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The European Union Industrial Strategy

Reconciling Competition and Geoeconomic Challenges

The Study
Committee on
Franco-German
relations (Cerfa)

Marie KRPATA

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The Cerfa

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Executive Summary

The EU's basic assumptions, on which it grounds its economic and trade power, are being steadily cast into doubt. The EU's main trade partners, the US and China, increasingly set their sights on securing their supply chains, which may further a potential decoupling. This shift is likely to be accelerated in the context of growing geopolitical instability. Multilateralism and international trade principles are increasingly challenged by a weakening of international institutions and the recourse to asymmetric market practices, while technological leadership will be key in the struggle for global leadership. Being fundamentally built on economic openness, the EU is comparatively ill-equipped to respond to these developments. Its biggest economy, Germany, is prompted to assert itself if it does not want to lose in competitiveness. While the EU is developing strategies, policies, and instruments to adapt to this change of circumstances and increase its resilience, a shift in mentalities, leaving behind political and economic short-term interests, will be necessary.

Résumé

Les principes sur lesquels l'Union européenne (UE) a basé sa puissance économique et commerciale sont progressivement battus en brèche. Ses principaux partenaires commerciaux, les États-Unis et la Chine cherchent à sécuriser leurs chaînes de valeur, ce qui est susceptible de créer un découplage. Ce phénomène est amené à s'accélérer dans un contexte d'instabilité géopolitique croissante. Le multilatéralisme et les principes du commerce international sont remis en question par un affaiblissement des institutions internationales et l'utilisation de pratiques asymétriques de marché tandis que le leadership technologique sera essentiel dans la course au leadership mondial. L'UE étant fondamentalement basée sur l'ouverture économique, elle est moins bien armée pour faire face à ces développements que d'autres acteurs mondiaux. Sa principale économie, l'Allemagne, est amenée à se montrer plus assertive si elle ne veut pas perdre en compétitivité. Tandis que l'UE développe des stratégies, des politiques et des instruments pour s'adapter au changement de contexte international et accroître sa résilience face aux crises, un changement de mentalités s'impose, en laissant de côté les intérêts politiques court-termistes.

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Introduction

Although not a political heavyweight, the European Union (EU) is considered an economic giant. Its internal market of 450 million potential high-income consumers gives it the *de facto* power to set standards. The EU is also a normative power; the "Brussels Effect" is illustrated by the EU leadership in terms of environmental policy, in the affirmation of social and human rights, and in the protection of personal data. This soft power is based on multilateralism and the openness of its market.

Both of these principles are being shaken by the current geopolitical context, with the US-China trade rivalry; with tendencies to self-sufficiency in these two countries, the EU's main trade partners; and with China's ambitions to become the world manufacturing power in 2049. The repercussions of this context are sensed in the EU, both *directly* – through the US-EU trade relations on the one hand and through the China-EU trade relations on the other – and *indirectly,* through the repercussions of the US-China trade rivalry on the EU.

Within the EU, supply-chain security is increasingly taken into consideration too as clearly illustrated by government responses to the shortages caused by the coronavirus crisis and the war in Ukraine. The interconnectedness of our economies may increasingly be weaponized, a development that states try to counteract by diversifying their suppliers and clients. The EU is less prepared than other states for these massive disruptions and now needs to quickly adapt to the new circumstances it is facing.[1] While a new industrial policy is in the making in the EU, this also comes with a number of tradeoffs:

- How can **industrial policy** be made **compatible with** the Green Deal and the **EU's environmental objectives** in particular against the backdrop of the war in Ukraine which puts the priority on energy security?
- How far is the EU ready to foster **European champions**, knowing that this would unleash concerns about the **supporting of competition** (and thus innovation) on the internal market?

1. A report by IfW Kiel, Bruegel and DIW Berlin states: "All great powers make increasing use of international economic – "geoeconomic" – instruments to achieve various foreign policy goals, and vice versa. For the EU, this development is particularly relevant, as the common foreign and security policy is still very much underdeveloped and remains on the national level while the field of trade, monetary, competition and single market policy almost completely fall under the exclusive competence of the union. Thus, the two areas that are interacted in the realms of geoeconomics remain mostly separated from each other in the EU. [...] neither the US nor China face these obstacles." *In:* K. Kamin, K. Bernoth *et al.*, "Instruments of a Strategic Foreign Economic Policy–Study for the German Federal Office", IfW Kiel, Bruegel and DIW Berlin, November 2021, available at www.bruegel.org.

- How can the EU best navigate as multilateral solutions give way to an ever more polarized world, where it appears more clearly from day to day that it will have to **select partners** of trust to overcome overreliances on single trade partners by diversifying, while being mindful that no partnership lasts forever?

An approach combining industrial policy, trade policy and competition policy would nurture the EU's ambitions to stay technologically relevant while also unleashing the EU's private sector innovation potential, both of which are intrinsically linked. This echoes the EU's aim to become more "geopolitical" and to "speak the language of power".

The all-encompassing concept "open strategic autonomy" – to which some prefer the term "strategic sovereignty"[2] or "European sovereignty"[3] – entails, first, the acknowledgment of a tenser geoeconomic context casting doubt on the principles underlying the EU's prosperity, and second, the requirement that informed choices be agreed in common, the success of which presupposes both political will and material support in the frame of a joint approach with all relevant stakeholders.

In these endeavors Germany plays an essential role, first and foremost because its economic openness renders it vulnerable to geopolitical hazards, and further because the EU's success in adopting the strategies, policies, and instruments necessary to strengthen its industrial power and to protect it from ill-intended third-country influence – notably via third-country economic actors – will depend to a great extent on the German positioning in this regard.

2. *Mehr Fortschritt Wagen–Bündnis für Freiheit, Gerechtigkeit und Nachhaltigkeit*, Coalition agreement between the SPD, Bündnis 90/The Greens and the FDP, German federal government, November 24, 2021, available at www.bundesregierung.de.
3. *Speech by Chancellor Olaf Scholz at Charles University in Prague*, German Federal Government, August 29, 2022, available at www.bundesregierung.de.

Geopolitical Context Drives the EU to Reduce its Economic Vulnerability

A Sino-American Rivalry that Pushes the EU, and German Companies in Particular, to Strengthen the EU's Geoeconomic Stance

Caught in the middle of the Sino-American rivalry, which evidences a weakening of rules-based multilateralism accelerated by the war in Ukraine, the EU and within it, Germany, its main economic power, are required to assert themselves based on legal and regulatory instruments to protect their economic and strategic interests. Germany's role in this shift is motivated by the lessons drawn from its open economic model and is evident in parallel legislative developments both at the EU and the German level.

The Challenge of Sino-American Rivalry Involves an Interplay Between States and Economic Actors and Encompasses a Social Dimension

The Sino-American rivalry leads to greater polarization, casting doubt on rules-based multilateralism and creating a divide between liberal democracies and those who increasingly cast doubt on the principles underlying the world order. Caught in the middle of the Sino-American crossfire, the EU risks becoming a collateral victim of the overall erosion of trust between its two main trade partners if it does not assume a more assertive stance. It has long been wary of taking sides between its transatlantic partner, the US – with which it shares common values and interests, notably as far as defense is concerned – and its main trade partner, China, with whose economy it is getting increasingly entangled.

China's self-assurance on the global stage has been growing with the "**Made in China 2025**" (MIC 2025) strategy of 2015 which clearly states its ambition to become the world manufacturing leader by 2049.[4] The US

4. M. J. Zenglein and A. Holzmann, *Evolving Made in China 2025 – China's Industrial Policy in the Quest for Global Tech Leadership*, No. 8, Mercator Institute for China Studies (Merics), July 2019, available at www.merics.org.

has been responding with a series of executive and legislative acts[5] aimed at avoiding China as a supplier in key technological sectors and rendering US supply chains more resilient to major disruptions, while also seeking to avoid providing critical components that would help China's industrial base to gain a competitive edge. The erosion of trust has to be understood against the backdrop of China's increased importance in world economics since its accession to the World Trade Organization (WTO) in 2001, which has happened at the expense of respect for a number of WTO applicable rules. The hopes associated with China's integration into the international community – that China would democratize as its trade relations with the West grew – have not materialized. Its economic success is deemed to have accrued at the expense of other countries. In the US, it has been estimated that 25% of job losses can be attributed to the rise of China.[6] In 2018, the tone became particularly confrontational, as then US President Donald Trump did not shy away from defending "America First", including within the United Nations institutions.[7,8] The current Biden administration has adopted a more diplomatic tone while forging the concept of "Foreign Policy for the Middle Class" according to which foreign policy decisions should be made bearing in mind the interests of American workers.

At the climax of **Sino-American rivalry**, the two countries have both introduced **tariffs, restrictions in market access and export controls** directed at each other. Security reasons were invoked in critical sectors. Because of the entanglement of the world economy, EU companies such as the Dutch semiconductor producer ASML for instance felt the repercussions of US export restrictions in a strategic sector where China still very much relies on supplies from third markets: the semiconductor sector.[9]

5. On February 21, 2021, the White House issued an Executive Order on America's Supply Chains available at www.whitehouse.gov; followed by *Building Resilient Supply Chains, Revitalizing American Manufacturing, and Fostering Broad-based Growth–100-Day Reviews under Executive Order 14017* from June 2021, available at www.whitehouse.gov; on 5 October 2021 the S.1169–Strategic Competition Act of 2021 presented in US Congress and available at www.congress.gov.

6. *Executive Order on America's Supply Chains*, *op. cit.*

7. "Trump Touts 'America First' Agenda at U.N. General Assembly: Full speech", YouTube, 38'14", September 26, 2018, available at www.youtube.com.

8. Vice-President Mike Pence's speech at the Hudson Institute in 2018, when he highlighted the loss of manufacturing jobs in the US because of unlawful market and trade practices in China is an example of a hardening in the tone of US representatives concerning China. See "Vice President Mike Pence's Remarks on the Administration's Policy Towards China", Hudson Institute, YouTube, 43'09", October 4, 2018, available at www.youtube.com.

9. President Biden exerted pressure on The Hague so that ASML, the world leader in lithography systems, would not export upstream products in the semiconductor industry that it produces (machines with EUV technology), fearing that China would make use of this technology to build its own competitive semiconductor industry. *In*: C. Geinitz, *Chinas Griff nach dem Westen – Wie sich Peking in unsere Wirtschaft einkauft*, Munich, C. H. Beck Verlag, 2022.

In the Face of a Challenged Multilateral Order, the EU Is Forced to Take a More Assertive Geoeconomic Stance

Under the **Trump presidency, EU-US relations too became increasingly tense**, with the American president casting doubt on NATO and subjecting some EU goods to additional tariffs (on steel and aluminum and Airbus planes for instance) which US president Donald Trump justified by recalling Germany's export surplus with the US, for which the German car sector was deemed particularly responsible.[10] Consequently, the EU has become increasingly aware that a change in America's foreign politics suffices to marginalize the EU geopolitically. The US withdrawal from the Joint Comprehensive Plan of Action (JCPoA) with Iran in 2018 and the putting into place of secondary sanctions against EU companies entertaining business relations with sanctioned Iranian entities, as well as the American shift of priorities from the Atlantic toward the Indo-Pacific, illustrate this clearly. Against this backdrop, the EU is under pressure to become more assertive, independently of any other major world power.

