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The European Chips Act

Bernhard Dachs
(AIT Austrian Institute of Technology)

The EU Chips Act is a new policy instrument that aims to increase Europe's autonomy in the area of microchips. The Chips Act includes funding for research and development, investments in new chip production capacities, and monitoring of the chip market to anticipate supply shortages. The total funding for the act is 43 billion EUR, with 11 billion EUR allocated for R&D and innovation. Most of the funds will come from member states and companies.

The EU Chips Act has been criticized for its structure, its funding, and its strategic orientation. Observers argue that the funding may be insufficient for the act's ambitious goals, that it may focus on the wrong technologies, and that the goal of technological sovereignty in chips is unrealistic. Additionally, similar programs in other countries could lead to an oversupply of chips. However, given the current global tensions and the potential for disruptions to chip supply from Asia, there may be no alternative to public support for ramping up chips production in Europe.

1. Introduction

Microchips (or chips) are integrated electronic circuits put on semiconductors. They are essential components for many products, from smartphones, cars, household appliances, to healthcare, energy, or communications products. Microchips are also considered as key for the development of future technologies such as artificial intelligence, 6G communications, the Internet of Things, or edge computing.

On September 15, 2021, the President of the European Commission (EC), Ursula von der Leyen, announced an EU Chips Act with the aim to strengthen the European Union's R&D and production capacities for chips along the value chain. The EU Chips Act proposes investments to develop a thriving semiconductor ecosystem and a resilient supply chain. It also establishes measures to prepare for, anticipate and respond to future supply chain disruptions.

The policy brief provides an overview of the EU Chips Act and puts it in the context of the global microchips industry as well as of international policy developments. Special consideration will also be paid to the relevance of the Chips Act for Austrian companies.

2. The Global Microchips Industry

Before looking at the main features of the EU Chips Act, it is important to consider the characteristics of the microchips industry as described in Kleinhans and Baisakova (2020) or European Commission (2022).

The production of chips is highly fragmented: integrated manufacturers such as Intel or Samsung which perform all steps in-house are an exception. There is no single company or country that controls all areas of production or all application areas, or is self-sufficient when it comes to microchips. Several critical bottlenecks exist in the value chain where the number of suppliers goes down to only a hand-full firms. The combination of interdependencies and bottlenecks makes chips production susceptible to disruption, as European firms have experienced in the wake of the Covid-19 pandemic.

Microchips production starts with R&D and chips design. The global microchips industry has very high research and development (R&D) intensities. Firms spend up to 15-20% of their revenue on R&D. A number of companies provide designs without owning production capacities (being 'fabless'). Other important inputs are chemicals, silicon wafers, or production equipment. Production takes place in wafer fabrication plants ('fabs'), followed by assembly.

It is also important to consider that a large share of the microchips production is tailor-made to the needs of chips users, so it would be wrong to think of chips as a homogenous commodity like steel or coal.

The technological sophistication of the production process can be illustrated by the minimum size of transistors a fab can produce. In 2023, there are three companies – Samsung, TSMC, and Intel – able to produce at the five-nanometre scale. Such processors are used in the latest generation of mobile phones or PCs.

Miniaturisation is also the main reason why new chips fabs became increasingly expensive over the past two decades. Table 1 below gives some feel about the size of investments needed for fabs. Very large initial investments act as a barrier for entry and inevitably reduce the number of actors; this explains why many consider the lack of chips production as a case of market failure where policy should intervene.

