

Towards a future-proof economic security policy in the microelectronics

Position paper

1 Introduction

- **Substantial changes are sweeping across the global economic landscape.** Geopolitical tensions, particularly between China and the United States of America, as well as Russia's war in Ukraine take place at the same time as a profound technological transformation. This constellation creates interdependencies: Certain technologies bear a transformative potential of high magnitude, thus being considered as means of geostrategy and security politics.
- **Amidst this complex situation, Germany and the European Union are striving to establish an independent position.** Several approaches are currently being discussed within the broader concept of 'economic security' to address four challenges simultaneously: ensuring the resilience of supply chains, improving the (cyber-)security of critical infrastructures, achieving technological sovereignty, and protecting against the weaponization of economic dependencies.
- **Microelectronics plays a pivotal role in this context.** As an indispensable basic technology for numerous end user industries, artificial intelligence, infrastructure and defence, microelectronics directly determines the resilience and competitiveness of modern economies.
- **This paper aims to** highlight the specific challenges of the microelectronics industry in Germany and Europe within the context of current geopolitical tensions. Based on this analysis, the paper will develop concrete recommendations for a future-proof European economic security policy in the field of microelectronics. The paper shall be regarded as ZVEI's first contribution to the debate on economic security and microelectronics. ZVEI will continuously develop its position to reflect the geopolitical situation and new insights.

2 Microelectronics as a “special case“ of economic security

- **“Enabler“ for innovation and growth in key industries and infrastructure**
Microelectronics is a “General Purpose Technology”. It is the main driving force of innovations and growth in all European key industries. In the automotive industry, microelectronics enables, for example, automated and connected driving, infotainment systems and battery-powered electric drives; in industrial automation and mobile robotics, it enables autonomous transport systems. In the domain of critical infrastructures, microelectronics lays the foundation for 5G/6G-connectivity, in the medicine technics it enables AI-supported imaging methods, whereas in energetics it enables efficient energy management of solar power systems and the construction of reconnaissance drones in the defence industry. A shortfall or bottleneck in semiconductors would have extensive consequences to the entire economy and society. In Germany, the chip shortage during the COVID-pandemics, induced by fluctuations in demand, caused a macroeconomic damage of more than 100 billion euros.¹
- **Relevance to artificial intelligence**
Microelectronics is the indispensable hardware basis for applications of artificial intelligence. Whereas the political discourse often concentrates on high performance logic chips such as GPUs and CPUs, the development and use of modern AI systems often require a wide range of specialized semiconductors. Network chips are essential to high performance computing and data centres alongside processors for fast data transmission, power semiconductors for efficient energy management and many other components.

¹ ZVEI: Study From Chips to Chances (2024), pp. 16 ff. https://www.zvei.org/fileadmin/user_upload/Presse_und_Medien/Publikationen/2025/Februar/2025-005-Studie-Von-Chips-zu-Chancen-HL-ME/ZVEI-Mikroelektronik-Studie-EN-2025-02-19.pdf (last visit 29.07.2025).

Moreover, Edge AI becomes increasingly important: data processing directly at the device level reduces latency, bandwidth requirement and the dependency on central cloud infrastructures. Therefore, the availability of high-performance microelectronics is a prerequisite for technological competitiveness in the age of artificial intelligence.

- **Extreme concentration and globalization**

Certain technologies and production steps are concentrated on a few suppliers and locations globally. High-end chip manufacturing or EUV lithography systems are examples of a high level of concentration. At the same time, by the time it has passed through all stages of production, a microchip travels an average distance equivalent to 2.5 times the circumference of the Earth. This global interconnectedness and specialization were and remain important factors for efficiency and competitiveness of the industry. Geopolitical tensions, natural catastrophes, or targeted political attacks put these value chains under pressure.

- **High entry barriers**

Building up own capacities is extremely capital- and technology-intensive. The construction of a modern gigafab requires investment of 5 to 20 billion euros. The front-end process alone (wafer coating) consists of more than 1,000 high precision single steps with minimal error tolerance. EUV lithography systems, indispensable to the newest chips generations (less than or equal to 7 nm), consist of more than 100,000 components. These technological and economic obstacles render short-term capacity building in production practically impossible.