The need for the EU to assert itself has become even more evident towards China. Indeed, predatory Chinese foreign direct investments (FDIs) in the EU, particularly targeting Germany, and distortive Chinese trade practices such as non-reciprocal market access, forced joint-venture agreements, intellectual property (IP) theft and coercion practices that linked political decisions to economic power bargaining are increasingly worrying European companies.[11,12]

Against the backdrop of the US-China rivalry and the growing world polarization, this leads to a decoupling in many domains. Indeed, EU companies are increasingly subject to US regulations in terms of restriction to market access and export control targeting China but producing extraterritorial effects, thereby disrupting EU companies' value chains and business activities. Examples include US pressure on the EU to avoid Huawei when awarding 5G network contracts,[13] and not exporting to China upstream products in the semiconductor industry, given the fear that China

10. The Trump administration also threatened to impose tariffs on the German automobile industry, but these threats were not implemented following the Juncker-Trump agreement in July 2018. See "Rencontre Trump-Juncker : une trêve dans les tensions commerciales", *La Tribune,* July 26, 2018, available at www.latribune.fr. In 2020, Germany's trade surplus with the US totaled €36 billion; its trade surplus in cars with the US totaled €77 billion. See M. Krpata, "The Automotive Industry: The Achilles' Heel of German Economy?", Ifri, *Études de l'Ifri*, March 2021.

11. M. Huotari and S. Jean, "Bolstering Europe's Economic Strategy vis-à-vis China", *Les notes du conseil d'analyse économique*, No. 72, July 2022, Conseil d'analyse économique (French Council of Economic Analysis), available at www.cae-eco.fr.

12. E. C. Amela, T. Groot Haar *et al., Decoupling, Severed Ties and Patchwork Globalization,* European Union Chamber of Commerce in China and Merics, September 2020, available at: www.merics.org.

13. E. Brattberg and P. Le Corre, "Huawei and Europe's 5G Conundrum", available at www.carnegieendowment.org.

would build its own competitive semiconductor industry.[14] At the same time, China, which has expanded its retaliatory toolbox in recent years, may "exploit European choke points, such as the bloc's dependence on rare earths, and employ asymmetric retaliatory responses should the EU target China with expanded export controls or apply more concerted pressure over human rights issues".[15] Growing awareness about this trend led to the EU adopting the **Strategic Outlook** in 2019,[16] indicating that the EU had chosen its side, since it considers China not merely as a "cooperation partner" and "economic competitor" but also as a "systemic rival". **EU-China relations** have even grown tenser since 2021. While EU clothing brands have faced popular boycotts in China following their refusal to buy cotton from Xinjiang province allegedly produced by Uighur forced labor, the EU decided to put in place targeted sanctions against the inhumane treatment of Uighurs. At the same time, Chinese authorities sanctioned European researchers and institutions. As a result, the long-negotiated EU-China Comprehensive Agreement on Investments (CAI), intended to rebalance EU-China relations but considered with skepticism by the US, was not ratified by the European Parliament. Growing Chinese tensions with Lithuania, which left the 17+1 format (the two remaining Baltic countries followed suit in August 2022) and opened a Representation Office of Taiwan in Vilnius, leading to Chinese trade retaliation, damaged EU-Chinese relations even more. Against this backdrop, the EU cannot stand idly by: it needs to take a more assertive stance toward China.

The **coronavirus crisis** also spurred a debate within the EU about rendering supply chains more resilient. Whether stockpiling essential goods, reshoring activities, or diversifying sources of supply to ensure access to basic supplies that had been lacking during the first phase of the crisis, different solutions are envisaged. Calls for "**Strategic Autonomy**" have become increasingly audible. This concept largely framed by France, to which the adjective "open" was added, entails "[…] solidify[ing] global supply chains to enhance resilience to future crises".[17] An analysis of the EU's dependencies was pushed forward as a basis of reflection on which steps to take to reduce supply-chain vulnerabilities. Such vulnerabilities may be critical in the event of natural disasters, during pandemics, or when political decisions have repercussions on international trade, as the Sino-American tensions showcase.

14. C. Geinitz, *Chinas Griff nach dem Westen – Wie sich Peking in unsere Wirtschaft einkauft*, *op. cit.*
15. *Ibid.*
16. *European Commission and HR/VP Contribution to the European Council EU-China–A Strategic Outlook*, European Commission, March 12, 2019, available at www.ec.europa.eu.
17. *Commission Staff Working Document, Strategic Dependencies and Capacities 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*, SWD/2021/352 final, European Commission, 5 May 2021, available at www.eur-lex.europa.eu.

Relations with **Russia** are yet another front where the EU has been obliged to take a clearer position. The war in Ukraine, which started on February 24, 2022, has demonstrated this. Germany, in the person of Chancellor Olaf Scholz, spoke of a "*Zeitenwende*" (turning point) on February 27, 2022, three days after Russia's invasion of Ukraine, thus acknowledging that what had been Germany's, and the EU's, policy fundamentals up to then had been shattered overnight. The brutal awakening after February 27 is the awareness that autocratic regimes may make use of interdependencies by way of coercion. The credo that interrelatedness in trade would create conditions conducive to legal security and stability and reduce the probability that the EU's economic partners would resort to war ("*Wandel durch Handel*": change through transformation), was greatly weakened.

As the EU's strongest economy by GDP, Germany in particular has been cast in the limelight. Its ambiguity toward Russia has weakened the EU. The assumption of Germany's partners such as Russia and China was that it would systematically favor its economic interests rather than steadfastly defending a policy coherent with its values and principles. The annexation of Crimea in 2014, which led to little resistance within the EU and did not impede Germany from negotiating a deal with Russia on Nordstream 2, confirm this assumption.[18, 19] Cheap Russian gas prices furthered the competitiveness of the German economic model, yet the lack of substitution at a time when Germany decided to phase out coal and nuclear energy increased its dependence on Russia and jeopardized Ukraine's existence. The conclusions drawn from the outbreak of the war in Ukraine, shift priorities towards guaranteeing security of supply and favoring political grounds, values, and principles rather than mere economic interests. In fact, decoupling from Russia also strengthens the ties between the EU and the US, which suggests that the EU has chosen to join the US and other like-minded countries, against those increasingly challenging the principles of a multilateral world order.

18. K. Westphal, *Nord Stream 2 – Germany's Dilemma,* Stiftung Wissenschaft und Politik, April 30, 2021, available at www.swp-berlin.org.

19. The pipeline project was completed despite Kyiv and Warsaw's opposition and despite the US extraterritorial sanctions against European companies working on the Nord Stream 2 project. See M. Shagina and K. Westphal, "Nord Stream 2 and the Energy Security Dilemma", *SWP Comment*, Stiftung Wissenschaft und Politik, July 2021, available at www.swp-berlin.org.

German Economic Actors and German Politics Greatly Influence the EU's Efforts Toward More Resilience and its Economic Ambitions

Germany steadily adjusted its posture toward China. Indeed, "business interests have long been the main driver"[20] of Germany's China policy. However, the ringing of alarm bells by German companies about increasingly unfair market practices in their relations with China created a big stir and resulted in political responses at the German national level. Germany has been particularly crucial in the EU endeavors to assert itself, which is why it is pertinent to analyze the shift within Germany towards increased prudence with regard to China.

"Germany is by far China's largest trading partner in the EU. In 2019, Germany accounted for 48.5% of EU exports to China, 4.6 times that of France, the bloc's second-largest exporter to China," the 2022 European Think Tank Network on China reported.[21] "By a rough assessment of the German Federation of Industries (BDI), 900,000 jobs in Germany are in one way or another related to business with China, accounting for 2% of the German workforce," the report adds.[22]

While the Chinese market is attractive to European companies, the European market is increasingly being targeted by Chinese investments and takeovers and is facing competition from Chinese actors. The example of the takeover of the German robotics company **Kuka**, a key player for *Industrie 4.0*, by the Chinese group Midea caused considerable uproar in Germany and triggered a review of Chinese targeted investments in German "hidden-champions", i.e., small and medium-sized enterprises (SMEs) in niche sectors with growth potential. German and EU authorities tried to find European investors to propose an alternative bid, but this effort was not successful. Since then, it is understood that such a takeover would not happen again.[23] A sample of Chinese takeovers and of participations targeting German companies, as well as the application of Chinese unfair trade practices affecting German companies, is provided in Figure 1.

20. B. Pongratz, B. Bartsch and V. Brussee, "Germany: Politics Trying to Break Free from the Narrative of Economic Dependence". *In: Dependence in Europe's Relations with China – Weighing Perceptions and Reality*, A Report by the European Think-tank Network on China (ETNC), edited by: J. Seaman, F. Ghiretti, L. Erlbacher, X. Martin and M. Otero-Iglesias, April 2022, available at www.ifri.org.
21. *Ibid.*
22. *Ibid.*
23. C. Geinitz, *op. cit.*

Figure 1: Sample case of German companies confronted with Chinese competition, participation in the capital and takeover attempts

SAMPLE CASES OF GERMAN COMPANIES CONFRONTED WITH CHINESE COMPETITION, PARTICIPATION IN CAPITAL AND TAKEOVER ATTEMPTS	
Thyssen-Krupp (2001)	The Chinese steel company Shagang bought a Thyssen-Krupp production plant in Dortmund-Hörde for EUR30 million. The Chinese disassembled the plant and built it up again in China. Today Shagang outweighs Thyssen-Krupp in terms of volumes of steel production worldwide, as it produces double the steel volumes of Thyssen-Krupp.
Putzmeister (2012)	Acquisition of Putzmeister, the world market leader in concrete pumps, by the Chinese heavy machinery group Sany Heavy Industry. Putzmeister was considered a "hidden champion", i.e. an SME specialized in a niche sector with growth potential. For the Chinese group, the takeover has proven unsatisfactory from a financial perspective. However, with this takeover, it could gain access to German technology and expertise, which is considered the main motivation for such an undertaking.
Kuka (2016-2021)	Kuka, the European leader in robotics and a key player for *Industrie 4.0,* was steadily acquired by the Chinese group Midea; of which it acquired 95% of the capital by "squeezing out" other stakeholders. This acquisition was of a strategic nature as it resulted in China becoming the most important industrial partner of the German automotive industry. German and EU authorities tried to persuade European bidders to propose an alternative bid. This attempt was not successful. The German Federal Ministry of Economics has since explicitly said that a takeover such as the one of Kuka must not happen again.
SolarWorld (2017)	The German manufacturer of photovoltaic panels, SolarWorld, declared bankruptcy following dumping practices by Chinese companies producing panels at unbeatable prices which rendered SolarWorld uncompetitive.
Bosch (2017)	Car suppliers have been in the focus of Chinese acquisitions. The German supplier Bosch, for instance, sold one of its lossmaking subsidiaries to the Chinese Zhengzhou Coal Mining Machinery Group. The Chinese car supplier Weichai Power has steadily asserted itself in a sector dominated by German and Japanese companies. It has done so by buying up other companies, among which the German Kion company producing forklifts. The German Tier 1 car supplier FFT was taken over by the Chinese group Fosun in 2018. The Chinese Joyson Electronic took over a majority stake in the German company Preh producing electrical and electronic operating systems for passenger cars and commercial vehicles, which has since grown tremendously. The German car supplier KSM Castings was acquired by the China International Trust and Investment Corporation (CITIC). In 2012, Kiekert AG, specialized in the production of locking systems of motor vehicles, was bought by Lingyun Industrial. Finally, the Chinese tech giant Xiaomi bought up the German car manufacturer Borgward with the aim of manufacturing its own electric vehicles.
50 Hertz (2018)	The German Federal Ministry of Economics prevented the State Grid Corporation of China (SGCC) from acquiring a share of Berlin electricity network operator 50Hertz.
Leifeld (2018)	The German Federal Ministry of Economics blocked the takeover of German mechanical engineering company Leifeld by the Chinese Yantai Taihai Group. Leifeld machines can be used to manufacture military engine components and parts for the nuclear industry, which is why the Ministry of Economic Affairs raised security concerns.
Biotest (2018)	Diverse takeovers in the health industry include the takeover by the Chinese company Creat of German pharmaceutical company Biotest for USD1.2 bn. In 2016 Chinese startup Wuxi bought German biotech company Crelux. In 2020, during the peak of the coronavirus pandemic, it bought a Bayer Group plant. In 2020, the Chinese Fosun launched a cooperation with the German Biontech for EUR140 million. It invested USD85 million in R&D and paid additional USD50 million for 0.7% of Biontech shares. This proved to be an astute decision as the Biontech share value grew substantially amidst the coronavirus crisis.
Daimler AG (2018)	The Chinese car manufacturer Geely acquired 9.7% of the capital of German car manufacturer Daimler AG.
CATL (2019)	Chinese batteries manufacturer CATL decided to build a production plant in Erfurt, which is to open in 2022 and include an R&D facility. This is the biggest greenfield investment project in Germany in years. Similarly, Chinese battery producer Svolt plans to build two plants in Saarland. Also the Chinese battery producer Faransis plans to build a plant in Saxony-Anhalt.
Daimler AG (2019)	Beijing Automotive Industry Holding (BAIC) acquired 5% of the capital of Daimler AG. The deal amount is estimated at USD2.8 bn. BAIC slowly bought more Daimler shares. In 2021, when truck division Daimler-Truck separated from Daimler AG, the fact that BAIC already held 9.98% of the voting rights in the car company became common knowledge. In 2019, Minister for Economics and Energy Brigitte Zypries had raised concern that a Chinese competitor could gain insights into Daimler's strategy.
Volocopter (2019)	Chinese investments in the aeronautical sector include, Chinese car manufacturer Geely acquiring a stake in Volocopter in 2019. Lilium, a German company working on electric vertical take-off and landing aircraft raised investments, notably from the Chinese technology group Tencent.
Vossloh Locomotives (April 2020)	Chinese high-speed rail firm CRRC acquired German company Vossloh Locomotives, the market leader for short-distance diesel locomotives (Vossloh held 25% of the market for diesel locomotives). German competition authorities agreed to this deal in April 2020. By acquiring a company approved to European standards, and accustomed to producing according to the standards applicable within the EU, CRRC avoided having to go through a process of accreditation that usually happens on a country-by-country level, can take several years and requires considerable financial and human effort.
Port of Hamburg (2022)	COSCO, a state-owned Chinese shipping magnate, aims at taking a 35% stake in one of Hamburg's three terminals. German and EU authorities are skeptical about the deal. Other infrastructure projects include in the city of Duisburg which hosts the largest inland port in the world and is a BRI destination, connecting the city with China by rail.

