



European Chips Act - Questions and Answers*

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Why a European Chips Act?

- Semiconductor chips are the essential building blocks of digital and digitised products. From smartphones and cars, through critical applications and infrastructures for healthcare, energy, communications and industrial automation, chips are central to the modern digital economy. The COVID-19 pandemic has exposed a weakness in the ecosystem within both Europe and other regions in the world experiencing significant shortages of chips. EU industries manufacture many types of high-tech products, of which chips are essential parts.
- Europe must reinforce its capabilities in semiconductors to ensure future competitiveness and maintain its technological leadership. **Security of supply of semiconductors must be ensured to enhance the Union's strategic autonomy.** The semiconductor sector is both capital and knowledge intensive. Supply chains are global, complex and currently rely on few manufacturing locations, in particular in the Far East.
- In order to address these challenges, the European Chips Act brings together three policies into one single Act, structured in three pillars:
 - The **first pillar sets up the Chips for Europe Initiative** in order to build on our strengths in research and innovation and translate them into new production capabilities. To this end, the Initiative supports large-scale technological capacity building and innovation throughout the Union to enable the development and deployment of cutting-edge and next-generation semiconductor technologies. The Initiative will reinforce Europe's design capacity, support existing and new pilot lines for testing and experimentation of innovative chips solutions, accelerate the innovative development of quantum chips and associated semiconductor technologies, and support a network of competence centres across Europe for promoting innovative design and use of semiconductors technologies. Activities to **upskill and reskill** the workforce will be carried out, many of them via the competence centres. In addition, a "Chips Fund" facilitates access to finance for start-ups to help them mature their innovations and attract investors. This includes a dedicated semiconductor equity investment facility under InvestEU to support scale-ups and SMEs to ease their market expansion.
 - **The second pillar sets up a new framework** to ensure security of supply by attracting investments and enhanced production capacities. It facilitates investment in much-needed production capacity so that innovation in advanced technology nodes, or in innovative and energy-efficient chips can flourish.
 - The **third pillar puts in place a coordination mechanism** between the Member States and the Commission, for monitoring the supply of semiconductors, estimating demand and anticipating future shortages. It monitors the semiconductor value chain by gathering key intelligence from companies to map primary weaknesses and bottlenecks. It draws together common crisis assessments and coordinates the actions to be taken from a new emergency toolbox. It also reacts swiftly by making full use of national and EU instruments.
- Although the situation has improved ever since, the shortages over the past two years have exposed structural vulnerabilities in highly interdependent and global value chains already weakened by geopolitical frictions predating the pandemic, and have revealed some of the implicit costs of lean production strategies. They have furthermore served to highlight Europe's dependency on supply from a limited number of companies and geographies.
- In this regard, the Chips Act is of utmost importance to reduce the excessive dependence of European industry on external semiconductor suppliers. Lack of autonomous and unrestricted access to semiconductors could have a considerable impact on the competitiveness of different European strategic sectors, the security of EU citizens and the Union's strategic autonomy and economic security.

What is Europe's current situation on the chips market?

- Europe has many strengths and some weaknesses in the semiconductor value chain. The semiconductor sector is characterised by intense R&D activity, with leading companies reinvesting more than 15% of their revenues into research in next-generation technologies.
- The EU is home to world-leading research and technology organisations and many excellent universities and research institutes spread across the Union. These are pioneering the techniques behind the production of some of the world's most advanced chips.
- Moreover, Europe is very well positioned in terms of the materials and equipment needed to run large chip manufacturing plants, with many companies playing essential roles along the value chain.
- Despite these strengths, Europe has an overall global semiconductors production market share of less than 9% and is heavily dependent on third-country suppliers, notably China and Taiwan and more globally East Asia. In case of severe disruption of the global supply chain, there is a risk that European industrial sectors could run out in a short amount of time, bringing European industries and the European economy to a standstill.
- As the digital transformation accelerates and penetrates every part of society, **industrial needs for chips are set to increase**, opening new market opportunities.

How has the Commission supported the semiconductors ecosystem so far?