- **Security risks**

Manipulations of microelectronics components, e. g. through hardware Trojans, can have far-reaching consequences to critical infrastructures and national security. Trust-worthy microelectronics is therefore essential to the overall resilience of modern states.

3 Microelectronics in geopolitical competition

The growing relevance to numerous user industries, supply bottlenecks experienced during the pandemics as well as rising geopolitical tensions shifted microelectronics to the focus of considerations on economic security and security politics among political stakeholders. To fulfil their goals in the sphere of economic security and security politics, political stakeholders increasingly opt for interventionist instruments. This stance partially contradicts basic principles of fair and open competition in global trade. These instruments include high government funding, coercion to technology transfer, export controls with extraterritorial impact, unjustified tariffs, local content requirements and other market access restrictions.

These developments result in concrete challenges for Europe regarding its economic resilience and technological capacity to act:

- **Limited access to sales markets**

US export controls with extraterritorial effect for AI chips and production equipment as well as the introduction of **import tariffs** on semiconductors as a part of the "Framework Agreement"² complicate the access to important sales markets for European enterprises. Thereby, risks of lost revenue arise, as well as strategic disadvantages in the global positioning of European microelectronics.

- **Threatened access to raw materials**

China's export controls on raw materials did not result in significant consequences to the semiconductor production in Europe until now. So far, enterprises have usually obtained their export licenses. Nonetheless, China holds a market share of more than 90 per cent in the production and particularly in the further processing of Rare Earths and other critical raw materials. In the case of a further escalation, this quasi-monopoly could lead to sensitive disruptions of semiconductor production in Europe.

- **Displacement of suppliers from Europe and critical concentration of production in China**

Within its supply-oriented economic policy, China purposefully extends its production capacities in the strategically important domain of microelectronics. This development can be observed particularly in

² EU Commission: Joint Statement on a United States-European Union framework on an agreement on reciprocal, fair and balanced trade (21.08.2025), https://policy.trade.ec.europa.eu/news/joint-statement-united-states-european-union-framework-agreement-reciprocal-fair-and-balanced-trade-2025-08-21_en (last visit 04.09.2025).

certain segments of the so-called **foundational chips**³ as well as in **PCBs** and in the **electronics assembly**.⁴ This contributes to a **stronger competition** regarding European suppliers on the Chinese market and a **critical concentration of production in China**. If the new production capacities were also used for exports, European suppliers would come under pressure both in the European market and in outside markets. The announced increases of US tariffs on Chinese products could furthermore contribute to the “redirection” of Chinese capacities to the European market. These developments may cause a displacement of suppliers from Europe, a limitation of the multitude of supply sources and an endangerment of the supply resilience of important European user industries and critical infrastructures.

- **“Securitization” of supply chains**

Geopolitical tensions create the aspiration to protect critical infrastructures stronger. Nonetheless, there is a lack of viable concepts for practical implementation in the globally connected microelectronics industry, especially since enterprises are primarily responsible for security and resilience alongside the value chain. External exertion of influence in this sphere can be justified only under strict conditions.

- **Risk of "Tech Decoupling"**

Overall, the increasing consolidation of geopolitical and regulatory blocks of countries leads to different technology standards, norms and ecosystems. Globally operating companies face diverging specification profiles. This can be detrimental to the scalability of production and contribute to the fragmentation of sales markets.

As an export-oriented economic union, the European Union has a strong interest in **open markets and order-based foreign trade relations**. The EU aims to lay a foundation for a stronger position on the global market with the strategic initiative “Competitiveness Compass”. The **European Economic Security Strategy** resumes and develops various instruments of economic policy within the three pillars Promote, Protect and Partner.⁵ The most important instruments are:

- **Public funding of microelectronics** within the European Chips Act and IPCEI – financed primarily through member states’ funds. This source comprises approximately 32 billion \$ until 2030.⁶
- **Investment Screenings** (FDI and OIS) should prevent the drain of critical technologies and competencies.
- The **development and export of dual-use-goods** have been constrained with stricter rules against the background of Russia’s ongoing war in Ukraine⁷ - this affects particularly components in the microelectronics industry.
- New political initiatives, such as the Clean Industrial Deal, now also bring the **“EU content requirements”** in **public procurement** as an instrument of protection and subsidies for the local industry into debate⁸ – as an enabler of numerous user industries, the microelectronics industry would be targeted indirectly.

