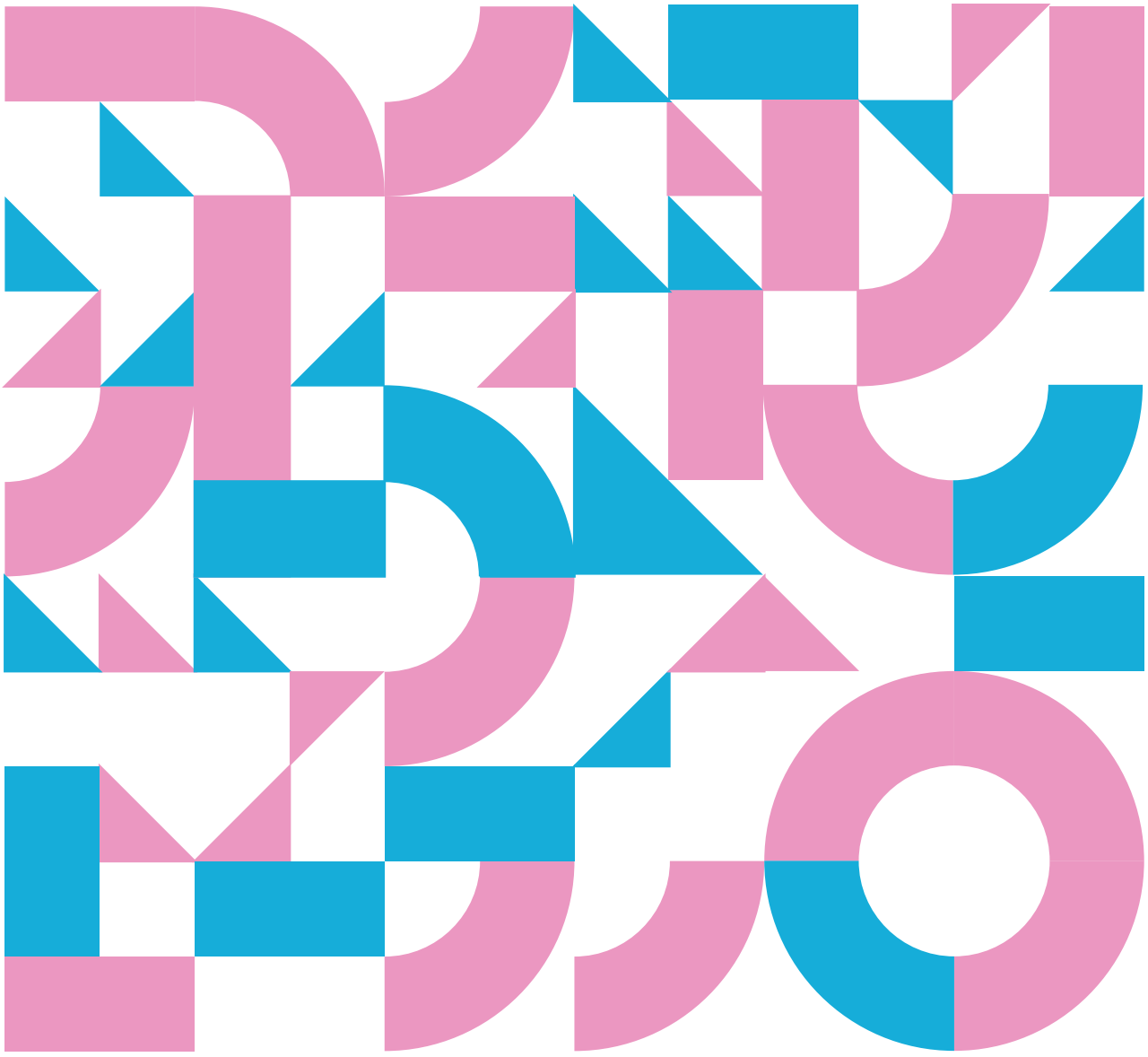
De-risking and tech supply chains: Europe in the world of national security



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De-risking and tech supply chains: Europe in the world of national security

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Greenspan's paradox and the primacy of national security

When we lived in a different world, in 2007, a Swiss newspaper asked Alan Greenspan about his political preferences for the coming U.S. Presidential election. The former chair of the Federal Reserve candidly answered: "(we) are fortunate that, thanks to globalization, policy decisions in the US have been largely replaced by global market forces. National security aside, it hardly makes any difference who will be the next president. The world is governed by market forces".[1]

Several scholars, including Adam Tooze, Quinn Slobodian, Wolfgang Streeck,[2] referenced Greenspan's confession in their works, as a proof of the mantra of globalization, where politics took the backseat while markets decided everything. My view, which I explained in detail in my 2020 Italian book on political capitalism,[3] is completely different: what mattered in Greenspan's answer was not the primacy of the market and the reality of politics doomed to rule in the void.[4] Sure, this was true, but this was hardly new. What mattered much more, in retrospect, was his almost unintentional reference to national security. In Greenspan's world, the realm of national security existed, but this boring space full of generals was far from what really mattered: the economy. However, this view of national security was increasingly becoming superficial, particularly for the United States as a global power, despite what Greenspan himself thought.