Source: Compilation by the author based notably on information from C. Geinitz, *Chinas Griff nach dem Westen – Wie sich Peking in unsere Wirtschaft einkauft*, C. H. Beck Verlag, Munich, 2022.

Alerted by the German business spheres of the risks faced in the Chinese market, the political class operated a shift towards a more overtly cautious and less naïve posture towards China. A **BDI Policy Paper (2019)** calling for more clarity in relation to China, greatly influenced the **EU's Strategic Outlook (2019)**. In February 2019, the publication of a **Franco-German Manifesto for a European industrial policy fit**

for the 21st Century led to the definition of a **European Industrial Strategy in 2020, updated in 2021**. This example illustrates parallel developments on the national and EU level. This interplay has also happened the other way around. For example, developments on the EU level with the **FDI Screening Instrument** (2020) resulted in the **tightening of the German Investment Control Law (2020)**. The **German Law on the Duty of Vigilance "*Lieferkettensorgfaltspflichtengesetz*",** set to enter into force in January 2023, was inspired by similar legislations in other member states, while an **EU Directive on Corporate Sustainability Due Diligence** is also being prepared. Furthermore, a "**5G networks EU toolbox of risk mitigating measures"** was put into place on the EU level in 2020, addressing security concerns linked to 5G technology being deployed on EU telecommunication networks, while the German **"IT Security Act 2.0"** is set to come into force on 1st May 2023. On the German national level, with the change of government in 2021, the German coalition contract drafted by the SPD, the Greens and the FDP announced a more assertive stance toward China than under the preceding government, which was perceived as too indulgent.

A **tightening of the investment guarantee rules** is also expected. Already, in May 2022 the German government denied German car manufacturer Volkswagen (VW) guarantees for investments in China because of the human rights situation in the Xinjiang region, where the German multinational has production plants. Two further documents, the "**China Strategy**" and the "**National Security Strategy**", which are both due by the end of 2022, are also impatiently awaited by EU institutions as they may serve as an inspiration for the EU. In particular, Germany is preparing for a dreaded scenario: a potential decoupling from China that, due to the degree of entanglement of the two economies, could have wide repercussions. Alternatives to China for German businesses and industry are to be sought, and negotiation levers in relation to China – to be triggered in case of increased tension – are to be identified. With an eye on the West's decoupling from Russia, it is likely that China's efforts to reduce dependencies and become more autonomous will accelerate.[24] This makes Germany's China strategy all the more pertinent. The shift in German politics with the pendulum swinging from pro-business behavior to a more prudent posture may be visualized through the examples provided in Figure 2.

24. M. Huotari and S. Jean, "Bolstering Europe's Economic Strategy vis-à-vis China", *op. cit.*

Figure 2: A German shift towards more geopolitical thinking?

A GERMAN SHIFT TOWARDS MORE GEOPOLITICAL THINKING?		
Policy paper of the Federation of German Industries BDI – ***"Grundsatzpapier des Bundesverbandes der Deutschen Industrie"*** (January 2019)	BDI Bundesverband der Deutschen Industrie e.V.	The BDI urged the political spheres to consider China not only as a trading partner but also a "systemic rival". European institutions followed suit by releasing a Strategic Outlook document on March 12, 2019 containing a threefold definition of China: a "cooperation partner", an "economic competitor" and, a "systemic rival".
"A Franco-German Manifesto for a European industrial policy fit for the 21st Century" (February 19, 2019)	Bundesministerium für Wirtschaft und Energie	In 2019 the German Federal Ministry for Economic Affairs and Energy and the French Ministry of Economy and Finance paved the way for the EU's Industrial Strategy of March 2020 with a Franco-German Manifesto for a European industrial policy. As "Europe's economic strength in the coming decades will be hugely dependent on our ability to remain a global manufacturing and industrial power", France and Germany aim at increasing investments in innovation, adapting the regulatory framework to further the success of EU companies on the global stage and putting into place measures to shield the EU from asymmetric trade and market practices.
Industrial Strategy 2030 – Guidelines for a German and European industrial policy – ***Industriestrategie 2030 – Leitlinien für eine deutsche und europäische Industriepolitik*** (November 2019)	Bundesministerium für Wirtschaft und Energie	This document aimed at guaranteeing favorable framework conditions for the industry and proposed measures to strengthen future-oriented technologies in Germany, while also defending Germany's technological sovereignty against international competition. First drafts were issued in early 2019, some initial ideas were watered down. For instance, state intervention and the pooling of resources (***"Beteiligungsfazilität"*** and ***"Neues volkswirtschaftliches Verhältnismäßigkeitsprinzip"***) were seen as hindering foreign takeovers in sensitive and highly relevant technologies. Companies of major national interest such as Deutsche Bank, Thyssen-Krupp and Siemens were mentioned in the draft documents. The term "industrial champion", however, appears in the final document. Third-country acquisitions may be hindered by the state if public order and security are threatened. In the draft version, even the possibility of such a threat would have sufficed for the state to reject a takeover. The spirit behind the "***Industriestrategie 2030***" was echoed by the German Federal Minister for Economic Affairs Peter Altmaier in these terms: "German companies are not only in competition for the best products, but increasingly in competition with economic systems that rely heavily on state intervention and protectionist market foreclosures. This is an unequal battle that more and more of our companies are losing."
Position paper of the SPD parliamentary group ***"Positionspapier der SPD-Bundestagsfraktion"*** (June 30, 2020)	SPD	The SPD parliamentary group called for the EU to uphold a multilateral rules-based order in the face of China's increasing efforts to shape the international order, putting strain on universal values (freedom, human rights, democracy, rule of law). In this paper the SPD also called for a level-playing field in global trade and investment.
Tightening of the German Foreign Trade Act (***"Außenwirtschaftsgesetz"***), of the Foreign Trade Regulation ("Außenwirtschaftsverordnung" 2018) and of the Investment Control Law (***"Investitionskontrollrecht"*** July 17, 2020)	Bundesministerium für Wirtschaft und Energie	The tightening of the Foreign Trade Regulation happened after the takeover of Kuka by the Chinese group Midea, when the threshold for state control of takeovers of critical infrastructure was reduced from 25% to 10%. Following to the entry into force of the EU FDI Screening instrument, Germany tightened its Investment Control Law. Its scope was notably widened to include emerging technology such as AI, robotics, semiconductors, cybersecurity, air and space transportation, energy storage, and quantum-, nuclear-, nano- and biotechnologies.
German coalition contract ***"Mehr Fortschritt wagen – Bündnis für Freiheit, Gerechtigkeit und Nachhaltigkeit"*** (November 24, 2021)	SPD	Following the German parliamentary elections of 2021, the coalition contract between the SPD, Greens and FDP stated: "We want and must structure our relations with China in the dimensions of partnership, competition and system rivalry". It mentions human rights violations in Xinjiang province and the German government's aim to uphold "human rights" and "international law" in its relations with China. Prior to that and to her leaving power in September 2021, although she has been criticized for being rather conciliatory with China, mindful of German industry's interests there, Chancellor Merkel gave a speech to the Bundestag in which she criticized China for "bad and cruel treatment" of minorities and emphasized the difference between China and the EU in referring to the "fundamentally different social systems", stressing that the EU stands for "freedom of expression and human rights".
German Law on the Duty of Vigilance ***"Lieferkettensorgfaltspflichtengesetz, LkSG"*** (set to enter into force on January 1, 2023)	Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung	This law requires companies to verify the activities of their partner companies, such as subcontractors, abroad as far as compliance with human rights and, environmental and social standards are concerned. In parallel, on the EU level, a Resolution on Corporate Due Diligence and Corporate Accountability is in the making. Firms risk monetary fines and reputational damage if they are not compliant.
IT Security Act 2.0 (set to come into force on May 1, 2023)	Auswärtiges Amt; Bundesministerium der Verteidigung; Bundesministerium für Wirtschaft und Klimaschutz	In a debate about the granting of 5G mobile communications licenses, the Federal Foreign Office and the Chancellery. The Chancellery were in conflict, the discussions dragged on, and in the end, the Foreign Ministry's position prevailed; the resulting law is written in such a way that the controversial Chinese network supplier Huawei could be excluded from licensing. According to German media, the German government intends to reserve the right to forbid network operators from using critical components from Chinese manufacturers if they are not considered trustworthy.
The elaboration of a German "China Strategy" and of a "National Security Strategy" (expected by end 2022)	Die Bundesregierung	Germany has anticipated a particularly dreaded scenario: a potential decoupling from China, which, due to the degree of entanglement of the two economies would risk having wider repercussions. The German Federal Foreign Office is developing a strategy (to which the Federal Ministry for Economic Affairs and Climate Action will contribute) to identify alternatives to China for German businesses and industry. To what extent this strategy will be linked to the "National Security Strategy" (also due at end 2022) is not yet known. The latter is likely to present similarities with NATO's Strategic Concept 2022 and the EU's Strategic Compass which both mention China. However, the current geopolitical situation, in which Russia understandably represents the main threat to European stability, may compromise a too daring approach with regard to China. EU institutions follow developments in Germany very closely. They may feel the need to follow suit.
Plans to tighten German investment guarantee rules, being prepared by the German Federal Ministry of Economics	Bundesministerium für Wirtschaft und Klimaschutz	Investment guarantees are granted by states to their companies with activities in developing, emerging countries and transition countries to protect against uncalculable political risks such as expropriation, nationalization, war, breach of commitment, revolution, riots and acts of terrorism. In the event of damage, the federal government assumes the loss of assets. Already in May 2022, the German federal government denied VW guarantees for investments in China because of the human rights situation in the Xinjiang region, where the German multinational has production plants. This rejection means that VW must bear on its own the financial risks for its planned commitments in China.

