

# Robustly Resilient



## British Supply Chain Policy in an Era of Eurasian Competition

Harry Halem and Marcus Solarz Hendriks

Foreword by Sir Crawford Falconer KCMG,  
former UK Chief Trade Negotiation Adviser





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## About the Authors

**Harry Halem** is Senior Research Fellow in the National Security Unit. He specialises in grand and maritime strategy, defence industrial issues, and strategic history, particularly of British strategy from 1890 to 1945. Mr Halem holds an undergraduate degree in Philosophy and International Relations from the University of St Andrews, and a postgraduate degree in Political Theory from the London School of Economics, where he specialised in comparative intellectual history.

**Marcus Solarz Hendriks** is Head of Policy Exchange's National Security Unit. He holds both a Master's Degree (Politics and International Relations) and a BA (Arabic, Persian and Middle Eastern Studies) from the University of Cambridge.

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# Foreword

By Sir Crawford Falconer KCMG, former UK Chief Trade Negotiation Adviser

Major global trade disruptions have occurred at an accelerating rate over the last half-decade. The COVID-19 Pandemic derailed the global economy for two years. Immediately after, Russia invaded Ukraine, violating the international commitment to sovereignty that has held in Europe, in broad terms, since 1945. The Houthis continue to menace global shipping in the Red Sea. Europe is under pressure, facing an energy crunch on the continent, and trade frictions are intensifying.

These developments have brought home the essential fragility of international supply chains particularly evident in such sectors as food, pharmaceuticals, industrial manufacturing and energy technology. The challenge for policymakers across Europe, Asia, and North America is not just to examine and look at remedies for the particularly vulnerable sectors in clinical isolation (vital as that is). What makes this new Policy Exchange Paper, *Robustly Resilient: British Supply Chain Policy in an Era of Eurasian Competition* particularly valuable is its grasp of supply chain vulnerability as fundamentally connected to core geopolitical challenges, and that any effective remedy requires integrating strategic considerations into economics, finance, and technological development in a synoptic supply chain strategy.

It is this which makes it a uniquely innovative contribution towards a coherent British policy. It is the first attempt by any major think-tank to address the challenge head-on, situating British policymaking in the context of major-power friction and economic competition. It brings a sober sense of realism to the real-world consequences of events that are, alas, far from implausible. Even if one diverges from specific judgements in the paper, it identifies the overall direction of travel we face today. Its recommendations aim to provide the UK with a far more capable set of systems and processes to understand how international supply chain complexity impacts long-range options, and would help the UK to make global economics and politics the heart of its foreign, trade, and economic policies

As an old trade hand myself, I was struck by an implicit alignment between the Paper's supply chain led policy diagnostic and the glaring need for significant policy shift to deal with huge change in the inherited international trade and investment paradigm. Unsurprisingly, perhaps, given that largely the same underlying geopolitical shifts are at work.

The widespread benign belief, at least from the turn of the century, that openness and economic security were not just mutually supportive, but we could all be pretty sure they would never be pitted against each other is surely over. The challenge, and it is a huge challenge, is to find a new equilibrium or at least a zone of relative stability.

Europe and the US are where the start must be made. The UK's influence over both its major partners is specific, limited, and must be used shrewdly. But it is difficult to avoid the conclusion that new ways and means need to be found. In this regard, some of the themes in the Paper could, it seems to me, be quarried further for consequences that go beyond supply chains per se, particularly as they relate to new steps that the United Kingdom could be taking to pursue closer integrated trade and security relations with the United States, but tied also into changes with Europe.

Policy Exchange has made a good start at comprehending the problems we face. Now, action is the task of policymakers.



# Executive Summary

**Open markets, competition and free trade remain at the heart of the UK's future prosperity.** Globalisation under the rules-based international economic system created wealth and spurred innovation across the globe, including in Britain. Since the mid-19<sup>th</sup> century, the UK's economy has benefited from this global system.

**After a series of disruptive events in recent years have demonstrated the fragility of globalisation, the arrival of the new American Administration may pose a new challenge.** Sino-American de-coupling, the Ukraine War, COVID-19 pandemic, Middle Eastern instability and a turn towards protectionism in many countries have increased awareness of the risks to this system of global geostrategic shocks. Key members of the Trump Administration have signalled a desire to expand American protectionist measures further, vis-à-vis both China and allies.

**It is impossible and imprudent to reject market approaches to the UK's supply chain issues. Instead, changing circumstances demand a coherent UK supply chain strategy which is firmly rooted in its geopolitical context.** The answer is not state intervention, but the creation of an environment that allows free market solutions within a heavily modified geopolitical context.

**Globalisation has created a complex supply chain system that is a crucial strategic vulnerability for the UK – and other Western nations.** Britain benefited greatly from globalisation, leaned into its accelerating development from the 1960s onwards, and leveraged its financialised economy in the 1980s and 1990s to adapt to a Sino-American centric international macroeconomy. However, this combined with an emphasis on high-technology and rapid delivery to create a complex and tangled supply chain system in which limited disruptions have outsized effects.

**Supply chain strategy is a crucial aspect of economic statecraft properly understood and, by extension, of grand strategy.** The UK and its allies, Western and otherwise, have generally forgotten the political and strategic relevance of trade policy and economic statecraft beyond targeted sanctions. Supply chains are a crucial element of economic statecraft. The geography and technical nature of economic supply chain competition may have shifted, but the fundamentals of strategy in a great-power competitive environment have not changed.

**Recent government documents hint at a fledgling, yet growing, awareness of the imperatives of viewing supply chain policy strategically.** The previous government conducted a number of reviews relating to supply chain security, while the new government has released a

future of supply chains foresight project. However, their approach remains largely conceptual, and lacks substantive and actionable steps in line with a coherent overall strategy.

**The new government's current signalling shows that there is now at least a cross-party consensus on the importance of formulating a serious supply chain policy.** The party's Industrial Strategy, and Chancellor Rachel Reeves's economic vision of 'Securonomics', both illustrate an awareness of the crisis that the UK would experience in the case of widescale supply chain disruption.

**The primary lens through which the UK should consider supply chain policy is more specific than general resilience, but resilience against a potential Sino-American decoupling event alongside the various macroeconomic effects of intensified Eurasian competition.** The UK has a thorough interest in a variety of Sino-American decoupling events, both because of its political, economic, and diplomatic links with the United States, and the reality that any decoupling event will have severe implications for British trade and, by extension, quality of life. More generally, these potential shocking events are specific, not general questions of resistance to shocks. Their effects can be understood and, to a degree, anticipated, enabling a clearer linkage to policy questions. Moreover, the UK must have an active China policy when it comes to supply chains issues that recognises the sheer degree of relevance that Beijing commands, and will continue to command, economically and geopolitically. This does not speak against a coherent supply chains strategy that "de-risks" from China, but actually reinforces the need for one. The UK cannot have a coherent China policy or supply chains strategy without an understanding of the holistic vulnerabilities it faces, meaning China policy must be nested in a broader industrial approach.

**The UK cannot and should not try to insulate itself wholesale from economic shocks or reshore every element of its supply chains.** The British economy is tailored to a specific international system that facilitates long-distance trade. Rebuilding the capacity to survive an autarkic situation is impossible given cost, and undesirable considering the impact this action would have on British quality of life. Moreover, specific elements of the UK's international supply chain will remain internationalised. The UK cannot, for example, domestically extract various critical minerals, nor compete with the US, EU, and China as major semiconductor manufacturing blocs.

**Nevertheless, the UK can ensure crucial parts of its supply chain are somewhat insulated from major shocks, if only those aspects that are central to national survival.** There are specific aspects of the supply chain – for example food supply, specific industrial and chemical components, and medical products – that are crucial to the health and daily life of the British population. The central question is not whether the UK can shift all relevant production in-country, but whether and how it can ensure access to critical elements of an international supply chain.

**Ongoing Middle Eastern instability and Houthi disruption of global shipping is an important reminder of the structural insecurity created**

**by the UK's dependence on Middle Eastern-transiting supplies.** The seas surrounding the Arabian Peninsula are the mid-way point of trade flowing between Europe and Asia. The European continent's dependence on Asian manufactured goods, and the integral role that Gulf oil and gas plays in setting global energy prices, means that the UK can never isolate the Middle East from its supply chain strategy entirely. That said, the region's enduring volatility supports the case for a British supply chain strategy which pivots towards on-shored and friend-shored industries and energy production.

**The UK's allies are slowly implementing supply chain strategies with varied degrees of strategic effectiveness.** American, increasingly the EU, and to a degree Asian supply chain policies are coherent and strategically packaged, with obvious linkages to other political and strategic questions. Major-power and bloc-wide supply chain policies will increase in coherence and comprehensiveness over time, creating a lag in which the UK can act decisively to ensure its interests are taken into account. If this time-lag is not taken advantage of, the UK risks being priced out of long-term supply chain strategies, even by close allies.

**Despite the UK's robust alliances, the nature of supply chain questions makes it difficult to work with allies absent a comprehensive coordination mechanism.** Supply chain policy is a complex endeavour primarily because of the thorough distribution of supply chain systems throughout the international economy. Moreover, supply chains intersect with industrial policy, and are thoroughly entwined with a variety of domestic considerations in any context. Coordinating and matching supply chain policy is therefore a difficult strategic objective that requires persistent international leadership, clear messaging, and economic-strategic flexibility.

**Impending transatlantic trade and economic friction reinforces the need for an integrated trade policy.** The Second Trump administration is considering some sort of economic friction with the EU over a variety of industries, which may well include regulations that influence British businesses as well. Washington is willing to use its trade policy leverage to force concessions from even close trade partners, as its recent disputes with Canada and Mexico demonstrate. The EU has largely signalled its willingness to accommodate American demands, but the UK must be prepared for a significantly more fractious transatlantic trade relationship, where it faces a risk of being caught between major blocs. Whatever the result of US-EU trade discussions over the next 18 months, the UK needs to position itself in a manner to influence these conversations actively, not become a third party absent diplomatic, strategic, and economic leverage over the broader situation.

**Moreover, the UK's European allies, given the EU's decision-making structure, may increasingly complicate a supply chain tilting effort vis-a-vis China.** Western Europe has divided strategic incentives over the China question, as the Ukraine War continues into its fourth year, creating significant difficulty in grasping the EUs and Europe's supply chain profile,

and how they relate to British policy interests and choices.

**Shipping and transportation are integral aspects of a supply chain strategy, and a major vulnerability.** The international shipping system is the backbone of modern globalised supply chains. It is paradoxically flexible *and* regular, high-volume, and broadly efficient. It is also thoroughly opaque and removed from the control of friendly national governments. Even the best conceived and most rigorously delineated supply chain policy will fail absent a comprehensive adjustment of the UK's international shipping policy in coordination with its allies.

**The UK can take several immediate steps to reduce its supply chain vulnerabilities.** These measures include stockpiling certain critical capabilities, incentives for reshoring *essential aspects* of the supply chain to ensure limited access in crisis situations, a coherent friend-shoring regime, and export controls to reduce British and allied exposure to adversary manipulation. These steps will not eliminate supply chain vulnerabilities, but they will help reduce the impact of a major shock *and* ensure that the UK begins to build the capacity for long-term supply chain reorientation.

**The UK's essential edge, and the backbone of its supply chain policy, must be its capacity to innovate and produce high-technology.** As a general strategic objective, the UK should seek to make itself indispensable to Euro-Atlantic and Amero-Atlantic supply chains, and use that leverage, and its extant linkages in the Indo-Pacific, to bind itself to various geoeconomic blocs.

**Building supply chain capacity requires a long-term strategic plan implemented across multiple government departments, and integrated into British national strategy.** This integration must begin at the highest levels of government. Supply chain strategy is a crucial element of British grand strategy, and must be treated as such.

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# Introduction

Globalisation has gone hand-in-hand with supply chain internationalisation. Improved technology, cheaper transport, and better global connectivity have allowed producers in every industry to rely on suppliers in different countries, often in different continents. Despite the distances between parts of the value chain, each constituent aspect of a product would arrive just in time at a reasonable cost.<sup>1</sup>

The COVID-19 pandemic, Russian Invasion of Ukraine, Middle Eastern instability, Houthi disruption of maritime trade routes in the Red Sea, increasingly disruptive Chinese international behaviour, and last year's Baltimore bridge collapse have all called the globalised supply chain model into question. The pandemic derailed production of multiple goods, and major companies still grapple with COVID-19 disruptions and supply distortions. Russia's war in Ukraine has compounded the issue for the food and energy industries, producing global ripple effects. Framed within the context of the ongoing Israel-Iran shadow war and Gaza conflict, the Iran-backed Houthis have targeted shipping vessels in the Red Sea, raising container insurance costs and even diverting some trade around South Africa's Cape of Good Hope. Meanwhile, broad-based macroeconomic disruption, including Chinese punitive tariffs and US and European attempts to create a coherent industrial policy, increases the risk of further supply disruptions.

Unexpected, transformative events like COVID-19 are possible, but by definition unpredictable. However, the likelihood of a cross-strait conflict in the Indo-Pacific, or simply Sino-American confrontation with significant trade disruptions, is increasing. Any major move by either side, whether a Chinese blockade of Taiwan absent invasion, or a comprehensive American tariff and sanctions scheme, would upend global economic activity, and shatter the international supply chains upon which all consumers rely.

Moreover, as the Ukraine War grinds on, various international effects are compounding. The war has prompted European and American industrial policies, particularly on green technologies, which raises implications for the UK's energy industry, broader physical production, and even artificial intelligence and advanced computing. Additionally, the war increasingly demonstrates the linkages between diplomacy and economic questions, as Western Europe considers the way in which Beijing can assist its objectives in Ukraine, contrary to the EU's more cautious approach.