- The EU has a history of successful collaboration with industry in the framework of different programmes and actions in Research, Development & Innovation (R&D&I) in semiconductors, e.g. in relevant Joint Undertakings, i.e. Public-Private Partnerships for research, development and innovation such as [ECSEL](#) (up to **€1.2 billion EU funding**) and the [Key Digital Technologies JU](#) (up to **€1.8 billion EU funding**).
- Furthermore, the [European Innovation Council](#), which supports breakthrough innovation with grants and equity investment, is already investing in creating dynamic and resilient semiconductor ecosystems, as part of its work. Reducing the cost and time of new chip designs, minimising the power consumption and waste generated during manufacturing, making chips faster and more efficient are only a few examples of the EIC funding portfolio.
- Through its [Accelerator scheme](#), the EIC reinforces its support to start-ups and SMEs with market creating innovation potential in the semiconductor and quantum technologies sector and helps them mature their innovations and attract new investors.
- With regards to national R&D&I projects in the semiconductor sector, Member States may provide aid under the R&D&I State aid rules, in particular the [R&D&I Framework](#) and the provisions of the [General Block Exemption Regulation](#).
- Already in July 2021, the Commission [launched the Industrial Alliance on Processors and Semiconductors](#), aiming to bring together businesses, Member State representatives, academia, users, as well as research and technology organisations with the objective to identify current gaps in the production of microchips and the technology developments needed for companies and organisations to thrive, no matter their size.
- A new Important Project of Common European Interest (IPCEI) on Microelectronics and Communication Technologies was [approved](#) in June 2023 involving 14 Member States, with 56 companies, including small and medium-sized enterprises ('SMEs') and start-ups, undertaking 68 projects. The Member States will provide up to **€8.1 billion in public funding**, which is expected to unlock additional **€13.7 billion in private investments**.
- An IPCEI is a State aid tool for Member States allowing public co-financing under the condition that it concerns large integrated cross-border projects to overcome market failures and enable breakthrough innovation in key sectors and technologies, up to first industrial deployment, as well as important infrastructure investments, with positive spill-over effects for the EU economy at large.
- With the Chips Act, the EU is strengthening and further expanding such collaboration within the industry to involve all actors of the value chain, including also the designers and players from the demand side.

How will the European Chips Act address current problems?

The Chips Act is a unique opportunity for Europe to act jointly across all Member States, to the benefit of the whole Union.

- In the **short term**, the Chips Act enables the Union and Member States to understand the

dynamics of semiconductor supply chains and to take measures to anticipate and address future chips crises.

- In the **medium term**, the Chips Act will strengthen manufacturing activities in the Union and support the scale-up and innovation of the whole value chain, addressing security of supply and a more resilient ecosystem.
- And, in the **long-term**, it will maintain Europe's technological leadership while preparing the required technological capabilities that would support transfer of knowledge from the lab to the fab and position Europe as a technology leader in innovative downstream markets.

What is the Chips for Europe Initiative?

- The Chips for Europe Initiative aims to reinforce the EU's semiconductor technology and innovation capabilities and ensure Europe's chips technology leadership in the mid- to long-term. It will ensure the deployment across Europe of advanced semiconductor design tools, pilot lines for prototyping the next generation of chips and testing facilities for innovative applications of latest chips technology. It will also build advanced technology and engineering capabilities in quantum chips, and set up a network of competence centres.
- This Initiative pools together €11.15 billion of public investments up to 2030* from the Union and the Member States and leverages considerable private investments. Financing activities through a new Chips Fund support equity for start-ups and scale-ups in the sector, for a projected overall value of €2 billion (* Estimated for the period 2028-30).
- The initiative will be financed by **the Digital Europe and the Horizon Europe programmes, and will be mainly implemented by the renamed Chips Joint Undertaking (previously known as Key Digital Technologies Joint Undertaking). The Digital Europe programme** supports digital capacity building in key digital domains. This is the case where semiconductor technology underpins performance gains, notably High Performance Computing, Artificial Intelligence, and Cybersecurity, together with skills development and the deployment of digital innovation hubs. The **Horizon Europe programme** supports pre-competitive research, technology development, and innovation in the area of semiconductor technologies, related quantum technologies and materials.
- The Initiative will build on Europe's leadership in research, including on the capabilities of its leading research centres and of key production equipment providers and strong user sectors.

How is the Commission proposing to attract investments to strengthen EU security of supply?

- Investments in new advanced and innovative production facilities are imperative to safeguard the Union's security of supply, supply chain resilience, and ecosystem spill overs and interactions, while generating significant positive impacts to the wider economy.
- To attract such investments the Chips Act provides the definition of **two types of facilities to be considered as contributing to Europe's security of supply**. Such facilities are the so-called '**open EU foundries**' (**OEFs**), which are facilities that design and produce components mainly for other industrial players, and the so-called '**integrated production facilities**' (**IPFs**), which are factories that design and produce components that serve their own market. To be recognised with the IPF or OEF label, these facilities must be **innovation-oriented and "first of a kind" in Europe** and their operator should commit to continued investments in innovation in the Union's semiconductor sector.
- The recognition as either type of facility triggers a **number of benefits**. First, in the frame of State aid assessments, this status will be taken into consideration as a positive element in the balancing exercise. Second, the Chips Act provides for fast-tracking of permit granting procedures to facilitate their planning and establishment. Third, under certain conditions, these facilities are granted priority access to pilot lines in order to test their innovations.