Table 1: Investment plans for chips fabs in the EU and the US

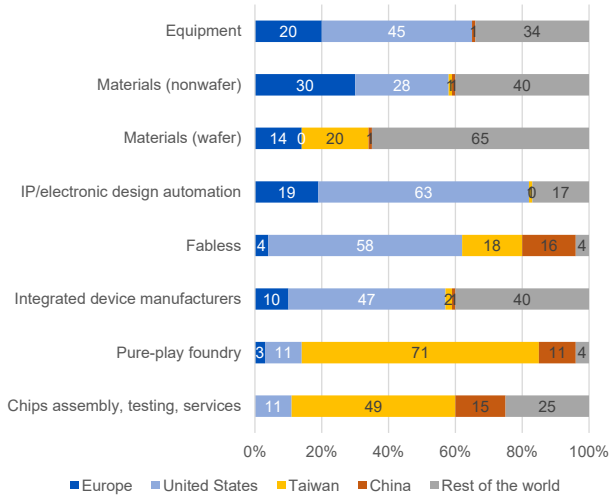
Company	Location	Amount	Announced
Intel	Europe	33 bn EUR	March 2022
Texas Instruments	Texas, USA	30 bn USD	May 2022
Samsung	11 facilities, Texas, USA	200 bn USD	July 2022
GlobalFoundries	Dresden, Germany	1 bn EUR	August 2022
Intel	Ohio, USA	20 bn USD	Sep. 2022
Infineon	Dresden, Germany	5 bn EUR	Nov. 2022
TSMC	Arizona, USA	40 bn USD	Dec. 2022

Source: Financial Times (2022)

European firms hold a central position in some stages of the value chain. Examples are equipment manufacturers ASML, Trumpf, Zeiss Optics, or chemical companies including BASF, Merck, or Solvay. Europe's strengths in production are chips for automotive and industrial applications, including sensors and discrete microchips. STMicroelectronics, NXP, Infineon, Bosch or the Austrian company AT&S are some important European players in this area. Moreover, Europe also hosts some cutting-edge research facilities, such as IMEC, CEA-Leti, or Fraunhofer.

In a global perspective, however, US, Korean, and Taiwanese companies dominate all stages of the value chain, while Chinese firms try to improve their market position (see Figure 1). Europe's share is only 10% in terms of overall production, and 20% in terms of global demand for microchips (European Commission 2022, p. 24). Japanese chip producers which caused so many worries for EU policy in the 1980s today have a similar market share to that of the EU chips industry.

Figure 1: Share of sales based on headquarters location, 2018



McKinsey & Company (2022)

3. The EU Chips Act

In February 2022, the European Commission proposed in a number of policy measures to strengthen chips production in Europe – the European Chips Act (European Commission 2022b).

The overarching goal of the EU Chips Act is to increase Europe's share on the global production of microchips to 20% by 2030. To reach this goal, the EC proposes three pillars for the Chips Act:

"**Chips for Europe**", the first pillar, is an initiative to support R&D and innovation in chips technology. Chips for Europe will focus on R&D, including chips design tools, and pilot lines for prototyping and testing of new chips technologies. The EC also stresses the importance of strengthening co-operation and of creating a European ecosystem for chips design and wants to initiate new, open infrastructures for R&D and innovation that encourage cooperation between firms and benefit smaller companies in particular. Moreover, the proposal includes measures to support training and skills development, and intellectual property management including sharing arrangements.

"Security for supply", the second pillar, proposes a new legal framework to attract and fund large-scale investments in chips production in Europe. This pillar provides legal provisions for state aid to support investments in new chips fabs in the EU. New production facilities are eligible for state aid under Article 107 of the Treaty on the Functioning of the European Union, a central regulation of state aid in the EU, if they are "first-of-a-kind" facilities, that is, if "this type is not already substantially present or committed to be build within the EU" (European Commission 2022, p. 77). Thus, the Chips Act does not directly fund investment projects in new chips fabs, but clears the way for state aid by the EU, national or regional bodies. It seems that the European Commission has no plans

for a direct funding of such new fabs so far, so national or regional governments are expected to step in.

"**Monitoring and crisis response**", the third pillar, is a mechanism to monitor the chips market and anticipate crises and supply shortages.

Governance of the EU Chips Act will be divided between the European Semiconductor Board which will succeed the existing Semiconductor Expert Group, and the Chips Joint Undertaking (JU), which will be formed out of the current Key Digital Technologies JU. The European Semiconductor Board will consist of representatives from all Member States chaired by the European Commission. The Governing Board of the Chips Joint Undertaking will include representatives from participating Member States, corporate members of the JU, and the European Commission. Inside the European Commission, the Chips Act is administered by the Directorate-General for Communications Networks, Content and Technology (DG CNET).

