'Buffering' The US-China Tech Rivalry: The EU Strategy in The Era of Technological Competition

Introduction

The US-China competition has reawakened the need for the EU for a more comprehensive approach to its strategic autonomy and sovereignty. Scholarships started to investigate the extent to which the EU would have been able to strengthen its independence compared to other great powers, as the competition among the latter soared in the last decade. The classical realist perspective holds that anytime a state strives to increase its own security, it generates a security challenge for the other actors – the so-called 'security dilemma' (Jervis 1978). Concerning the US-China tech rivalry, instead, the EU appears to avoid this dilemma's trap. It does by offloading the burden of limiting and containing Chinese technological ambitions to the US, while enhancing its own possibilities of achieving strategic autonomy without altering the *status quo*.

This dual-edged approach is confirmed, on the one hand, by the EU initial reluctance to adopt US sanctions and export bans, on 'dual-use' semiconductors, against Chinese company, so avoiding open disagreements with the latter. And via a series of policy initiatives that strengthen its strategic autonomy in comparison to the others such as the European Chips Act, the EU-US Trade Technology Council, the European Alliance on Semiconductor Technology, and the Comprehensive Digital Partnership.

It should come as no surprise that, following the launch of the European Defence Fund (EDF), the EU chose to act on one of its fundamental pillars for strategic autonomy: the semiconductor technology and its supply chain security. European Chips Act, which includes a proposal for

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a European Chips Fund, along with other initiatives, make it patent how the perception for this technology has dramatically changed becoming key variable for great power's ambitions. Semiconductor manufacturing and trade reflects geopolitical tensions similarly to what occurred in the oil sector in the twentieth century. The lack of domestic manufacturing capability is increasingly viewed as a risk and a hindrance to state sovereignty. As a result, gaining leverage in this essential industry is a matter of both 'strategic autonomy' and state security.

Nonetheless, the EU did not aimed to alter or to affront US leading position in the sector, but rather to exploit elements of prevailing circumstances to increase its own strategic autonomy, thus limiting others influence. This security strategy can be duly explained by the 'buffering' theoretical approach as proposed by Chong (2003).

The following sections aim to develop an initial theoretical framework to understand better how the EU responds to and interacts with more powerful state actors by examining the variations in EU's security strategies vis-à-vis US-China tech rivalry, with a particular emphasis on EU policy on supply chain security and semiconductor technologies. Ultimately, it will provide critical insight into the contemporary understanding of the European Commission's role in foreign policy strategies through trade and industrial initiatives.

An important caveat regarding the unit of analysis employed in this article needs to be mentioned. The primary unit of study is the state when dealing with neorealist concepts like bandwagoning and balancing. When applied to the EU, there is a risk of over-stretching these concepts since certain initiatives are far from a unitary actor's outcome. For example, applying them to the Common Foreign and Security Policy (CFSP), where interstate bargaining is still crucial for comprehending the EU's external action, would have been challenging. Nonetheless, in other areas the EU acts as a single unit, as in the case of trade policy and regulation of the internal market, where the European Commission retains exclusive competencies. Furthermore, in its attempt to appear 'different' and normative superior compared to other influential actors such as the US (Bretherton and Vogler 2005), the EU has gone through a schismogenetic process resulting in a distinct identity from its Members.

Thus, the EU as a unified polity (Cotta 2012) arose in those policy areas such as environment, artificial intelligence, and cyberspace, where

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its supranational institutions have been frontrunners and displayed a significant role vis-à-vis member states. This article will consider the EU as a unified polity rather than the simple sum of its member states' national interests. The focus on the European Commission (EC) as the unit of analysis is used for two reasons here. First, its outcome is the one of a unitary actor. Second, as the latest EU Strategic Compass shows, supply chain security and semiconductors are two of the most important aspects of contemporary state strategic autonomy and sovereignty. Both are prerogatives of the EC as part of the EU market, making them appropriate for the research. As a result, the study addresses this issue by examining the EU's stance in both areas: EU security and unitary unit of analysis.

1. The EU-China relationship: tensions between grate powers

The last three years marked a significant shift in the relationship between the EU and China, from being considered an economic partner to a competitor (European Commission 2019). Several elements have marked this shift, above all the EU sanctions against Chinese entity and individuals accused of human rights abuses in Xinjiang (PRC),¹ which China retaliated with counter-sanctions; and the trade issues on key sector tech goods such as 'dual-use' semiconductor.

The Chinese counter-sanctions put in a deadlock the EU-China Comprehensive Agreement Investment (CAI), launched in 2004 and agreed in principle in 2020 after 35 round of negotiations. As the political context was "not conducive to ratification" (Valdis Dombrovski 2021), the approval process was put on hold, exacerbating even further the tension between the EU and China.

The other aspect that downside relationship between the EU and China was the trade of the 'dual-use' semiconductor. In the context of US's unilateral efforts to halt the transfer of sophisticated technology to China, the Trump ad- ministration waged a campaign to prevent the sale of the highly

 $^{^{\}rm I}$ Council Decision (CFSP) 2021/481 of 22 March 2021 amending Decision (CFSP) 2020/1999 concerning restrictive measures against serious human rights violations and abuses ST/6933/2021/INIT OJ L 99I , 22.3.2021

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sophisticated semiconductor produced by the ASML Dutch company, leader in the lithography chip making process, to China. With no ability to stop the sale immediately, the US government encouraged European countries to take the security concerns into account as lithography equipment is subject to the Wassenaar Arrangement, which controls export restrictions on so-called 'dual-use' technology with commercial and military uses.