How will the Commission assess Member States' public support to chips manufacturing facilities under State aid rules?

- Private investment in chips manufacturing facilities may likely **require public support**. In light of the extremely **high barriers to entry** and the **capital intensity of the sector**, as already announced in the [Communication on a competition policy fit for new challenges](#), the Commission may consider to approve aid to such facilities directly under Article 107(3)(c) TFEU. This provision **allows the Commission to approve State aid to facilitate the development of certain economic activities**, if the positive effects of such State aid outweigh its potential negative impact on trade and competition.

In its assessment, the Commission has to ensure that the aid must:

- Have a so called “**incentive effect**” and be **necessary**. This means that State aid can be granted only to support a project that would not take place in the Union without public support.
- Be **appropriate** – meaning that there is no other possible tool that would be less distortive for competition.
- Be **proportionate**, and limited to the minimum necessary.

Relevant aspects to ensure that the positive effects of State aid outweigh the negative are, among others, that:

- The facilities will be “**first of a kind**” in Europe, meaning that an equivalent facility does not already exist in Europe. In assessing whether a facility is “first of a kind”, the Commission will take into account the definition in the Chips Act.
- The supported facility will **not crowd out existing or committed private initiatives**.
- The public support covers a maximum of 100% of a proven funding gap, i.e., the minimum amount necessary to make sure such investments take place in Europe.

Depending on the merits of each individual case, additional positive effects to offset risks of competition distortion will be considered, such as:

- A **strengthening of the semiconductor value chain**, to ensure security of supply for European businesses using chips in their products. The acceptance to satisfy EU priority-rated orders, as also set out in the Chips Act, will play a role in this respect.
- A **positive contribution in terms of attracting a qualified workforce** to Europe.
- A **positive impact on innovation in Europe**, bringing benefits to SMEs and end users. The commitment to invest in innovation, set out in the Chips Act for the recognition of the status of OEF and IPF, will play a role in this respect.

How will you address the skills shortage?

- 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 Chips for Europe Initiative **supports education, training, skilling and reskilling initiatives**. Actions will support access to postgraduate programmes in microelectronics, short-term training courses, job placements/traineeships and apprenticeships and training in advanced laboratories.
- Additionally, the Initiative will support a network of competence centres, located across the European Union. The aim is to increase the availability of internships and apprenticeships, raise students' awareness of the opportunities in the field and support dedicated scholarships for masters and PhDs, also aiming at increasing female participation.

What investments are needed?

- There are various ways to achieve the objectives behind the Chips Act. Huge investments are required to achieve this ambition. This will require the pooling of investments from the Union and the Member States, as well as significant contributions from industry players and private investors.
- A number of announcements of public and private investments have taken place since the Chips Act was presented. In total, including the IPCEI on Microelectronics and Communication Technologies, **over €100 billion of public and private investments have already been announced for concrete projects**.
- A sum of €11.15 billion* of public investment will be directly provided under the Chips for Europe Initiative to finance technology leadership in research, development, and innovation up to 2030 (* Estimated for the period 2028-30).
- These investments will complement existing actions in research & innovation in semiconductors such as those from Horizon Europe and the Digital Europe programmes as well as additional support already envisaged by Member States (e.g., specific measures in recovery and resilience plans, national or regional funds etc.).

The Joint Undertaking on “Key Digital Technologies” just started in December 2021. Why a new one now?

- The new generation of Horizon Europe partnerships is flexible to adapt to changing technology,

market and policy environment. By changing the mandate of the Key Digital Technologies Joint Undertaking, which was set up under the so-called Single Basic Act (the regulation that set up Joint Undertakings under Horizon Europe), the Commission is responding to urgent needs. A main change is the addition of funding from the Digital Europe Programme to the Chips JU.

- The Chips Act is a promising opportunity for a wide range of stakeholders, not only for chip manufacturers but also for user industries, in transport, healthcare, communication, manufacturing, etc. The Chips Joint Undertaking should be open to the participation of new stakeholders in this respect.

What is being done on an international level?