The European Commission states that the EU Chips Act "is to be supported with an estimated overall level of policy-driven investment in excess of EUR 43 billion up to 2030" (European Commission 2022a, p. 96). Funding for pillar 2 could be as much as 30 bn EUR, while pillar 1 will have a volume of approximately +11 bn EUR.

These volumes, however, also include private investments which makes it difficult to assess the total volume of public funding involved. The Chips Act paves the way for Member States to support new chips fabs, but it is not clear how much funding the European level will provide by itself, for example from the European Regional Development Fund or the European Development Bank. Fresh money from the European Commission comes in for Chips for Europe, where the EU will spend 5.85 bn EUR and Member States are expected to add an additional 5.3 bn EUR up to 2030. The budget also includes funds reallocated within Horizon Europe - Chips for Europe will be implemented via Horizon Europe and the Chips JU. The EC also expects that Member States will reallocate some money from the Recovery and Resilience Facility (RRF) to the Chips Act. Moreover, the volume will also include national and regional funds by EU Member States.

The EU Chips Act has been adopted by the Committee on Industry, Research and Energy (ITRE) of the European Parliament in January 2023. The plenary debate is expected to take place in February 2023. There are already statements by the European Economic and Social Committee (2022), the European Council (2022), and organizations such as the think tank Bruegel (Poitiers and Weil 2022), as well as comments in the media. These observers raised some concerns:

A first point of criticism relates to the governance and funding structure: it is difficult to understand who is funding what, and how much fresh money is available for the Chips Act. As cited above, the Chips Act "is to be supported with an estimated overall level of policy-driven investment in excess of EUR 43 billion up to 2030"; however, it remains unclear how much will come from the EU level, Member States and companies. There is also some fear of a re-labelling of funds already earmarked for Horizon Europe or other existing initiatives. Another concern is that the mechanism of granting "first-of-a-kind" status for investment projects may open the door for a subsidy race between Member States. Moreover, despite an expected volume above 40 bn EUR, the funds mobilized by the European Chips Act may be too little to reach its goals. It has been pointed out that some single investments in Asia of the US have about the same volume as the whole EU Chips Act (see also Table 1).

A second point related to the type of investments supported by the Chips Act (Poitiers and Weil 2022a): it seems clear from the notion of "first-of-a-kind" facilities that only investments in the production of cutting-edge chips are conceivable; such cutting-edge chips, however, have only a small share on overall chips demand in Europe. According to the European Commission (2021, p. 87), the two application areas that build on cutting-edge chips – communications and data processing equipment – are only eight percent of Europe's total chips demand. Europe's industry needs chips that are produced at larger sizes - above 10 nanometres - than the state-of-the-art. Moreover, chips made in Europe may be more expensive than the products of Asian competitors and may find it difficult to find a market.

In reaction to this critique, ITRE has suggested a broader definition of "first-of-a-kind" that also considers improvements in the efficiency, sustainability, or security of the production process. This has increased the number of investments that can be funded; the trade-off between the needs of industry and the aim to bring cutting-edge production back to Europe, however, is still unsolved. Thus, the Chips Act is not a remedy for Europe's supply shortages, at least not in the short and medium term. As a worst case, the EU Chips Act and similar policy initiatives in other countries may even result in future overcapacities of chips.

Third, the EU may face a strategic dilemma with the Chips Act in terms of international trade and investment policy: it is difficult to maintain a position of criticising foreign subsidies, while, at the same time, entering the chips subsidy race.

4. The EU Chips Act and the Return of Industrial Policy

Europe is not alone with its aim to strengthen the domestic chips sector. The United States, Japan, Korea, and Taiwan recently introduced similar initiatives (Ragonnaud 2022): China's "Made in 2025" earmarks up to 200 bn USD of governmental support for its chips industry. Japan introduced a growth strategy for the chips sector in 2021. Korea wants to spend around 450 bn USD until 2030. Taiwan announced plans to

invest up to 335 bn USD to support foreign companies that invest in chips fabs in the country. Thus, the EU Chips Act can also be seen as a reaction to similar initiatives in other countries.

The US CHIPS and Science Act is the most prominent of these policy initiatives. It will allocate 39 bn USD for chips manufacturing incentives, and another 13.2 bn USD for R&D and workforce development (White House 2022). In addition, US states may offer their own subsidies for chips investments.