In *Crashed*, Tooze reminds that the national security analogy was used by

1 — "Interview mit A. Greenspan: Ich bin im falschen Jahrhundert geboren", Tages-Anzeiger, 19 September, 2007.

2 — Wolfgang Streeck, Gekaufte Zeit. Die vertagte Krise des demokratischen Kapitalismus, Berlin, Suhrkamp Verlag,
2013; Quinn Slobodian, Globalists. The End of Empire and the Birth of Neoliberalism, Cambridge MA, Harvard University Press, 2018; Adam Tooze, Crashed: How a decade of financial crises changed the world, Viking, New York, 2018.

3 — Alessandro Aresu, Le potenze del capitalismo politico. Stati Uniti e Cina, La Nave di Teseo, Milano, 2020.

4 — Peter Mair, Ruling the Void: The Hollowing of Western Democracy, Verso, London, 2013.

Timothy Geithner to explain the need for a swift and strong response to financial crises, in an argument with Lawrence Summers on bailout authority: "The president is entrusted with extraordinary powers to protect the country from threats to our national security. These powers come with carefully designed constraints, but they allow the president to act quickly in extremis. Congress should give the president and the financial first responders the powers necessary to protect the country from the devastation of financial crises".[5]

National security analogies and tools were broadly used in the United States both for the war on terror and for the response to the financial crises, but this was based on a long-standing tradition, which makes the United States a system of political capitalism. For Branko Milanovic,[6] the U.S. embodies liberal capitalism, while China is a political capitalist system. However, this view does not help us to understand the role of national security in the emergencies of the XXI century, leading to "the" emergency par excellence, which is China's challenge to the U.S. global power. In order to understand the conflict between the U.S. and China, we rather need to consider the U.S. a democratic variety of political capitalism. Sure, the U.S. is a strong market economy, with a vibrant private sector, the largest financial markets in the world and a strong influence on politics by companies, because the Supreme Court considers money as speech. However, other issues need careful consideration: there are hundreds of U.S. military bases worldwide and the U.S. Navy is the main security provider for global trade; last time I checked, the agreement on the 2024 defense budget was $886 billions and R&D defense expenses were about $100 billions.

Moreover, the United States has a far-reaching national security State, through the buildup of a vast security apparatus and legislation since the Truman administration, and there are a series of tools of economic war still in place, approved during the wars of the twentieth century, including the Trading with the Enemy Act of 1917 (First World War) and the Defense Production Act of 1950 (Korean War). Building on this and on the dollar's global role, the U.S. possesses the largest system of sanctions in the world, with far-reaching extraterritoriality, as well as a very intrusive system for foreign investment screening based on a wide interpretation of national security, which stands on the 1933 assertion "No one can be said to have a vested right to carry on foreign commerce with the United States".[7] The most significant part of the U.S. economic war toolkit is its mechanism of export controls, now a sophisticated method to impose costs on U.S. companies which are key nodes of supply chains with the goal of inflicting much more damage to adversaries, particularly the People's Republic of China. To bring us back to Greenspan, this works exactly as a reversal of globalization, replacing market forces with policy decisions.

5 — Timothy Geithner, Stress Test: Reflections on Financial Crises, Crown, New York, 2014.

6 — Branko Milanovic, Capitalism, Alone. The Future of the System That Rules the World, The Belkap Press of Harvard University Press, Cambridge, 2019.

7 — Board of Trustees of University of Illinois v. United States, 289 US 48 (1933), quoted in the case Ralls Corp. v. Committee on Foreign Investment in the United States (2014).