Source: Compilation by the author based on the following sources:
"Grundsatzpapier des Bundesverbandes der Deutschen Industrie", Bund der deutschen Industrie, January 2019, available at: www.grundsatzpapierbdichina.pdf; "A Franco-German Manifesto for a European industrial policy fit for the 21st Century", Bundesministerium für Wirtschaft und Energie et Ministère de l'Economie et des Finances, February 19, 2019, available at: www.gouvernement.fr; "Positionspapier der SPD, Sozialdemokratische Fraktion im deutschen Bundestag", June 30, 2020, available at: www.spdfraktion.de; Strategic Outlook 2019, *Außenwirtschaftsgesetz*, Bundesministerium für Wirtschaft und Klimaschutz, July 17, 2020, available at: www.bmwk.de; *MEHR FORTSCHRITT WAGEN–BÜNDNIS FÜR FREIHEIT, GERECHTIGKEIT UND NACHHALTIGKEIT*, coalition agreement between the SPD, Bündnis 90/The Greens and the FDP, the German federal government, November 24, 2021, available at: www.bundesregierung.de; "Wie wir uns China ausgeliefert haben", der Spiegel, May 27, 2022, available at: www.spiegel.de; "Bundesregierung erwägt Verbot von Huawei-Komponenten", der Spiegel, July 25, 2022, available at: www.spiegel.de, "Nationale Sicherheitsstrategie: Erstes Expertentreffen im Bendlerblock", Bundesministerium der Verteidigung, July 8, 2022, available at: www.bmvg.de; "NATO 2022 STRATEGIC CONCEPT", NATO, June 29, 2022, available at: www.nato.int; "STRATEGIC COMPASS", European external action service, March 2022, available at: www.eeas.europa.eu; "A STRATEGIC COMPASS FOR SECURITY AND DEFENCE", European External Action service, March 2022, available at: www.eeas.europa.eu.

EU Strategies, Policies, and Instruments to Better Confront an Increased "Politicization of Economics"

In the face of geopolitical hardening casting doubt on the principle of multilateralism and economic openness, the EU has drawn up an industrial policy and trade defense mechanisms to increase its resilience and assert its economic power.

The Definition of a European Industrial Strategy Updated in May 2021

As a result of the coronavirus crisis, under the impulsion of European Commissioner Thierry Breton and the French and German economy ministers Bruno Le Maire and Peter Altmaier,[25] the **European Industrial Strategy**[26] was **updated in May 2021**.[27] The strategy contains a mapping of the EU's strategic dependencies and the capacities of 5,200 products imported into the EU. This mapping identified 137 products in sensitive sectors on which the EU is highly dependent, representing 6% of the value of extra-EU imported goods. Over half of these dependencies originate in China. Particular dependencies in sensitive sectors, i.e., where almost no substitution or diversification is possible, were also identified. For these dependencies, reliance on China involves mainly rare earth and critical raw material. However, there is also a dependence on components that will be needed for the EU's green and digital transition. As well, China has become a major manufacturing hub, due to its size and economies of scale, linked to its huge internal market, which renders the EU's supply chains fragile in the event of disruption. The analysis also highlights "reverse dependencies", where the US relies on the EU, and "common dependencies" where the EU and the US rely on China (cf. Figures 3 and 4).

25. "A Franco-German Manifesto for a European Industrial Policy Fit for the 21st Century", Bundesministerium für Wirtschaft und Energie and Ministère de l'Economie et des Finances, February 19, 2019, available at www.gouvernement.fr.
26. *Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions*, "A New Industrial Strategy for Europe", European Commission, March 10, 2020, available at www.ec.europa.eu.
27. Communication "Updating the 2020 New Industrial Strategy: Building a Stronger Single Market for Europe's Recovery", European Commission, May 5, 2021, available at www.ec.europa.eu.

Figure 3: Overview of EU and US dependencies in sensitive ecosystems

Overview of EU & US dependencies in sensitive ecosystems

Dependent Country	Source of dependency	Number of dependent products	Potential for diversification (% of dependent products)	Share in total import value
		**260 products**	18% Low; 34% Medium Low; 28% Medium High; 20% High	**3,1%**
		**15 products**	0% Low; 7% Medium Low; 13% Medium High; 80% High	**0,1%**
		**20 products**	61% Low; 9% Medium Low; 9% Medium High; 21% High	**EU: 2,8%** **US: 4,1%**
		**70 products**	25% Low; 8% Medium Low; 22% Medium High; 45% High	**EU: 4,6%** **US: 5,1%**

Source: *Commission Staff Working Document, Strategic dependencies and capacities 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, op. cit. Adapted by the author.*

Figure 4: Common and reverse dependencies (EU and US) in sensitive ecosystems: examples at product level

Common & Reverse Dependencies (EU & US) in Sensitive Ecosystems: Examples at Product Level

Dependent Country	Source of dependency	Health	Energy-intensive industries (EII)	Renewables	Digital/Electronics
		Active Pharmaceutical Ingredients (APIs) (e.g. types of antibiotics) Medical apparatus (e.g. pacemakers)	(Critical) Raw materials (e.g. types of steel/phosphates)	Wind-powered electric generating sets	
		APIs (e.g. hormones, vitamins)	(Critical) Raw materials (e.g. lithium oxide, beryllium)	Types of electric motors and generators	Optical devices
 		Covid-19 related goods (face masks and gloves) APIs (e.g. types antibiotics)	(Critical) Raw materials (e.g. tungstates, ferroalloys)	Permanent magnets	Laptops, cellphones, radio-broadcast receivers
 		Covid-19 related goods (face masks and gloves) APIs (e.g. antibiotics, vitamins, alkaloids)	Various (Critical) Raw Materials	Permanent magnets Type electric accumulators	Laptops, cellphones, radio-broadcast receivers

Source: *Commission Staff Working Document, Strategic dependencies and capacities 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, op. cit. Adapted by the author.*

The EU's Industrial Strategy is at the same time a response to the **EU's shrinking competitiveness**, which needs to be tackled. As stated by the Joint Research Centre (JRC), figures show that the EU's share in global value chains has decreased in recent years while China's has increased. This may be partly attributed to "changes in competitiveness".[28] In times when technological leadership "confers leverage in case of political tension",[29, 30] this aspect should not be neglected. This is why industrial policy, which Germany together with France pushed forward on the EU level, is so important. Sectors of major importance, so-called "ecosystems", were defined with a view to strengthening the EU's leadership. They represent a little less than 75% of EU value added, about 185 million employees within the EU, and 23 million EU companies, among which are a high number of

28. *China: Challenges and Prospects from an Industrial and Innovation Powerhouse*, Joint Research Centre, European Commission, February 2019, available at www.publications.jrc.ec.europa.eu.
29. M. Huotari and S. Jean, "Bolstering Europe's Economic Strategy vis-à-vis China", *op. cit.*
30. *Fasten Your Seatbelts – How to Manage China's Economic Coercion*, Merics, August 25, 2022, available at www.merics.org.

SMEs. These sectors are: Aerospace and Defense; Agri-food; Construction; Cultural and Creative Industries; Digital; Electronics; Energy-intensive Industries; Energy-Renewables; Health; Mobility-Transport-Automotive; Proximity, Social Economy and Civil Security; Retail; Textiles; and Tourism. These more or less correspond to the sectors also identified as worthwhile defending in the US and in China (cf. Figure 5).

Figure 5: Critical sectors to be defended in the frame of an assertive industrial policy

CRITICAL SECTORS TO BE DEFENDED IN THE FRAME OF AN ASSERTIVE INDUSTRIAL POLICY		
China	**EU**	**US**
Sectors identified as worth promoting	**Sectors identified as worth promoting**	**Reviews in supply chains of four critical products:**
• Next-generation IT	• Aerospace and Defense	• Semiconductor manufacturing and advanced packaging
• High-end computerized machines & robots	• Agri-food	• Large-capacity batteries
• Aviation & space equipment	• Construction	• Critical minerals materials
• Maritime engineering equipment & high-tech ships	• Cultural and Creative Industries	• Pharmaceuticals and active pharmaceutical ingredients (APIs)
• Advanced railway transportation equipment	• Digital	
• Energy-saving & new energy vehicles	• Electronics	**Reviews in critical industrial base sectors:**
• Energy equipment	• Energy-intensive Industries	• Defense
• Agricultural equipment	• Energy/Renewables	• Public health and biological preparedness
• New materials	• Health	• Information and communications technology
• Biomedicine & high-performance medical equipment	• Mobility/Transport/Automotive	• Energy
	• Proximity, Social Economy and Civil Security	• Transportation
	• Retail	• Supply chains for production of agricultural commodities and food products
	• Textiles	
	• Tourism	
	EU in-depth reviews in key areas considered strategic:	
	• Raw and processed materials (rare earth, magnesium, chemicals)	
	• Batteries	
	• Active pharmaceutical ingredients	
	• Hydrogen	
	• Semiconductors	
	• Cloud and edge technologies (software capacities)	
	• Products, services and technologies key to the twin transition (such as renewables – photovoltaic panels ; energy storage and cybersecurity).	

Source: compiled by the author based on:

- M. J. Zenglein et A. Holzmann, *EVOLVING MADE IN CHINA 2025 – China's industrial policy in the quest for global tech leadership*, n°8, Mercator Institute for China Studies (Merics), July 2019, available at: www.merics.org.
- Executive Order on America's Supply Chains available at: www.whitehouse.gov; followed by *BUILDING RESILIENT SUPPLY CHAINS, REVITALIZING AMERICAN MANUFACTURING, AND FOSTERING BROAD-BASED GROWTH–100-Day Reviews under Executive Order 14017* from June 2021, available at: www.whitehouse.gov and on October 5, 2021 the S.1169–Strategic Competition Act of 2021 presented in US Congress and available at: www.congress.gov.
- *ARE INDUSTRIAL POLICY INSTRUMENTS EFFECTIVE? A REVIEW OF THE EVIDENCE IN OECD COUNTRIES – A REVIEW OF THE EVIDENCE IN OECD COUNTRIES*, POLICY PAPERS, No. 128, OECD, May 2022.
- *COMMISSION STAFF WORKING DOCUMENT Strategic dependencies and capacities 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*, SWD/2021/352 final, European Commission, 5 May 2021, available at : https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021SC0352.

The Putting into Place of Market Defense Instruments

As Business Europe reckons in a report from January 2020, "China and the US do not shy away from using their economic power to pursue security and geopolitical objectives."[31] In this context of "**politicization of economics**",[32] EU efforts focus not only on establishing an active industrial policy but also on combining it with measures in **trade and competition policy** in a holistic manner (Appendix 1). These should help strengthen the EU's value chains through diversifying trade and securing a level playing field with trade partners, while also protecting the internal market from asymmetric trade and market practices and strengthening EU's actors' competitiveness in the face of ever fiercer international competition. In doing this, the EU seeks to address the criticisms directed at its instruments, which have been deemed not fit for purpose.[33]

Many of the challenges faced by the EU relate to China, which seeks to catch up with its Western counterparts and to climb up the technology value chain in order to move from an economy based on labor-intensive activities to one based on capital-intensive activities, and thus become a more technologically advanced economy. China has been trying to tighten relations with innovative foreign companies at the top of their sector in order to benefit from their know-how. These companies often end up being lured by a Chinese market which hosts nearly 20% of the world population,[34] which eases China's endeavor in this regard.

However, European companies are of interest to China as long as they bring value-added and expertise that Chinese companies may appropriate for their own activities. Hurdles encountered by European companies on the Chinese market and that are particularly under the scrutiny of the European Chamber of Commerce in China (EUCCC) and the member states' chambers of commerce are, for example: the corporate social credit system, forced joint venture requirements, specific data management requirements and legal uncertainty in general.