Moreover, on October 7th - just nine days before the opening of the 20th National Congress of the Communist Party of China - the United States government imposed export restrictions on chips, a range of goods related to chips manufacturing, and cut support for Chinese chips companies by US firms or individuals (Ragonnaud 2022). This could seriously set back China's ambitions in chips production, as well as Chinese firms that depend on chips imports.

The US trade restrictions towards China clearly go beyond industrial policy; the US government is mixing up economic policy with geopolitics, by using trade restrictions as a means to restrain China's attempts to increase its geopolitical weight (Leonard and Shapiro 2019; Rodrik 2022). The United States keeps the window open for international co-operation with Europe in the US Chips act, and has also proposed the "Chip 4 alliance" with the aim of installing a "democratic semiconductor supply chain" with the US, Japan, Korea and Taiwan (Economist Intelligence Unit 2022). The question, however, is if Europe should and can keep out of the underlying conflict between the US and China, and, at the same time, take a clear-cut, pro-democratic and pro-free trade position. Moreover, the US chips policy may also undermine global co-operation in areas where the US, Europe and China have "shared challenges" such as climate change, or global public health (Rodrik 2022).

Table 2: Recent industrial policy initiatives

Name	Country	Volume	Duration
National Covid-19 relief package	Austria	49.6 bn EUR	2020-21
Energiekostenzuschuss	Austria	1.3 bn EUR	2022-23
Digital transition pillar in the EU Resilience and Recovery Facility	EU	141 bn EUR	2021-26
Green transition pillar in the EU Resilience and Recovery Facility	EU	249 bn EUR	2021-26
IPCEI Microelectronics I	EU MS	1.89 bn EUR	2018-24
IPCEI Hy2Tech	EU MS	5.4 bn EUR	from 2022
IPCEI H2Use	EU MS	5.2 bn EUR	2022-36

Note: IPCEI: Important Project of Common European Interest

Source: Pitlik and Schranzenstaller (2022), European Commission (2022c, 2022d).

International policies in microchips – including the EU Chips Act are examples for a trend towards a more active approach to industrial policy which emerged in recent years. This trend originates, on the one hand, from calls for more "directionality" towards societal challenges in economic policy making (Haddad et al. 2022). On the other hand, governments became much more willing to throw large amounts of money on problems during the Covid-19 crisis (see Table 2).

One important milestone for the return of industrial policy was the EU Recovery and Resilience Facility (RRF), a major initiative of the European Commission to combat the economic consequences of Covid-19. The RRF allowed, for the first time, state aid for investments in existing technologies outside the exceptions listed in Article 107 of the Treaty. In a similar vein, the Chips Act allows state aid for investments in production facilities. It is, however, important to note that the RRF and the IPCEIs – despite the large amounts mobilized – are still smaller than their US counterparts: while the RRF forsees a budget of around 723.8 bn EUR in current prices, the volume of the US Build Back Better Act is approximately 2.2 trillion USD.

Another new instrument is the Important Project of Common European Interest (IPCEI) which allows funding of large-scale industrial projects by the EU Member States in the fields of batteries, microchips, or hydrogen. So far, the European Commission has approved a total of 18 bn EUR for the IPCEIs (European Commission 2023, p. 10).

The rules for IPCEIs differ from the EU Chips Act as they require novelty beyond the global state-of-the-art. Thus, the importance of the Chips Act beyond chips technology lies in its role as a blueprint for similar policy initiatives in future, like the EU Sovereignty Fund announced by the President of the European Commission at the World Economic Forum (European Commission 2023).