National security is to our world what pink is to Barbie's world

Considering the U.S. just a "liberal capitalist system" or "the cradle of neoliberalism" is simply not helpful to understand these tools and these issues. And they have become much more relevant in recent years, given the increasing competition between the United States and China, particularly on supply chains such as semiconductors and cleantech.[8]

Of course, the People's Republic of China, as a distinctive authoritarian society, possesses a broader concept of national security than the United States, and it has become even wider under Xi Jinping's rule. Under the Chinese Communist Party, the Weberian monopoly on the legitimate use of physical force should be taken literally, as activists and entrepreneurs know. Moreover, General Secretary Xi Jinping has constantly emphasized the link between key technologies and national security. In 2014, he told Chinese engineers: "Only by mastering crucial core technologies with our own hands can we truly seize the initiative in competition and development, and fundamentally safeguard our national economic security, national security, and security in other areas".[9] A part of this push to national security is also the Chinese National Intelligence Law of 2017, widely discussed regarding the responsibilities of Chinese nationals and companies (for instance, ICT companies) to hand over sensitive information for security reasons.

National security is everywhere, particularly in the current debate around technology competition and global supply chains. In September 2022, U.S. National Security Adviser Jake Sullivan said: "Computing-related technologies, biotech, and clean tech are truly 'force multipliers' throughout the tech ecosystem. And leadership in each of these is a national security imperative".[10] In April 2023, Secretary of Treasury Janet Yellen affirmed the U.S. "vital national interest" to maintain certain technologies out of reach for the Chinese military and security apparatus. After she described the set of U.S. tools of economic war, now called "supply chain resilience" (export controls, sanctions, review of foreign investments, a future program to restrict outbound investments), she said: "These national security actions are not designed for us to gain a competitive economic advantage, or stifle China's economic and technological modernization. Even though these policies may have economic impacts, they are driven by straightforward national security considerations. We will not compromise on these concerns, even when they force trade-offs with our economic interests".[11]

The all-encompassing concept of security is not limited to the United States.

8 — On the emergence and the main areas of the competition, see Alessandro Aresu, Il dominio del XXI secolo. Cina, Stati Uniti e la guerra invisibile sulla tecnologia, Feltrinelli, Milano, 2022.

9 — Biennal Conference of the Chinese Academy of Sciences and the Chinese Academy of Engineering, June 9, 2014.

10 — Remarks by National Security Advisor Jake Sullivan at the Special Competitive Studies Project Global Emerging Technologies Summit, September 16, 2022.

11 — Remarks by Secretary of the Treasury Janet L. Yellen on the U.S. - China Economic Relationship at Johns Hopkins School of Advanced International Studies, April 20, 2023.

Presenting the first German National Security Strategy, Chancellor Olaf Scholz emphasized a "broad concept of security" and Foreign Minister Annalena Baerbock went further, arguing that security "means making sure our heating", "being able to find medication for our children in our pharmacies", "having smartphones that work because supplies of the necessary microchips are reliable, "getting to work safely because our trains are not paralysed by cyberattacks", "protecting the natural resources on which all life depends".[12] The UK Shadow Chancellor, Rachel Reeves, has recently championed the idea of "securonomics"[13] (economics with a strong emphasis on economic security), praising the Biden administration's approach. Leading technology giants, such as TSMC, ASML and Samsung, now look for analysts of geopolitical risk and emphasize security risks in their annual reports, given also their vulnerability to industrial espionage, particularly from China. In retrospect, Greenspan really looks "like the sorcerer, who is no longer able to control the powers of the nether world whom he has called up by his spells".[14]

The escalation of national security is not going to stop. It will continue to be determined by the fact that the United States is a political capitalist system, engaged in a competition with an authoritarian China willing to achieve at all costs a more autonomous position on several technology supply chains. This escalation has not impacted trade so much in quantitative terms (trade between the U.S. and China rose to all-time high in 2022), but it is already focused on technologies which enable both industrial and military development. However, this reference to military development and to the People's Liberation Army goal of military modernization, often considered a basis for U.S. actions, such as with export controls on semiconductors, is blurry and very difficult to define in clear terms. If AI tools can have military use and military purpose, does it mean that anything related with AI is national security? We are going down a path where national security is to our world what pink is to Barbie's world. Are we prepared for it?

To have a more detailed understanding of this process and of its consequences for Europe, we should look carefully to East Asia.

How Nikkei Asia reporters help us understand semiconductors and tech supply chains

In the world of tech competition, a key and still underrated event has been the rise of Cheng Ting-Fang and Lauly Li. If you are not familiar with these two Taiwanese reporters, who work for Nikkei Asia (Nikkei is also the owner of Financial Times), you need to stop your other activities and just read all their work. Particularly since 2019, they have provided the best coverage on everything happening in tech manufacturing and in the semiconductor industry.

12 — Robust. Resilient. Sustainable. Integrated Security for Germany. National Security Strategy, German Federal Government, June 2023, pp. 5-7.