Additionally, the US tilt towards a more insular supply chain policy is not only a function of the international situation, but also of domestic American political reality. The backlash against international free trade

1. This explains the remarkable lack of inflation between 1990 and 2019 in the Western world. See "Historical Inflation Rates, 1989 to 2024", accessed via: [link](#); see also "Annual US Inflation Rate from 1990 to 2023", accessed via: [link](#).

stems from the US' economic and societal structure, which maintains a distinct focus on agriculture and elements of heavy industry. Regardless of the president, it is unlikely that the US will completely reverse course with its protectionist tilt. This will play out in the next Congress, as both parties pursue policies that reinforce domestic industries – even if certain developments over the past four years are shifted to new areas, particularly over semiconductor production.

In this environment, the UK faces two major risks. First, there is the risk of a *supply chain shock to a critical industry*. The UK relies upon food, energy, and manufacturing imports. It also has a services-oriented economy that reduces its ability to create critical capabilities during a major systemic crisis.

Second, there is the risk of a *broader fragmented system in which the UK is left behind*. The UK is not part of a super-bloc. It is too small, and too resource-poor, to compete against any of the macroeconomically significant powers. The danger, then, is that the EU and US create a variety of industrial and regulatory frameworks that simply price out the UK, allowing it to slip between the international system's cracks, triggering a long-term decline in living standards, national power and geopolitical relevance.

This paper examines British supply chain policy in light of both dangers. It considers how the UK might improve its resilience in the face of a supply chain shock despite its structural limitations, while also integrating supply chain considerations into a broader picture of British diplomacy and strategy. It concludes that wholesale reshoring, or even industry-wide reshoring, is next to impossible given the costs involved, and the way in which supply chains have developed. The UK cannot be insulated from a supply shock – autarky is politically impossible and socially unpalatable. However, a combination of stockpiling critical goods, creating inducements for duplicate facilities within the UK, and improved coordination with the UK's allies and partners can improve the UK's resilience to a global shock. Moreover, supply chain and industrial considerations must be integrated directly into the policymaking apparatus.

**First**, this paper will locate supply chains within economic statecraft more broadly, and make the case that the supply chain question is *strategic*. In turn, supply chain considerations must be integrated into national policy far more thoroughly than they have been, and viewed as an inextricable element of economic statecraft and grand strategy. It will identify the obvious impact Chinese and Russian actions, and Middle Eastern instability, have, directly and indirectly, on a British supply chain strategy.

**Second**, this paper will identify the historical development and strategic relevance of supply chains. The modern supply chain system came into being at a unique geopolitical moment, when China became integrated into the international economic system and the US accepted significant revisions in the global macroeconomic order it had backed after 1945. These realities, combined with regular, efficient international shipping and improved communications, created market incentives to rely upon wholly

internationalised supply chains. However, this has created significant structural vulnerabilities. The UK's reliance upon Chinese-originating trade and maritime trade from the Indo-Pacific, and its potential to be caught between competing US and EU economic blocs creates a distinct vulnerability in the current situation. Moreover, as British manufacturing declined and finance increased in apparent relevance, there was significant intellectual resistance to any warnings against deindustrialisation in the UK. Criticising the primacy of services over manufacturing was seen as the view of a modern Luddite.

**Third**, this paper will assess both British supply chains in identified crucial industries and into foreign supply chain policy. It will identify the key dependencies the UK has in all five critical areas, and cross these dependencies with the supply chain strategies of the UK's allies. This will allow the UK to identify its supply vulnerabilities and compare its situation to that of other states, a valuable step towards identifying coordination possibilities.

**Fourth**, this paper will provide recommendations to tackle the supply chain problem through a series of policy actions that cut across Government. These recommendations include policy shifts that modify the UK's machinery of government, a serious look at potential stockpiling and minimum requirement needs for a crisis, a comprehensive approach to friendshoring that considers every major region, and the need to in-build resilience into the British and allied international transportation system.

# 1: The Place of Supply Chains in Grand Strategy

Subsequent sections will delve into the scale of British vulnerability to a global supply chain shock. However, this first section will lay out two relevant points: the *relevance* of supply chain issues to British strategy writ large, and the role of supply chains and economic statecraft in general in foreign policy. From this foundation, we may in subsequent sections recognise the manner in which this report's recommendations reinforce different aspects of British security.

The linkage between grand strategy and trade policy is seldom clear, with the exception of explicitly mercantilist foreign policies. Sino-American friction risks to destabilise international supply chains.<sup>2</sup> Since 24 February 2022, Russia has sought to weaponise its energy reserves and manipulate the global food supply to stress Western publics, undermine international economic stability, and sap support for the Ukraine War in the West and the Global South.<sup>3</sup> Iran has identified enough export opportunities to blunt continued sanctions, while still threatening global economic meltdown if the US and its allies reimpose fully the Iran deal's wholesale sanctions.

Below, we sketch out the relevance of supply chains in contemporary grand strategy. These are historically clear, as various examples from British and international political history will demonstrate. Our purpose here is to identify roughly the dynamics that govern economic statecraft, rather than prescribe policy options, as will be done in subsequent sections. Any policymaker should take care and recognise that economic statecraft in general, and supply chains in particular, are difficult instruments to wield, and are only a portion of a broader strategic approach.

## 1.1: History and the Nature of Supply Chain Policy

All economic instruments are blunt.<sup>4</sup> Whatever action the UK takes, offensive or defensive, in the economic and supply realm must not be viewed as targeted, balanced, or specific.

2. Some evidence exists that British grand strategy in the early 20<sup>th</sup> century assumed that an "economic weapon" would destroy Germany within months. Although the time-frame this revisionist strategic history implies is suspect, it is worth noting that mutual economic pressure has a long history of integration into grand and military strategy. See Nicholas Lambert, *Planning Armageddon: British Economic Warfare and the First World War* (London: Harvard University Press, 2012), 125-127.

3. This has been a distinct failure of Euro-American Russia policy. It was always assumed that Russia would pose a military threat, not an economic one, despite the admitted possibility of a gas cut off. See Joanna Pritchett, "Less Than a Full Deck: Russia's Economic Influence in the Mediterranean", *Carnegie Endowment for International Peace* (2021), 3.

4. Tanner Greer, "Of Sanctions and Strategic Bombers", *The Scholar's Stage*, 31 May 2022, accessed via: [link](#).



### Economic Statecraft and Major Power Competition – A Reminder from Athens and Sparta

Arguably the first weaponisation of supply chains and trade relations can be identified in the Megarian Decree.<sup>5</sup> Pericles, the Athenian first citizen who had steered the revolutionary democracy through a sustained cold war with Sparta and repeated confrontations with Corinth, turned to economic diplomacy as a finely balanced middle tool between outright warfare and capitulation. The decree was a direct embargo upon Megara, a polis on the Isthmus of Corinth's northeast that sat astride the landward trade route between Athenian-dominated Attica and Corinthian-Spartan domains in the Peloponnese.<sup>6</sup>

An erstwhile Athenian ally, Megara had defected from the Athenian alliance system near the end of the First Peloponnesian War, which was stopped in 446BCE. Athens and Sparta had constructed a treaty system, under which both their alliance blocs were recognised as legitimate, and each side committed to dispute arbitration.<sup>7</sup> However, by the late 430s, tensions had escalated. Athens intervened against Corinth, Sparta's increasingly powerful Peloponnesian ally, on behalf of Corcyra, an erstwhile Corinthian colony on modern-day Corfu, in part to maintain a favourable naval balance.<sup>8</sup> Megara had intervened alongside Corinth, now Athens' open enemy after the confrontation over Corcyra: Corinth clearly aspired to overturn the western Greek naval balance in the Corinthian Gulf, thereby jeopardising Athenian naval mastery and control of trans-Hellenic trade.

Athens and Corinth already hurtled towards confrontation. Depending upon historical chronology, the two sides had begun to fight in Chalcedonia, a secondary theatre in northeastern Greece. Nevertheless, Sparta and Athens had yet to fight directly. Like during the Korean War, the two great-power coalitions approached open combat, but as of yet, the conflict was restricted to a major power, Athens/America, and a relevant minor power coalition member, Corinth/China.

Pericles likely understood the scale of the confrontation that another Spartan-Athenian war would initiate. Their opposing alliance systems would draw in all of Greece, while their respective resources guaranteed a long conflict. However, Athens could not back down from its war with Corinth, itself a difficult ally for a conservative, agrarian Sparta to manage.

Periclean Athens used economic diplomacy as a signalling tool.<sup>9</sup> Economic sanctions had never occurred in Greek history, but Athens could enforce sanctions given its naval power. Hence Athens banned all Megaraian merchants and ships from Athenian-controlled ports – given the Athenian Empire's scope in the Aegean, this amounted to a complete halt of all Megarian maritime trade. This did not, however, violate the Athenian-Spartan Treaty of 446, considering Sparta's unique alliance system.<sup>10</sup> Corinth and Athens had fought each other, but neither could be deemed the legal aggressor, explaining Sparta's ability to maintain the peace.

5. Vasilis Trigkas, "US-China-Japan: Beware the 'Megarian Trap,'" *The Diplomat*, 4 October 2014, accessed via: [link](#).

6. Donald Kagan, *On the Origins of War and the Preservation of Peace* (New York: Doubleday, 1995), 30.

7. *Ibid.*, 32.

8. Thucydides, *History of the Peloponnesian War*, Thomas Hobbes (trans), I:24-31.

9. Kagan, *Origins of War*, 60, 166.

10. Paul A Rahe, *The Spartan Regime: Its Character, Origins, and Grand Strategy* (London: Yale University Press, 2016), 116-120.

Megara, again a particularly emotionally relevant city for Athenian policy, was strategically located, particularly for Corinthian commerce – Megarian traders could no longer carry goods from Attica to Corinth farther south, nor would Athenian traders appear in Corinth or Megara.<sup>11</sup> Nevertheless, the Megarian Decree did not break the peace: Athens had not been the aggressor in any confrontation with a Spartan ally.

The issue with this carefully-calibrated signalling mechanism is that events often outpace the best intentions. Economic statecraft is blunt. The Megarian Decree certainly damaged Spartan allies, and the situation had already spiralled into a major military confrontation. Although according to our account of the conflict, one of Sparta's two kings, Archidamus, cautioned for moderation and restraint, partly for prudential reasons, Peloponnesian League still agreed to war.

The UK has far less relative power today than Athens did in the 5<sup>th</sup> century BCE. Nevertheless, there is a consistent temptation to replace sharp elements of statecraft – those military-technical responses that are decisive yet difficult and bloody – with softer economic tools that signal carefully but achieve the same objectives. From our earliest analysis of economic statecraft, however, we must recognise that it is nearly impossible to target and manipulate an economic tool and transform it into a pointed, precise signalling mechanism. Moreover, the UK has a long history of Athenian-type international supply chain control via the Royal Navy's presence in multiple international chokepoints. This creates at least the intellectual opportunity for a legitimate supply chain policy.

Despite its blunt nature as an international tool, trade policy broadly writ, and supply chain policy in particular, is an inextricable element of grand strategy.<sup>12</sup> Trade policy and economic statecraft have a long history. The UK has often turned to economic instruments rather than strictly political-military ones in its strategy making.<sup>13</sup> This is natural for an insular power. It views inbound trade as a crucial security priority. Historically speaking, its colonial-imperial network gave it significant global economic leverage. Indeed, in one manner, British grand strategy from the early 18<sup>th</sup> century to 1914 was a supply chain strategy. British control of North America afforded it significant timber, foodstuffs, cotton, and other goods for export. The UK's subsequent conquest of India, even after the loss of North America, provided it with a dominating position in global trade, and a significant consumer market for British goods.<sup>14</sup> In turn, the British-backed coalition's victory over Napoleonic France stemmed from its ability to regulate international trade. France and the UK developed competing supply chain networks, the UK through its global empire, France through the *bloc continental*. Technological dynamics naturally concentrated production, preventing a truly globalised supply chain system. Nevertheless, coherent diplomacy, expressed through the UK's consistent trade with Spain and Russia, forced France to resolve the issue by force, triggering both the Spanish and, in time, Russian invasions

12. David A Baldwin, *Economic Statecraft*, New Edition (Oxford: Princeton University Press, 2020), 39-42.

13. Aaron L Friedberg, *The Weary Titan: Britain and the Experience of Relative Decline, 1895-1905* (Princeton: Princeton University Press, 1988), 65-66.

14. *Ibid.*, 219.

11. SN Jaffe, *Thucydides on the Outbreak of War: Character and Context* (Oxford: Oxford University Press, 2017), 61, 182.

that undermined the French Empire.

The UK has, however, generally lost a strategic understanding of trade, economic, and supply chain policy. This stemmed from three sources. First, the UK post-1945, and particularly post-1956, was no longer a great power.<sup>15</sup> The then newly-instituted US-centric global economic system, the “Washington Consensus”, tilted the macroeconomic balance away from the UK. Second, Western Europe rapidly coalesced into a strategic-economic bloc that *excluded the UK*.<sup>16</sup> The Western European Union, and more crucially the European Coal and Steel Commission, benefited the West in its struggle with the Soviet Union. But they also created a bloc large enough to out-compete the UK, which occurred steadily and almost inexorably between the 1950s and 1979. Third, after the Soviet Union’s collapse, economic statecraft and attentiveness to supply and value chains appeared to become *irrelevant*, at least as traditionally conceived.<sup>17</sup> The goal of economic statecraft was not to ensure national power *per se*. Indeed, it need not even be actively cultivated. Rather, economic statecraft, and strategy in general, required only the expansion of international trade by *any means and in any context*. Ironically, the offshoring of any industrial capacity and the complete lack of attention paid to supply chains was viewed as a prudent strategic choice, one that would over time ameliorate China’s bellicosity and Maoist-autarkic proclivities, not an erosion of national power.<sup>18</sup>

The structured study of international events recognises the mutual interactions that define any crisis. An initial inciting incident, a signal that a crisis impends, may stem overwhelmingly from an individual state. However, as a crisis accelerates, action and reaction become blurred. Japanese aggression was clear from 1937 onwards. But in 1941, the final American reaction to that aggression – the US total embargo, conducted with British and Dutch support – sparked a war scare in the United States military. Crises have second and third-order effects that are played out over time. A British supply chain policy must recognise this, and in-build a variety of forecasting and assessment mechanisms to ensure its long-term effectiveness.