³ Explanation: “foundational chips” are often referred to as “mature nodes” or “legacy nodes”. These expressions mean semiconductors with a node size of 22 nm or larger.

⁴ Cf.: BusinessEurope: EU-China relations: Shaping the way forward (20.11.2024), pp. 7 ff. <https://www.besuisseurope.eu/publications/eu-china-relations-shaping-the-way-forward-a-besuisseurope-position-paper/> (last visit 29.07.2025).

And: Rhodium Group: Overcapacity at the Gate (26.03.2024) <https://rhg.com/research/overcapacity-at-the-gate/> (last visit 29.07.2025).

And: MERICS: Beyond overcapacity: Chinese-style modernization and the clash of economic models (01.04.2025), <https://merics.org/en/report/beyond-overcapacity-chinese-style-modernization-and-clash-economic-models> (last visit 29.07.2025).

And: DSET: The Great Siege: The PRC’s Comprehensive Strategy to Dominate Foundational Chips (01.04.2025), <https://dset.tw/en/research/the-great-siege/> (last visit 29.07.2025).

And: EU-Commission updates report on state-induced distortions in China’s economy (11.04.2024), p. 598: <https://ec.europa.eu/news-room/trade/items/826216/en> (last visit 29.07.2025).

⁵ Cf.: EU Commission, Directorate-General for Communication: European economic security strategy (20.06.2023), <https://op.europa.eu/en/publication-detail/-/publication/2dab2b60-149c-11ee-806b-01aa75ed71a1/language-en> (last visit 29.07.2025).

⁶ As of today, promised public funding for European programmes in microelectronics amounts to more than 32 billion euros. The officially communicated amount of 43 billion euros until 2030 for the mobilisation of public and private investments through the ECA does not yet define how much funding accounts for public subsidy funds. Therefore, the sum of 32 billion euros has been used in the study as the reference value. Cf.: ZVEI: Study From Chips to Chances (2024), p. 25. https://www.zvei.org/fileadmin/user_upload/Presse_und_Medien/Publikationen/2025/Februar/2025-005-Studie-Von-Chips-zu-Chancen-HL-ME/ZVEI-Mikroelektronik-Studie-EN-2025-02-19.pdf (last visit 29.07.2025).

⁷ Cf.: EU Commission: New tools to reinforce the EU’s economic security (24.01.2024), https://commission.europa.eu/news/new-tools-reinforce-eus-economic-security-2024-01-24_en (last visit 29.07.2025).

⁸ Cf.: EU Commission: Communication – The Clean Industrial Deal / Roadmap (from 26.02.2025), <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52025DC0085> (last visit 29.07.2025).

- The European **Cyber Resilience Act (CRA)**⁹ and the European Network Information Security Directive (NIS2)¹⁰ should improve the **cybersecurity of electronic devices and critical infrastructures**. The concrete implementation remains unknown, particularly at member state level.
- **Import tariffs** of the European Union, such as the tariffs regarding BEVs from China, affect microelectronics only indirectly.¹¹
- Within the framework of different **bi- and multilateral agreements**, the EU aims to build new partnerships and to open new sales markets. Regarding the microelectronics industry, the focus lays primarily on potential partnerships with India and South-East Asian countries.

The European Commission clearly shows the intention to maintain open trade relations as far as possible and seeks a constructive **dialogue with China and the USA**.^{12 13}

4 Political action recommendations

The following action recommendations have been formulated according to the three pillars Protect, Promote and Partner of the European Economic Security Strategy. **The goal must be to sustainably strengthen Europe's competitiveness, to hedge risks in a targeted manner and to build resilient partnerships, whereas the open character of the European economy should be maintained as far as possible.**

Generally, the measures should be coordinated at the European level, rule-based and anticipatory in nature, focusing on innovation, technological leadership, bureaucracy reduction and international cooperation. **The secured supply of semiconductors shall be the central goal of the foreign trade policy.** At the same time, Germany and the EU should clearly claim reciprocity and resolutely dismiss extraterritorial measures posing a threat to European interests. Unjustified subsidies or market restrictions in other economic areas create the need for fast, precise and proportional reactions to minimize negative effects and prevent block building.