13 — Rachel Reeves: 'Securonomics', Peterson Institute, May 24, 2023.

14 — The reference is, of course, Marx and Engels in The Communist Manifesto (Samuel Moore's translation).

They explained Foxconn's push for the electric car platform market, Apple's moves into Vietnam[15], Huawei's stockpiles[16] and its push for chip production[17], China's ambitions in the memory market[18] and much more.

The semiconductor industry, firmly at the center of U.S.-China competition, could be understood in its long path since the 1950s through a series of tools: oral history and conferences by the main players on the engineering and the economics of semiconductors, business history of the main companies, reports of associations and consulting companies (which are often biased but contain useful data), broad books of the recent past such as The Chip, The Intel Trinity, Fabless, and most recently Chip War. But *Nikkei Asia*'s reporting will be considered by future historians of the chip war not only at the same level of the best war journalism of the twentieth century, but also as a key tool to understand policy decision-making and dilemmas. Let me explain exactly why.

In their best 2021 piece, Cheng Ting-Fang and Lauly Li write about the trips from Wuhan to Beijing by senior executives of Yangtze Memory Technologies Co., China's crown jewel in memory chips. These dialogues with the central government, the reporters explain, are focused on a supply chain review: for two years, hundreds of people have been working inside the company to shield it from U.S. sanctions and export controls, "seeking to learn as much as it can about the origin of everything that goes into its products, from production equipment and chemicals to the tiny lenses, screws, nuts and bearings in chipmaking machinery and production lines, multiple sources familiar with the matter said. The audit extends not only to YMTC's own production lines, but also to suppliers, suppliers' suppliers, and so on".[19] Cheng Ting-Fang and Lauly Li show the willingness by China to analyze dependencies and substitute foreign incumbents with Chinese players in all segments of the semiconductor supply chain, through plenty of data and examples, but they also show how difficult it is to reach these goals. What does it mean? To decide export controls to decapitate China's push for self-sufficiency in 2022, the U.S. Department of Commerce did not need classified information, but it could simply rely on *Nikkei Asia*.

15 — Cheng Ting-Fang, Lauly Li, "Vietnam to make Apple Watch and MacBook for first time ever", Nikkei Asia, August 17, 2022, https://asia.nikkei.com/Business/Technology/Vietnam-to-make-Apple-Watch-and-MacBook-for-first-time-ever.

16 — Cheng Ting-Fang, "Exclusive: Huawei stockpiles 12 months of parts ahead of US ban", Nikkei Asia, May 19, 2019, https://asia.nikkei.com/Economy/Trade-war/Exclusive-Huawei-stockpiles-12-months-of-parts-ahead-of-US-ban.

17 — Cheng Ting-Fang, "Huawei dives into chip production to battle U.S. clampdown", September 22, 2022, Nikkei Asia, https://asia.nikkei.com/Business/Tech/Semiconductors/Huawei-dives-into-chip-production-to-battle-U.S.-clampdown.

18 — Cheng Ting-Fang, "China set to produce first locally designed DRAM chip", Nikkei Asia, June 12, 2019, https://asia.nikkei.com/Economy/Trade-war/China-set-to-produce-first-locally-designed-DRAM-chip.

19 — Cheng Ting-Fang, Lauly Li, "US-China tech war: Beijing's secret chipmaking champions", Nikkei Asia, May 5, 2021, https://asia.nikkei.com/Spotlight/Most-read-in-2021/US-China-tech-war-Beijing-s-secret-chipmaking-champions.

Cheng Ting-Fang and Lauly Li's work, through other key pieces in 2022[20] and the visual collaboration with the Financial Times, is the best compass to navigate the dilemmas of national security: the United States and China work to create their "national security spheres", but it is incredibly difficult to change an incredibly complex supply chain, which includes hundreds and sometimes thousands of companies, many of them critical for several processes.

It is embarrassing to listen to U.S. so-called strategic thinkers proposing to "bomb" TSMC as an act of deterrence while they could understand how the TSMC's ecosystem works (and could simply not work in the face of a Chinese invasion) just by reading one article in Nikkei Asia. This is also a message to so-called Western culture: nobody has been able to provide a work on our companies, on our supply chains, on our strengths, comparable to what these two Asian journalists have done. We still look to East Asia with complacency, but the trade war and the chip war have reminded us of the relevance of Taiwan, South Korea, Japan, Singapore, Vietnam, in the very fabric of our world.