## 1.2: Supply Chains in Contemporary Eurasian Context

Resurrecting a strategic understanding of trade policy, which in turn requires improving British supply chain security and resilience, requires focusing very specifically on the threat at hand. Indeed, the supply chain question is only one small part of a much broader puzzle, one that begins and ends with China’s role in the international system.<sup>19</sup>

The British policy community has belatedly recognised the stresses of the surrounding world.<sup>20</sup> The 2021 Integrated Review and its 2023 Refresh were reasonable starts at this, but its authors remained constrained by their specific political circumstances, and overlooked Europe’s centrality to core national interests.<sup>21</sup> Written and published during the height of the COVID-19 pandemic, the Integrated Review was fixated upon general uncertainty, what might be termed “Black Swan” events like COVID-19

15. Henry Kissinger, *Diplomacy* (New York: Simon and Schuster, 1994), 548.

16. Irwin Wall, “France in the Cold War”, *Journal of European Studies*, 38:2 (2008), 122-130.

17. Robert D Blackwill and Jennifer M Harris, “The Lost Art of Economic Statecraft: Restoring an American Tradition”, *Foreign Affairs*, 95:2 (March/April 2016), 106-107.

18. Aaron Friedberg, *A Contest for Supremacy: China, America, and the Struggle for Mastery in Asia* (London: WW Norton, 2011), 91-95. This was a trans-partisan phenomenon. Prior to the 11 September Attacks, George W Bush sought to orient his administration around great-power competition, rhetorically in a similar manner to that of the Trump administration 16 years later. However, on China policy, Bush’s foreign policy agenda self-admittedly retained the Clinton administration’s economic emphasis. See “Bush lays out foreign policy vision”, CNN, 19 November 1999, accessed via: [link](#).

19. Aaron Friedberg, “Competing with China”, *Survival*, 60:3 (2018), 9-15.

20. Tom McTague, “Why Britain Changed Its China Stance”, *The Atlantic*, 2 August 2022, accessed via: [link](#).

21. The Integrated Review’s Recommendation 8 in its “Overview” section demonstrates the balancing act the document’s authors had to employ (page 22).

that can upend an international system and trigger political-economic ripple effects derailing supply chains and traditional commerce. There was some recognition of the threats that China and its fellow-travellers, Russia included, posed to the UK and its preferred international system in the long-term.<sup>22</sup> However, for a variety of reasons, the Integrated Review did not argue directly that the UK's political, strategic, and economic future will be determined by the *active contest for Eurasia*.<sup>23</sup>

The Integrated Review Refresh (IRR) still held resilience at its heart.<sup>24</sup> But it has also sharpened the focus on Eurasian contestation, leading to a coherent, well-argued framework for British foreign and defence policy. Indeed, the IRR's Atlantic-Pacific framing is essentially an admission of the Eurasian context for strategic competition.<sup>25</sup> More critically, the IRR also noted the international system's transition to multipolarity, a central factor that explains accelerating deglobalisation.<sup>26</sup>

The new government has pledged to return to the SDR format of the pre-Johnson era. This offers an opportunity to reconceptualise strategic risk, while also using these documents as launchpads for more structured intellectual thinking on British strategy. Above all, the document presents the opportunity to link, via a coherent supply chain policy, the UK's economic strategy – Chancellor Rachel Reeves' "Securonomics" mantra – to the geopolitically febrile landscape.

There are two specific strategic questions that intersect most clearly with supply chains, a *general structural threat* from a rising and bellicose China, and a *specific threat* from an assertive Russia and the knock-on effects of the Ukraine War.<sup>27</sup> The below explicates the questions of supply chains in the broader geopolitical environment the UK faces today.

### 1.3: The China Question

The China question dominates Eurasian geopolitics, hence the UK's strategic understanding of the supply chain challenge, as an outgrowth of geopolitics writ large, should begin with the China question. The UK has identified China as a "systemic challenge" to British interests and values.<sup>28</sup> While Labour's China policy remains nascent, it is likely to remain somewhat sceptical of broader engagement. Under Labour, and its billed China audit,<sup>29</sup> there is a welcome opportunity to understand the nature of the China challenge, its linkage with macroeconomic questions, and the specific problem that the UK must solve in policy terms.

#### The Eurasian Security System's British Heritage

The Eurasian security system is itself an outgrowth of the system the UK created in the 19<sup>th</sup> century, one that preserved British primacy by ensuring the UK's control of Eurasia's littorals, and thereby Eurasian trade. The modern Eurasian security system rests upon a similar premise: the free flow of international trade between both of Eurasia's halves, and also from the Americas and major Eurasian littoral groupings to Eurasia itself. A coalition of insular and peninsular powers throughout

22. *Integrated Review*, 18.

23. Hal Brands, "The Eurasian Nightmare: Chinese-Russian Convergence and the Future of American Order", *Foreign Affairs*, 25 February 2022, accessed via: [link](#).

24. For a perspective dedicated to resilience specifically, see Frances Z. Brown, "Governance for Resilience: How Can States Prepare for the Next Crisis?" *Carnegie Endowment for International Peace* (Working Paper), May 2022, 1-2.

25. *Integrated Review Refresh*, March 2022, 9.

26. *Ibid.*, 7, 16, 19-58.

27. *Ibid.*, 16, 31, 45.

28. *Ibid.*, 6; Jessica Elgot, "Rishi Sunak calls China 'systemic challenge', in sign of softer UK stance", *The Guardian*, 15 November 2022, accessed via: [link](#).

29. Interview with Jonathan Ashworth, Youtube, Labour would have 'audit' of UK-China relations if elected, *Sky News*, 8 May 2024, accessed via: [link](#).

the Eurasian littorals supports this system. Alongside the UK stand the European powers up to the Russian sphere of influence, a variety of insular and semi-insular Asian powers – namely Japan, Australia, New Zealand, and South Korea – and most crucially, the United States, an insular power, and because of this a power with a thorough interest in Eurasian affairs.<sup>30</sup>

Prior to 1991, this system was *defensively designed*, that is, constructed to maintain Western economic stability. The primary objective of this Anglo-American backed economic-security system was to isolate the Soviet Union and its allies and satellites, while ensuring that the rest of Eurasia and the Americas could leverage the power of international trade to improve their living standards, and thereby cultivate the resources needed to compete and ultimately overwhelm the Soviet system.<sup>31</sup> After 1991, a largely conscious choice was made to integrate any state that sought access into the West's Eurasian economic system into it with only limited questions, because of the conviction that, over time, commercial contacts would intertwine the interests of erstwhile aggressive powers. The argument for “engagement” in every context, whether Russia, China, Iran, Cuba, North Korea, or elsewhere, stems from this viewpoint.<sup>32</sup>

The PRC under Xi Jinping has made its international designs clear. China seeks to revise the current Eurasian security system for myriad, complex, and intersecting reasons.<sup>33</sup> China's domestic interest speak against global economic integration on the West's terms.<sup>34</sup> Despite the financial benefits that Chinese economic integration has provided the CCP, the Party cannot risk significant exposure to a major macroeconomic shock.<sup>35</sup> Cutting itself off from the world once again, however, at least in economic terms as in the 1950s and 1960s, is essentially impossible. Hence it is necessary in some way to reorganise the surrounding world in the CCP's favour, ensuring the CCP's long-term viability.

China's decision-making system is relatively concentrated, enabling rapid changes in policy after long periods of policy stability.<sup>36</sup> The result, despite China's bureaucratic character, can be unexpected policy upsets.<sup>37</sup> This generates obvious risk of confrontation, considering Chinese rhetoric,<sup>38</sup> American commitments in Asia, and the linkages between Xi's China and Putin's Russia throughout the Ukraine War.<sup>39</sup> Russian leverage, meanwhile, is decreasing as the Kremlin continues a fruitless war of conquest in eastern Europe.<sup>40</sup> In this context, the Sino-Russian relationship is clearly concerning.<sup>41</sup>

The Eurasian situation is volatile, with a growing possibility of major conflict, or at minimum long-term standoffs between the US-UK-European-East Asian bloc and China and Russia. If the worst occurred in Asia, the UK would abide by American retaliatory sanctions, and possibly impose sanctions of its own. This would, however, severely restrict its ability to do business in a variety of contexts. It is also unclear how the European powers would react to this action, and whether or not some would seek ways to continue trading with China and preserve their supply

33. HR McMaster, “How China Sees the World”, *The Atlantic* (May 2020), accessed via: [link](#).
34. Cai Xia, “The Weakness of Xi Jinping”, *Foreign Affairs* (September/October 2022), accessed via: [link](#).
35. Aaron Friedberg, “Globalisation and Chinese Grand Strategy”, *Survival*, 60:1 (2018), 26-28.
36. “Xi Jinping is rewriting history to justify his rule for years to come”, *The Economist*, 6 November 2021, accessed via: [link](#).
37. Richard C. Bush, Diana Fu, Ryan Hass, Patricia M. Kim, and Cheng Li, “Around the Halls: The outcomes of China's 20th Party Congress”, *Brookings*, 25 October 2022, accessed via: [link](#). See also Helen Davidson, “Was Hu Jintao's removal from China's 20th party congress suspicious or not?” *The Guardian*, 28 October 2022, accessed via: [link](#).
38. Xi has instructed the PLA to prepare for war several times in the past six months. See Verna Yu, “Xi Jinping tells China's army to focus on preparation for war”, *The Guardian*, 9 November 2022, accessed via: [link](#); John Pomfret and Matt Pottinger, “Xi Jinping Says He Is Preparing China for War”, *Foreign Affairs*, 29 March 2023, accessed via: [link](#).
39. For example, see Zhuoran Li, The CCP's Changing Understanding of the Soviet Union's Collapse, *The Diplomat*, 8 October 2022, accessed via: <https://thediplomat.com/2022/10/the-ccps-changing-understanding-of-the-soviet-unions-collapse/>. See also Jamie Dettimer, “Why Putin could forgive Yeltsin but not Gorbachev”, *Politico*, 2 September 2022, accessed via: [link](#); Kat-suji Nakazawa, “Xi's Gorbachev obsession put China on a Soviet path”, 30 July 2020, accessed via: [link](#).
40. Jonathan Landay, U.S. intelligence assesses Ukraine war has cost Russia 315,000 casualties – source, *Reuters*, 12 December 2023, accessed via: [link](#).
41. Lily McElwee, Maria Snegovaya, Alexandra Chopenko, and Tina Dolbaia, “Xi Goes to Moscow: A Marriage of Inconvenience?” *CSIS*, 28 March 2023, accessed via: [link](#). See also “Joint Statement of the Russian Federation and the People's Republic of China on the International Relations Entering a New Era and the Global Sustainable Development”, *Kremlin.RU*, 4 February 2022, accessed via: [link](#).
30. Alfred Thayer Mahan, *The Problem of Asia and Its Effect upon International Policies* (Boston: Little Brown, 1900), 64-69.
31. Marc Trachtenberg, “Assessing Soviet Economic Performance During the Cold War: A Failure of Intelligence?” *Texas National Security Review*, 1:2 (March 2018), 77-80.
32. The argument was encapsulated best in Joseph Nye's “Soft Power” thesis. See Joseph Nye, *Soft Power: The Means to Success in World Politics* (New York: Public Affairs, 2004).

chains.

While the most frightening scenario is naturally a major war, equally relevant would be a sub-threshold crisis that both triggers international decoupling and disrupts global shipping flows, which it could do through pressure on Taiwan's outline islands, or a blockade.<sup>42</sup> In almost any scenario, the US, Taiwan, and other East Asian states will face intense pressure to apply sanctions or use force, with obvious risks to the UK. The worst-case scenario, a major-power war, would trigger a global economic meltdown, especially since the US would likely rely on economic countermeasures as much as military ones.<sup>43</sup>

Moreover, the outsized impact which sporadic and relatively unsuccessful Houthi attacks on container vessels in the Red Sea, had on shipping indicates the extreme sensitivity of global maritime channels to even minor disruption. The Taiwan Strait's disruption would have an even greater impact.

The point here is to demonstrate the level of risk that the UK faces. The question to British supply chains is not one of abstract resilience, but of concrete potential Eurasian crises and wars. The potential for a Sino-American clash, economic or military, must be foregrounded in any policy response.<sup>44</sup>

## 1.4: The Russia Question

The Russian challenge is qualitatively distinct from the China challenge and has a rather different impact upon supply questions. Russia is not a globally dominant economic force. But it does hold a major stake in global energy and food production.<sup>45</sup> Russia is the world's largest oil and second-largest crude oil exporter, the world's largest wheat exporter, and a leader in various crops, foodstuffs, and fertilizer products.<sup>46</sup>

Russia's political-economic model requires industrial centralisation to enable kleptocracy,<sup>47</sup> which Vladimir Putin has solidified and expanded since gaining power in 2000,<sup>48</sup> and intensified after 2014. This dynamic, however, is structurally inefficient and demands significant protections from competition and thorough linkages with the global economic system.<sup>49</sup> Hence Russia's desire to narrow and monopolise aspects of global supply chains to ensure the survival of the Kremlin's patrimonial system.