Despite the US pressures, the EU preferred to cooperate on topics of mutual concern, concerning Beijing, while also seeking greater business connections with China to help Europe's export-driven economy (Casarini 2022), As empha- sized bluntly in the EU-China: A Strategic Outlook and EU-China Connectivity Strategy documents. But rising geopolitical tensions between the two trading blocs have transformed the EU's approach to trade – and to external action in general. Objectives such as sustainability and supply chain security, and strate – gic autonomy have become all increasingly prioritized in the consideration of trade agreement. It further challenges the EU to strike a balance between its economic interests and its larger geopolitical partnership with the US (Kim 2022). As this research attempt to explain, while the intensification of great power competition soared, the EU approach has changed accordingly launching several policy initiatives that try to position the EU as an independent international actor in the new technological rivalry era.

2. Polarity and Technology

The question of balancing and bandwagoning persists in the realm of international politics and European Studies, see Cladi and Locatelli (2012). Scholars almost concluded that these two strategies were the only two fundamental approaches to state security in global politics. Especially after the end of the so-called bipolar system, which saw the dawn of the US as the unique hegemonic actor, these two approaches to state security were once again in the spotlight. The essential tenet of this school of thought is that actors bandwagon with the powerful and balance against the foe in order to maintain security and attain their goals. This argument hinges on the balance of power as state actors seek to lessen security concerns by attempting to influence power distribution through alliance and domestic policy choices.

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Though literatures on balancing-type strategies already displayed high degree of variation (Mueller 1995), according to the structure of international system, balancing and bandwagoning appeared insufficient to account for the range of strategies adopted by international actor for preserving and promoting their interests. Historical evidence shows that even the most vulnerable states exhibit greater diversity in their strategies than either balancing or bandwagoning can capture (Fox 1977; Schroeder 1994).

To overcome this fallacy, scholars such as Jack Snyder and Thomas Christensen (2013; 1990), and Robert Jervis (1978) among others, have introduced more sophistication into Walt'z balance analysis that goes beyond the mere counting of great power poles. They blended Waltz's observations with key security dilemma and perceptual variables that interact with polarity in shaping international alignments.

2.1 Technology as a 'key variable'

The emergence of new disruptive technologies adds further complexities to understanding actor's position in the international system, which polarity appears insufficient to account for. The polarity of the system is generally not subject to conscious control. But material variables such as the offence-defence balance of technology and their application are more subject to policymakers' choices (Christensen 2013). Technology has always been, and remains, crucial for State's power projection. Nonetheless, in an era great power competitions and geostrategic rivalry fueled by global digitalization, technology is even more crucial as it creates new sources of power and security in international affairs.

Future wars will be waged in a totally different way and the war over technology will be the next battleground of geopolitics, stated Valdis Dombrovskis (2021), Vice-President of the European Commission (EC). This is the reason why European competitiveness in innovation, research, and technology has become critical to establishing EU's strategic autonomy and global position for next 20 or 30 years (Breton 2022). According to the 'double-hatted' Commissioner Breton: Securing the most advanced chips has become an economic and geopolitical priority. Hence, semiconductor technology, and the perception of it, have become pivotal for EU's security and strategic autonomy. Two reasons explain the emphasis on semiconductor technology: First, the systemic value of

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semiconductors as bedrock for modern economies and for the advent of the fourth industrial revolution; second, the 'dual-use' of semiconductors in both military and civilian applications (Barbé and Morillas 2019).

By focusing on technology as a 'key variable' (Jervis 1978) that interacts with polarity, we would have a better explanatory force of the undergoing international positioning made up by the EU vis-à-vis US-China tech rivalry. Nonetheless, simple relaying on balancing-bandwagoning dichotomy, and its cognates such as 'buck-passing' and 'chain-ganging', may not be sufficient to fully understand EU's behaviour. Indeed, EU's response to preponderant power may not reflect a behaviour that falls somewhere in between balancing and band-wagoning, and it rarely takes one of the two extremes either. On the contrary, EU's attempt to increase own digital sovereignty and strategic autonomy can be explained by using alternative approaches such as 'buffering' (Partem 1983; Chong 2003; Beehner and Meibauer 2016). Over time, scholars have questioned the balancing-bandwagoning theoretical approach with regard to the EU's behaviour, in both unipolar system and multipolar system, in which one would have imagined to be more likely to occur (Waltz 1979), proving it inaccurate.

In the following section we further analyse why balancing-bandwagoning theoretical approach does not suit with the current EU approach toward strategic autonomy and digital sovereignty in the context of US-China tech rivalry. But first, it is important to shed some light on what is meant by balancing and bandwagoning, why it has been so widely used in the past and for so long, and why it does not fit with the current analysis of the EU's strategy.

3. Why realism confounds EU's behaviour?

Scholars have attributed a considerable extensive meaning to both balancing and bandwagoning definitions, among others Vasquez and Elman (2003), Jervis and Snyder (1991), and Schweller (1994). By loosening its definitions, which has resulted in some confusion and blurring of its meanings, these developments have brought to light the limitations of balancing and bandwagoning as analytical frameworks to fully grasp actor's behaviours. Therefore, it is appropriate to begin our argument by defining balancing and bandwagoning outright.