The basis of this approach is **systematic mapping and continuous monitoring** to observe technological developments and geopolitical risks throughout all value chain stages (raw materials, design, equipment, production up to test and assembly) and across all product and technology types (logic chips, memory, microcontrollers, sensors etc.). This includes the **extension of corresponding competencies and capacities** within the European and German administration, a closer **institutional cooperation** and a **closer industry involvement** (enterprises and industry associations located in Europe) into political decision-making. Particularly the G7-rounds and the EU Semicon Board should closely integrate technological expertise and market knowledge of the industry.

4.1 Promote: create competitiveness, expand strengths

- **Turning Germany into an attractive location for investment** Competitiveness is a cornerstone of economic security. To strengthen our position in global value chains, it is indispensable to develop Germany into a strong location for local enterprises and an attractive investment location for international technological leaders. This also requires a comprehensive industry policy considering the close connection between the microelectronics industry and its end user markets, such as the automotive industry and the mechanical engineering industry. Key levers are the consolidation and further development of subsidy programs within the European Chips Act and IPCEI-initiatives related to microelectronics (Advanced Semiconductor Technologies, Artificial Intelligence, Edge/Cloud Infrastructure, Circular Advanced Materials). These should be coordinated more closely, flexibly endowed and significantly accelerated to correspond to the short innovation cycles of microelectronics. At the same time, they should include strategically relevant value chain stages, such as chip design and back-end, in a targeted manner. The further

⁹ Cf.: German Federal Office for Information Security: https://www.bsi.bund.de/DE/Themen/Unternehmen-und-Organisationen/Informationen-und-Empfehlungen/Cyber_Resilience_Act/cyber_resilience_act_node.html (last visit 29.07.2025).

¹⁰ Cf.: ENISA Website (16.01.2023) <https://www.enisa.europa.eu/topics/state-of-cybersecurity-in-the-eu/cybersecurity-policies/nis-directive-2> (last visit 29.07.2025).

¹¹ Cf.: EU Commission (29.10.2024): EU imposes duties on unfairly subsidised electric vehicles from China while discussions on price undertakings continue, https://ec.europa.eu/commission/presscorner/detail/en/ip_24_5589 (last visit 29.07.2025).

¹² As a response to US import tariffs on EU goods, the European Commission offered a "Zero-for-zero Agreement" to the administration of president Trump. Cf.: euronews (10.04.2025): Von der Leyen begrüßt Trumps Zollpause und bietet "Null-zu-Null"-Abkommen an, <https://de.euronews.com/business/2025/04/10/von-der-leyen-begrusst-trumps-zollpause-und-bietet-null-zu-null-abkommen-an> (last visit 29.07.2025).

¹³ Market access and cooperations in critical technologies have been discussed during recent meetings of EU Trade Commissioner Šefčovič and the Chinese Vice Prime Minister He Lifeng. Cf.: Handelsblatt: Nach Trumps Zollschock erwägt EU Technologietransfer aus China (26.03.2025), <https://www.handelsblatt.com/politik/international/freihandel-nach-trumps-zollschock-erwaegt-eu-technologietransfer-aus-china/100116283.html> (last visit 29.07.2025).

extension of production capacities must also remain eligible for funding to reduce Europe's vulnerability in spheres of critical technology in the long-term perspective (see Draghi¹⁴Report).¹⁵