The invasion of Ukraine has modified the long-term development of energy supply chains, creating a dilemma for British policy, given the war is largely open-ended.<sup>50</sup> Even formal negotiations, a possibility in late 2024-2025, but even then, Russian disruption attempts are likely to continue.<sup>51</sup>

The open-ended Ukraine War will include sustained economic pressure against the West, and general supply disruption. Russia continues to manipulate global energy prices, pressure Western communications cables, and use gas flows as leverage.<sup>52</sup> More generally, there will be additional geopolitical disruption as other events compound, as the October 2023-present Middle East crisis demonstrates. Other crises are possible, including Turkish disruption in Syria,<sup>53</sup> or more Libyan instability. Clearly, the Ukraine War has multiple

42. Chris Dougherty, Jennie Matuschak, and Ripley Hunter, "The Poison Frog Strategy: Preventing a Chinese Fait Accompli Against Taiwanese Islands", *Center for a New American Security*, 26 October 2021, accessed via: [link](#).

43. Jude Blanchette, "'Reunification' with Taiwan through Force Would Be a Pyrrhic Victory for China", *CSIS*, 22 November 2022, accessed via: [link](#).

44. The previous government's response was, generally speaking, lacking in focus. See "Our position on China: Foreign Secretary's 2023 Mansion House speech", *UKFCDO*, 25 April 2023, accessed via: [link](#).

45. See "Our World In Data", figures as of 2019: [link](#).

46. *Ibid.*

47. Stanislav Markus, "The Atlas That has Not Shrugged: Why Russia's Oligarchs are an Unlikely Force for Change", *Daedalus*, 146:2 (Spring 2017), 102.

48. The phenomenon was noticeable by the late 2000s. See Daniel Treisman, "Putin's Silovarchs", *Orbis*, 51:1 (Winter 2007), 141-153; Natalia Zubarevich, "Four Russias and a New Political Reality". In Leon Aron (ed), *Putin's Russia: How It Rose, How It Is Maintained, and How it Might End* (American Enterprise Institute, May 2015), 28-30.

49. See Sam Greene and Graeme Robertson, *Putin vs the People: The Perilous Politics of a Divided Russia* (London: Yale University Press, 2019).

50. Steven Pifer, "The Russia-Ukraine war and its ramifications for Russia", *Brookings*, 8 December 2022, accessed via: [link](#).

51. Nicholas Camut, "Russia rejects Biden's conditions for Ukraine talks", *Politico*, 2 December 2022, accessed via: [link](#). See Frederick Kagan, "The New Russian Offensive Is Intended to Project Power It Cannot Sustain", *Time*, 6 June 2022, accessed via: [link](#). Jeffrey Sonnenfeld, "While Putin doubles down in Ukraine, his gas gambit is failing", *Financial Times*, 10 October 2022, accessed via: [link](#).

52. Natalia Drozdiak, Anna Shiryayevskaya, and Todd Gillespie, "Where European Energy Infrastructure Is Vulnerable to Attack", *Bloomberg*, 17 November 2022, accessed via: [link](#). See also Harry Halem and Marcus Solarz-Hendriks, *From Space to Seabed* (Policy Exchange, February 2024).

53. Zvi Bar'el, "What Will Stop the Countdown to Turkey's Major Invasion of Syria?", *Haaretz*, 11 December 2022, accessed via: [link](#).

knock-on effects that can further destabilise international supply chains, startle energy markets, and undermine global macroeconomic stability.<sup>54</sup>

This has triggered a reorientation of Western energy supply chains. It is abundantly clear that relying on hostile authoritarian powers for critical supply chain elements is dangerous. Hence the US, UK, and Europe have begun to modify their supply chains, cutting their reliance on Russian oil and gas and investing in renewables. The political situation undermines the likelihood of an energy “reset” between Russia and the West.<sup>55</sup> There will be no return to a pre-24 February 2022 ‘normal’. This is true even if negotiations begin in the next six months, since the US in particular would decrease its leverage by unwinding a variety of restrictions too rapidly.

However, energy supply reorientations have been disruptive to European political economy. The EU created a situation within which Western Europe’s major industries could survive off cheap Russian oil and gas.<sup>56</sup> Energy price spikes, along with the US’ supply chain policy on “green” technologies, may have a rapid, deleterious impact upon this political-economic model,<sup>57</sup> just as other financial shocks occur.<sup>58</sup> Europe is developing solutions, but the UK must recognise that European policy development, considering the scale of the problem, will take time.

The trouble is, the US and EU have begun an economic standoff, which will come to a head in the next 18 months as the Second Trump administration articulates a more muscular trade policy. This is principally due to American domestic demands given the role of agriculture in the US economy and broader structural shifts towards protectionism. But it still raises the possibility that the UK slips through the cracks. Europe and the US are large enough to survive friction and transition – the UK has leverage points, but its market size is far more limited. The Russia question has thus intensified a broader set of economic frictions, which the UK is not yet equipped to navigate.

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54. “Global food crisis: The ripple effects of the war in Ukraine on the Horn of Africa”, *SIPRI*, 12 October 2022, accessed via: [link](#).

55. Sergey Vakulenko, “Shock and Awe: Who Attacked the Nord Stream Pipelines?” *Carnegie Endowment for International Peace*, 30 September 2022, accessed via: [link](#).

56. Anke Schmidt-Felzmann, “Between Geopolitics and Market Rules: The EU’s Energy Interdependence with Russia”. In Kristi Raik and András Rác (eds), *Post-Crimea Shift in EU-Russia Relations: From Fostering Interdependence to Managing Vulnerabilities* (International Centre for Defence and Security, 2019), 142-150.

57. Barbara Moens, Jakob Hanke Vela, and Jacopo Barigazzi, “Europe accuses US of profiting from war”, *Politico*, 24 November 2022, accessed via: [link](#). “Energy crisis poses threat to Europe’s industrial sector”, *UN ESA*, 2 December 2022, accessed via: [link](#).

58. Foo Yun Chee, “UBS gets temporary EU green light for Credit Suisse deal, pending review”, *Reuters*, 4 April 2023, accessed via: [link](#).

## 2: The Strategic Relevance of Supply Chains

Understanding our current supply chain predicaments requires an assessment of the historical expansion of globalised supply chains, and understanding both their general vulnerability to systemic shocks and their specific vulnerability to disruption during great-power conflict. The scale of the problem, along with a variety of political and economic policymaking constraints, speaks against a comprehensive re-shoring of British industry. However, considering the threat of sustained supply chain disruption, we may identify several strategic priorities the UK can take to mitigate supply stress.

### The First Wave of Globalisation

Globalisation and industrialisation in large part stemmed from the increased sophistication of supply chains. Pre-industrial “supply chains” were informal and local.<sup>59</sup> Although the town marketplace in early modern Europe began to change this, trans-Eurasian trade expanded, and inter-hemispheric colonisation identified new resources, the majority of transported goods remained unfinished raw materials, rather than complex manufactured products. The one exception to this was the production of rum – enslaved Africans were transported to the West Indies to grow sugar cane, a plant of Indian origin, which was then distilled in North America and exported to Europe.<sup>60</sup> Generally speaking, even as production expanded, it remained regional in character.

This changed in the mid-19<sup>th</sup> century as the modern bureaucratic state increased in power. In the UK, the watershed moment was in transportation with the creation of the Manchester-Liverpool railway.<sup>61</sup> Manchester, one of the UK’s industrial hubs, now had a direct export route to Liverpool, the UK’s fastest growing and soon to be most advanced port. This, along with the UK’s desire for a deregulated railway system, triggered British “Railway Mania”, a ten-year stock market bubble accelerated by active parliamentary collusion, but that nevertheless expanded the UK’s railway system more rapidly than its European counterpart.<sup>62</sup> However, the UK’s early advantage eroded by the late 19<sup>th</sup> century. The European powers developed a less comprehensive but more modern railway network with significant state support. The US followed suit, opening the first Transcontinental Railroad in 1869.

59. “The history of supply chains in manufacturing”, *Tidy International*, 3 December 2021, accessed via: [link](#).

60. Sanjeev Sanyal, “A Brief History of Supply Chains”, *The Globalist*, 22 March 2012, accessed via: [link](#).

61. “First in the World: The Making of the Liverpool and Manchester Railway”, *Science and Industry Museum*, 20 December 2018, accessed via: [link](#).

62. The precise nature of the industrial revolution in the UK is still under economic debate. See Peter Temin, “Two Views of the British Industrial Revolution”, *The Journal of Economic History*, 57:1 (March 1997), 74-79.



Rail transport, electrification, improved communications, steam and coal power, and state consolidation all enabled the first era of globalisation. Globalised supply chains, particularly for food and other middle class consumer goods, regularised prices between states and even continents. Supply and production systems also expanded, creating a regionalised supply chain centred on the US, UK, and Germany.<sup>63</sup> If combined, these three powers formed the heart of the global economy, with their cumulative coal and steel production and mutual exports.

## 2.1: The Current Situation

Three factors define the modern supply chain system.

First, improvements in communications technology and computing have allowed for the more accurate distribution of supply chains. This began long before the internet, wireless communications, and the modern Machine Learning and Artificial Intelligence algorithms that now dominate supply chain management and industrial-economic planning. Indeed, even simple advances in computing and processing power streamlined production, reduced overhead costs, and enabled the identification of productive issues. Modern technology simply supercharged an extant process: rather than simply facilitating increased managerial efficiency, non-human processes identify supply issues and remedy them more rapidly.

Second, as advanced prediction technologies and tracking systems improved, a new logistical model became common – the Just-in-Time logistical system that now dominates modern production. Previously, employers would schedule bulk orders of a variety of goods and sub-components, holding large-scale inventories and drawing them down over time. This was prudent in a situation during which productive processes had uncertain timelines and no serious demand forecasting systems existed that could capture complex consumer dynamics. However, once demand became easier to identify and predict, and logistical networks more comprehensive, Just-in-Time logistics became possible.<sup>64</sup> The Just-in-Time system employs demand forecasting and assessments of production capacity to identify precisely what a producer requires, and then order only that amount of goods or sub-components. This almost eliminates the need for large inventory, and the attendant costs an inventory holding area implies.<sup>65</sup>

Third, and equally crucially, modern supply chain internationalisation rested upon the expansion of the global economy to include China.<sup>66</sup> The collapse of Bretton-Woods enabled a distributed financial system, of which London reaped a windfall profit and became a global financial hub. In turn, Sino-American normalisation, and then the Cold War's denouement, led to progressive Chinese integration into the global economy.<sup>67</sup> Initially, China served as a low-cost producer: the Western middle class was more than happy to purchase high-volume Chinese goods. An increasingly entrenched American China lobby, along with an American conviction in

64. The JIT system became increasingly dominant by the early 2000s. See Jan Ohlager, "Supply chain management: a just-in-time perspective", *Production Planning and Control*, 13:8 (2002), 681-684.

65. Eoin McSweeney, "Europe's carmakers keep faith in 'just-in-time' supply", *Financial Times*, 24 March 2021, accessed via: [link](#).

66. Alicia García-Herrero, "Companies must move supply chains further from China", *Nikkei Asian Review*, 28 February 2020, accessed via: [link](#).

67. Niall Ferguson and Moritz Schularick, "The End of Chimerica", *Harvard Business School* (Working Paper 10-037, October 2009), 2.

63. Peter Vanham, "A brief history of globalization", *World Economic Forum*, 17 January 2019, accessed via: [link](#).

the “end of history” that Europe bolstered, allowed China to join crucial international economic and financial institutions. Chinese exports grew by 13 times between 1999 and 2019.<sup>68</sup> China’s domination of low-level global manufacturing, followed by progressive Chinese improvements in technical production and widespread technology theft, have tilted a significant proportion of global supply chains towards China.<sup>69</sup>

### The First World War and Supply Chains

The First World War interrupted the globalised commercial system. International trade contracted by a quarter in 1914-1915 – although it nominally rebounded in 1916, much of the recovery stemmed from military exports, not actual economic productivity or consumption.<sup>70</sup> Naturally, the Russian and Austro-Hungarian empires’ collapse further complicated international trade. Imperial Russia was a crucial member of the global economic system, albeit a largely pre-industrial, agrarian member. Soviet attempted autarky removed Russia from the global macroeconomy with expected effects on trade.<sup>71</sup> Moreover, Russian and Austro-Hungarian collapse created a number of new states, each of which imposed a customs border and tariffs upon international goods. This eliminated nascent central and southeastern European supply networks that had developed from the mid-1800s.<sup>72</sup>

Paradoxically, however, the First World War enabled the long-run globalisation of supply chains, even if its macroeconomic effects were still not fully apparent as late as the 1980s.<sup>73</sup> Two factors explain this. First, global conflict created market opportunities for non-European firms. The European powers were exhausted – even the UK, with the war’s lowest relative casualty count of the major European combatants, experienced a sustained real GDP contraction in the 1920s – and Germany, Europe’s premier industrial force, was largely removed from the market.<sup>74</sup> The US and Japan, by contrast, were essentially economically insulated from the First World War: although both states had economic contractions, neither was in serious macroeconomic danger. Hence American and Japanese firms occupied market positions that the Europeans vacated, particularly in Latin America and Asia. Second, and equally critically, the assembly line production model proliferated. Henry Ford introduced the first modern assembly line for the Model T automobile, cutting production time to slightly over 90 minutes. Mass production did define the First World War, as both the Allied and Central powers sought to expand their industrial capacity and produce the heavy military equipment required for modern combat.<sup>75</sup> Yet the centralised nature of a war economy did not permit the assembly line system to be used for civilian production until after 1918. By the mid-1920s, assembly lines transformed civilian production. An assembly line system allowed a specific factor to receive pre-fabricated sub-components that could then be fitted with other parts. This accelerated the internationalisation of supply systems.