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Since actors are likely to be wary of the possibility that one opponent will amass the resources to compel all others to do its bidding, hence they will check dangerous concentrations of power by strengthening their own capabilities – internal balancing – or aggregating their capabilities with other states in alliance – external balancing (Wohlforth 2008). Thus, balancing is defined as a strategy used by states aiming to offset the dangers posed by the most powerful and threatening actors, while preserving its own security and advancing its own interest (Mearsheimer 2001). Instead, bandwagoning is a strategy for preserving primary security concerns by seeking protection from a stronger, yielding to its will or ambitions Waltz (1979). Such strategy may be observed whenever a weaker power forms alliances with stronger powers or when it supports or lacks opposition to the dominant state's policies, though these actions may jeopardize its interests. In essence, bandwagoning means an inevitable loss of autonomy of action in exchange for international protection.

This latter scenario is particularly relevant when speaking about the EU's support of US policies against China.

Notwithstanding their prominence as concepts in international relations literature, balancing and bandwagoning are not as common in history as their academic reputation would suggest (Elman *et al.* 1995). And even the conventional view that regards unipolarity as the ideal system in which balancing and bandwagoning are likely to occur has been called into question (Chong 2003). The EU and its constituents' persistent affronts to US ambitions and interests on the global stage over that period of time suggests that bandwagoning may not fully capture responses to unipolarity either.

Furthermore, in the era of great power competition, as the world system has become more complex, the bandwagoning- and balancing-based approach to state security seem to be inadequate to fully explain European Union's behaviour. The idea that whenever a state capabilities do not differ significantly from those of the leading state, the former can counterbalance; or, on the other hand, whenever state capabilities have fallen so far behind the dominant state they will bandwagon, due to their incapacity to influence power distribution or bring about significant independent effects, particularly on a systematic level, is an oversimplification of the current state international environment, especially when we consider the relationships among the EU, US and China.

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To override multipolar complexities, neo-realist scholars have adapted their theoretical framework by introducing concepts such as 'Chain-ganging' and 'Buck-passing' (Richey 2020; Härtel 2017). The latter is more than a simple variant of balancing that entails the collective action problem. It is a condition in which states escape balance by relying on third parties to shoulder the expenses of dealing with a rising hegemon² (Christensen and Snyder 1990). Buck-passing occurs particularly under multipolarity since it is crucial for a state to identify other individuals who can successfully challenge the pre-eminent state's influence. Applied also in the study of European governance and foreign policy (see Lavenex 1998; Van Calster 2000; Engelbrekt 2007), 'Buck-passing' lacks to fully describes the EU's approach against US-China tech rivalry as certain EU initiatives do not fall under its category.

Alternative theoretical approaches had greater explanatory capacity in trying to unveil the complex relationship between the EU and the US that falls beyond the simple balancing-bandwagoning dichotomy (see Kagan 2003). Scholars have developed alternative theories to better explain state's behaviour. Paul Schroeder (1994) accounts for 'hiding', 'transcendence', and 'specialization' in his attempt to illustrates state's self-preservation;³ similarly, Chong (2003) speaks for 'beleaguering', 'buffering', 'bonding' and 'biding'.

The following section will argue how 'buffering' theoretical framework may better explain the EU's strategy vis-à-vis the US-China tech rivalry. But first we need to dig deeper into what 'buffering' means.

3.1 Buffering': the EU's way on strategic autonomy

Buffering as a theoretical concept has received little attention in IR, and mainly with reference to a buffer state's foreign policy, see Partem (1983); Chay and Ross (1986); Hourcad *et al.* (2013). Nevertheless, other scholars have used it as a theoretical framework to investigate the positioning of

² Walt (1987) defines it as the State's "attitude to pass to others the burdens of standing up to the aggressor".

³ 'Hiding' refers to ignoring a threat (could also be a declaration of neutrality), whereas 'transcendence' and 'specialization' refer respectively to solving a problem through international agreements and to have a stake in other state's security.

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the European Com- munity during the Cold War (Spiegeleire 1997), and as an alternative strategy for second-tier states (Chong 2003). According to Stephan Spiegeleire (1997), buffering does not refer solely to a spatial and territorial dimension, as the 'buffer-zone', or buffer-state, but to a system or sub-system in which international actor's buffering strategy is operating. This occurs in particular during great powers rivalry.

When great powers competition occurs, holding equidistance is often made untenable by constant pressure by one or both larger rivals; a policy of leaning is often fraught with the danger of losing one's independence or encouraging a reaction by the slighted power (Partem 1983). Nonetheless, nations powerful enough to express higher degree of independence from the hegemonic state are more likely to pursue measures other than balancing and bandwagoning. The odds of adopting buffering as a strategic choice depend on the level of power disparity with the hegemonic state and the level of integration in the world system. The success of buffering strategy is assessed by looking at the degree to which the actor preserves its autonomy of action, restrain action of the powerful, avert conflict, reduce tension (Chong 2003).

Under unipolarity, the more integrated an actor is in the World System and greater power it has relative to preponderant power,⁴ the more likely will display buffering rather than balancing or bandwagoning.