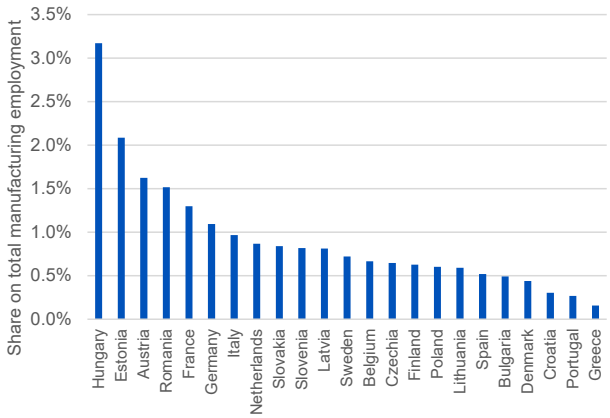
The coming years will show if these initiatives achieve their goals. Some doubts seem reasonable here, since a number of similar industrial policy initiatives did not reach their goals in the past (Lipsey and Carlaw 2021; Criscuolo et al. 2022). An example is JESSI, the Joint European submicron silicon initiative (Simons 1997), which pursed similar goals in the 1980s like the EU Chips act today. Another initiative was "Electronics for Europe", kick-offed by the European Commission in 2013 to "repeat the success of Airbus, but this time in the chip sector" (European Commission 2013). The goal of a 20% share on the global chips production was already set by this initiative.

5. The Relevance of the EU Chips Act for Austria

There are several reasons to be sceptical about the Chips Act. From a national perspective, however, the Chips act may be a considerable benefit for Austria, due to the industrial specialisation of the country on chips. There were 154 manufacturers of electronic components and boards in Austria in 2021 (Statistik Austria 2022). The number of employees in these enterprises has increased from around 7,800 persons in

2011 to 12,194 persons in 2021. This puts Austria's microchips industry in the third place in the EU in terms of its share on total manufacturing employment (see Figure 2). In terms of value added, Austria ranks second, just behind Hungary. Even more striking, Austria has one of the highest shares of manufacturing employment on total employment in the EU.

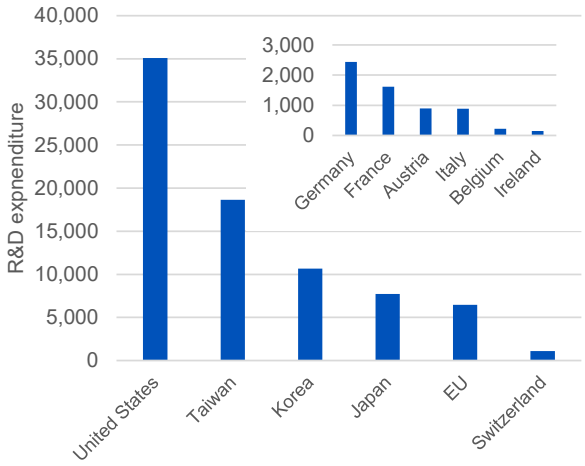
Figure 2: Share of employment in the manufacturing of electronic components and boards on total manufacturing, 2020.



Source: EUROSTAT, Structural Business Statistics

Note: Luxembourg and Cyprus have no manufacturing of electronic components

Figure 3: Business R&D expenditure by manufacturers of electronic components and boards at country level, 2019, Mio. USD PPP.



Source: OECD ANBERD

Austria has also developed into one of the most important locations for chips R&D in Europe in recent years, as can be seen in Figure 3 above. The country currently ranks third in the EU in terms of business R&D expenditure for electronic components and boards, in front of Italy and Belgium. In a global perspective, however, the European Union is dwarfed by the R&D efforts of the United States, Taiwan, and Korea.

The EU Chips Act will mobilize 11 bn EUR to promote R&D and innovation; given the strength of R&D on electronic components in the country, R&D and innovation activities in the Austrian electronics industry will surely benefit from these funds.

It seems, however, less likely that Austria will benefit from investments in new production facilities. Most Austrian electronics firms are users, rather than producers of microchips, so the benefits may mainly lie in a more secure supply chain. Moreover, the mechanism of approval for "first-of-a-kind" investments described above makes is quite unlikely that these investments will take place in a small EU Member State, given that funding will come from national governments. Rather, this mechanism will lead to a concentration of investments in large Member States who are willing to support such projects. Nevertheless, Austria seems well-positioned to benefit from the EU Chips Act.

6. Conclusions

The EU Chips Act is a new policy instrument that wants to increase the strategic autonomy of Europe in the area of microchips. Besides funding for R&D and innovation, the Chips Act aims at mobilizing investments in new chips production facilities by national and regional governments of the Member States as well as by companies. A third pillar of the EU Chips Act aims at establishing a monitoring of the chips market to anticipate supply shortages. The Chips Act foresees a total funding volume of 43 bn EUR, 11 bn EUR will be earmarked for R&D and innovation. The remaining volume for investments in new chips fabs is expected to come from the Member States.