Apart from the difficulties European companies may experience in the Chinese market, **security concerns** also motivate **reluctance to resort to Chinese technology**. That is, for instance, the case as far as **critical infrastructure** is concerned, e.g., on **5G,** where the fear of misuse

31. *The EU and China Addressing the Systemic Challenge – A Comprehensive EU Strategy to Rebalance the Relationship with China*, Business Europe, January 2020.

32. K. Kamin, K. Bernoth *et al.*, "Instruments of a Strategic Foreign Economic Policy–Study for the German Federal Office", *op. cit.*

33. *The EU and China Addressing the Systemic Challenge*, *op. cit.*

34. *World Population Prospects 2019*, United Nations, August 2019, available at: https://population.un.org.

generates skepticism about Chinese technology, **Huawei** being particularly in the spotlight of European authorities.

Also, **public contracting and investing conditions** within the EU are increasingly criticized as they allow foreign tenderers, or investors, to avail of loopholes. Among these actors, there are Chinese ones, whose activities abroad meet the Chinese Belt and Road Initiative (BRI)'s overarching ambition to expand abroad and spread Chinese influence and soft power to the detriment of the EU's.

In a context of weakened multilateralism that extends to international economics,[35] the lack of trust and legal uncertainty coupled with **asymmetric market and trade practices,** favors attempt to achieve self-sufficiency and state vigilantism that harm global trade. The **policy fundamentals underlying global trade**, namely a rules-based order and the openness of markets grounded on an international division of labor determined by comparative advantages, are **seriously weakened**. **Unlawful competition by third states** through **dumping methods** and **subventions** to **state-owned enterprises**, the resurgence of **trade barriers** such as **export controls**, **restrictions in market access** and **customs duties**, and the increased use of **weaponization of trade** through **coercion practices** of a political nature thus require the EU to elaborate trade defense mechanisms, such as the ones its main trade partners adopted too. A non-exhaustive list of instruments to protect the EU against asymmetric trade practices from third countries that threaten the success of its economic model is provided below (cf. Figure 6).

35. B. Lippert and V. Perthes (eds.), *Strategische Rivalität zwischen USA und China*, Stiftung Wissenschaft und Politik, February 2020.

Figure 6: EU instruments in the making to address challenges that threaten the success of the EU's economic model

Rebalance market access	• The **EU-China Comprehensive Agreement on Investment (CAI),** aimed at easing market access to the Chinese market for European companies in several sectors, to improve the level playing field between China and the EU, and to embed sustainable development in the investment relationship between the two countries, was negotiated on December 30, 2020 under the German presidency of the Council of the EU but did not enter into force due to the European Parliament's opposition to ratifying it, following Chinese sanctions against, notably, members of the European Parliament and European researchers. A case in point to which this agreement could have provided a satisfactory answer is, for example, that of car manufacturers, such as Volkswagen, established on the Chinese market under the condition of joint-venture agreements involving a forced transfer of technology. • The **International Procurement Instrument (IPI)** that seeks to apply the same market openness in the EU and foreign markets. It aims at combating the progressive eviction of European companies from third markets favoring their own enterprises; e.g. in the beginning of the 2000s, Alstom and Siemens, the French and German leaders in rolling-stock, were welcomed with much enthusiasm in China where they helped Chinese rail companies to master their know-how. The Chinese rail market has been increasingly closed to Western companies and Chinese rolling-stock company CRRC has become the world's biggest producer. The IPI was adopted by the European Parliament on June 9, 2022 and now needs to be adopted by the Council of the EU.
Combat market concentration which harms European companies	• The **Digital Markets Act–DMA** and the **Digital Services Act–DSA** are intended to protect companies and consumers from potential market abuses by digital champions such as Google, Amazon, Meta, Apple and Microsoft or their Chinese equivalents Baidu, Alibaba, Tencent and Xiaomi, given their dominant market position. The European Parliament adopted the DMA on March 24, 2022 and the DSA on July 6, 2022. Adoption by the Council of the EU is pending at the time of writing. • **Reform of competition rules** at the EU scale is being envisaged. What is at play is the competitiveness of European companies in the face of actors dominating their own market, notably because of their size and the importance of their domestic market, which they use as a springboard at the start of internationalization. The support they get from their national authorities would be deemed as state aid according to European regulation. The question that arises is, how can "European champions" with critical size be created and fostered so they can compete with third-country companies and at the same time avoid market dominance abuse within the single market, which would be detrimental to the European consumer as far as the quality and price of goods and services are concerned? Examples of a merger impeded on competition grounds was that of Siemens-Alstom, of one that was authorized was that between Bombardier Transport and Alstom (which was allowed under certain conditions). These examples illustrate the dilemma faced in European competition law. Also, killer-acquisitions hindering the innovation potential of start-ups once they are bought up by bigger companies are being scrutinized by European institutions.
Protect critical assets against ill-intentioned investors	Foreign participation in strategic assets previously under public management and generating important revenues is a case in point, requiring vigilance. The management of critical infrastructures by private companies, even more so from other countries, has led to numerous discussions in the past, such as in the case of the port of Piraeus and Portuguese energy network company EDP. The **Foreign Direct Investment (FDI) screening instrument** aims at identifying the final beneficiary of an investment and at rejecting investments that are considered to go against the EU's strategic interest. Under this instrument, member states and the European Commission determine whether a foreign direct investment is likely to affect security or public order. This mechanism has been operational since October 11, 2020. Its non-binding character and the fact that not all member states have an FDI screening instrument are remaining obstacles.
Apply due diligence in tendering processes	The examples of the construction of the high-speed railway between Budapest and Belgrade and the construction of the Pelješac bridge in Croatia raise the question of whether tender procedures could be improved to better reflect the EU's interests. The matter at stake is not to systematically favor the cheapest offer but to take into consideration other – notably qualitative – aspects. **Directive 2014/25/EU** serves as a reference. It enables the rejection (or at least the examination) of "abnormally low" offers (article 84) or a requirement that at least "50% of the total value of products constituting the tender" be of EU origin (article 85). The **"MEAT"** (*most economically advantageous tender*) principle also applies; it stipulates, that the compatibility between the adjudicator's expectations and the quality of the execution, as well as the price and costs associated with the tender in the whole life duration of a product and the best quality-price ratio, be taken into account.
Uphold social, environmental and human rights standards in the production chain of European companies	A European Parliament **resolution on corporate due diligence and corporate accountability** of March 2021 aims at upholding social and environmental standards, rendering EU companies responsible for their suppliers' practices. It has become particularly topical with Western sanctions against the treatment of Uyghurs in Xinjiang. European Commission President, Ursula von der Leyen, further promised to put forward a ban on imports made with forced labor. The European Commission issued a proposal for a Directive on Corporate Sustainability Due Diligence on February 23, 2022, which is being discussed within the EU institutions. Companies such as the German car manufacturer Volkswagen and German companies from the solar energy industry established in China, could be affected by the expected measures.
Combat coercion of third-party actors that instrumentalize their dominant position	An **anti-coercion instrument** to counter the use of economic coercion by third countries was proposed by the European Commission on December 8, 2021. An example of a country currently facing coercion is Lithuania whose supply chains originating in China have been disrupted as a result of the Lithuanian withdrawal from the "17+1" format and the opening of a Taiwanese Representation Office in Vilnius, which was considered as provocation by Chinese authorities. German companies, such as Hella and Continental, whose supply chains are linked with Lithuania, indirectly became collateral victims of this hardening in Lithuanian-Chinese relations.
Address security concerns	To address security concerns linked to the deployment of 5G technology, in January 2020 a "**5G networks EU toolbox of risk mitigating measures**" was put into place, providing guidelines to member states for the risk assessment of their 5G network, identifying main threats and threat actors, the main vulnerabilities and the main associated risks.

Source: Compilation by the author based on the following documents:

- "Key Elements of the EU-China Comprehensive Agreement on Investment", European Commission, December 30, 2020, available at: https://ec.europa.eu/commission/presscorner/detail/es/ip_20_2542.
- Marcin Szczepański, "EU International Procurement Instrument", EPRS | European Parliamentary Research Service, March 2022, available at: https://www.europarl.europa.eu/RegData/etudes/BRIE/2020/649403/EPRS_BRI(2020)649403_EN.pdf.
- "Regulation (EU) 2019/452 of the European Parliament and of the Council of 19 March 2019 Establishing a Framework for the Screening of Foreign Direct Investments into the Union", *Official Journal of the European Union*, Current consolidated version: December 23, 2021, available at: https://eur-lex.europa.eu/eli/reg/2019/452/oj.
- "European Parliament Resolution of March 10, 2021 with Recommendations to the Commission on Corporate Due Diligence and Corporate Accountability (2020/2129(INL))", European Parliament, March 10, 2021, available at: https://www.europarl.europa.eu/doceo/document/TA-9-2021-0073_EN.html.
- Marcin Szczepański, "Proposed Anti-Coercion Instrument", EPRS | European Parliamentary Research Service, March 2022, available at: https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/729299/EPRS_BRI(2022)729299_EN.pdf.
- "Cybersecurity of 5G Networks EU Toolbox of Risk Mitigating Measures", NIS cooperation group, January 2020, available at: https://ec.europa.eu/newsroom/dae/document.cfm?doc_id=64468.

However, the application of such instruments might raise concern about retaliation against EU companies abroad. These instruments thus also trigger some reluctance within the EU as, in the event of confrontation, bargaining power would prevail in the absence of unquestioned multilateral rules. The EU is considered comparatively "ill-equipped" to win such a confrontation.[36] And the effects of such instruments are uncertain: they might backfire, leading to escalation that would intensify the fragmentation of the world economy even more. Diplomacy is thus to play a major role, keeping communication channels open and affirming that the EU's preferred interaction with its trade partners is based on transparency and predictability.[37]

36. K. Kamin, K. Bernoth *et al.*, "Instruments of a Strategic Foreign Economic Policy–Study for the German Federal Office", *op. cit.*
37. *Ibid.*

Increasing the Resilience of the EU's Industrial Basis: Drivers and Challenges

A Need for Groundbreaking Changes in European Industrial and Trade Policy to Support the EU's Growing Assertiveness

While the EU asserts itself with an ambitious industrial policy and well-aimed trade defense mechanisms, the gap between theory and practice needs to be bridged. Also, the EU will have to tighten its relations with those partners that are relevant to its ambitions.

European Industrial Strategy: From Theory to Practice

As "ecosystems" were defined in order to strengthen the EU's leadership in future-oriented technologies and in areas where shortages with far-fetching consequences for the EU are to be expected, the gap from theory to practice has yet to be bridged. The question to address is how to best complement a top-down ecosystem approach with a bottom-up approach linking the main stakeholders. The ecosystems approach *per se* is already an attempt to propose tailor-made action plans to sectors that have their own dynamics.

However, at the outset of successful implementation of ecosystems, political will is crucial. This requires various actors to converge toward one objective whose realization benefits from overwhelming support and thereby has all reasons to succeed. Therefore, the stated objective or ambition needs to be evident, and the main stakeholders must be committed so that their forces are combined.

Associated questions to be addressed while implementing industrial ecosystems concern a wide range of domains:

- How can disadvantages in the availability of **factors of production** be counteracted? These factors are workforce, land, and capital, and extend to access to raw material through extraction or acquisition. Trade contracts, to guarantee the supply of raw material and goods that are unavailable on the internal market, need to be looked into. What also needs to be catered for is the processing of the raw material and intermediary goods. Hence both know-how and technology are paramount.