From a theoretical standpoint, this article proposes 'buffering' as an alternative actor's strategy to those of bandwagoning and balancing amid great power rivalry. It stands alone that to perform a buffering strategy the international actor should have acquired a measure of true political and increasingly economic independence, internationally codified. Furthermore, 'Buffering' strategy has a systemic effect on macro-stability, as it is not meant to disrupt the current status quo or to exacerbate powers' competition – the so called 'buffer-effect' Spiegeleire (1997). Buffering is here defined as the process of reducing exposure to and influence from the leading actor by carving out neutral zones in terms of geography or function that can remove or at least severely restrict the dominating pow-

⁴ By the degree of power and level of integration, I mean economic capability or 'softer' forms like social strength, cultural effects, or ideational influences. The level of integration, instead, refers to how present the actor is in international fora and how it can restrain or support its plan or policy.

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er's direct and active impact (Chong 2003). This may empower actors to pursue their own interests more freely. Buffering, on the other hand, is more passive than balancing. Its goal is not to change the status quo or to undermine the pre-eminent actor's position, but rather to preserve or exploit characteristics of current conditions that limit the pre-eminent actor's ability to exert influence.

Buffering appeals in particular to those actors that are not far behind to other great powers in terms of strength, and that are highly integrated into world system.

To make 'buffering' successful, the actor uses institutional fora to establish exclusive functional domains, restricting the active influence of the leading state on related subjects (Chong 2003). It needs a powerful institutional and bureaucratic machine, that ensures a high level of control over the governance of these issues, thus attaining more autonomy when pursuing their interests at the expense of the leading actor.

Furthermore, buffering by an international actor creates policy communities and overlapping institutions meant to limit or exclude active influence of the leading state. It offers a political vacuum in which second-tier states can deal with problems before the leading state steps in. It also creates legitimacy for action that is not dependent on the dominant actor.

Objectives	Effects			
Reduced exposure \Rightarrow \Rightarrow Increased autonomy \Rightarrow	 Limits active influence of the dominant power Legitimacy for action independent of leading actor 			
Instruments Institutional fora ↦ ↦ Exclusive functional areas ↦	 Overlapping institutions that limits leader's unilateral influence Creates political space for like- minded states 			

Table 1. 'Buffering' actor strategy: features

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3.2. Research design

To operationalize the study of the EU's behaviour other than balancing and its cognates, like buck-passing or chain-ganging, in the context of US-China tech rivalry, it may be necessary to test the following hypotheses:

H1: The EU strategical response to US and China tech rivalry over semiconductor technology does not fit with buck-passing and chain-ganging narrative
H2: The EU's initiatives display features of 'buffering' strategy

Furthermore, the paper attempts to disprove the following null hypothesis:

H0: Buck-passing and Chain ganging explain the EU's strategic security variation when reacting to US-China dispute over semiconductor technologies

To assess the H2, we need to investigate whether, or not, EU initiatives:

(a) Do they create new institutional fora

(b) Do they establish new regional or functional area

If (a) occurs, we need to assess: 1) if it is an overlapping institution or not; 2) if it creates new linkages with like-minded states or with the system leader. If (b) occurs, we need to assess: 1) if it creates a geographical area that limit or exclude the participation of the powerful; 2) if it creates political space where stakeholders can handle these issues before leading states intervene.

If the research can offer evidence to support the two primary hypotheses and reject the null hypothesis: the notion that the EU behaves in ways beyond 'buck- passing and chain-ganging' in its quest to achieve strategic autonomy should look credible. Acceptance of the first two hypotheses implies the rejection of the Null hypothesis.

Methodology: the research considers the EU's initiatives launched or adopted over the period 2019-2022 due to the EU changing perception in semiconductor technology as a key element for its security. Furthermore, the choice of this time-span period is duly motivated since it overlaps with the beginning of the US-China tech rivalry and the EU's changing

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perception of China: It has passed from viewing the China as partner to competitor and ultimately a rival (European Commission 2019).

Furthermore, throughout this period, the EU has started a review process of its Global Security Strategy (EUGS) with the so-called Strategic Compass. The Strategic Compass has emphasized the importance of digital technology, semiconductor industry and its supply chain security as *conditio sine qua non* for its security and 'strategic autonomy'. For the above-mentioned reasons, this research takes into account the EU policy initiatives adopted and lunched during this timeframe. The research analyses whether these policy initiatives entail requisites to enhance a 'buffering' approach or not. Based on that the research will either confirm or rebut the three hypotheses.

The initiatives taken into consideration are the EU-US Trade and Technological Council (TTC), the European Chips ACT (ECT), the Comprehensive Digital Partnership (CDP) and the European Alliance on Semiconductor Technology (All.SemiCon. Tech.). These initiatives are scrutinized over five requirements identified under the 'buffering' security strategy approach. If it creates overlapping institutions; if it excludes leader, if it increases autonomy, if it builds legitimacy for action independent of leader actor, if it creates political opportunity for like-minded states. Whenever a policy initiative satisfies the majority of these requirements, we can assess that the initiative is part of a 'buffering' approach.

Before embarking into our analysis, the following section will dig deep into semiconductor as a key technological variable for state's security strategy. It will explain why semiconductors are so crucial for economic and security purposes, and how their role have changed in the last five years making it an EU priority for European strategic autonomy.