- **Introducing investment incentives for the construction and expansion of production capacities**
In addition to the established promotion instruments, Germany should introduce tax incentives, such as investment premiums or tax benefits, to promote the construction and expansion of production capacities. Such tax-based instruments are competitive at the international level, easier to administrate and offer an unbureaucratic and reliable investment incentive particularly to capital-intensive industry projects. Such instruments are already well-established in important microelectronics locations such as the USA, Taiwan or South Korea. Germany should follow this example to prevent backsliding in the international location competition.
- **Expanding European strengths in a targeted manner**
Europe should extend its existing technological strengths in microcontrollers, power semiconductors, sensors and Edge AI. These technologies do not only secure industrial competitiveness, but are also essential to applications in critical infrastructures, defence and strategic key industries. Their availability in Europe is therefore a central cornerstone of economic resilience.
- **Scaling successful clusters and creating interconnected ecosystems**
Germany and Europe should strengthen their microelectronics ecosystems and purposefully expand successful technology and transfer hubs such as Silicon Saxony, the Technical University Munich and the RWTH Aachen University. These clusters are not only motors of innovation, but also strategic anchors for know-how, skilled workforce, investments and therefore the backbone of a resilient European microelectronics landscape.
- **Expanding research funding for industrial fields of the future and actively integrating the microelectronics industry**
Europe should strategically improve and systematically expand its competencies in the industrial fields of the future such as industrial AI, industrial metaverse, automation, mobile robotics, advanced manufacturing, 5G/6G or cybersecurity through open topic research funding. These research plans should actively integrate the microelectronics industry where possible. The active integration of microelectronics companies located in Europe into common innovation plans with downstream industries creates additional demand incentives, strengthens industrial self-supply and reduces import dependencies regarding security relevant technologies. These cross-industry cooperation structures are a decisive leverage to strengthen Europe's economic resilience. The European Chips Act and IPCEI serve as role models: They purposefully also integrate upstream industries of the semiconductor producers, such as equipment or material producers.
- **Targeted subsidies not only for products, but also for manufacturing processes**
Existing subsidies programs often lay focus on product development. To secure economic sovereignty in the long-term perspective, innovative manufacturing processes and production facilities also must be eligible for funding. A stronger European process competence is essential to prevent technological dependencies and build resilient supply chains.
- **Loosening up EU's SME classification**
Certain promotion programmes¹⁶ can only be used if enterprises are covered by the European SME classification¹⁷, meaning they have less than 250 employees and do not exceed € 50 million in annual revenue or € 43 million in the balance sheet. These strict specifications are not up to date due to the high level of inflation and high starting material costs in manufacturing. Therefore, the size range in research funding must be corrected upwards.

¹⁵ Cf. Draghi Report: Part B | In-depth analysis and recommendations (Sept. 2024), p. 86 ff., https://commission.europa.eu/document/download/ec1409c1-d4b4-4882-8bdd-3519f86bbb92_en?filename=The%20future%20of%20European%20competitiveness_%20In-depth%20analysis%20and%20recommendations_0.pdf (last visit 29.07.2025).

¹⁶ E. g. within the programme Horizon Europe. Cf.: EU Commission: https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe_en (last visit 29.07.2025).

¹⁷ Cf.: EU Commission: https://single-market-economy.ec.europa.eu/smes/sme-fundamentals/sme-definition_en (last visit 29.07.2025).

4.2 Protect: hedge risks, strengthen resilience

- **Harmonizing EU export controls for dual-use goods**

Regarding export controls of dual-use goods, a stronger harmonization among EU member states is needed. A common approach and a coordinated implementation of export controls for high technology products of member states in relation to third countries are needed. In this way, a coordinated practice strengthens the planning and legal certainty for enterprises and pays a significant contribution to Europe's economic resilience in geopolitically sensitive technology areas.
- **Harmonizing and strategically refining the screening of foreign direct investments at the European level**

Concerning the screening of foreign direct investments (FDI), Europe needs a harmonized, balanced approach, promoting strategic inflows of capital and simultaneously strengthening the global competitiveness of the European industry. Therefore, a targeted investment screening is needed. The basis of the screening (of FDI as well as OIS) has to be clearly defined areas of critical technologies, which must be specified within the European Economic Security Strategy. Currently, the technologies covered by the "Advanced Semiconductors" list follow no logical order and can affect basically every subarea of a broad product portfolio. Uniform guidelines, including guidelines for Greenfield investments, should primarily serve the objective of creating a level playing field across Europe and simplifying investments.
- **Introducing the Outbound Investment Screening (OIS) only precisely and proportionately**

The drain of critical technologies from Europe must be prevented. At the same time, the freedom of capital movement must be preserved throughout the potential implementation of an OIS-mechanism. Especially against the background of the geopolitical situation, technology companies must be spared from further bureaucratic burdens and to be able to diversify and to invest globally to preserve their competitive standing.
- **Taking greater account of PCB and electronics manufacturing**