- **Human resources**: It is crucial to anticipate the human resources needed in future-oriented technology sectors. Interaction between universities, Research & Development (R&D) departments, SMEs and trade unions is to be promoted to prepare for the EU's leadership in key technologies. Reskilling and upskilling are catered for in the EU's Skills Agenda.[38] An attractive talents acquisition and retention policy needs to be drafted too.
- **Financing:** An interplay between private and public actors is essential. Regulatory framework conditions conducive to providing resources or facilitating activities – such as incentives and tax rebates – are also crucial in other competing countries.[39] The EU's shortcoming in mobilizing venture capital to the same extent as in other countries has often been underlined. The creation of a Capital Markets Union within the EU has been regularly called for[40] to address this shortcoming. As the financing of projects needs to conform with EU regulations, and in particular the EU's competition law, legal requirements should be made clear. So-called "Important Projects of Common European Interest" (IPCEIs), for instance, would require the existence of a market failure so as to receive public financing without contravening EU state aid rules.
- **Supply/purchasing**: The EU's trade policy and its technological and industrial objectives need to go hand in hand. Trade agreements are hence to be envisaged with attention to what is needed to attain these objectives. **Concentration on a single supplier** has to be avoided and **diversification** needs to be practiced. Diversification entails not only having multiple suppliers, but also multiple logistic supply routes. **The resilience of supply chains** needs to be guaranteed as much as possible. Multinational firms (MNFs) may be quicker and more flexible in adapting to disruption; SMEs, in contrast, with a reduced number of suppliers are particularly at risk. Carrying out systematic **stress tests** on supply chains, as suggested at the G7 summit in the UK in 2021,[41] could help SMEs to make informed decisions, and improve their risk culture provided a way is found to convey information to reporting institutions without increasing the risk of disclosing "company secrets".

38. *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the* Regions, European Skills Agenda for sustainable competitiveness, social fairness and resilience, COM/2020/274 final, European Commission, July 1, 2020, available at www.eur-lex.europa.eu.
39. "In Search of Resilience", *The Economist*, October 6, 2021, available at www.economist.com.
40. "Currently, venture capital as a share of EU GDP is less than one tenth the level in the US. Deepening the Capital Markets Union will require regulatory harmonization, in particular through a centralized supervisory authority, facilitating equity investment of institutional investors and harmonization of corporate insolvency law". *In*: K. Kamin, K. Bernoth *et al.*, "Instruments of a Strategic Foreign Economic Policy–Study for the German Federal Office", *op. cit.*
41. "In Search of Resilience", *op. cit.*

- **Procurement**: Procurement standards need to be worked on within the EU to better reflect the "most economically advantageous tender" (MEAT) criteria thus taking into account not only the lowest price but also quality criteria.

These are just a few of the questions that arise when addressing solutions to efficiently implement EU industrial ecosystems. Best practices may equally be drawn from international organizations such as the Organization for Economic Cooperation and Development (OECD), encompassing industrialized countries; looking at what is being done in the US and China, the EU's biggest trade partners is equally important (cf. Figure 7).

Figure 7: Key success factors in industrial policy according to the US, China, the EU, and the OECD

KEY SUCCESS FACTORS OF INDUSTRIAL POLICY	China	EU	US	OECD
R&D, skills, funding	• **Increase R&D** in high-tech and high-growth sectors (build 40 R&D centers in China) • Strengthen **domestic innovation** capacity. China has greatly increased its R&D spending in the past decades.	• **Mobilize funds to promote innovation**, e.g. through the Recovery and Resilience Facility and Horizon Europe • Improve the availability of relevant **skills** by identifying skills gaps and, emerging skills needs, and develop a strategy to meet them • **Create a joint platform and structured dialog between the Commission, industrial alliances and investors** (i.e. European Investment Bank – EIB, European Bank for Reconstruction and Development – EBRD, National promotional banks and institutions – NPBIs)	• **Promote R&D investments**, e.g., through grants • **Strengthen knowledge**, leadership, engagement of people: create pathways to quality jobs • **Acquire foreign talent**, for instance in future-oriented technologies as foreseen in the Report from the National Security Commission on Artificial Intelligence (March 2021)	• Design efficient **R&D tax credits** and subsidies to stimulate R&D and innovation • Put in place **skill and knowledge transfer policies**: stimulate innovation beyond upskilling through human capital policies based on immigration or the reduction of barriers to entry into inventor careers • **Use public loans, guarantees and public venture capital as tools for targeted interventions**
Strengthen internal market; stay internationally competitive/become technologically more relevant; follow sustainability objectives	• Make due use of **China's market size**, which helps reach **economies of scale** • Further **cross-fertilization** through a **centralized technology policy** that strengthens innovation, notably in the biotechnology, IT, AI and robotics sectors • **Evolve from a standard-taker to a standard-maker**	• **Reshore activities: build on industrial alliances** for batteries, hydrogen and raw materials. • Identify investment needs and **help investments to come to fruition** in support of breakthrough innovations on batteries and semiconductors, notably in "Important Projects of Common European Interest" (IPCEI), such as in the domain of batteries. • **Further the creation of new IPCEIs** in cloud and hydrogen, and develop an additional one in semiconductors • **Identify supply-chain vulnerabilities** and address them, e.g. in the area of active pharmaceutical ingredients. Increase the sustainability and resilience of EU ecosystems through stockpiling, diversification of trade and autonomous capacities • **Provide fit-for-purpose regulatory frameworks**, e.g. on semiconductors, hydrogen and batteries • **Promote clean extraction and processing standards** for raw materials, resort to increased recycling.	• **Improve supply-chain transparency** (establish a Supply Chain Disruption Task Force to monitor mismatches between supply and demand, diagnose problems and surface solutions together with main stakeholders) • Stockpile and **reshore** production and processing • **Diversify international suppliers** and reduce geographic concentration risk • Put into place **domestic demand incentives** • **Stimulate domestic production by building up strategic production capacities** through incentives (subsidies, tax rebates) • **Leverage the government's role as a purchaser** *of* and investor *in* critical goods through procurement standards that favor "Made in America" • Shape globalization to ensure it works for Americans as workers and as families, not merely as consumers, by upholding and defining tax, labor protections, and environmental standards. **Introduce comprehensive sustainability standards** for essential minerals, such as lithium, cobalt, nickel, copper, and other minerals • **Reduce inequality** to unleash the potential of workers, researchers and entrepreneurs to contribute fully to growth and innovation • **Support small and medium-sized businesses** (provide capital and technical assistance, facilitate supply and access to R&D, increase commercialization)	• Design conducive **framework conditions,** notably competition and trade policies to increase a country's attractiveness. For instance, efficient competition policies reallocate resources toward more productive firms and indirectly incentivize firms to innovate. Further: simplicity, transparency and efficiency of the tax system; well-thought-out entry support for companies on the market; IP rights systems that incentivize innovation but do not lead to inefficient market failures, notably to asymmetric information; and standardization policies that favor compatibility of devices while mindful of the pitfalls this may entail. • Foster competition rules needed for innovation and to mitigate negative consequences of an industrial policy that, by boosting "national champions" and insulating them from potential and existing competitors also reduces the contestability of the market and the **creative destruction** process • Take into account **whole industrial ecosystems,** more than a single sector, to allow for potential **spillovers**

KEY SUCCESS FACTORS OF INDUSTRIAL POLICY				
	China	EU	US	OECD
Inbound & outbound relations	• **Reduce imports and reduce China's reliance on foreign technologies** while moving up global value chains (Dual Circulation Strategy). E.g. by 2025, Chinese manufacturers should ensure that they are self-sufficient for 70% of all upstream products and basic materials, according to the declared goal of the political leadership in Beijing. On the topic of semiconductors, China aims to reach self-sufficiency by 2050. Planned government spending in this sector totaled USD170 bn from 2014 to 2024. • **Reduce risks posed by foreign investment** using the Foreign Investment Risk Review Modernization Act of 2018 (FIRRMA) • **Use outbound FDI and M&As** to increase influence abroad, notably in sectors where China experiences shortages such as the semiconductor industry. Build on acquired foreign competencies to reach technological leadership. Increase influence abroad, notably in Africa. • Use **inbound FDI** for technology transfer, notably through forced joint ventures where Western companies share their know-how. This raises the question of respect of intellectual property. Link industrial ambitions with the **Belt and Road Initiative** and thereby reach out to 60% of the world population and to 40% of world trade • **Actively support Chinese economic actors abroad,** e. g. for the exploration of raw materials, the establishment of research centers, and support for mergers and acquisitions of Chinese economic actors, where Chinese buyers may even get into debt if risks are manageable, provided the deal is compatible with the strategic ambitions outlined in Chinese official documents. This support may include secure debt capital, equity and state guarantees	• **Reject foreign investments considered to go against the EU's strategic interest** via the Foreign Direct Investment (FDI) screening instrument • **Strengthen international partnerships** for diversified and resilient supply chains • **Increase understanding of the EU's strategic dependencies**, as a basis to address them through tailored, fact-based and proportionate policy measures • Continue efforts to **monitor** the EU's current and possible future strategic **dependencies and assess the risks they carry** (notably through an Observatory of Critical Technologies across civil, defense and space industries) • **Extend the scope of dependency tracking** to the extent necessary. Guide corporate decisions to manage risks and provide recommendations on policy measures to address dependency and market failure**.** This is the responsibility of a task force on strategic dependencies.	• **Support exports** • **Build trade and investment partnerships** with like-minded countries (with similar values — valuing human dignity, worker rights, environmental protection and democracy), such as within the Quad and G7, to secure supplies of critical goods • **Strengthen international trade rules**, including trade enforcement mechanisms (combat dumping, create a US Trade Representative-led trade strike force to identify unfair trade practices, further supply-chain resilience in relation to China) • **Shield against malevolent foreign takeovers** through the Committee on Foreign Investment in the United States (CFIUS)	• **Mobilize export promotion agencies** • **Further trade** that helps increase the "effective market size for domestic firms", thus increasing the profit potential. Trade liberalization "leads countries and firms to specialize on those activities they are most efficient in […]." Yet, at the same time, mark-ups, investment, and innovation may decrease because of increased exposure to competition with foreign firms.

Source: compiled by the author based on:

- M. J. Zenglein et A. Holzmann, *EVOLVING MADE IN CHINA 2025 – China's industrial policy in the quest for global tech leadership*, n°8, Mercator Institute for China Studies (Merics), July 2019, available at: www.merics.org.
- Executive Order on America's Supply Chains available at: www.whitehouse.gov; followed by *BUILDING RESILIENT SUPPLY CHAINS, REVITALIZING AMERICAN MANUFACTURING, AND FOSTERING BROAD-BASED GROWTH–100-Day Reviews under Executive Order 14017* from June 2021, available at: www.whitehouse.gov and on October 5, 2021 the S.1169–Strategic Competition Act of 2021 presented in US Congress and available at: www.congress.gov.
- *ARE INDUSTRIAL POLICY INSTRUMENTS EFFECTIVE? A REVIEW OF THE EVIDENCE IN OECD COUNTRIES – A REVIEW OF THE EVIDENCE IN OECD COUNTRIES,* POLICY PAPERS, No. 128, OECD, May 2022.
- *COMMISSION STAFF WORKING DOCUMENT Strategic dependencies and capacities 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*, SWD/2021/352 final, European Commission, May 5, 2021, available at : https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021SC0352.

Looking Out for Partners and Being Constantly Ready to Adapt to New Contexts

As one lesson drawn from the coronavirus crisis is not only reshoring activities but also diversifying sources of supply, new partnerships are to be envisaged. Indeed, the EU could not possibly provide for its own needs in some major sectors, such as critical raw materials. It is illusory to think that the EU will be able to shift from an open economic model to autarky, and that this should even be something the EU should aim for. This is why the EU's trade power should be astutely leveraged (the EU is the biggest exporter and importer of goods and services worldwide).[42, 43]

A possible solution to reduce dependencies is, for instance, to join forces with partners with which the EU shares common interests. Such a partnership, which is being put into place in the form of the EU-US Trade and Technology Council,[44] launched in June 2021, cannot be exclusive. The aim of such a partnership would be to create synergies in R&D; to make the most efficient use of available factors of production; and to cooperate in the supply of goods where a rise in demand, shortages, or price increases are to be anticipated, as, for example, in critical raw materials. Such cooperation would help increase the supply-chains resilience of both the EU and the US. Putting together common early alert systems once shortages accrue would also participate in this logic. Similarly, joint efforts in standardization would guarantee that future-oriented technologies would be compatible with the values system that both the US and the EU endorse. However, the EU needs to be mindful that its own interests and those of the US are not identical, and that differences may fluctuate according to the geopolitical and domestic context.