4. Semiconductor technology: a turning point for EU digital power

4.1 Semiconductor: 'a key technological variable'

The current setting of the international system, where high-tech leadership is associated with military strength and geopolitical reach, has exacerbated semiconductor supply as a critical strategic aim. Dominated

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by few companies worldwide, such as the giant Taiwanese TSMC and the South Korea's Samsung, the sector features vulnerabilities that have being used as a tool for political goals. The United States has taken advantage of these features by obstructing China's ambitions to create its own cutting-edge chip production facilities. This fierce competition between the two great powers over semiconductor technology has jeopardized European security since such technology raises economic and, above all, military issues.

Semiconductors provide significant value to complex weapon systems and is becoming increasingly true as notice by the US' military posture reliance on a small number of high-quality systems supported by modern microelectronics. According to the US Defence Advanced Research Projects Agency (DARPA), compound semiconductors⁵ are used in military-specific devices with superior electrical features such as high electron mobility and direct bandgap compared to silicon-only-based semiconductors. Gallium arsenide (GaAs) and gallium nitride (GaN)-based devices, in particular, often emerge in military-specific applications. For example, GaAs and GaN technologies are used in radio-frequency integrated circuits (RFICs) and monolithic microwave integrated circuits (MMICs) for various defense and aerospace applications. Electromagnetic spectrum operations, signals intelligence, military communications, space capabilities, radars, jammers, and other technologies are examples of these (DARPA).

Taiwan is a key player in the worldwide compound semiconductor manufacturing industry. For example, Taiwan's WIN Semiconductors controls 9.1 percent of the overall GaAs device market share, ranking third globally after American firms Skyworks (30.6 percent) and Qorvo (28.6 percent). On the other hand, WIN Semiconductors has by far the highest proportion of pure-play GaAs foundry revenue, accounting for 79.2 percent. Taiwan-based AWSC (8.6 percent), California-based GCS (4.2 percent), and Hsinchu-based Wavetek round out the top three (3.4 percent). The top three Taiwanese businesses control more than ninety

⁵ For reasons of brevity, this article does not distinguish between semiconductor devices and semiconductor materials. The term 'semiconductor' is used interchangeably to refer to integrated circuits, chips and microchips, and to materials as silicon, germanium, arsenide.

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percent of the GaAs foundry market. The dominance of non-US companies in a strategic sector for military buildup capabilities represents a strategic vulnerability. Given the systemic role of semiconductors in the military buildup, this technology is perceived as a key variable for defence concerns. The link between technological leadership and geopolitical competition is grounded in the assertion that technology yields military superiority. But the perception of it has more to do with the idea of 'strategic autonomy' and independency.

Applying Jervis' analysis (1978), it can be stated that semiconductor tech has exacerbated the severity of the security dilemma by both material and perceptual factor (Tang 2009). Especially the latter explains why the EU multiplied its initiatives in the semiconductor sector in the last two years, though it has considerably low internal demand for both civilian and military application. Nonetheless, the idea that semiconductors are pivotal in digital sovereignty and 'strategic autonomy' pushed the EC to announce several initiatives such as the European Alliance on Semiconductor Technology, the European Chips Act, the EU-US Trade and Technology Council (TCC). Furthermore, its Comprehensive Digital Partnership agreement has boosted bilateral agreement with a significant semiconductor producer, such as Singapore. These EU package initiatives must be seen throughout the broader context of US-Chinese competition.

As digital technologies have grown increasingly intertwined with geopolitics, the EU initiatives are motivated more by politics than by economics or defence. They reflect the EU's need to position itself as an independent actor in the rivalry between the great powers, forging its own relationships with each of them. Therefore, balance theoretical framework and its cognates, such 'buck-passing' and 'chain-ganging', struggle to offer plausible explanation to EU behaviour. They have a propensity to place the actor on one side of the chessboard, whilst the EU attempts to place itself outside of it, carving its own zone. On the contrary, 'buffering' theoretical approach entails these features and offers a better analytical explanation on the new narrative taking shape around the EU's technological power.

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4.2 The EU's trade security politicization

Given the importance of technology for the EU's desire for autonomy, the EC has examined semiconductors as a key to achieving digital sovereignty. Nonetheless, the US-China competition has prompted security concerns about the EU's ability to protect its interests in an international environment molded once again by great powers rivalry (Demertzis *et al.* 2018; Weyand 2020). Indeed, in its attempt to restrain the rise of China in semiconductor sector, the US have damaged European economy, underlying the political risks stemming from US policymaking. The US export bans imposed on Chinese companies such as SMIC and Huawei, had side effects in European market too. In December 2020, European diplomats expressed concern that US trade restrictions favoured US corporations since some were granted licenses to sell to Huawei or SMIC, while EU competitors were barred from the Chinese market (Yang 2020).

The limited foreign policy instruments available to the EU have prevented it from adequately defending its interest. Foreign and security policy remain largely in the hand of member states, or in intergovernmental fora such as the Political Security Committee or the European Defence Agency. This has emphasized EU's vulnerability in the face of the deterioration of the multilateral system caused by the US-China tech rivalry. Furthermore, it has underpinned the EU's dependency on the US policymakers (Leonard *et al.* 2019).