Awareness of supply chains dependencies and vulnerabilities is now a key factor of our world of national security. Europe should remind that understanding the reality of supply chains if far more important than using terms such as "strategic autonomy" and "economic coercion" This is why, on the various initiatives taken by the Biden administration, we should not simply focus on the Chips & Science Act and on the Inflation Reduction Act of 2022, but we should look more carefully at their 2021 premise: the June 2021 report "Building Resilient Supply Chains, Revitalizing American Manufacturing, and Fostering Broad-Based Growth".

The June 2021 report provided a review of key supply chains, based on the Executive Order n. 14017 on America's Supply Chains, signed by President Biden on February 24, 2021. The document provided an analysis of supply chains through the contribution of various departments: Semiconductors and Advanced Packaging (Department of Commerce); Large capacity batteries (Department of Energy); Critical minerals and materials (Department of Defense); Pharmaceuticals and active pharmaceutical ingredients (Department of health and human services). The report, supervised by National Economic Council director Brian Deese and National security advisor Jake Sullivan, provided the foundation for legislation to tackle specific vulnerabilities through the Chips & Science Act and the Inflation Reduction Act. It offered useful information on the U.S. position in those supply chains and in its trajectories. For instance, the report contains data and judgements about CATL and BYD's

20 — Cheng Ting-Fang, Lauly Li, "Chip industry's expansion plans at risk as equipment delays grow", Nikkei Asia, April 7, 2022, https://asia.nikkei.com/Business/Tech/Semiconductors/Chip-industry-s-expansion-plans-at-risk-as-equipment-delays-grow; Cheng Ting-Fang, Lauly Li, "From chemicals to gases, chip suppliers reel as materials prices surge", Nikkei Asia, June 17, 2022, https://asia.nikkei.com/Business/Business-Spotlight/From-chemicals-to-gases-chip-suppliers-reel-as-materials-prices-surge; Cheng Ting-Fang, Lauly Li, "The resilience myth: Fatal flaws in the push to secure chip supply chains", Nikkei Asia, July 27, 2022, https://asia.nikkei.com/Spotlight/The-Big-Story/The-resilience-myth-Fatal-flaws-in-the-push-to-secure-chip-supply-chains; Lauly Li, Cheng Ting-Fang, "How Taiwan became the indispensable economy", Nikkei Asia, May 31, 2023, https://asia.nikkei.com/static/vdata/infographics/taiwan-economy/.

dominance in the battery and the EV market, as well as insights on the U.S. position in the semiconductor manufacturing equipment market, and a lot of emphasis on advance packaging as a promising area for the near future. The report also highlights a consistent approach between the Trump administration and the Biden administration, for instance in the attitude by the Department of Defense. In 2018, the Department of Defense already provided information of vulnerabilities in the defense industrial base, focusing on the issue of supply chain resiliency,[21] in response to an Executive Order by President Trump.

Reading the 2021 report now is useful also to identify today's dilemmas on national security. Take the need of semiconductors for defense and national security purposes. The report openly says: "With no leading-edge semiconductor manufacturers in the United States or other members of the National Technology and Industrial Base, the DoD is currently unable to ensure its access to secure supply chains. Similarly, the Department of Energy's Argonne National Laboratory's planned Aurora supercomputer has had to switch from using Intel to TSMC due to Intel's delays in starting 7 nm production". This meant that there are vulnerabilities on semiconductors in the defense industrial base of the United States, but the remark on the Aurora supercomputer seemed more a message to a specific company, Intel. And, again, what are the real consequences of this approach? You can try and disrupt a supply chain due to the primacy of national security, but you cannot change the balance between user markets. The defense sector is considered a very small fraction of the overall semiconductor market (less than 1%), therefore you need to balance your resources and your goals.

Moreover, if you are directly hurting your companies' revenues in China through export controls, you need to analyze that specific dependency first, and then provide alternatives or let U.S. companies "feel the pain" for their choices. So, you embark yourself, as the U.S. government, in a consistent process of bargaining where companies of different segments want their say and their piece of the pie. This is what happened recently with Jensen Huang's remarks on export controls:[22] the main semiconductor success story of the AI wave wants to maintain access to the Chinese market, in compliance with U.S. rules. Given its success, its voice will probably become more relevant in the design of these rules and in their learning process.

Europe and the elephant in the room

How is Europe doing in the new world of national security? As we explained, everyone now needs to consider new uncertainties and dependencies. Not just Europe.

On the one hand, China's position has changed. Beijing cannot rely on an

21 — "Assessing and Strengthening the Manufacturing and Defense Industrial Base and Supply Chain Resiliency of the United States", Report to President Donald J. Trump by the Interagency Task Force in Fulfillment of Executive Order 13806, September 2018.