68. OEC, China: Exports, accessed via: [link](#).

69. Evan Hanson, “Winning Without War: Chinese Supremacy in Global Supply Chains”, *The Strategy Bridge*, 29 June 2021, accessed via: [link](#).

70. David Jacks, “The First Great Trade Collapse: The Short- and Long-Run Effects of World War I on International Trade.” In Stephen Broadberry and Mark Harrison (eds), *The Economics of World War I: A Centennial Perspective*, (London: CEPR Press, 2018), 175-181.

71. Michael R Dohan, “The Economic Origins of Soviet Autarky 1927/28-1934”, *Slavic Review*, 35:4 (November 1976), 603-610.

72. Nikolaus Wolf, “European economic integration: Undoing 1914-1945”, *CEPR*, 29 May 2008, accessed via: [link](#).

73. David Jacks, “The First Great Trade Collapse”, 180.

74. *Ibid.*, 177.

75. Our current situation resembles that of 1914-16. See Alex Vershinin, “The Return of Industrial Warfare”, *RUSI*, 17 June 2022, accessed via: [link](#).

The UK's macroeconomic profile made it uniquely suited to a globalised economy with internationalised supply chains. Indeed, the UK has adapted its economy to the current situation almost without reservation, resulting in an extreme economic dependence on international supply chains. It is an island nation, and therefore trade dependent – the UK has a 60%-plus trade-to-GDP ratio, although proportionally its imports and exports are relatively even.<sup>76</sup>

Such a situation is tenable during periods of international stability, and without major disruptions to global shipping or productivity. However, as the past several years have demonstrated, there are ample opportunities for systemic disruption that can cause knock-on difficulties for the UK. The UK is not overwhelmingly reliant on any individual partner for the majority of its imports, although its largest trading partner is the EU. While a declining share, now around 40%, of British imports are EU-sourced, it has a relatively distributed trade balance. Nevertheless, a large enough shock makes a distributed supply chain irrelevant.<sup>77</sup>

Additionally, we must consider the sort of goods that the UK primarily exports. The UK does export a significant amount to the EU. However, around 70% of the UK's EU exports are *intermediate goods*, those products that are a component of a more complex final good.<sup>78</sup> Similarly, over half of the UK's imports from the EU are also intermediate goods. Hence the mutual disruption of supply chains is entirely conceivable during a large enough global crisis.

## 2.2: Strategic Relevance – Supply Shocks and COVID-19

A globalised supply chain provides undeniable benefits. It reduces costs, increases the variety of consumer goods, and enables far more market creativity and innovation than other supply systems. However, a globalised supply chain carries clear risks: either systemic risks from international shocks like COVID-19; or *spiralling regional risks* like that of the Ukraine War.

Between December 2019 and March 2020, COVID-19 prompted nearly every industrialised country to institute lockdowns, contracting GDP, while public benefits transfers sought to sustain demand.<sup>79</sup>

For the UK, although major food vendor supply chains were stressed, the British local food system was able to compensate for an import shortfall, staving off large-scale food shortages that disrupted daily life.<sup>80</sup> However, COVID-19 did demonstrate the difficulty of producing specific supplies during periods of international disruption. The primary pressure point in the UK system was Personal Protective Equipment (PPE), critical during the pandemic's initial phases.

During the Pandemic's first months, the UK had insufficient PPE to cover healthcare worker needs. It had a PPE stockpile, but not the specific sort of equipment needed to respond to COVID-19, leading to subsequent infections.<sup>81</sup> Production expansion was needed, but the PPE supply chain itself was internationalised and China-centric.<sup>82</sup> In response, the UK effectively re-shored much of its PPE supply chain by incentivising national producers to make up for impeded supply and created parallel

76. Data via World Bank, accessed via: [link](#).

77. This is down from 50% in 2021. Matthew Ward, "Statistics on UK-EU trade", *House of Commons Library*, 3 December 2021, 1-2.

78. Peter Levell, "Firms' supply chains form an important part of UK-EU trade: what does this mean for future trade policy?" *Institute for Fiscal Studies*, 8 January 2018, accessed via: [link](#).

79. Jennifer Summers, et. al., "Potential lessons from the Taiwan and New Zealand health responses to the COVID-19 pandemic", *The Lancet Regional Health – Western Pacific*, 4 (2020), accessed via: [link](#). "COVID-19 to slash global economic output by \$8.5 trillion over next two years", *UN Department of Economic and Social Affairs*, accessed via: [link](#).

80. "United Kingdom Food Security Report 2021: Theme 3: Food Supply Chain Resilience", *ONS*, last updated 3 December 2021, accessed via: [link](#).

81. The UK's PPE stockpile was twofold: a stockpile to prevent the spread of Ebola cases, with gear far too robust for COVID-19, and a stockpile to prevent influenza transmission, also improper for COVID-19. See "The supply of personal protective equipment (PPE) during the COVID-19 pandemic", *National Audit Office* 25 November 2020, 7.

82. Headlines like these dominated the early pandemic: David Oliver, "Lack of PPE betrays NHS clinical staff", *British Medical Journal*, 372 (2021), accessed via: [link](#). However, the PPE production expansion occurred. Victoria Rees, "UK set to produce 70 percent of PPE required domestically by December", *European Pharmaceutical Review*, 29 September 2020, accessed via: [link](#). Chad P Brown, "How COVID-19 Medical Supply Shortages Led to Extraordinary Trade and Industrial Policy", *Asian Economic Policy Review*, 17 (2022), 117-120.

procurement channels beyond the standard NHS supply chain service, a successful effort for a light industrial response, but one that speaks poorly of a heavier industrial crisis.

### Assessing Vulnerabilities – Medical Supplies

Medical supplies are crucial to national life. Naturally, those complex medicines and prescribable medications are relevant to tens of millions of British citizens. However, the basic, over-the-counter or freely-available medications like NSAIDs, aspirin-paracetamol combinations, and other day-to-day simple medications are extremely important elements of continuous care.<sup>83</sup>

Medical supply chains were once centralised near the major pharmaceutical companies, nearly all of which are American, British or European. Hence all medical production occurred in North America, Western Europe, and to a limited but still relevant degree Japan.<sup>84</sup> This has changed dramatically since the early 1990s. Chinese integration into the global economy generated a low-cost alternative for the production of Active Pharmaceutical Ingredients (APIs), that is, the actual compounds that make medicines work.<sup>85</sup> Indian economic liberalisation and growing Sino-Indian trade accelerated the shift in medical supplies. Today, apart from specific branded drugs that have unique regulatory requirements or are not produced at major scale, the vast majority of APIs – some 80% of them – are produced and packaged in China and India combined.<sup>86</sup> The UK may be home to world-leading pharmaceutical companies, but absent the prepared infrastructure to produce APIs domestically, an acute medical shortage is entirely foreseeable.

COVID-19 also demonstrated the general vulnerability of health supply chains, particularly for actual medical treatment items like vaccines. The UK has a world-leading medical establishment and research facilities, enabling rapid vaccine development and rollout.<sup>87</sup> Nevertheless, the UK lacked major in-country production facilities – and those produced in 2020-2022 were ultimately unused. Even top-end facilities like the Vaccine Manufacturing and Innovation Centre (VMIC) were ultimately sold off.<sup>88</sup> The VMIC case demonstrates the institutional realities that militate against a coherent supply chains policy: absent the obvious issue of a shortage, there was no desire to maintain a state-of-the-art facility.

The medicament supply chain is also vulnerable. Insofar as actual medicaments are concerned, China is a net importer, while the US and Germany are the world's leading medicament exporters. However, dependence upon China goes far deeper than just shelf-bound medicines. Hard numbers are difficult to identify, but the best estimates indicate some 40% of Active Pharmaceutical Ingredients within medical supplies are Chinese-produced. American-imported APIs are roughly 80% sourced from China and India.<sup>89</sup> National and EU pharmaceutical regulations before the COVID-19 Pandemic did force major producers to diversify API

87. "The story behind the Oxford-AstraZeneca COVID-19 vaccine success", *UK Research and Innovation*, last updated 30 November 2021, accessed via: [link](#). *Council for Science and Technology Letter on the UK as a Science and Technology Superpower*, 22 July 2021, accessed via: [link](#).

88. RE Glover, "Sale of UK's Vaccine Manufacturing and Innovation Centre", *British medical journal*, 23 February 2022, accessed via: [link](#).

89. In the 1990s, unsurprisingly, the US, Europe, and Japan produced around 90% of APIs. See "The great medicines migration", *Nikkei Asia*, 5 April 2022, accessed via: [link](#).

83. In the US, around 10% of all prescribed medications are NSAIDs. Supakanya Wongrakpanich, et. al., "A Comprehensive Review of Non-Steroidal Anti-Inflammatory Drug Use in The Elderly", *Ageing and Disease*, 9:1 (February 2018), accessed via: [link](#).

84. Japanese industry was particularly significant. Maki Umemura, "Globalization and Change in the Japanese Pharmaceutical Industry, 1990–2010". In Umemura and Rika Fujikoa (eds), *Comparative Responses to Globalization: Experiences of British and Japanese Enterprises* (Palgrave MacMillan, 2013), 204-210.

85. Della Wang, "The API industry in China: Producing and exporting to the global market", *Daxue Consulting*, 1 July 2020, accessed via: [link](#).

86. Rory Horner, "The world needs pharmaceuticals from China and India to beat coronavirus", *The Conversation*, 25 May 2020, accessed via: [link](#).

supply chains, creating duplicate capacity in the West. Yet mass-produced generic drugs, including anti-COVID treatments, generally rely upon the cheapest option, which is invariably Chinese-sourced.

### A Resurgent Trade Model

The Great Depression interrupted supply globalisation and destroyed international trade, with variety of tariff regimes preventing internationalised production. However, the Second World War expanded industrial capacity.<sup>90</sup> More specifically, it extended mass production throughout virtually every industry in the Western world. Naturally, mass bombardment and an industrial-targeted strategy did wipe out any productive gains that the German and Japanese war economies had accrued. Similarly, France's defeat in 1940 prevented French industrial production from having an impact, and the disruption the German attempted blockade of the UK caused undermined British industry. The US, by contrast, emerged entirely unscathed from the Second World War. It lost the lowest absolute and relative number and proportion of men compared to any other major power combatant, never received any direct damage to its industrial system, and was capable of mastering the U-Boat threat rapidly enough to prevent economic disruption.<sup>91</sup>

By the 1950s, three core elements of the international supply chain system were in place that internationalised the system:

- *Mechanised Ground Transport*: From the Ford Model T onwards, automobiles had become increasingly capable of delivering large quantities of goods to and from major factories. This reduced the need for factories to be directly along rail lines – automobiles were not efficient means of moving massive quantities of goods, but were reasonable to transport them for short distances. This increased the density of major industrial zones.
- *Standardised Transport Practices*: The Second World War placed extreme industrial demands upon civilian economies, particularly in the US, which served as the so-called Arsenal of Democracy, sustaining the Allies through five years of combat. This demanded, among other sorts of standardisation, uniform transport and packing practices for all manner of goods. Pallet standardisation in particular enabled a surge in post-war production.
- *Containerisation*: Although expanding railways and improved automobiles allowed factory-produced goods to move from inland facilities to global markets, maritime transport remained, and still remains, the most efficient way to move bulk goods. The development of standard shipping containers, and the design of merchant ships to accommodate large numbers of containers, expanded global transportation networks.

90. The point here is not that the Second World War "ended" the Great Depression, a proposition that retains considerable economic controversy and is beyond the scope of this study. Rather, it is that the Second World War, by demanding mass wartime production, paved the way for a global supply chain system.

91. Bryan Clark, Seth Cropsey, and Timothy Walton, "Sustaining the Undersea Advantage: Disrupting Anti-Submarine Warfare Using Autonomous Systems", *Hudson Institute* (September 2020), 20-22.

### 2.3: Strategic Relevance – Ukraine and Supply Shocks

COVID-19 demonstrated the dangers of a systemic shock to globalised supply chains. Conversely, the macroeconomic effects of the Russo-Ukrainian War have revealed the danger of nominally localised events to global supply chains and British domestic stability.

The UK and its NATO allies, along with Asian affiliates like Japan and Australia, imposed various sanctions, which did undermine the Russian economy, but also pressured the West.<sup>92</sup> Russian oil and gas imports accounted for around a third of pre-war Europe's total energy supply.<sup>93</sup> Legally speaking, the UK only relied upon Russian oil and gas for three percent of its energy supply.<sup>94</sup> Slightly under three-quarters of British inland energy is generated by oil or natural gas, with the remaining quarter comprised of bioenergy, nuclear power, and coal. However, the UK imports the plurality of its gas from Europe.<sup>95</sup> In turn, European energy markets are inextricably dependent upon Russian oil and natural gas.<sup>96</sup> Furthermore, general energy market volatility has also compounded price issues.<sup>97</sup> Thus, the UK was far from insulated against the systemic impact of Russia's now limited energy exports.

Food production was also disrupted. Russia and Ukraine combined produce the majority of global wheat, the overwhelming majority of sunflower oil, and a reasonable proportion of global fertiliser.<sup>98</sup> Therefore, the Russo-Ukrainian War, combined with rising energy costs due to the sanctions and Russian-imposed gas shortage, generated pressure on the British food supply.<sup>99</sup>

Combined, these supply chain stresses prompted skyrocketing UK inflation, with Consumer Price Index (CPI) rising above 10% in July 2022, and only falling below this mark in April 2023.<sup>100</sup> Due to its reliance on imports, the UK was particularly hit by high inflation: as of July 2022, British inflation was 10.1%, higher than the Euro area's 8.9% average.<sup>101</sup> Russia's gas weapon is blunt, and the growing reality of a global recession, alongside the Western sanctions regime, will damage the Russian, Western European, and Chinese economies alike.<sup>102</sup> Nevertheless, it is readily apparent that, given the globalisation of supply chains, a major macroeconomic shift naturally threatens British economic stability.