Nonetheless, the European Commission has exclusive competencies on trade policy and regulation of the internal market. Both are becoming powerful tools of leverage during trade agreement thanks to EU's capacity to regulate and shape global standards, the so called 'Brussels effect' (Bradford 2020) – which has even further extended through its Digital Service Act and Digital Market Act.

Rising political tensions between great powers are altering the EU's approach to trade and, more broadly, to external action. Supply chain security, and defence industry concerns are all becoming increasingly important in trade agreement negotiations. Hence, 'EU's trade politicization' (Leblond and Viju-Miljusevic 2019; Garcia-Duran *et al.* 2020; Van Loon 2020) are now covering also strategic autonomy and digital sovereignty, and new tools in the hands of the EC are receiving additional considerations to attain this scope, such as weaponization of unilateral

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measures, stronger eenforceability, and implementation of tread agreement. The review of EU's trade policy, labeled as 'Open Strategic Autonomy' (European Commission 2021b), is the Commission's attempt to increase European autonomy while not appearing protectionist or undermining the international trade order (Fontelles 2020). It emphasizes both autonomy and openness but from a theoretical perspective it can be seen through the lenses of 'buffering' approach.

The following section will put under scrutiny the major initiatives in that sense in the semiconductor domain, and it will assess whether they abide to 'buffering' approach or not.

5. The EU's 'buffering' approach: how it is stepping out from US-China tech rivalry

The tensions between US and China over semiconductors have taken on the 468 features of a 'technological cold war' (Segal 2020) and have left the EU more exposed to disruption arising from this rivalry. Furthermore, it has forced the EU, which historically balance its reliance on the US for security and on China for trade, to choose side: a quest that has been difficult and expensive.

Five years eclipsed between the lunch of the European Global Strategy (EUGS) and the Strategic Compass process, which can be seen as an update of the former. Although not present in the original report the EUGS already mentioned the relevance of digital technology, though not referring to semiconductor in particular. On the contrary, the EU's 'Strategic Compass', highlighted the perception of semiconductor as a key technology. But also emphasized EU's attempt to reduce dependency on US policymakers and Chinese manufacturing. Indeed, among the four interconnected baskets, the one dedicated to 'Resilience' entails Supply chain security, whereas the one dedicated to Capability Development entails the concept of Technological Sovereignty. Both are key concepts for the EU's strategic autonomy and technological power. Hence, since the launch of Strategic Compass process in 2020, the EC launched several initiatives to attain its goals: the EU-US Trade and Technological Council (TTC), the European Chips Act, the Comprehensive Digital Partnership with Singapore and the European Alliance on Semiconductor Technology. We will briefly discuss their main characteristics.

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5.1 The EU's 'Buffering initiatives'

5.1.1 Trade and Technology Council

In December 2020 the EC proposed to establish a new EU-US Trade and Technology Council (TTC). The rationale for such initiative was to maximize market-driven transatlantic partnership and to boost technological and industrial investment.⁶ Formalize during the EU-US summit in June 2021, and launched in September of the same year, it acts as a venue for the EU and the US to coordinate responses to critical global trade, economic, and technological concerns. It is an open platform for transatlantic trade and economic cooperation, while respecting each side regulatory autonomy. Which translated means: reducing trade barriers, suitable standards, and regulatory methods for emerging technologies, guaranteeing vital supply chain security, as ways to achieve these objectives.

The TTC was also an opportunity to launch almost in parallel another initiative: the Joint Technology Competition Policy Dialogue (TCPD). The TCPD aims to creating cooperative approaches and strengthening collaboration in the tech industries on competition policy and enforcement.

The TTC entails ten working group dealing with the five key areas, export controls, security supply chain (semiconductor in particular), technology standard, global trade challenges, and foreign direct investment screening (European Commission 2021a). As regards semiconductors, the TTC aims to establish a uniform and early warning and monitoring mechanism for the semiconductor value chain, and it improves semiconductor demand transparency and avoid subsidy races. By focusing on semiconductors' secure and resilient supply chain, the working group doubles down on how trade and security policies intertwine. Indeed, semiconductors are by far the most important supply chain of common interest under the TTC.⁷ Although the Commission estimated that the EU is less dependent on the US than vice versa in this delicate environment, the EC recognized that both had significant mutual dependencies

⁶ Joint Communication to the European Parliament, the European Council and the Council: A new EU-US agenda for global change, JOIN(2020) 22 final, Brussels 2.12.2020.

⁷ EU-US Trade and Technology Council: New forum for transatlantic cooperation, EPRS, 27.09.2021.

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with China. Therefore, the EC also suggests how the TTC would have been the appropriate platform to address these dependencies in its Industrial Strategy.⁸

What is important here is that the TCC is co-chaired by top representatives of the EC, such as EU Competition Commissioner and the EU Trade Commissioner, on the EU side. While on the US side, it comprehends the US Secretary 522 of State, Secretary of Commerce, and the US Trade Representative. It is important because it signal the high relevance of what is at stake: for Washington a specific tool for China containment, but for the EU an opportunity to reduce trade and tech tensions posed by the US supremacy in semiconductor and digital technology, while avoiding open confrontation against China. It is an insurance policy for the EU, allowing it to respond jointly to global trade issues or threats without bearing the cost of supply chain disruption.