The production of printed circuit boards (PCB) and electronics manufacturing services (EMS) are safety-critical value chain stages of the microelectronics ecosystem, which have to be preserved in Europe. China has a market share of 58.7 per cent in the field of PCB, whereas Europe's share dropped from 20 per cent in 2000 to only 2 per cent. The dependency on China has also been growing in the field of electronics manufacturing. This development endangers Europe's resilience and safety, particularly regarding critical infrastructures and the defence sector. Remaining capacities in Europe should be strategically secured, subsidized and explicitly taken into consideration regarding security-relevant procurement requirements.
- **Activating non-price-related procurement criteria realistically, only for limited areas and with simple regulations**

In the course of growing geopolitical tensions, non-price-related criteria gain in importance in public procurement and in the equipment of security-relevant sectors. The goal is to strengthen Europe's economic resilience, to reduce one-sided dependencies and to strongly secure critical technologies on European territory. The Net-Zero Industry Act, Clean Industrial Deal and the European Defence Industrial Strategy as well as cybersecurity measures (CRA, NIS2) aim for this target – for example, through **"European preference" clauses, security requirements** or the **promotion of regional value creation**. Particularly in the field of microelectronics, a sense of proportion is needed regarding the implementation of such guidelines. **Not-intended side effects** threaten to occur in this strongly globalized industry with an international division of labour if requirements are worded too broadly or too rigidly. To uphold the balance between **economic security and industrial competitiveness**, it is necessary to:

 - Strictly define the regulated areas (for example, the key areas of critical infrastructures). Otherwise, significant market distortions and not-intended side effects will occur in the globally interconnected microelectronics industry with an international division of labour, such as rising costs and competitive disadvantages of downstream industries – these side effects should be reduced to the minimum.
 - Rules should be as simple as possible, and the processes should be streamlined to reduce additional costs resulting from bureaucracy.
 - "European content requirements" should be defined realistically. Not all microelectronics components in net-zero technologies, critical infrastructures and defence goods can be produced in all value chain stages by European enterprises in the medium to long-term. In many areas, intellectual property, competencies and production capacities are lacking.

Particularly in the domain of critical infrastructures and defence goods, a **Trusted Supplier approach** should be followed, defining clear criteria and standards for the direct purchase of electronics components (Tier n-1) from reliable sources of supply, including sources outside of Europe (see the section “Partner Dimension”).

- **Differentiated use of tariffs as trade instruments**
If unfair subsidies of enterprises from third countries or price dumping can be verified, protective tariffs should not be ruled out as the last resort and in strictly narrowed areas.¹⁸

4.3 Partner: Expand strategic partnerships, diversify risks

- **Strengthening international partnerships**
Europe should intensify partnerships to secure reliable supply chains all the way to raw materials. **Regional initiatives and deepened economic relations with like-minded partners (friend-shoring)** increase supply chain resilience. Targeted diversification and regionalisation reduce sectoral dependencies. However, the costs of de-risking should always be assessed. An **effective risk diversification** requires strategic, focused and market-oriented action. Not every region has to cover all stages of the value chain. What matters much more is the avoidance of one-sided critical dependencies of individual stakeholders.
- **Focusing on APAC states**
A deepened partnership with the **APAC region**, with countries **such as Japan, India, Malaysia, Singapore, Thailand and Vietnam**, is a matter of mutual interest. The complementarities of regional strengths promise win-win situations of a cooperation in certain technology and industry fields – particularly in the microelectronics and its end user industries. Many APAC states have growing markets for electronic components, innovative ecosystems with competitive cost structures, as well as a high level of integration in regional manufacturing and value chains. Similarly to the EU, they have a strong interest in a functioning global trade system. Even if comprehensive **free trade agreements** (FTA) remain central elements of EU foreign policy, delays in FTA negotiations complicate the development of trade relations. Therefore, alternative cooperation formats such as the OECD or G7+-rounds should be used to establish technological partnerships. Additionally, the **cooperation with microelectronics clusters in these partner states** can purposefully strengthen the microelectronics industry in the EU and its partnering countries.