Similarly, the EU's attempt to assert itself on the global scene goes hand in hand with its soft power potential. While its influence in its own neighborhood has been shrinking, other countries are increasing theirs,

42. The European Commission has emphasized that the EU is the number one trading partner for 74 countries around the world. It is the number one trading partner for Asia, Africa, the US, the Western Balkans, and the EU's neighborhood. In terms of figures, "In 2019, the EU exported over €3.1 trillion worth of goods and services and imported €2.8 trillion of goods and services." It adds: "The EU's increased openness to imports since 1995 has boosted its income by about EUR 550 billion" and that "EU exports support 35 million jobs in the EU". *In*: *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions,* Trade Policy Review – An Open, Sustainable and Assertive Trade Policy, European Commission, COM(2021) 66 final, February 18, 2021.

43. The EU may also leverage the "Brussels effect", namely the fact that the EU is able to extra-territorialize its regulations and standards because of the attractiveness of the internal market to foreign exporters. Should the EU increasingly turn inward, this effect would steadily decrease. See K. Kamin, K. Bernoth *et al.*, "Instruments of a Strategic Foreign Economic Policy – Study for the German Federal Office", *op. cit.*

44. "EU-US Trade and Technology Council", European Commission, available at www.ec.europa.eu. Areas of cooperation include areas of export controls, investment screening, supply-chain resilience, artificial intelligence, and, more broadly, global trade challenges.

e.g., in the Balkans where China and Russia are among the most influential states. Likewise, in the Indo-Pacific and in Africa, China has increased its influence by responding to the infrastructure needs in these regions and to their desire to catch up with their Western counterparts. In September 2021, European Commission President Ursula von der Leyen announced the creation of the **Global Gateway**[45] which, in contrast to the Chinese BRI, is aimed at helping beneficiary states to develop through sustainable infrastructure projects, based on transparent rules and strict environmental and social standards, and at guaranteeing their political and economic sovereignty.[46] Through increased ties with these world regions, and by countering the narrative of other powers, the EU may broaden its source and supply markets; while also establishing or maintaining a communication channel with beneficiary countries that may secure agreements on the political level as far as international politics are concerned.

Furthermore, cooperation with **like-minded countries** is to be sought in targeted fields of action – for instance, in order to increase the EU's capacity to develop its semiconductor capabilities. The EU's Chips Act aims in this direction; the European Commission is seeking to team up with countries such as the US, Japan, South Korea, Singapore, and Taiwan, which are very advanced in this sector and with which the EU shares a number of values and interests. Concrete partnerships in the semiconductor sector such as the US-Japan digital alliance,[47] the US-ROK (US-South Korea) Supply Chain Task Force, and the Quad's Semiconductor Supply Chain (involving Australia, India, Japan and the US)[48] may spur the EU to follow suit.

45. "Questions and Answers on Global Gateway", Brussels, European Commission, December 1, 2021, available at www.ec.europa.eu.
46. "Joint Communication to the European Parliament, the Council, the European Economic and Social Committee, the Committee of the Regions and the European Investment Bank – Global Gateways", European Commission, December 1, 2021, available at www.eur-lex.europa.eu.
47. M. Solís, "Toward a US-Japan Digital Alliance", The Brookings Institution, updated November 2021, available at www.brookings.edu.
48. K. van Wieringen, "Strengthening EU Chip Capabilities", *Briefing, Strategic Autonomy 360°*, European Parliamentary Research Service, July 2022, available at www.europarl.europa.eu.

Figure 8: Efforts deployed in the semiconductor sector in China, the EU, and the US

THE EXAMPLE OF SEMICONDUCTORS

China	EU	US

• **Contextual elements**: China aims to reach **self-sufficiency** in the domain of semiconductors **by 2050**
• **Market share**: China aims at reaching a **40% market share** in semiconductors (against a market share of 16% in 2019).
• **Means deployed:** Planned government spending in this sector totaled **USD170 bn from 2014 to 2024**. State-aid mechanisms such as preferential tax and policy measures, and the financing on favorable terms or subsidies, state-guided funds and technology-focused stock exchanges are also planned in order to support China's leadership in semiconductors.
• **Main actors:** Semiconductor Manufacturing International Corporation (SMIC)
	• **Contextual elements:** The role that semiconductors play in **China-US geopolitical competition** has led the EU to consider strengthening its position in the market. This was partly triggered by the **chip shortage in 2020/21** that caused production difficulties for European car manufacturers. The European Commission aims to become the home for production of cutting-edge chips.
	• **Market share:** The EU's goal is to reach a world **market share of 20% by 2030** (against the current 10%)
	• **Means deployed**:
	  ◦ The **EU's Covid Recovery Fund** (20% should be directed toward digital infrastructure, a sizable portion of which would focus on the microelectronics industry)
	  ◦ **IPCEI: EUR1.7 bn** spent in the IPCEI on microelectronics
	  ◦ **Horizon 2020:** EUR80 mln to be spent in an industry- relevant Horizon 2020 R&D project.
	  ◦ In 2020, Thierry Breton called for a **European alliance on microelectronics** with a strong R&D pillar and combined public and private investment of **EUR20 bn to EUR30 bn**
	  ◦ **The Chips Act** (June 2022) aims to mobilize EUR43 bn in "policy-driven investment" for the EU's semiconductor sector by 2030. It anticipates that EUR11 bn will be invested in the sector for R&D until 2030 by pooling EU and member state budgets. EUR30 bn fuel a new "Important Project of Common European Interest" (IPCEI) and mega FABS.
	  ◦ **Germany:** In December 2021, 32 selected semiconductor materials, design, and manufacturing projects were chosen to be funded through a USD12 bn investment fund for microelectronics projects, announced in May 2021.
	• **Main actors**: The EU is home to leading producers of materials and equipment for the industry, including the leading production machinery maker ASLM and its German suppliers Trumpf, Zeiss and Infineon. Cooperations with countries such as Taiwan, South Korea and Japan and with foreign companies such as Intel are proposed.
		• **Contextual elements**: The US faces several gaps and vulnerabilities in the semiconductor supply chain, posing significant risks to the US economy and national security. Against the backdrop of the US-China rivalry, the US have decided to incentivize semiconductor manufacturing in the US in order to address its declining share of commercial semiconductor manufacturing, partly due to foreign state subsidies in this sector unleveling the playing field to the detriment of the US. They also decided to restrict US technology exports to some Chinese firms.
		• **Market share**: current market share of 12% (as compared to 37% in the 1990s
		• **Means deployed**: The Biden infrastructure plan includes a **USD50 bn** public investments package for the industry. Manufacturing grants, research investments and investment tax credits are planned.
		• **Main actors**: US semiconductor producers such as Intel and Nvidia. Diverse partnerships have been launched, for instance with countries such as Japan, South Korea, Australia and India, and with companies such as Samsung, Texas Instruments, Global Foundries, Cree, SK Group, and Micron

Source: compiled by the author based on:

- M. J. Zenglein et A. Holzmann, *EVOLVING MADE IN CHINA 2025 – China's industrial policy in the quest for global tech leadership*, n°8, Mercator Institute for China Studies (Merics), July 2019, available at: www.merics.org.
- M. Solís, "Toward a US-Japan digital alliance", The Brookings Institution, updated November 2021, available at www.brookings.edu.
- K. van Wieringen, "Strengthening EU chip capabilities", Briefing, Strategic Autonomy 360°, European Parliamentary Research Service, July 2022, available at www.europarl.europa.eu.

Information about Tradeoffs the EU Will Have to Face, as a Basis for Sound decisions

The EU's industrial and trade policies are increasingly confronted with other EU imperatives, such as the green transition. Tradeoffs need to be faced in order to overcome these challenges in a satisfactory way. In addition, short-term objectives sometimes contradict longer-term goals; a change of mindset relating to the support of "European champions" is also underway in the face of fiercer international competition.

Overcoming Challenges Relating to the Green Transition

Industrial policy is not the only priority for the EU. It is also committed to the Paris Agreement under the United Nations Framework Convention on Climate Change of 2015 and agreed to keep the rise in global temperature to below 2°C. The EU's Green Deal and Fit for 55 objectives helped further clarify the objective of making the EU climate-neutral by 2050.

In this sense, can mechanisms such as the **Carbon Border Adjustment Mechanism (CBAM)** be considered instruments of a green industrial policy that allow for compromise between industrial and green policy by furthering clean production processes? Indeed, this instrument caters for a computation of negative externalities in the price of products manufactured in third countries so as to rebalance competition with products being produced in Europe and complying with higher standards. However, although the logic of this instrument is legitimate in view of the international challenge of environmental protection, it may also be deemed "green protectionism". As such, putting it into place generates fears as to its compatibility with the WTO's rules. Against this backdrop, if the efficiency of this mechanism is to be guaranteed, identifying coalitions with countries already working in the same direction may be preferred to a unilateral move by the EU.[49]

Another particularly topical **compromise** concerns **energy security and combatting climate change**. While the green transition is a major priority for the EU, the latter's dependency on China for those goods and components necessary to successfully implement the green transition increasingly worries EU decision-makers. In the face of the war in Ukraine, the divergence of interests between energy security and environmental protection has become even wider. Against this backdrop, how can European companies make sure they stay profitable and competitive, while energy security is not a given anymore and energy costs are increasing, thereby reducing the prospect of profits? Energy-intense industries such as steel and the chemical industry are particularly affected. Alternatively, are we currently caught up in a momentum where phasing out Russian energy at the same time accelerates the transition toward more environment-friendly production techniques?

As the green transition will have to be financed, the challenge of **taxonomy** may also be mentioned. To support the EU's industrial strategy and facilitate funding sources, incentives should be provided to invest in green energy. In order to flag the sectors that should be incentivized it is important to reach a **common understanding of which energy is to be deemed green and which is not.** In the absence of more clarity in

49. K. Kamin, K. Bernoth *et al.*, "Instruments of a Strategic Foreign Economic Policy–Study for the German Federal Office", *op. cit.*

this regard, both private investors and energy sectors awaiting resources for their projects will consider that legal certainty is lacking and potential return on investment will be too difficult to estimate. The prospect of energy shortages linked to the hasty decoupling with Russia in the aftermath of the invasion of Ukraine has prompted the EU to take short-term decisions with its back to the wall. In the longer-term, sustainable solutions need to be worked out.

In the meantime, what room for maneuver does the EU energy dilemma leave for values-based partnerships? Instruments of a values-driven foreign policy include trade agreements where conditions in terms of social, labor, and environmental standards may be negotiated with third countries, as mentioned in the European Commission's Trade Policy Review 2021.[50] The Directive on Corporate Sustainability Due Diligence (cf. Figure 6) is yet another tool the EU may use to implement such standards. With this Directive, the EU intends to maintain its role as a normative power and to further values. The energy dilemma the EU is facing, however, exposes the difficulty of staying true to one's values. Indeed, what is the EU's room for maneuver in defending human rights, labor, and environmental standards when, for instance, to find substitute sources for Russian energy it concludes energy deals with the United Arab Emirates, Saudi Arabia and Qatar, all regularly criticized for human rights violations?[51]

How Far Is the EU Ready to Go with Reforming European Competition Law and Supporting European Champions?