Europe has some undeniable weaknesses in digital technologies. Moreover, the world is moving away from free trade, so a secure supply of chips produced in Asia cannot be taken for granted.

Is the Chips Act also the right way to tackle these challenges? The EU Chips Act got some beating for its structure, its funding, and its strategic orientation, and we have to take these concerns serious: it may be too small for its ambitious goals, it may aim at the wrong technologies; the highly fragmented value chain and the levels of specialization at each stage of production renders technological sovereignty in chips as unrealistic; similar programmes around the world could lead to an oversupply of chips, and it is not granted that the European users of chips will be willing to pay a premium for European chips; moreover, interventions in complex systems such as world trade tend to produce unintended consequences we cannot foresee today.

It would also be easier to come to a final judgement if microchips were the only shortcoming of Europe in digital technologies. Numerous reports describe the difficulties of European companies to find personnel

with all types of digital skills, from basic competences to development and engineering skills. This is a serious obstacle for the growth of companies in Europe, and the Chips Act will change very little here.

There is also a danger that Europe's focus on microchips will lead to underinvestment in other fields of digital technologies. Despite (or because of?) large EU support for microchips development in the 1980s and 1990s, Europe was not able to create internet companies that could match the US companies that are currently dominating their markets. Europe lacked an ecosystem of universities, entrepreneurs and venture capitalists that created these companies in the US. The same may happen again today with artificial intelligence. Thus, the money planned for the EU Chips Act may be better spent on improving Europe's digital ecosystem.

These examples illustrate that the challenges Europe faces in digital technologies are more complicated than just a lack of chips and chips producers. They are also touching education, institutions, and the existence of ecosystems that support the transfer of scientific discoveries into workable products that meet consumer demand.

The economic consequences of being cut off from chips supply, however, are too serious to ignore them, so the EU Chips Act seems invevitable. The Chips Act alone, however, is not the cure for all shortcomings Europe suffers from in digital technologies.

7. References

Council of the European Union (2022). Regulation establishing a framework of measures for strengthening Europe's semiconductor ecosystem (Chips Act). Brussels. https://data.consilium.europa.eu/doc/document/ST-14668-2022-INIT/en/pdf

Criscuolo, C., N. Gonne, K. Kitazawa, and G. Lalanne (2022). Are industrial policy instruments effective? Paris: OECD Science, Technology and Industry Policy Papers, No. 128. https://www.oecd-ilibrary.org/content/paper/57b3dae2-en

Economist Intelligence Unit (2022). The Chip 4 alliance will struggle to find cohesion in 2023. https://country.eiu.com/article.aspx?articleid=1222633905&Country=South+Korea&topic=Politics&subtopic=Forecast&subsubtopic=International+relations

European Commission (2013). Electronics for Europe. Speech/13/447, Brussels. https://ec.europa.eu/commission/presscorner/detail/en/SPEECH_13_447

European Commission (2021). Strategic dependencies and capacities. Staff Working Document accompanying the Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions Updating the 2020 New Industrial Strategy: Building a stronger Single Market for Europe's recovery. Brussels: SWD(2021) 351 final. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52021SC0352&from=EN

European Commission (2022a). A Chips Act for Europe. Commission Staff Working Document. Brussels: {SWD(2022) 147 final. https://ec.europa.eu/newsroom/dae/redirection/document/86690

European Commission (2022b). A Chips Act for Europe. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. Brussels: COM(2022) 45 final. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52022DC0045&from=EN

European Commission (2022c). Review report on the implementation of the Recovery and Resilience Facility. Brussels: COM(2022) 383 final. https://commission.europa.eu/system/files/2022-07/com_2022_383_1_en.pdf

European Commission (2022d). State Aid: Commission approves up to €5.4 billion of public support by fifteen Member States for an Important Project of Common European Interest in the hydrogen technology value chain. Brussels: Press Release July 15, 2022. https://ec.europa.eu/commission/presscorner/detail/en/IP_22_4544