It can be stated that this initiative bears some of the 'buffering' approach features. It creates an overlapping institution, since the Wassenaar Arrangement already tackled some of these issues regarding Dutch chip-equipment sale to China.⁹ It uses institutional fora to reduce leader's unilateral influence. It serves to create legitimacy of action, independent of leading actor.

5.1.2 The European Chips Act

The ECA is a comprehensive set of measures proposed by the EC to ensure the EU's security of supply, resilience and technological leadership in semiconductor technologies and applications. It is based on three main pillars: the Chips for Europe Initiative; a new framework to ensure security of supply; and a coordinated mechanism between MS and the EC for monitoring, assessing, and coordinating together common crises.¹⁰

⁸ Updating the 2020 New Industrial Strategy: Building a stronger Single Market for Europe's recovery, European Commission communication, 5.05.2021.

⁹The US effort began in 2018, after the Dutch government granted a license to ASML, the global leader in lithography, a vital chip-making technique, to sell its most sophisticated machine to a Chinese company SMIC.

¹⁰ Commission Recommendation (EU) 2022/210 of 8 February 2022 on a common Union toolbox to address semiconductor shortages and an EU mechanism for monitoring the semiconductor ecosystem C/2022/782 OJ L 35, 17.2.2022.

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The Chips for Europe Initiative aims to pool resources from the Union, Member States as well as third country associated with EU programs. Furthermore, through the Chips Joint Undertaking mechanisms it aims to involve also private sector. The initiative's goal is to have a thorough understanding of the semiconductor ecosystem and value chain. In particular, the Chips Joint Undertaking, embedded into the Initiative, has strategically reoriented the previous Key Digital Technologies Joint Undertaking action plan: a public private partnership for funding projects critical for Europe's digital economy. Additionally, to the Initiative, the establishment of the 'Chips Fund' should facilitate access to debt financing and equity in the semiconductor value chain, thus sup- porting the development of a dynamic and resilient semiconductor ecosystem.

The ECA also sets a new framework to ensure security of supply by attracting investments and increased production capacities in semiconductor manufacturing. In particular, in response to Union's need for a more resilient supply chain, the ECA establishes criteria for simplifying the execution of specified initiatives that contribute to the Union's supply security of semiconductors. To that purpose, the EC works with Member States to identify sectorial requirements for trusted chips in order to develop uniform standards and certification, as well as procurement criteria.

Furthermore, as stated in the Commission Recommendation to Member States on a common union toolbox,¹¹ the ECA sets up a coordinated mechanism between the EC and the MS for monitoring the supply of semiconductors. It will exercise surveillance over exports and introduce protective measures when deemed necessary and grant the Commission a mandate to act as a central purchasing body for public procurement. The Chips for Europe Initiative includes a new legal instrument – the European Chips Infrastructure Consortium (ECIC) – that is specifically designed to simplify and structure the legal relationships be- tween private-public consortium members, and to provide a structural dialogue with the Commission for the implementation of the Initiative's actions.

The initiative itself double down how the security of supply, resilience and technological leadership in semiconductor technologies cannot be

¹¹ Ibidem.

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achieved solely by Member States acting alone.¹² The scale and scope of the efforts needed to develop a state-of-the-art European chip ecosystem demonstrates the value added in acting at Union level, as no single Member States can achieve this alone.

The ECA satisfies several requisites of the 'buffering' approach. It creates 'legitimacy of action', vis-à-vis state actors, since it creates new legal supranational instruments and Union's financial aid; it creates a new 'functional area' where the leading state is excluded. Furthermore, it creates political space for other countries as it aims to build "semiconductor international partnership with like-minded countries", as the initiative is addressed to Singapore, Japan and even Taiwan.

5.1.3 The European Alliances for Semiconductors and Cloud technologies

The Alliance for Processors and Semiconductor technologies, and the European Alliance for Industrial Data, Edge and Cloud are two separated industrial alliances launched by the EC. Both initiatives stem from the European Industrial Strategy, updated on March 2021 and will help to progress the next generation of microchips and industrial cloud/edge computing technologies, as well as providing the EU with the tools it needs to reinforce its essential digital autonomy. It is an institutional forum where European institutions and MS, along with private stakeholder can meet to reach the EU's goal of increased manufacturing capacity in the next generation of high-quality semiconductor. These Alliances are open to private and public sector with legal representative in the Union and with relevant activities within. This provision excludes de facto companies and public entities from leading countries in the semiconductor sector.

Based on previous positive industrial alliances experiences on raw materials, batteries and hydrogen, the EC launched and supported these alliances as the best tool to accelerate activities that would not develop otherwise. The Alliance for Processor and Semiconductor Tech's overarching goal is to identify current gaps in semiconductor production and the technological improvements required for enterprises active in the

¹² Regulation of the European Parliament and of the Council establishing a framework of measures for strengthening Europe's semiconductor ecosystem (Chips Act), COM(2022) 46 final, 2022/0032 (COD), 8.2.2022.

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EU, including small European actors, to be more competitive. This will improve EU's competitiveness, strengthen Europe's digital sovereignty, and meet the need for the next generation of secure, energy-efficient, powerful chips. The overall purpose for the EU is to achieve critical mass and reduce dependencies in semiconductor technology.