22 — Madhumita Murgia, Tim Bradshaw, Richard Waters, "Chip wars with China risk 'enormous damage' to US tech, says Nvidia chief", Financial Times, May 24, 2023.

unconstrained rise of its position in tech supply chains, given the counterattack by the United States and the Western emphasis on economic coercion. The comfortable world of Made in China 2025, where the Chinese Communist Party could plan China's rise in key supply chains, such as semiconductors and robotics, and play a game of import substitution through market power, does not exist anymore. Also, because on China's own arrogance and advertisement of its own goals, criticized by prominent figures such as former finance chief Lou Jiwei.[23]

On the other hand, even the United States should balance economic interests, political willingness, and political reality. The White House tweeted on June 11th: "Under the Biden-Harris Administration, private companies have announced over $470 billion so far in commitments to invest in 21st century industries - bringing manufacturing back to America and creating good-paying jobs".[24] However, a victory lap on the impressive commitments of manufacturing projects in the U.S. is premature without awareness of the workforce challenge and of political risks. Other powers, particularly in East Asia, are called to take a side or make a choice, and they are focusing on a new strategic attitude (Japan) or remain uncertain because of their strong reliance on China, both for the market and for manufacturing, even in semiconductors (South Korea).

In the world of national security, Europe finds itself in a peculiar dilemma. According to the Treaty on European Union, article 4, "national security remains the sole responsibility of each Member State". Therefore, Member States are going to decide on national security, as the scope of national security inevitably widens. Of course, we could develop mechanisms of coordination, as it already happens with foreign investment screening, but different interests among States will continue to play a role in the EU. For instance, if we develop a common financing mechanism for critical technologies, some States can complain that they do not possess capabilities and companies in such areas, and for their agreement they will surely ask something in return. Therefore, European political bargaining, including at the budget level given the different position of Member States on EU fiscal rules, should be considered a further constraint for us, along with the balance between national security and economic interest which also influences other players.

In the world of tech competition, Europe has too often offered words not backed by reality. Consider the announcement, in the summer of 2019, of a European sovereign wealth fund, called "European Future Fund".[25] The fund, with an endowment of 100 billion euros, was supposed to help European companies

23 — Kingling Lo, "Made in China 2025 all talk, no action and a waste of taxpayers' money, says former finance minister Lou Jiwei", South China Morning Post, March 7, 2019, https://www.scmp.com/news/china/diplomacy/article/2189046/chinas-tech-strategy-all-talk-no-action-and-waste-taxpayers.

24 — https://twitter.com/WhiteHouse/status/1668000152022405120?s=20.

25 — Bjarke Smith-Meyer, Lili Bayer, Jakob Hanke Vela, "EU officials float €100B boost for European companies", Politico.eu, 25 August, 2019.

capable of rivaling the digital giants of the United States and China,[26] through equity investments. In 2023, we find ourselves in a Groundhog Day, with new debates around a European sovereign wealth fund. Sure, the launch of Next Generation EU marked the willingness to pool resources by Member States, but the program was not as targeted as it is required by today's and tomorrow's competition around technology supply chains. EU resources, coordination and results on areas such defense innovation are still very limited,[27] compared to the uncertain and tumultuous environment we live in.

It is true that Europe, through President Von der Leyen, has offered with de-risking a better formula than de-coupling to understand the relationship with China. But this is just a word. Backing this formula with reality is another story. An honest approach to de-risking should consider the elephant in the room, which is the relationship between European big business and the Chinese market. European industrial players, in several areas, starting from automotive, have had a naïve view of China, which is at odds with the world of national security. According to this view, given that China is a large market (it became the world's largest auto market in 2009), access to the Chinese market is considered a vital priority, compared to which all other considerations are secondary. However, any investment in the Chinese market needs to consider China's project of dominating key supply chains through its own companies. EU companies, in areas such as automotive, semiconductors, robotics and chemicals, rightly emphasized the relevance of the Chinese market for their business, but they crucially underestimated China's goal of self-sufficiency and its consequences for them. And they are continuing to do so because they operate under the self-righteous illusion that they will be able to maintain some kind of "edge" vis-à-vis Chinese companies, even if they continue to transfer technology or establish joint ventures which are reliant on the Chinese market. These are not de-risking, but rather self-defeating measures.

