened, for example through joint innovation forums and simplified access to research funding. The possibility of joint projects - as practiced in the IPCEI AI - should be exploited to significantly reduce the burden on businesses. In addition, there is a need for greater coordination and harmonization of implementation by Member States, particularly with regard to timetables.

International cooperation and geopolitical resilience

Geopolitical tensions show how vulnerable global supply chains are. However, completely decoupling from third countries is neither economically sensible nor practically feasible. Instead, **targeted cooperation with trusted partners** should be sought in order to continue using globally established supply

chains in the future, avoid multiple investments in very costly technology strands, and at the same time increase resilience to unexpected external events. Industry is calling for the design of the Chips Act 2.0 to be closely linked to measures for economic security and the protection of critical infrastructure – for example, by integrating non-technical trustworthiness criteria into supply chain policy. New challenges such as increased export controls in the chip sector must be met with a forward-looking and proactive political strategy.

This also includes securing the supply of critical raw materials, especially in the area of rare earths. Here, it is important to diversify sources of supply wherever possible in order to reduce political dependencies. Raw material-rich partner countries such as Australia and Brazil are potential sources to be tapped. However, Europe must also rebuild its own extraction and processing capacities and offer European companies incentives to use them.

Industrial policy integration and strategic vision

Industry must be involved as a key partner in the objectives and strategies for achieving these goals. Its expertise along the entire value chain is indispensable for determining the necessary measures. The involvement of all relevant players along the value chain should be structurally anchored, for example in the form of **advisory committees and regular consultations**, whereby the establishment of new committees should only be necessary after the efficiency of existing committees has been maximized. It is important to have an institutionalized, high-level dialogue between political decision-makers and the European semiconductor industry in order to address key issues such as Europe's competitiveness and the focus on strengths and technologies. The exchange must involve all relevant players in the semiconductor ecosystem and be embedded in the governance structure of the EU Chips Act 2 to ensure timely and targeted initiatives. Only through a strategically oriented and user-oriented semiconductor policy can Europe secure its technological sovereignty and assert its role in global competition.

Political priority-setting

In order to strengthen the semiconductor sector in the long term and make it more resilient and sovereign for the future, the Chips Act 2.0 must set clear **thematic priorities** in its concrete design. Without prioritization, it will be impossible to keep pace with international competitors in the investment race and achieve the goals we have set for ourselves. This includes, among other things, the targeted promotion of **promising technologies** such as edge AI, industrial AI, and powering AI. Funding must have a clear focus on industrialization and future markets. International cooperation is becoming more important than ever, and a way must be found to establish new, reliable partnerships. In addition, the potential of dual use must be exploited.

Key technologies

Europe should specifically promote those areas that make it **indispensable in the global value chain**. In order to continue to play a significant role in the semiconductor market and remain internationally competitive in the future, it is particularly important to invest early in future technologies such as **edge AI, industrial AI**, and **powering AI**. In this context, the accelerated transfer of edge AI microelectronics into industrial applications should be given urgent priority – especially since Europe has particularly advantageous and competitive starting conditions in this area, such as a strong industrial base, leading research institutions, expertise in energy-efficient chips, and high data protection and security standards. From a German perspective, a strategically oriented funding framework should also include areas

of the **supply industry**, such as **EUV equipment**, **photonics**, **sustainable semiconductor manufacturing, metrology, intelligent manufacturing,** and **quantum chip technologies**. Investments in both research and industrial production of important future technologies are of great relevance to ensure that Europe has a chance to compete with international rivals.

Transfer R&D

Microelectronics thrives on effective **cooperation between research, industry, and politics**. Research and development must be strategically interlinked with industry so that innovations can be put into industrial application as quickly as possible and generate added value. This requires measures such as financial and structural incentives to make cooperation between industry and research attractive for both sides. In addition, **innovation ecosystems**, such as those already established in and around Dresden, are important, but close networking structures, such as those at the German Microelectronics Research Factory, are also important and worthy of support. This would facilitate the transfer to application and, in particular, give SMEs easy and bundled access to expertise from applied research. A **European research infrastructure with a high level of cooperation, supraregional network structures**, and the **targeted involvement of SMEs** is also of great importance. This means that common **standards and interfaces** must be established across Europe. The research priorities of the Chips Act 2.0 should aim to make Europe the market leader for selected processes and technologies.