The Alliance's two main lines of actions are: 1) the strengthening of the European electronics design ecosystem, particularly design at cutting-edge nodes; 2) The establishment of the necessary manufacturing capacity. Its main tasks are planning and analysis, increasing design capacities and manufacturing production in Europe and leverage investment and innovation synergies. The EC acts as a facilitator of the Alliance and is entitled to organize the General Assembly which adopts recommendations and reports.

The EC monitor the progress of the General Assembly, provides secretarial services and acts as a facilitator towards cooperation among stakeholders. Furthermore, the EC organizes an Alliance Forum, an inclusive, and open forum for communication and exchanges between the European Commission, Alliance members. Similarly, to the TTC, the EC might establish working groups of the Alliance dealing with specific topics such as manufacturing, supply shortages, state-aid support.

5.1.4 Comprehensive Digital Partnership

It is a comprehensive and forward-looking Digital Partnership between the EU and Singapore aiming to expand digital and cooperation trade. The Partnership will enhance cooperation to build a more resilient supply chain. Once the Digital Partnership enter into force, it will convene an annual ministerial meeting led by European Commissioner for Internal Market and Singapore Minster for Trade and Industry. The EU-Singapore Free Trade Agreement (EUSFTA) is the bedrock of the Partnership. The EUSFTA entered into force at the end of 2019, during its inaugural Trade Meeting, already envisaged the necessity for a comprehensive digital partnership that will address the challenges stemming from semiconductor supply chain. Under the 'buffering' theoretical framework, this initiative promotes the limiting of leader's influence, since does not involve the US; it creates more legitimacy for the EC to act within semiconductor supply chain, and it creates a political opportunity for Singapore to be less dependent on US exports. Therefore, several 'buffering' requisites are satisfied here.

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The above initiatives have been scrutinized whether they entail or not 5 characteristics of a 'buffering' approach: the creation of an overlapping institutions (the use of a regular institutional forum); the exclusion of the Leader's active influence; the increase of autonomy; the legitimacy of action; and the creation of a functional area or political space for like-minded states.

Table 2¹³ summarizes the research findings of the above-described policy initiatives display 'buffering' approach characteristics. If most of the requisites belonging to a 'buffering' approach are satisfied, then the initiatives is deemed to be part of an EU 'buffering' strategy.

	'Buffering' approach requisites							
Policy	Governance	Ovrlp. Inst.	Ld's excl.	Auto. Up	Lgtm. Act.	Pol. space		
TTC	EU-US	yes	no	yes	yes	no		
ECA	EU/Jap/Taiwan	no	yes	yes	yes	yes		
CDP	EU-Singapore	no	yes	yes	no	yes		
EAST	EU	no	yes	yes	yes	no		

Table 2. The EU's 'buffering' initiatives over semiconductor technology

Since all four initiatives set out by the EC display characteristics of the 'buffering' strategical approach, though to a various and mixed degree, the second and third hypothesis are confirmed.

Furthermore, all these initiatives combined served as 'buffering' strategy from a broader perspective. Indeed, while the Comprehensive Digital Partnership establishes a network linkage with a like-minded State, the TTC creates an institutional forum where the EC (the buffering actor) can reduce the influence of the leading actor on related topics. On the other hand, the European Chips Act and the European Alliance on Semiconductors are tools used to advance buffering actors' interests while carving out exclusive regional or functional areas that can further reduce the leading state's influence.

¹³ CDP stands for Comprehensive Digital Partnership; EAST for European Alliance on Semiconductor Technology; ECA for European Chips Act; TTC for Trade and Technology Council. While the upper abbreviations stand for: Overlapping institutions, Leader exclusion, Increased autonomy, Legitimacy of Action, Political space (which entails 'creating functional area').

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Conclusions

A major part of this article has been dedicated to the EU policy initiatives in the context of a technological great power competition, through an IR theoretical approach. Nonetheless, various reasons have led to a souring of relations between the EU-US and China beyond the tech rivalry. the description of which is beyond the scope of this article. This article attempts to demonstrate how classical realist theoretical frameworks. such as balancing and bandwagoning and its cognates, 'buck-passing' and 'chain-ganging', lack to explain properly EU's strategy in a multipolar context characterized by US-China tech rivalry. Other theoretical approach such as 'buffering' are more suitable to explain the EU policy initiatives in this domain. The findings suggest that despite the race to attain autonomy into semiconductor technology among great powers. the EU's adopted a 'buffering' strategy which do not immediately disrupt or challenge the US predominance and neither contest Chinese assertiveness in this domain. 'Buffering', on the other hand, it makes the current system with the US in a leading position less stable over time as it limits US hegemonic influence and allows other states to act in accordance with the EU's needs rather than Americans.

Having said that, an important caveat is the short time-span to which this article addresses. On a longer run is it still possible the balancing/ bandwagoning strategy applies for the EU. In this perspective, deconstructing the many options that third states have – when in the midst of a hegemonic rivalry – in terms of 'buffering', 'hiding', 'bidding', and so on – might be viewed as transitory adjustments toward an ultimate objective of balancing or not. It is possible that in a long run, at a critical juncture, the EU will be forced to choose whose side they support. If this notion is right, 'buffering' is likely to be a temporary rather than permanent strategy in times of unpredictability.

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