European Commission (2023). A Green Deal Industrial Plan for the Net-Zero Age. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. Brussels: COM(2023) 62 final. https://commission.europa.eu/document/41514677-9598-4d89-a572-abe21cb037f4_en

European Economic and Social Committee (2022). Europe's semiconductor ecosystem. Brussels: https://www.eesc.europa.eu/en/our-work/opinions-information-reports/opinions/europes-semiconductor-ecosystem

Financial Times (2022). The global microchip race: Europe's bid to catch up. December 13, 2022. https://www.ft.com/content/b31e27fd-0781-4ffd-bb69-9af985abff41

Haddad, C. R., V. Nakić, A. Bergek, and H. Hellsmark (2022). Transformative innovation policy: A systematic review. Environmental Innovation and Societal Transitions, 43: 14-40.

Kleinhans, J.-P., and N. Baisakova (2020). The global semiconductor value chain. A technology primer for policy makers. Berlin: Stiftung Neue Verantwortung eV (NV). https://www.stiftungnv.de/en/publication/global-semiconductor-value-chain-technology-primerpolicy-makers

Leonard, M., and J. Shapiro (2019). Strategic Sovereignty: How Europe can regain the capacity to act. Berlin, London, Madrid, Paris, Rome, Sofia, Warsaw: European Council on Foreign Relations.

Lipsey, R. G., and K. I. Carlaw (2021). Industrial Policies: Common Not Rare. Vancouver: Simon Fraser University. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3854149

McKinsey & Company (2022). Semiconductor design and manufacturing: Achieving leading-edge capabilities. https://www.mckinsey.com/industries/industrials-and-electronics/our-insights/semiconductor-design-and-manufacturing-achieving-leading-edge-capabilities

Pitlik, H., and M. Schranzenstaller (2022). Budgetvoranschlag zwischen COVID-19- und Anti-Teuerungsmaßnahmen. Bundesvoranschlag 2023 und Mittelfristiger Finanzrahmen 2023 bis 2026. WIFO-Monatsberichte, 95(12): 795-807.

Poitiers, N. F., and P. Weil (2022a). Fishing for Chips: Assessing the EU Chips Act. Paris: IFRI: Institut Français des Relations Internationales. https://policycommons.net/artifacts/2540151/fishing-for-chips/3562540/

Poitiers, N. F., and P. Weil (2022b). Is the EU Chips Act the right approach? Brussels: Bruegel. https://www.bruegel.org/blog-post/eu-chips-act-right-approach

Ragonnaud, G. (2022). The EU chips act: Securing Europe's supply of semiconductors. Brussels: European Parliamentary Research Service. https://www.europarl.europa.eu/thinktank/en/document/EPRS_BRI(2022)733596

Rodrik, D. (2022). Don't Let Geopolitics Kill the World Economy. Project Syndicate, November 10, 2022. https://www.project-syndicate.org/commentary/us-china-high-tech-trade-restrictions-by-dani-rodrik-2022-11

Simons, J. (1997). Industriepolitik : Theorie, Praxis, politische Kommunikation. Stuttgart: Schäffer-Poeschel.

Statistik Austria (2022). Leistungs- und Strukturstatistik 2021, vorläufige Ergebnisse. https://www.statistik.at/fileadmin/pages/172/Leistungs-_und_Strukturstatistik_-_Produktion_und_Dienstleistungen__Statistisches_Unternehmen__-_Vorlaeufige_Ergebnisse_2021.ods

White House (2022). Fact Sheet: CHIPS and Science Act Will Lower Costs, Create Jobs, Strengthen Supply Chains, and Counter China. https://www.whitehouse.gov/briefing-room/statements-releases/2022/08/09/fact-sheet-chips-and-science-act-will-lower-costs-create-jobs-strengthen-supply-chains-and-counter-china/

Author:
Bernhard Dachs
AIT Austrian Institute of Technology
E-mail: bernhard.dachs@ait.ac.at

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Contact:
FIW project office
c/o WIFO
Arsenal, Object 20
1030 Vienna
Phone: +43 1 728 26 01 / 335
E-mail: fiw-pb@fiw.at
Website: https://fiw.ac.at/