### 2.4: Strategic Relevance – Ukraine and Protectionism

The Ukraine War has a specific series of second-order effects on Euro-American relations with implications for British supply chain strategy.

Europe, and the UK, were entirely unprepared for the shift in energy supply that the Ukraine War generated.<sup>103</sup> Prior to 24 February 2022, the UK imported only four percent of its gas directly from Russia, along with nine percent of its oil and 27% of its coal.<sup>104</sup> However, reselling, the UK's lack of long-term contracts, and dependence on the EU's internal energy price, generated price pressure in 2022. In turn, Europe was immensely vulnerable, since Russian gas comprised 39% of the EU's imported total.<sup>105</sup> The EU also imported 23% of its oil and 46% of its coal from Russia. Germany in particular was in a poor position, having embraced

92. Jack Detsch, "Western Sanctions Are 'Beginning to Bite' Into Russia's Military", *Foreign Policy*, 12 May 2022, accessed via: [link](#).

93. Stefan Ellerbeck, "What progress is the EU making on ending its reliance on Russian energy?" *World Economic Forum*, 29 June 2022, accessed via: [link](#).

94. "Trends in UK imports and exports of fuels", ONS, 29 June 2022, accessed via: [link](#).

95. "UK Energy in Brief 2021", ONS, 29 July 2021, 11.

96. Douglas Broom, "What is the EU doing to end its reliance on Russian energy?", *World Economic Forum*, 26 April 2022, accessed via: [link](#).

97. "World Energy Investment 2022", *International Energy Agency*, June 2022, 9-12.

98. "Putin's War Should Change the Way the World Farms", *Bloomberg*, 21 July 2022, accessed via: [link](#).

99. Ashutosh Pandey, "How Russia's invasion of Ukraine rocked commodity markets", *DW*, 23 March 2022, accessed via: [link](#).

100. Office for National Statistics, "Consumer price inflation, UK: January 2024", accessed via: [link](#).

101. Philip Barrett, "How Food and Energy are Driving the Global Inflation Surge", *IMF*, 9 September 2022, accessed via: [link](#).

102. "The EU Is Getting Ready for a Prolonged Crisis: Energy Update", *Bloomberg*, 7 September 2022, accessed via: [link](#).

103. "Impact of Russia's invasion of Ukraine on the markets: EU response", *European Council*, accessed via: [link](#).

104. Paul Bolton, "Imports of Fossil Fuels from Russia", *House of Commons Research Briefing* 9523 (13 December 2022), 2.

105. Data from *Eurostat*, accessed via: [link](#).

NordStream and denuclearised: Russian gas comprised 55% of Germany's energy mix.<sup>106</sup>

### Assessing Vulnerabilities - Food

The UK has survived a food supply disruption in the past, most recently during the COVID-19 Pandemic, when smaller domestic British producers made up the UK's food deficit initially, once food supply chains uncoiled. A larger disruption, however, akin to what an Indo-Pacific confrontation would cause, would be far more problematic. The UK imports 46% of its food supply. The vast majority of UK food imports are European-sourced, with the US being the only exception. Two issues are relevant. First, although food supply chains have become more efficient over the past 20 years, they have also become far more brittle: Just-in-Time logistics and "lean-sourcing" is pervasive in the industry.<sup>107</sup> This leaves the British food supply vulnerable to disruption even though it is sourced primarily from Europe. Second, insofar as British producers can make up the gap, the UK requires fertiliser, and imports nearly 1.4 million metric tonnes of it.<sup>108</sup> The Ukraine War has demonstrated the dangers of geographically limited disruption on global food prices: absent sufficient fertiliser, it makes little difference whether the British food industry has locally-sourced alternatives for a variety of products, if they literally cannot be grown.<sup>109</sup>

American natural gas has helped make up the difference, but not without difficulty. LNG terminals have limited capacity and distribution – almost all are in France or Spain.<sup>110</sup> Moreover, the contract system incentivises arbitrage, generating a peak gap of up to 300%-plus between the TTF and Henry Hub rate.<sup>111</sup> Additionally, the EU never maintained a bloc-wide demand management policy, enabling intra-bloc competition and greater demand.<sup>112</sup>

The situation has stabilised since peak disruption in 2022-2023, but the experience demonstrates the potential for a major failure point to have knock-on effects.<sup>113</sup> Moreover, it intensified industrial policy divisions between the US and Europe. The US' Inflation Reduction Act, which provides significant state support for American renewable development through tax credits, and other regulatory benefits to wind and solar production, triggered a clear counter from the EU, especially once firms began leaving Europe during the 2022 energy crunch.<sup>114</sup> The US' CHIPS act, its semiconductor regulations on Chinese companies, has further fragmented an already fragile global semiconductor supply chain, with attendant costs on European producers. Alongside Europe's uncompetitive demographics, the impression – at the height of European anxieties – was one of impending disaster.

106. "Germany takes new steps to tackle the energy crisis", *World Economic Forum*, 24 August 2022, accessed via: [link](#).

110. See [link](#).

111. America Hernandez, "Why cheap US gas costs a fortune in Europe", *Politico*, 15 November 2022, accessed via: [link](#).

112. See TotalEnergies' 2023 LNG Strategy Outlook, accessed via: [link](#).

113. Andreas Exarheas, "Europe Rushing to Install New LNG Import Facilities", *RigZone*, 29 August 2022, accessed via: [link](#).

114. Aneta Zachová, "Companies switching from Europe to US amid high energy costs", *Euractiv*, 12 June 2023, accessed via: [link](#).

107. Philip Garnett, Bob Doherty and Tony Heron, "Vulnerability of the United Kingdom's food supply chains exposed by COVID-19", *Nature Food*, 1 (June 2020), 315-318.

108. Lucia Fernandez, "Agricultural fertilizer market in the UK - statistics & facts", *Statista*, 25 August 2022, accessed via: [link](#).

109. Farm labour would also be disrupted. See "Food Supply Chains and COVID-19: Impacts and Policy Lessons", *OECD* (2 June 2022) 3-4.

### Assessing Vulnerabilities - Manufacturing

While the UK's manufacturing dependence upon China, and Asian producers in general, constitutes an economic-strategic vulnerability, the sheer scale of the problem, and a limited labour force capable of populating a revitalised manufacturing sector, makes it unlikely that the UK can shift entire sectors. Nor is this necessary. Proper strategic planning alongside British allies and neighbours can reduce the need for independent UK capacity.

Yet a gap does remain. The UK has various manufacturing capabilities, albeit to a lesser degree than it did at the height of its industrial power, or during the mid-20<sup>th</sup> century before it embraced a financialised, services-based economy.<sup>115</sup> However, manufactured equipment and goods come from factories that require tools. And these tools require repair. The vulnerability, then, is that many of the tools necessary for British manufacturing and repair are either made in the PRC or depend upon crucial Asian-sourced components. Some corporations produce household appliances like washing machines, but many crucial products like power tools are largely Chinese sourced. The PRC controls 29% of the international machine tools market, and Japan 14% - a combined 42% cut due to conflict disruption, or even a lesser cut that included higher transport costs, would be severely dangerous for limited British manufacturing and repair capacities.<sup>116</sup>

Naturally, if a cross-strait conflict begins, the UK economy will rapidly slow down, tipping into a recession within weeks as prices rise, transport becomes difficult, shipping costs increase, and the general transport of goods is disrupted. The danger, however, is that absent proper preparation, a significant depression would be the least of British issues. If the UK lacks the ability to replace lost food, energy, transport, medical, and manufacturing/repair capabilities, the country is likely to shut down over several months. Transport will halt, food prices will grow, and repairs to broken machinery will become increasingly difficult.

Europe's response has been its own industrial policies, including the European Chips Act.<sup>117</sup> Europe will never overtake other semiconductor manufacturers, but it could command a reasonable global market share for chips, giving it some control over global supply chains. Meanwhile, the EU has introduced measures to mitigate the IRA's impact on EU firms, and is considering its own wider strategy to compete with the American clean energy subsidy regime.<sup>118</sup> US semiconductor export controls, fortunately, have not prompted a US-Europe rupture, but they have heightened Sino-American divisions.<sup>119</sup> Similarly, China's overtures towards Europe vis-a-vis the Ukraine War have not been answered positively, but absent broader economic and supply chain coordination, friction can accelerate enough to change the US-European relationship.<sup>120</sup> Beijing has also increased its high-profile diplomatic activities, including negotiating an agreement between Saudi Arabia and Iran, indicating its ambition.<sup>121</sup>

117. Paul Timmers, "How Europe aims to achieve strategic autonomy for semiconductors", *Brookings*, 9 August 2022, accessed via: [link](#).

118. European Parliament, EU's response to the US Inflation Reduction Act (IRA), 2 June 2023, accessed via: [link](#).

119. "PUBLIC INFORMATION ON EXPORT CONTROLS IMPOSED ON ADVANCED COMPUTING AND SEMICONDUCTOR MANUFACTURING ITEMS TO THE PEOPLE'S REPUBLIC OF CHINA (PRC)", *US Department of Commerce Bureau of Industry and Security*, 7 October 2022, accessed via: [link](#).

120. "China's Position on the Political Settlement of the Ukraine Crisis", *PRC Foreign Ministry*, 24 February 2023, accessed via: [link](#).

121. This will remain true even if a Yemeni peace deal is concluded, for the deal is unlikely to last. As of this writing, a peace deal seems possible, but by no means guaranteed. Sebastian Usher, "Yemen war: Saudi-Houthi talks bring hope of ceasefire", *BBC*, 10 April 2023, accessed via: [link](#).

115. 7.3% of the British workforce is employed in manufacturing, compared to 8.51% in the US. Georgina Hutton, "Manufacturing: Key Economic Indicators", *House of Commons Research Briefing*, 1 September 2022, accessed via: [link](#); "2019 United States Manufacturing Facts", *National Association of Manufacturing*, accessed via: [link](#).

116. Martin Placek, "Leading countries in machine tool production by market share 2020", *Statista*, 13 April 2022, accessed via: [link](#).



European actors have kept a line open to Beijing, as is prudent in the current Eurasian crisis. French President Emmanuel Macron in particular has linked China policy and broader competition to supply chains.<sup>122</sup> Hungarian Prime Minister Viktor Orbán refuses to be drawn into the fracturing geopolitical landscape between China and the US and its allies.<sup>123</sup> This is prudent, but without careful management, limited contact can easily expand into a broader rebalance.<sup>124</sup> Any rupture in the Transatlantic security system will include, and likely be presaged by, a series of economic shifts.

The UK lacks both a US free trade agreement or some sort of broader regulatory framework that places it inside US market restrictions. Meanwhile, full alignment with EU policies is politically and economically difficult after Brexit. Yet the UK risks being caught between the West's diverging economic blocks, unable to compete directly because of its relative market size, but also unable to avoid the impact of Euro-American competition. Absent a coherent policy that attempts to fit the US and Europe together within its own strategy, the UK will be in an extremely adverse strategic position.

Moreover, the Second Trump administration is bound to pursue a more forthright trade policy that at minimum threatens significant tariff application, even against traditionally close trade partners like the EU, Mexico, and Canada. The Government understands this already, as articulated in the Chancellor's Mansion House speech last year,<sup>125</sup> but this reality simply increases the need for the UK to pursue a clear, consistent policy that ensures it retains market access.

## 2.5: Strategic Relevance – Sino-American Confrontation

There are four sorts of dangers a confrontation between the world's two largest economies would cause to British supply chains.

First, a Sino-American confrontation involving political and economic sanctions would disrupt the British economy. The limited Sino-American "trade war", combined with the COVID-19 Pandemic, already created adverse economic conditions for the UK, including a global semiconductor shortage that has slowed British productivity.<sup>126</sup> General American and Chinese tariffs also increased operational costs and eroded the efficiency of Sino-American supply chains. A broader trade war with the actual intention of limited or comprehensive decoupling would have a far more brutal impact upon the British economy. General macroeconomic instability would undermine British productivity. The ancillary contraction in Europe and the US would compound the issue, while growing supply disruptions would drive prices up, cut supply, and drive the UK into a major recession.

Second, UK supply chains and major domestic producers are penetrated by Chinese companies. Chinese State-Owned Enterprises (SOEs) and Party-affiliated entities have a collective £57 billion stake in the UK's 100 largest companies.<sup>127</sup> This includes investments of over £1 billion in Shell – now a wholly British headquartered company – and BP in the

122. Jamil Anderson and Clea Caulcutt, "Europe must resist pressure to become 'America's followers,' says Macron", *Politico*, 9 April 2023, accessed via: [link](#). See also Nicholas Barré, "Emmanuel Macron : « L'autonomie stratégique doit être le combat de l'Europe »", *Les Echos*, 9 April 2023, accessed via: [link](#).

123. Lecture of Prime Minister Viktor Orbán at the 33<sup>rd</sup> Bálványos Summer Free University and Student Camp, 27 July 2024, *ViktorOrbán*, accessed via: [link](#).

124. Jamil Anderlini and Clea Caulcutt, Europe must resist pressure to become 'America's followers,' says Macron, *Politico*, 9 April 2023, accessed via: [link](#).