Pilot lines

Start-ups and SMEs need rapid access to pilot lines from a single source, as these are important for further upscaling, as also required in the Defense Industry Transformation Roadmap, for example. Therefore, regulations must be created in cooperation with existing research institutes to enable legally secure and flexible access from prototyping to pilot production to small series, and to make pilot lines fundamentally accessible to key industries. The establishment of a central pilot line in which processes and materials are developed and qualified, from design to wafer production to advanced assembly, would be welcome. Such access is particularly advantageous for start-ups and SMEs, as it enables them to validate their developments more quickly and bring them to market maturity. When selecting a location, existing clusters such as Silicon Saxony should be considered as a German showcase example and, where appropriate and necessary, the development of further regional centers should be expanded. Close involvement of industry is a prerequisite for the industrial relevance and usability of pilot lines. Industrial needs must determine which pilot lines will be established and promoted in the future.

International cooperation: Prioritizing partnerships

Due to the international investment race and the high investment costs, it is essential to rely on **cooperation with reliable partners**. Given the high volatility of trade relations, for example with the US or China, it is more important than ever to **avoid unilateral dependencies** and build **sustainable partnerships**. Partnerships with countries such as Japan, or with countries such as Singapore, Malaysia, Vietnam, Thailand, India, South Korea, and Indonesia should receive more attention and contribute to the **diversification of partnerships**. The opportunity to create joint infrastructures can lead to a significant increase in value creation. In the course of this, agreements must ensure mutual access to technologies and research as well as the protection of proprietary IP, thereby facilitating investment and the exchange of skilled workers in practice.

The use of such partnerships is also important for the goal of creating robust supply chains. Developing **common standards** with key trading partners would be a great help to affected companies in making

efficient use of trade relations. This would make it easier to ensure security in times of growing threats in cyberspace. If security cannot be guaranteed, this has immediate consequences for industrial production as a whole and thus also for the economic situation of the countries affected. It is therefore essential to consider **microelectronics and cybersecurity** together.

Semiconductors from trusted manufacturers strengthen the resilience of entire value chains and can reduce dependencies. The availability of semiconductor products from such trustworthy manufacturers in the EU or partner countries is essential for the national and economic security of Germany and the EU. Semiconductor components from untrustworthy manufacturers in military applications or critical infrastructures create security risks such as supply failures, cyberattacks, and quality defects. Regulations must take sufficient account of the risks posed by dependencies on components from untrustworthy manufacturers. Semiconductor products that are required for national security or critical infrastructure should be subject to stricter resilience requirements than semiconductors used for industrial production or consumer goods. Cooperation with trustworthy international partners is essential for implementing this approach.

In order to institutionalize this international cooperation, **formats must be created or revived** that ensure regular exchange and a certain degree of commitment. These include formats such as TTC, Digital Trade Agreements, Digital for Development Hubs, or the Japan-EU Council, which have great potential and should be utilized.

Dual Use

One of the many special features of the semiconductor industry is the wide range of applications for its products. Semiconductors are important for **civilian use** as well as for **military applications** and **critical infrastructure**. Under certain circumstances, combining these two areas can lead to additional value creation, as military research and technology offer untapped potential for the civilian sector that should be specifically activated. The economic impact of defense spending increases significantly when funds are invested in innovative technologies that serve both security-related and commercially successful applications. The promotion of system design centers that enable cross-industry collaboration creates strong spillover effects by quickly transferring semiconductor innovations into new applications and generating additional value. Such a strategic orientation not only strengthens Europe's resilience but also its competitiveness. At the same time, EU goods lists need to be updated flexibly. These must be geared to the needs of the economy without losing sight of geopolitical goals.

Reducing legal uncertainties

Regulatory requirements must be clarified particularly for research institutions and SMEs so that they can compete internationally without encountering legal uncertainties. One example of this is the ongoing PFAS restriction procedure under REACH. This must not impair value creation in the semiconductor industry in the future. Therefore, the Chips Act 2.0 should provide a legal framework that helps to prevent conflicts of interest between the relevant areas of law. A potential PFAS exemption must cover the entire semiconductor industry and its suppliers in order to have an effect.

Capital market and innovation

A strong, unified European capital market is crucial for Europe as an investment location. In the US, a simpler and more uniform legal framework makes the market more attractive to venture capitalists. In addition, institutional investors such as pension funds in the venture capital sector provide more venture capital. In order for innovation in Europe to scale, the availability of capital must be improved

and regulatory hurdles removed. Progress in the capital markets union is crucial, especially for start-ups and SMEs.

New challenges, clear answers: Strategic sovereignty and robust supply chains

Increasing geopolitical tensions highlight how vulnerable global semiconductor supply chains are and how technological dependencies can be deliberately used as a means of political pressure. Political intervention and export restrictions have a direct impact on the industry's security of supply and production capacity. In order to strengthen Europe's technological sovereignty, in addition to targeted investments in key technologies, the expansion of regional innovation clusters, and the diversification of supply chains and technology partnerships, **consolidated European response mechanisms to inadmissible market interventions** must be promoted. Close **integration of economic protection, economic security, and industrial policy** measures is necessary to increase resilience to external unpredictable events.

Imprint

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