China's rise in batteries and EVs, through companies such as CATL and BYD, has now put the EU in a difficult position. On the one hand, there is much emphasis on the need to compete with the Inflation Reduction Act with similar incentives and policies, but this debate needs to consider the industrial reality of Europe in order to avoid more confusion.[28] And we should not forget that the Inflation Reduction Act is also a project which aims to politically change the geography of supply chains. What is Europe's stance on this? Maybe, in the near future, Europe will apply protectionist measures to defend its auto industry in the internal market, denying access to Chinese players; or, in a completely different turn, the Member States could prioritize attracting foreign investment, including Chinese investment, and therefore accept the dominance of the likes of BYD in exchange of employment in the EU. Of course, it would be difficult to pursue both policies. Therefore, a day of reckoning on the real meaning of de-risking is inevitable.

26 — "The Europeans want their own Vision Fund to invest in tech", The Economist, 31 August, 2019.

27 — See also Laura Kayali, Lili Bayer, Joshua Posaner, "Europe's military buildup: More talk than action", Politico.eu, June 14, 2023, https://www.politico.eu/article/europe-military-industry-defense-buildup-war/.

28 — See for instance studies by Bruegel and CER, such as: Giovanni Sgaravatti, Simone Tagliapietra, Cecilia Trasi, Cleantech manufacturing: where does Europe really stand? Bruegel, 17 May, 2023; John Springford, Sander Tordoir, Europe can withstand American and Chinese subsidies for green tech, Center for European Reform, June 2023.

Also because of political reasons, including the rise of anti-environmental ideologies and policies, some EU regulations need to be reviewed, and they will need to change, because we live in the new world of national security. The main example has to do with the EU's chemical industry. Chemistry is a key strength of European industry, recently undermined both by decreasing competitiveness because of EU energy prices, as well as by regulations which do not take into account the central role of chemistry in the main supply chains of the tech competition, particularly semiconductors and batteries. This will need to change, both in the short and in the medium term: if European chemistry will face an enduring decline, there will be no "strategic autonomy".

Three areas of recommendation

Where do we go from here?

If European policymakers and citizens think they will be able to navigate in the world of national security and tech competition just through a strong push on regulation, they are doomed. Regulating other regions' companies will never give you an edge. What matters in the rethinking of supply chains is rather technology and industrial capacity. For this, Europe needs more targeted resources, with a larger budget. But this depends on political agreement. Apart from this and as a rationale for significant common investment, Europe needs an ambitious strategy, in three steps.

Firstly, the European Union should launch a CSR initiative, not intended as Corporate Social Responsibility but as a Committee on Stupid Regulation. The members of this committee should only be tech entrepreneurs (not simply executives) and researchers who successfully became entrepreneurs. The committee should offer a real, fact-based answer to the question: is European regulation an excessive burden for innovation? If the answer is no, it is time to overcome this stereotype. If the answer is yes, unduly burdens should be lifted.

Second, Europe needs more public-private capital for tech supply chains. There is still a disconnect, both in the EU's public discourse and in policymaking, between technology and financial power. Much interest has been devoted to venture capital in recent years, but EU companies need more resources to scale-up, not just seed funding. Given the structure and growth trends of technology supply chains, EU vehicles and tools, such as the European Investment Bank and the European Innovation Council, should be reviewed based on their ability to support Europe's role in the new world of national security, selecting best-practices and worst-practices to drive a more ambitious strategy.

Moreover, European private capital should be mobilized for the bloc's technological competitiveness, including through a targeted revival of the EU capital markets union and through a different approach by European institutional investors and by European corporates. Chinese corporate venture capital, particularly in TLC, already targets promising EU startups. We should remind that, after all, ASML became the greatest European tech success story also thanks to bold moves on capital and financial markets and to its ability to obtain private capital at various times in its history.[29]

29 — On ASML's listing, see René Raaijmakers, Asml's Architects, Techwatch Books, Nijmegen, 2019.

Third, Europe needs a much stronger focus on skills, particularly at two levels. The first level is increasing the EU's and Member States public capacity to understand technology supply chains and economic security. The new world of national security and U.S.-China competition is the environment we live in. As recently suggested[30] Europe should develop a new strategic technology doctrine and upgrade its export control policy. A supply chain review of policy initiatives will allow Europeans to understand better their capabilities and vulnerabilities. But policies related with technologies supply chains, as previously underlined, are not one-size-fits-all, but rather a constant process of learning. This requires a new set of skills, including a closer involvement of technical expertise in public policy and the targeted education of companies on economic intelligence to provide them a deeper understanding of their risks. It is also key, both for European officials and Member States, to understand the consequences of unintended effects of export controls, such as a stronger Chinese positioning in mature nodes of semiconductors with more competition with European companies, as a consequence of U.S. export controls on advanced nodes. Most countries, including the United States, are struggling to find skills able to face the challenge of sanctions and export controls, exactly because the world of national security requires a new set of skills. This is even more significant for Europe, considering that the current and coming industrial policy is very different than the previous attitude towards competition and State aid.