Deepening the cooperation with India – including skilled personnel and raw materials

India also deserves special attention. This country underpins its ambitions to become a substantial player within global value chains with bold goals and respectable success, particularly in the microelectronics industry. **For the microelectronics industry in Germany and Europe, there are several promising points of contact:** India’s competencies in the field of chip design, in the back-end value creation (assembly, test & packaging), a big talent pool of engineers, a lively scene of tech-start-ups, industry technologies in important fields of the future, as aviation and aerospace, and the growing extraction and processing of critical raw materials. In 2024, an EU-India Memorandum of Understanding (MoU) on cooperation in the semiconductors ecosystem entered in force as a part of the EU-India Trade and Technology Council (TTC).¹⁹ The EU and India should finally conclude a free trade agreement, negotiated since 2007 with several interruptions²⁰, until **the end of 2025**. Both countries should significantly strengthen their cooperation in the field of microelectronics.

- **Using FTA negotiations with Japan for leading-edge chips**
The 2024 initiated **German-Japanese negotiations** on bilateral free trade and cooperation in specific technology areas should be concluded in a timely manner.²¹ Japan makes substantial progress in the field of leading-edge chips.²² A cooperation could contribute to the reduction of existing dependencies.

¹⁸ Cf. EU Commission: Trade defence measures - Anti-dumping and Anti-subsidy policy: https://policy.trade.ec.europa.eu/enforcement-and-protection/trade-defence_en, (last visit 29.07.2025).

¹⁹ Website India Prime Minister: Cabinet approves MoU, https://www.pmindia.gov.in/en/news_updates/cabinet-approves-mou-between-india-and-the-european-commission-on-working-arrangements-on-semiconductors-ecosystems-under-the-framework-of-eu-india-trade-and-technology-council/ (last visit 29.07.2025).

²⁰ Cf.: EU Commission https://policy.trade.ec.europa.eu/eu-trade-relationships-country-and-region/countries-and-regions/india/eu-india-agreement_en (last visit 29.07.2025).

²¹ Cf.: METI: [The First Meeting of the Japan-Germany Economic Security Consultations](#) (last visit 29.07.2025).

Cf. Also high level meeting EU-Japan of 23.07.2025, referring to semiconductors as a part of the technological partnership: <https://www.consilium.europa.eu/de/meetings/international-summit/2025/07/23/> (last visit 29.07.2025).

²² Cf.: Government of Japan (01.03.2024): Japan’s Pursuit of a Game-Changing Technology and Ecosystem for Semiconductors, https://www.japan.go.jp/kizuna/2024/03/technology_for_semiconductors.html (last visit 29.07.2025).

5 Summary and outlook

As a **General-Purpose Technology**, the microelectronics is of outstanding importance to key industries, infrastructures and the European defence capability. Furthermore, the microelectronics industry is globally interconnected and regionally specialized like almost no other industry. This feature makes it a difficult case regarding an economic security policy, because the (supra-)national influence aiming at resilient supply, technological sovereignty and high innovative strength makes it particularly important and particularly difficult at the same time.

The European Union structured its European Economic Security Strategy based on the three dimensions Promote, Protect, Partner. The ZVEI argues to use primarily the instruments encompassed by the dimensions Promote and Partner.

- The central cornerstone are strategically oriented subsidies covering different stages - from basic research up to industrial deployment. These subsidies should help to expand the strengths of the microelectronics industry in Europe and to reduce the most important dependencies.
- It is equally important to keep markets open with as many international partners as possible. The access to sales markets and reliable supply of goods and services from partner countries enhance the competitiveness of the industry in Europe. Cooperations regarding raw materials, skilled personnel and complementary competencies are essential.
- At the same time, Europe should not shy away from initiating its own measures in case of unjustified market interventions of third parties according to the Protect dimension. In these cases, Europe should introduce its measures carefully, proportionately and with the involvement of industry and international partners.

This formulated position of the ZVEI is merely an interim result in the ongoing debate on economic security and microelectronics. The position will be adjusted according to new geopolitical insights and certain aspects should be examined more closely. To develop its position, the ZVEI maintains close contact with political stakeholders, think-tanks and experts from scientific facilities and user industries.

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