125. HMG, Chancellor's Mansion House 2024 speech, 14 November 2024, accessed via: [link](#).

126. James Crabtree, "US-China trade war threatens Asian supply chains", *Nikkei Asian Review*, 27 April 2018, accessed via: [link](#); "Britain's productivity problem is long-standing and getting worse", *The Economist*, 9 June 2022, accessed via: [link](#).

127. Jamie Nimmo and Robert Watts, "How Beijing bought up Britain", *The Times*, 2 May 2021, accessed via: [link](#).

oil sector, and AstraZeneca in the medical sector. Commercial electronics penetration is also relatively high. Major Chinese brands like Huawei and Xiaomi, both with direct links to the Chinese Communist Party's elite and the People's Liberation Army, are present in UK markets.<sup>128</sup> During a Sino-American confrontation of any sort, the PRC would operationalise all its leverage in the West. Oil and gas producers, in particular, may be compelled to rely upon Chinese oil tankers, considering the scale of China's petroleum transport capabilities and the opacity of oil and gas transportation mechanisms. Evidence exists that China has leveraged its tanker fleet to prioritise Chinese markets during major crises, including during the COVID-19 Pandemic.<sup>129</sup> Hence British companies, considering their reliance upon Chinese capital and their role in global supply chains, could find themselves functionally held hostage to the Chinese state, or surreptitiously co-opted by it.

Third, in the technology sector, British companies remain relatively reliant upon Chinese cyber resilience support, raising the prospect of Chinese cyber and intelligence penetration.<sup>130</sup> The technical support Chinese firms provide to the UK, and China's above-mentioned penetration of UK consumer electronics markets, poses a significant cyber vulnerability. This vulnerability will increase over time if the UK does not impose more stringent import controls upon Chinese technology. Moreover, the NHS remains reliant upon Chinese technology, creating a clear data vulnerability for the British public.<sup>131</sup>

Fourth, a full-blown Sino-American confrontation would trigger multiple second and third order macroeconomic effects triggering a major UK economic contraction. Shipping costs would skyrocket as merchant ships were rerouted away from the Taiwan Strait and South China Sea – orders of magnitude greater than the shipping market rate impact of Houthi disruption in the Red Sea. The UK would lose access not only to the Chinese market, but also to most East Asian markets, including Japan and South Korea. The US would prioritise domestic production in a sustained militarised confrontation. European producers, meanwhile, would be equally stressed given Europe's proportional reliance upon China. In total, then, the UK would encounter a “perfect storm” of economic stressors that would destroy the internationalised supply chain system that sustains modern British productivity and consumer habits.

The UK must work China into a broader supply chains policy because of geopolitical reality. Even if the UK, US, and Europe created an extraordinarily improbable unity of purpose on supply chains questions, and fully integrated their capabilities, there would still be a need to engage with Chinese industry, and rely upon China for a number of discrete economic tasks. This does not, however, diminish the threat the UK faces from the potential for Sino-American decoupling, nor eliminate the need to treat China as a strategic problem in the creation of a supply chains strategy. For the only way to build resilience into British policy is to work with British allies and partners, which also face the issue of China in their supply chains.

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128. Data from Statista as of 2021, accessed via: [link](#).

129. Andrew Erickson and Gabe Collins, Beijing's Energy Security Strategy: The Significance of a Chinese State-Owned Tanker Fleet, *Foreign Policy Research Institute*, Fall 2007, 668.

130. For more detail on Chinese penetration of British intellectual and technological reserves, see China, the Intelligence and Security Committee of Parliament, HMG Government, 13 July 2023.

131. Robert Clark and Richard Norrie, “China's presence in NHS supply chains: Why we need to protect our health service from future threat”, *Civitas* (May 2022), 26-28.

Competition and disruption are not uni-directional. Crises typically blur the lines between action and response. Three additional dangers exist that British supply chain policy must consider.

First, there is a danger of partial Euro-American decoupling. This is particularly acute when critical energy supply chains are considered. If the EU executes a comprehensive industrial response to the US' Inflation Reduction Act, a bifurcated Western supply chain system is likely. Advanced green energy technologies require a significant amount of additional materials and industries, ranging from critical minerals to fabrication plants. Hence a "green" decoupling is unlikely to be restricted to green technology.<sup>132</sup> It will instead have cascading effects on other industries that impact British supply chains. This danger is intensified depending upon the course of the Ukraine War. Moreover, depending upon the Second Trump administration's broader trade policy, a "green" decoupling may become less likely than a EU-US trade war that persists over the next 18-24 months before a negotiated settlement. During his recent Senate hearing, Interior Secretary-designate Doug Burgum stated that the U.S. must fully utilise fossil fuel energy in order to beat the PRC in the AI race.<sup>133</sup>

Second, there is a risk of European deindustrialisation. European industry is under pressure given the international environment. The UK is thoroughly linked with European supply chains in every respect – the EU as a whole remains a crucial economic partner, in nearly every industry, and particularly when basic capacities like power generation and food production are considered.<sup>134</sup> If the European economy completely stalls, the UK will be placed in an awkward position. A less competitive Europe will become extremely reliant on the US for long-term energy and manufacturing supply. The UK will be forced to compete, once again, with a large European market, or perhaps with fragmented European markets. This "level playing field" is unlikely to benefit Britain.

Third, there is a possibility of Euro-American realignment. The EU and US may come to some sort of agreement on long-term supply chain questions that also includes a variety of regulatory steps to support European markets alongside the US. This has obvious benefits for the UK – the Atlantic would become a safer area for maritime transport and the West might actually recreate a Cold War style economic bloc that the UK could access. The danger is that the UK, no longer in the EU but absent a trade deal with the US, might be left on the outside looking in. The US, depending on its domestic political circumstances, might pay little attention to British supply chain questions, especially if the EU makes an active effort to integrate into other elements of American foreign policy.

## 2.6: Strategic Relevance – Middle Eastern Trade Chokepoints

The three maritime zones around the Arabian Peninsula – the Red Sea, the Gulf of Aden, and the Persian Gulf – are all fundamental waterways in global maritime trade, constituting the highway of trade passing between

132. Barney Jopson, "US beats EU as magnet for green investment, says Iberdrola", *Financial Times*, 9 November 2022, accessed via: [link](#).

133. Zack Budryk, Burgum sidesteps Trump's most controversial climate positions in largely cordial hearing, *The Hill*, 1 January 2025, accessed via: [link](#).

134. Tom DiChristopher, "Europe facing gas insecurity, 'uncontrolled deindustrialization' through 2025", *S&P Global*, 13 October 2022, accessed via: [link](#).

Europe, Africa and Asia. 40% of European imports from Asia arrive via the Red Sea,<sup>135</sup> whilst almost one third of global oil trade flows through the Persian Gulf.<sup>136</sup> These routes comprise three critical chokepoints: the Suez Canal, which connects the Mediterranean Sea to the Red Sea; the Bab el Mandeb, which leads westwards into the Gulf of Aden; and the Persian Gulf's Strait of Hormuz, which opens out into the Gulf of Oman. Each of these interstices are characterised by their narrow and shallow natures – the Red Sea is 100m deep at points, whereas the Strait of Hormuz is 30 miles wide at its narrowest.

The combination of the extreme importance of these routes to the prosperity and security of all nations, and the region's enduring volatility, has given rise to multiple collective maritime endeavours. The US has led the International Maritime Security Construct since 2019, a 12-state initiative safeguarding merchant shipping in the waters around the Arabian Peninsula. As part of the Combined Maritime Forces naval partnership of 41 states, the US and Egypt operate CTF 153, a maritime mission focused on the Red Sea. CTF 153 now operates under the umbrella of Operation Prosperity Guardian, a US-led multinational coalition preserving Red Sea maritime security in the context of the ongoing Israel-Hamas War. The EU also operates in the region, having launched the European Maritime Awareness in the Strait of Hormuz (EMASOH) in 2020. In this, nine member states cooperate to ensure safe navigation and de-escalate regional tensions, which would endanger global trade routes. Most recently, the EU launched EUNAVFOR operation Aspides, specifically geared towards a strictly defensive purpose vis-à-vis Houthi aggression. These maritime security coalitions are joined by other adjacent international missions: including the EU's Operation Atalanta anti-piracy initiative; the Djibouti Code of Conduct (DCoC), a regional instrument for tackling armed robbery against ships in the western Indian Ocean and the Gulf of Aden; and the Robbery against Ships in Asia-Information Sharing Centre (ReCAAP), erected to operate across the Asian continent.

Owing to its stakes in the enduring functionality of these essential trade routes, the UK contributes widely to collective security efforts from its regional forward naval deployment facilities in Bahrain (Juffair) and Oman (Duqm). The Royal Navy's umbrella operation for contributing towards maritime security in the Persian Gulf and Indian Ocean is Operation Kipion, whose command centre is in Bahrain. British naval forces have patrolled the Gulf every day since the Iran-Iraq War began in 1980.<sup>137</sup>

Despite these collective efforts, the Houthis' ongoing response to the Israel-Hamas War illustrates just how easily Middle Eastern trade routes can be disrupted by endogenous regional forces. Having failed in their initial attempts to hit Israeli land targets, the Houthis changed tactic last November and sought to establish a sea denial campaign in the Red Sea transit corridor.<sup>138</sup> Although the Iran-backed group has claimed to limit action to Israel-linked vessels, it has acted indiscriminately. The impact has therefore been blunt and severe, with overall freight costs doubling,<sup>139</sup> as commercial shipping companies face the choice of a 300% hike in

135. European Parliament, Maritime security: Situation in the Red Sea and EU response, 16 January 2024, accessed via: [link](#).

136. Strauss Center, Strait of Hormuz: Assessing the threat to oil flows through the Strait, accessed via: [link](#).

137. Royal Navy, Operation Kipion, accessed via: [link](#).

138. Farzin Nadimi, Under Fire in the Bab al-Mandab: Houthi Military Capabilities and U.S. Response Options, *Washington Institute*, 8 December 2023, accessed via: [link](#).

139. Henry Ridgwell, Freight Costs Rise as Houthi Attacks Disrupt Global Shipping, *VOA*, 4 January 2024, accessed via: [link](#).

insurance costs for Red Sea transit,<sup>140</sup> or an additional \$1mn, and 16 day-transit time, for voyages re-routed via the Cape of Good Hope.<sup>141</sup> These prices will inevitably be felt by British consumers through higher inflation rates at some point, particularly as military responses have yet to force the Houthis to cease and desist.

### Assessing Vulnerabilities – Energy

As 2022's geopolitical events demonstrated, energy supply chains are crucial and vulnerable. Over time, the energy mix will shift. As it stands, the UK remains oil and natural gas dependent: in the short-term, the UK must employ some sort of energy price regulation to keep consumer costs down.<sup>142</sup> Nevertheless, at some point the UK will ensure its energy access, or prices will decline with stabilisation in Eastern Europe or new suppliers from the Middle East. Yet a major Indo-Pacific contingency would be far more disruptive to global energy markets.<sup>143</sup> The UK would struggle to receive any oil and gas imports as prices would skyrocket, knock-on instability in oil-producing regions would compound the issue, and quite likely Chinese-owned or flagged tankers would prioritise the Chinese market. Similarly, the UK is overwhelmingly import reliant upon electric batteries, a key capacity if the UK is to achieve its electrification targets by 2035.<sup>144</sup> As it stands, then, the UK's energy supply chain remains overwhelmingly vulnerable.

Clearly, the ubiquitous precarity of Middle Eastern maritime chokepoints is not a problem the UK can solve singlehandedly. Even when the Houthis eventually conclude this campaign – and even if they are neutralised in the future (an unlikely event any time soon, given persistent failure to address the root of the issue: Iran's regional belligerence) – there are other would-be perpetrators of disruptive acts around the region. Any conflagration involving Iran directly would almost certainly lead to transit through the Strait of Hormuz diminishing acutely, if not halting altogether. Short of all-out war, Tehran has established a constellation of allies positioned on each of the three Arabian Peninsula coastlines, any of which could be activated to disrupt maritime corridors at any notice. In short, its reliance on imports from Asia, and Qatari LNG (which transits both the Persian Gulf and Red Sea), presents the UK with a structural strategic insecurity which is largely beyond its ability to control.

All this therefore supports the case for expanding the UK's domestically and nearby-sourced energy supplies as a priority. Cutting Middle Eastern-transiting energy imports out of British demand as much as possible would at least mitigate the worst-case scenario of fuel supply shortages, even if the attending hike in global energy prices still inflicted economic pain. Meanwhile – as has been argued throughout – Asia's centrality to global manufacturing supply chains renders fanciful any aspirations to Euro-Atlantic industrial autarky. That said, reducing our dependence on European-Asian trade for life-sustaining goods and materials – as

140.S&P Global, War risk insurance rates jump on Houthi attacks; tanker FFAs higher, 13 December 2023, accessed via: [link](#).

141.Mike Schuler, Tankers Face Million-Dollar Detour Around Cape of Good Hope, *G Captain*, 25 January 2024, accessed via: [link](#).

142.See Alex Simakov, Connor MacDonald, et al., "A Plan for Household Energy Bills: The Case for a Tiered Energy Relief Scheme", *Policy Exchange* (2022).

143.A slightly dated RAND Corporation study highlights the macroeconomic impact a Sino-American war would cause. David C Gompert, et al., *War with China: Thinking Through the Unthinkable* (RAND 2016), 61.

144.Rob Davies, "The UK's 2035 net zero electricity target: how could it be achieved?" *The Guardian*, 5 October 2021, accessed via: [link](#).

much as is logistically and economically viable – should be an active and fundamental factor in supply chain strategy, and one which should point us to bolstering European intraregional supply chains.<sup>145</sup> Once again, this means pivoting away from globalisation’s geopolitical blindness on commercial sourcing, to a more strategic considerations of *where we would like our dependencies to lie*.