The second and most important issue has to do with technical and scientific skills. President Macron has argued that "Europe needs more factories and fewer dependencies" and that "Made in Europe should be our motto". But considering Made in Europe as a reality, and not as a motto,[31] poses a daunting challenge in terms of skills, in three main areas: a) short-term: attracting skills from abroad, through a better functioning system for visas; b) medium-term: reskilling (and motivating) workers from struggling and changing European industries; c) long-term: educating the European population for this change.
Also the United States needs a workforce able to sustain the commitments of manufacturing revival approved during the Biden administration. That of the workforce has been an enduring issue in the debate around U.S. manufacturing, particularly in semiconductors. In 1989, Bob Noyce, legendary co-founder of Intel, told Fortune magazine that the main thing America needed to beat Japan was "mothers who say proudly, 'My son, the manufacturing engineer.'"[32]
In his late years, during the early 2010s, former CEO of Intel Andy Grove used to champion quite bluntly the revival of manufacturing in the United States, contrasting America's inaction with "a very effective country [China] that's beating the shit out of us". He suggested to "come up with a policy that mitigates or reduces the incentives to move all scaling work to foreign countries instead of following the invisible hand", which in his view meant that "the United States follows the black vortex into the abyss, as a result".[33]

30 — Tobias Gehrke, Julian Ringhof, The Power of Control: How the EU can shape the new era of strategic export restrictions, European Council on Foreign Relations, Policy Brief, May 2023.

31 — Emmanuel Macron, "Europe needs more factories and fewer dependencies", Financial Times, May 12, 2023.

32 — "How the U.S. can compete globally", Fortune, June 5, 1989.

33 — For Grove's impressive remarks, see Brooke Crothers, "Intel's Andy Grove on manufacturing in America", Cnet, November 5, 2010, https://www.cnet.com/science/intels-andy-grove-on-manufacturing-in-america/.

Now that the likes of Joe Biden, Gina Raimondo and Jake Sullivan are following the Andy Grove Consensus rather than the Washington Consensus, the skills challenge still remains. Particularly for technicians and blue-collar workers, given that the United States has repeatedly sought to imitate Austrian and German success in vocational training. For Europe and its aging population, there would be no technological catch-up without proper skills, as Lauly Li reminded us.[34]

For the long-term, it would be key to scale-up ambitious initiatives on STEM skills for young people. Europe already has hidden champions in this area. Let me mention just two of them. In Italy, the nonprofit association "Il Cielo Itinerante" (The Wandering Sky) aims to bring children facing social hardship and educational poverty closer to STEM subjects. This experience, based on the educational role of astronomy pioneered by the African initiative "The Travelling Telescope". Il Cielo Itinerante wanted to change Italy's lack of science skills and to foster creative thinking through the use of astronomy and astrophysics, through their tools, including telescopes, and through interactive workshops with science educators. Therefore, children are able to "touch" the tools and they learn how to look up to the sky properly. This initiative has involved so far more than 2.000 children in 60 communities, and it has received the enduring support of ESA astronaut Samantha Cristoforetti, who participated in their events also from the International Space Station.

Another project is the brainchild of a professor at KU Leuven and research director at Imec, Marian Velherst. In her research, she focuses on embedded machine learning, hardware accelerators, HW-algorithm co-design and low-power edge processing, but in her spare time she has launched a very significant educational initiative in the Flanders. According to professor Velherst, there are two main causes behind the low number of students attending STEM courses (especially in microelectronics): a) students in high school do not know what engineers do, as it seems too abstract compared to, for instance, physicians; b) students don't understand that engineers are sort of "hidden" heroes (not only physicians save lives!) and have actually an impact in what matters for young people, including sustainability. To change these prejudices, she started training school teachers for free, providing them with specific materials to emphasize the impact of engineering and science to their students. Through this volunteer work, that she calls "science enthusement" rather than science communication, she was able to reach 15.000 students.

After all, Europe's role in the world of national security and competition around tech supply chains would not be decided simply by costly subsidies or by the difficult coordination of industrial policies. It will be decided by the ability to foster a new wave of entrepreneurship and, most of all, to spark a new and lasting interest in science and technology among young people.

34 — Lauly Li, "The global microchip race: Europe's bid to catch up", Financial Times, December 13, 2022.