- On an international level, all the major world regions are already heavily investing and rolling out support measures to innovate and strengthen their production capacities in a similar way to the European Chips Act. For instance, the **US Chips Act** allows the allocation of USD 52 billion to manufacturing and R&D until 2026. **China** is also accelerating efforts to close its technological gap and will invest USD 150 billion by 2025 through the "Made in China" initiative. **Japan** has recently announced USD 8 billion in public funding, with an additional USD 13 billion released in early November 2023 as part of an economic stimulus package, available for domestic semiconductor investment, including investments in a new company called Rapidus. **South Korea** will also support its semiconductor industry with a plan together with companies to invest USD 450 billion in R&D and manufacturing until 2030.
- Against this backdrop, the EU has acted as well. By improving the Union's security of supply and its capacity to design and produce powerful and resource-efficient semiconductors, the Chips Act was designed to contribute to the **rebalancing of global semiconductors supply chains**. Additionally, the EU aims to serve global demand, which will increase substantially, and to gain its share of the growing market.
- The EU should be prepared for the possibility of sudden changes in the geopolitical status quo or unforeseen crises, which could threaten the Union's security of supply. The **crisis response toolbox** within the Chips Act would give the EU the necessary means to address such situations and, in the last resort, to ensure Europe's overall resilience.
- At the same time, the EU aims at building balanced semiconductor partnerships with its strategic international partners. The aim of these partnerships is to cooperate on initiatives of mutual interest and ensure continuity of supply in times of crisis.
- For instance, in the context of the **Trade and Technology Council (TTC) with the United States** a working group focusing on secure supply chain in semiconductors has been put in place. This allows the deepening of cooperation in critical areas such as a subsidy transparency mechanism or joint cooperation in research (e.g. on PFAS alternatives). A TTC with India has been set up as well, and a Memorandum of Understanding on Semiconductors was signed on November 21, 2023.
- At the same time, the EU has established several **Digital Partnerships**, for example with Japan, South Korea, and Singapore.
- The partnership with **Japan** will strengthen the EU-Japan cooperation in semiconductors, e.g., by setting up an early-warning mechanism for the semiconductor supply chain, cooperating on skills development, and enhancing cooperation in common research interests. A first workshop between the EU and Japan on alternatives to PFAS and use-cases of advanced semiconductor applications will be organized in January 2024.
- Another Digital Partnership with **South Korea** was recently adopted with a focus on R&D collaboration. In this context, a joint call on low-TRL research with South Korea is expected to be launched in 2024 to fund research projects on a wide scope of topics, including heterogeneous integration and neuromorphic computing. A workshop with South Korea on research cooperation is planned for Spring 2024.
- Finally, the **Digital Partnership with Singapore** is the latest partnership concluded by the Union with cooperation on semiconductors in its agenda.

What are the next steps for the Chips Act?

- The regulation on the Chips JU also entered into force at the same time as the Chips Act, i.e. on 21 September 2023, transforming the Key Digital Technologies Joint Undertaking into the Chips JU. This allows launching the implementation of the main part of the Chips for Europe Initiative.
- Discussions are currently ongoing between the Commission and Member States, industry and research and technology organisations (RTOs) to define the characteristics of the different components of the Initiative (e.g., the pilot lines, the design platform, engineering capacities

for developing quantum chips, competence centres). A revised work programme 2023 of the Chips Joint Undertaking was adopted to allow for the launch of the first calls, namely on pilot lines, at the end of 2023. First calls on the other components of the Initiative will follow in 2024.

- Furthermore, the Chips Fund is able to ramp-up its activities in facilitating access to finance (in particular, for SMEs) and in supporting the development of a dynamic ecosystem.
- Companies are now able to apply for the label that determines that their new or upgraded facilities are “first-of-a-kind” facilities in the Union: the label as “Integrated Production Facility (IPF)” or “Open EU Foundry (OEF)”. This allows companies to start benefitting from a number of advantages that come with the label. For instance, in the frame of state aid assessments this status will be taken into consideration as one positive element in the balancing exercise; fast-tracking of permit granting procedures to facilitate their planning and establishment; and, priority access to the Initiative's pilot lines.
- With the entry into force of the Chips Act, the work of the newly established European Semiconductor Board (ESB) also formally begins. This Board is an overarching advisory body that acts as the key platform for coordination between the Commission, Member States, and stakeholders.
- The ESB provides the Commission with advice, assistance, and recommendations across the three Pillars of action, notably on the Chips for Europe Initiative (Pillar I), on decisions by the Commission to grant the status of Integrated Production Facility or Open EU Foundry (Pillar II), and in the context of the mapping, monitoring and crisis-response mechanisms foreseen in Pillar III.

For More Information

[European Chips Act enters into force – Press release](#)

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