An important question that needs to be addressed is the degree of state intervention – in this case, the interplay of EU institutions with economic actors – and the underlying spirit. In so far as the EU's main trade partners have announced massive support for their respective industries (cf. Figure 8), and the EU has itself elaborated an industrial strategy (where public funds can be granted in the frame of IPCEIs as an exemption to the EU's state aid rules), it is likely that a stronger state presence will be key in the EU's endeavors to assert itself on the global stage. However, against the backdrop of the "politicization of economics", a stronger presence of the state in a regulatory framework that has been characterized by market liberalism, where the state's role was limited to regulatory purposes, would represent an important shift.

A good example of the support the EU may grant through its institutions to the EU industry to strengthen its position is the promotion of "European champions". A telling illustration of the issue at stake is that of

50. Values-based partnerships enjoy a prominent role in the European Commission's Trade Policy Review 2021. *In*: *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Trade Policy Review, op. cit.*
51. "Middle East and North Africa Regional Overview", available at www.amnesty.org.

the European Commission's rejection of the merger attempt between the German company Siemens and the French company Alstom, on the ground that it would "have harmed competition in markets for railway signaling systems and very high-speed trains".[52] Thus, protecting the consumer from higher prices and preserving competition were the arguments brought forward by the European Commission.

However, against the backdrop of accelerating technological innovation on a global scale, Europe's competition policy is being reviewed "**to take into account the challenge of EU industrial competitiveness**".[53] Third-country competitors, for instance, benefit from their country's policy of creating and **supporting national champions**. In the Chinese rail industry, that is the case for the China Railway Construction Corporation (CRRC) which has received extensive subsidies and state aid to catch up with its Western counterparts and has benefited from public contracts in China and therefore from the size of the Chinese market, which helped it to achieve economies of scale. CRRC today is the biggest rolling-stock producer in the world, far in front of Alstom. Its revenues are bigger than those of Siemens, Alstom, and Bombardier together. Its world market share is 40% in electric locomotives, and it dominates the Chinese market.[54] It developed in the Chinese market after a merger in 2015 under a state monopoly and benefitted from technology transfer from Western companies such as Kawasaki, Alstom, and Siemens in the early 2000s, which have been progressively evicted from the Chinese market. CRRC used its development on the Chinese market as a springboard to spread internationally and notably benefitted from funding of $30 billion from the Chinese Export-Import (ExIm) Bank. According to Nigel Cory, "CRRC and Chinese rail mercantilism is forcing rail firms around the world to find ways to protect themselves, such as by cooperating – or even merging – with their competitors."[55] In the face of these developments, there have been discussions about allowing European players to merge and grow to reach a critical mass in order to improve their chances of competing globally, particularly in the face of Chinese national champions, which are shielded from foreign competition at home and boosted by public support when they go abroad.[56] In February 2020, Alstom acquired Bombardier Transport for $8.2 billion, thus becoming the second biggest rolling stock producer in the world.[57] To comply with the

52. "Mergers: Commission Prohibits Siemens' Proposed Acquisition of Alstom", European Commission, February 6, 2019, available at www.ec.europa.eu.

53. *Jahresbericht über die Wettbewerbspolitik–Jahresbericht 2021, europäische Wettbewerbspolitik*, rapporteur: A. Schwab, European Parliament, March 25, 2021, available at www.europarl.europa.eu.

54. M. Huotari and A. Kratz, "Beyond Investment Screening", Rhodium Group, Mercator, Bertelsmann Stiftung, October 2019, available at www.bertelsmann-stiftung.de.

55. N. Cory, "Heading Off Track: The Impact of China's Mercantilist Policies on Global High-Speed Rail Innovation", Information Technology & Innovation Foundation (ITIF), April 26, 2021, available at www.itif.org.

56. *Ibid*.

57. D. Fainsilber, "Alstom jette son dévolu sur Bombardier, pour conforter sa croissance et non supprimer des emplois", *Les Échos*, February 17, 2020, available at www.lesechos.fr.

EU's competition law, the two companies had to divest some of their activities. In any case, the merger between two companies such as Alstom and Bombardier Transport is considered a turning point in European competition law that some welcome while others reiterate their concerns about consumer protection and the preservation of conducive conditions for competition.

However, reluctance to find ways to adapt to a context where foreign players dominate the market and harm competition by putting into place protective measures also comes from within the EU. While France and Germany are keen to increase the EU's proactiveness and defense measures to promote EU champions, smaller member states that do not benefit from the same type of support are more skeptical. A change in mindset in the EU's competition law, mindful of the concerns noted above, would be necessary to address the challenges appropriately. This topic is, of course, very delicate and requires a constructive approach since accusations of interventionism, dirigisme, and protectionism, on the one hand, and laissez-faire liberalism, on the other, prove sterile and often result in stalemate.

Conclusion

In the face of growing world polarization around the Sino-American rivalry accentuated by the coronavirus crisis and later by the war in Ukraine, countries around the world are keen to render their supply chains more resilient to potential disruption. They are also boosting their production apparatus in order to keep pace in the global competition that has started in future-oriented sectors and technologies. They are also shielding themselves from asymmetric trade practices and strengthen their relations with partners in order to diversify their sources of supply and sales markets.

The EU and, among its member states, Germany, are under pressure to define adequate policies, strategies, and instruments. The update of the EU's industrial strategy, the analysis of dependencies on third markets, and the establishment of trade defense mechanisms are necessary adjustments to a global context of fierce competition that challenges the root of the EU's prosperity in the past decades, namely a multilateral rules-based order. These endeavors may be subsumed under the concept "open strategic autonomy", to which some in the EU prefer the terms "strategic sovereignty" or "European sovereignty", which are intended to push aside the notion of disguised protectionism that this concept may suggest. Indeed, the EU's DNA is based on openness and trade, and it would be illusory to think the EU could become autarkic. The strategy that is in the making combines stimulating domestic production by building up strategic production capacities to help prepare for the upcoming leadership race in innovative and disruptive technologies, by stockpiling essential goods, and by diversifying sources of supply and export markets. It additionally protects the EU from ill-intended investment on the internal market while also protecting EU companies abroad. Furthermore, partnerships with countries of trust are to be sought.

Because of a plurality of actors with various competencies often acting in a siloed manner, the EU appears structurally weaker than its main trade partners, China, and the US. The upcoming tasks therefore appear even more challenging. One particular challenge, faced by a number of EU companies is embodied by China. In seeking to attain technological and industrial leadership by 2049, China is willing to resort to practices that cater for a selective application of international rules as far as international trade and investment, as well as market access rules are concerned. To address this challenge, the EU, and first and foremost Germany, need to adopt a shift in mentality.

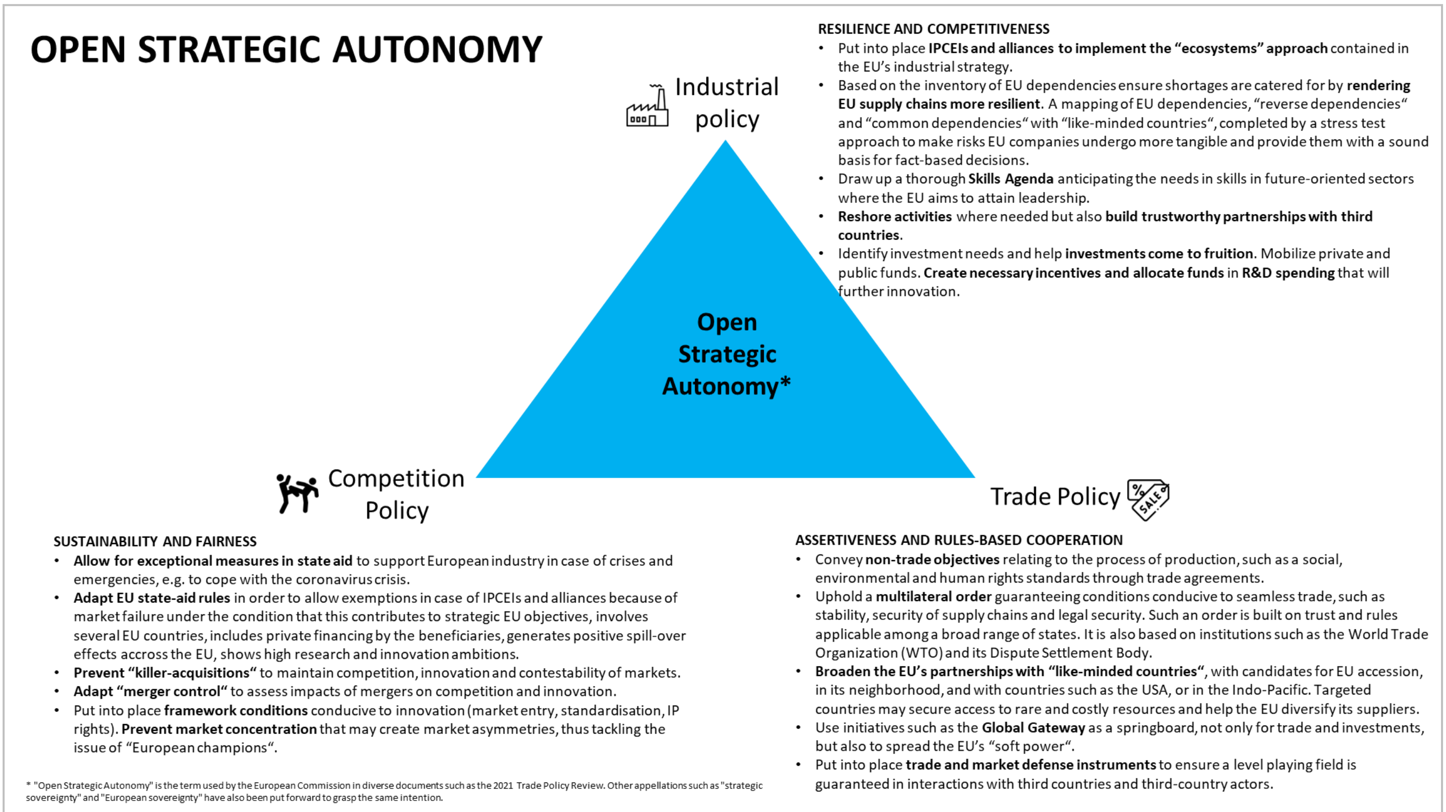
Different tradeoffs are associated with this shift:

- For instance, in **competition policy**: its redefinition should be undertaken mindful of strengthening the EU's companies in their external actions while maintaining a necessary level of competition and innovation potential within the internal market.
- When undertaking partnerships with third countries, the EU should make sure that such **partnerships** are not exclusive but follow the objective of being extended to more countries provided the necessary conditions are met: a level-playing field, market openness, a guarantee of IP protection, and upholding social, environmental, and human rights standards.
- As far as the EU's **foreign policy** is concerned, the **Global Gateway Initiative** needs to be seen as a springboard for spreading the EU's soft power, but for that, it needs to be fleshed out rather than remaining an empty shell. Infrastructure needs around the world must be addressed. The EU's incapacity to uphold coherent public procurement and due diligence standards within the EU, and also in its vicinity, as well as the lack of cohesion in the EU's foreign policy which serves systemic rivals such as China and Russia, show the need to address this matter in an effective way.

In addition, the onus also lies on EU companies and their geopolitical maturity as they increasingly risk getting into the crossfire between the EU's main trading partners, China and the US. SMEs with little room for maneuver in the event of intensified tensions are particularly at risk, which is why sustainable and flexibly adaptable supply chains – which come at a cost – need increasingly to be envisaged.

Appendices

Figure 9: Key components of "Open Strategic Autonomy"



Source: Compilation by the author based on *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions,* Trade Policy Review – An Open, Sustainable and Assertive Trade Policy, European Commission, COM(2021) 66 final, February 18, 2021.

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