### Questions for British Defence Planning and Procurement

Although less relevant for the broader British economy, we must also consider the impact of supply chain vulnerabilities on British defence procurement and the British Defence Industrial Base (DIB), particularly since the government plans to use it to revitalise British industry.

British defence industrial strategy is wholly interlinked with supply chain globalisation. 1991 was a clear inflection point. Prior to this, while the British military was not capable of independent global deployment, it was a reasonably effective force in European terms. The UK’s two defence responsibilities – countering the Soviet Union in the Greenland-Iceland-UK (GIUK) Gap and maintaining a heavy ground force presence on the European continent to defend the North German Plain – required a variety of heavy capabilities. These capabilities were largely produced within the UK at significant expense, although the British military employed legacy systems to maintain its fighting power without investing in costly new forces.<sup>146</sup>

After 1991, however, British defence policy completely reoriented. The UK’s new defence structure was centred upon a handful of high-quality expensive systems, namely the submarine-based Trident nuclear deterrent, a handful of advanced fighter aircraft, a deployable Army division, and two aircraft carriers. These forces, along with world-leading Special Operations Forces, are designed to operate alongside the UK’s NATO allies, particularly when facilitated by American logistical and support forces.

This alliance-centric mindset has clear benefits, namely its ability to leverage American support without spending significant defence sums. However, it has also had a cost – the complete internationalisation of the UK DIB.<sup>147</sup> The UK’s reliance upon foreign production, albeit allied production, both slows the British military procurement cycle and, in the event of a contingency, will create a significant liability. The current Ukraine situation is illustrative. The UK “shed” many of its point air defence systems and has procured only limited ammunition stockpiles for its heavy long-range artillery – the UK can rely on the US and Europe for now, but an Indo-Pacific contingency would change these calculations.<sup>148</sup>

In turn, as the American defence establishment has slowly recognised, the UK, US, and Europe are overwhelmingly reliant upon China in defence production. The Chinese monopoly on semiconductor production is only part of the issue. Heavy metals and precious minerals

145. For more on the power of intraregional trade, see Shannon K O’Neil, *The Globalisation Myth: Why Regions Matter*, (Yale University Press, 2022), Ch. 1.

146. Jeremy Black, “A Post-Imperial Power? Britain and the Royal Navy”, *Orbis*, 49:2 (2005), 358.

147. “Foreign Involvement in the Defence Supply Chain: Government Response to the Committee’s Fourth Report of Session 2019–21”, 20 April 2021, 3.

148. Claire Mills and John Curtis, “Military assistance to Ukraine since the Russian invasion”, *House of Commons Briefing* (15 August 2022), 8-16.

are also Chinese-mined, as we have previously discussed. For example, in 2022, the US temporarily halted its F-35 exports indefinitely because it has discovered, with much shock, Chinese made-alloys in the aircraft.<sup>149</sup> The UK is just as vulnerable.

The MoD has improved its screening mechanisms, but it has yet to bolster them enough to prevent foreign penetration into defence industrial processes. This is primarily because of its reliance on European suppliers.<sup>150</sup> Correcting this liability must be a consideration for any supply chain strategy.

The Ukraine War, in turn, has demonstrated the relevance of a robust defence industrial base. Modern conflict requires an immense amount of materiel. The focus has understandably been on shells. Ukraine would expend the entire UK ammunition stockpile in around 48 hours.<sup>151</sup> Russia expends as many shells in one day as the West produced in several weeks in the early days of the conflict. The production issue extends to all military equipment. The West has not produced portable anti-air missiles at scale since the end of the Cold War.<sup>152</sup> The US military has not ordered a Stinger Missile, for example, since 2002. Anti-tank missile supplies are similarly constrained.<sup>153</sup> Russia, meanwhile, has experienced bottlenecks in missile production.<sup>154</sup> As the Ukraine War grinds on, and additional threats loom, the US, UK, Europe, and Indo-Pacific powers are looking to expand their defence production – including new systems like drones.<sup>155</sup>

Space-based assets must also be considered. Space-based capabilities have been instrumental for ISTAR and communications. The StarLink LEO array has allowed Ukrainian units to communicate despite significant Russian electronic disruption. Russian – and presumably American – observation satellites have enabled Battle Damage Assessment throughout the war. Russia has yet to employ anti-satellite weapons to disrupt Ukrainian and Western capabilities.<sup>156</sup> But Russia, China, and Iran all have anti-satellite weapons that are likely to be employed in a broader great-power conflict.<sup>157</sup> The US recently invoked Russian developments of a new anti-satellite weapon as a risk to American national security.<sup>158</sup>

Spacepower is extremely difficult to cultivate. It requires robust linkages between the public and private sector, the maintenance of legacy systems, and sustained investment to develop the industrial, human, and physical resources needed to preserve space-based assets. Moreover, any sort of conflict in space will create a massive amount of debris, triggering knock-on effects that impact all space-based systems, civilian or military in nature. Maintaining at minimum access to space-based assets must be a key aspect of any British supply chain policy.

149. Anthony Capaccio, "F-35s All Contain Banned China-Made Alloy Pentagon Says", *Bloomberg*, 9 September 2022, accessed via: [link](#).

150. *Defence and Security Industrial Strategy: A strategic approach to the UK's defence and security industrial sectors*. (UK Ministry of Defence, March 2021), 69.

151. George Grylls, "British Army's ammunition would last for only a week of war, says Royal United Services Institute", *The Times*, 2 December 2022, accessed via: [link](#).

152. "Raytheon Will Not Resume Mass Production of Stinger Missiles Until 2023", *Defense Post*, 26 April 2022, accessed via: [link](#).

153. Howard Altman, "Raytheon Is Unable To Make Stinger Anti-Aircraft Missiles Quickly Enough", *The Drive*, 26 April 2022, accessed via: [link](#).

154. Mykhaylo Zabrodskiy, Jack Watling, Oleksandr V Danylyuk and Nick Reynolds, *Preliminary Lessons in Conventional Warfighting from Russia's Invasion of Ukraine: February-July 2022* (RUSI, 30 November 2022), 55.

155. Sebastien Robinson, "Drone War Accelerates Over Ukraine", *Inside Unmanned Systems*, 14 November 2022, accessed via: [link](#). David Axe, "Russia's Electronic-Warfare Troops Knocked Out 90 Percent of Ukraine's Drones", *Forbes*, 24 December 2022, accessed via: [link](#). Zabrodskiy et. al., *Preliminary Lessons in Conventional War* 37.

156. Christopher P Mulder, "Russia's space weapons may be the next frontier in the Ukraine conflict", *Atlantic Council*, 26 March 2022, accessed via: [link](#).

157. Cassandra Steer, "Putting a stop to destructive anti-satellite weapons tests", *The Interpreter*, 17 November 2022, accessed via: [link](#).

158. Bernd Debusmann Jr, "Russia developing 'troubling' new anti-satellite weapon, US says", *BBC News*, 16 February 2024, accessed via: [link](#).

## 3: British Priorities and Allied Integration

It is evident that the UK is vulnerable to significant macroeconomic disruption, and that said disruption is probable considering the current geopolitical environment. Complete independence from global supply chains is impossible given the cost of onshoring and reshoring industries.

With that in mind, the UK's objective should not be to ensure the UK is insulated wholly from a global macroeconomic shock. Neither should it necessarily be to insulate the UK to a major degree. Rather, the UK should prepare by working with partners to mitigate the greatest risks.

### 3.1: The Political Climate and Historical Assessments

The UK did conduct an initial supply chain review under the Johnson government, termed Project DEFEND.<sup>159</sup> The endeavour, begun in 2020, has been relatively secretive. Its objective was to map critical supply chains at a granular level, identify vulnerabilities, and propose reshoring mechanisms for a variety of products – with the constraint, requested by parliament, that reshoring would not disrupt international trade.<sup>160</sup> It appears that the Ministry of Defence took the lead on the project, not an unreasonable approach given the vulnerable nature of the defence supply chain, and the utility of integrating intelligence and defence analysis into a comprehensive picture of supply chains.<sup>161</sup> It is rumoured, however, that Project DEFEND was wound down after the COVID-19 Pandemic subsided, a move that matches with the UK's unwillingness in 2022 to prevent Chinese economic penetration.<sup>162</sup>

Since then, both the Integrated Review and Integrated Review Refresh have developed the government's growing awareness of the primordial importance of supply chain resilience. In line with the two documents' high-tier strategic analysis, relevant departments have started to centralise supply chain resilience in their strategic framework documents, such as the Department for International Trade's November 2022 Supply Chains Resilience Framework.<sup>163</sup>

Elsewhere, the Department for Transport concluded a call for evidence into freight and logistics last year, as part of the government-wide re-evaluation of national planning policy. The investigation sought to identify how British freight services and wider logistical system can support “cost-efficient, resilient, reliable and environmentally sustainable” supply chains.<sup>164</sup>

Semiconductors are a critical component of supply chains, as noted

159. “The Covid 19 Pandemic and International Trade”, 29 July 2020, accessed via: [link](#).

160. John Basquill, “Project Defend: UK trade committee warns against supply chain onshoring”, *Global Trade Review*, 29 July 2020, accessed via: [link](#).

161. Will Green, “Project Defend maps critical supply chains to boost UK resilience”, *Supply Management*, 21 May 2021, accessed via: [link](#).

162. Eleni Courea, “Boris Johnson's China problem”, *Politico*, 5 April 2022, accessed via: [link](#).

163. “Supply Chains Resilience Framework”, Department for International Trade, 16 November 2022, accessed via: [link](#).

164. “Freight, logistics and the planning system: call for evidence”, *Department for Transport*, 4 July 2023, accessed via: [link](#).



above, due to their wide technological applicability and vast exposure to geopolitical winds. The Department for Science, Innovation and Technology released its national semiconductor strategy in May last year. On the one hand, the paper expresses sensible realisation that the UK should not aim to compete with East Asian expertise by kickstarting the domestic fab industry, but rather focus on pre-existing strengths in design and R&D, whilst enabling the market to provide cost-effective semiconductor imports from allies.<sup>165</sup>

On the other, the document is long on the rhetoric of conducting reviews and holding discussions with partners and relevant public and private stakeholders, yet short on concrete steps for strategic action. In falling short of practical measures – such as committing to stockpiling critical products and exploring mutual provision guarantees with allies, or updating the National Security and Investment Act’s capacity to intervene in inbound investment and exports of sensitive dual-use technologies – the document cannot guide actual strategy and policy. This remains largely true of the other papers exhibited above, attesting to the government’s still-embryonic grasp of the strategic exigencies of supply chain policy.

In the Labour Party’s policy proposal announcements, there is evidence that the growing appreciation of the need for a supply chain strategy now enjoys cross-party consensus. At its core, Chancellor Rachel Reeves’s economic vision, branded ‘Securonomics’, imagines a strengthened – yet prudent – role for the state in stabilising the UK’s economic fundamentals. The programme would seek to couple bolstered welfare offerings with strict macroeconomic policy and market-friendly reform, in order to unlock the latent capacity of the private sector to invest in national rejuvenation.<sup>166</sup> The intersection between state action and supply chains, according to Reeves, will be ‘microeconomic’ policies geared towards expanding critical domestic productive capacity, and diversifying and strengthening relevant supply chains. Re-evaluation of supply chain architecture will be driven by a new supply chain taskforce, which will identify critical sectors (defence, energy, construction, medicines and food) in need of government support to build domestic resilience.<sup>167</sup> Within this, Labour intends to establish a nationwide constellation of ‘Climate Export Hubs’, aimed at consolidating the UK’s position at the centre of key advanced technology supply chains.<sup>168</sup> As Labour’s Industrial Strategy makes clear, the private sector will play a crucial role in seeding the economic and technological capabilities essential to building national resilience.<sup>169</sup> In July, the Government Office for Science launched a cross-government Future of Global Supply Chains project, which will provide long-range assessment of critical import supply chains.<sup>170</sup>

The UK’s response to supply chain vulnerabilities must be comprehensive, multifaceted, and granular, connecting supply chain policy to other aspects of British strategy. As shown, ongoing efforts to this end are fledgling, yet cautiously promising. However, the UK must not lose sight of the market mechanisms that are crucial to ensuring British competitiveness and prosperity, and recognise that British allies are

165. “National semiconductor strategy”, *Department for Science, Innovation and Technology*, 19 May 2023, accessed via: [link](#).

166. Rachel Reeves, *Mais Lecture 2024*, *Labour*, 19 March 2024, accessed via: [link](#).

167. *Labour, Prosperity through Partnership: Labour’s Industrial Strategy*, *Labour*, 27 September 2023, 15.

168. Rachel Reeves, ‘Securonomics’, *Labour*, 24 March 2023, accessed via: [link](#).

169. *Prosperity through Partnership*, 12.

170. *HM Gov, Future of Global Supply Chains*, 15 July 2024, accessed via: [link](#).

equally committed to ensuring market success. The objective of a coherent British supply chains strategy should be to create a framework where the market is free to direct financial means and pricing products properly, within the guiding umbrella of critical national interests.

The current British international position is one of both opportunity and relative risk. Beyond the EU and absent a formal economic framework for engagement with the US, the UK does risk getting out ahead of its allies, if it articulates a policy too robust. But the vulnerabilities the UK faces, along with the opportunities it does have given its strengths and leverage points, encourages an independent policy insofar as the UK will be the first amongst the first powers to consider supply chains comprehensively. Moving first can, depending upon the context, bring others along.

### Understanding Supply Chain Vulnerability

Considering the complexity of globalised supply chains, it is difficult to identify precisely those elements of it that are most vulnerable. Moreover, considering the scale of the problem, no specific industry shift will ensure supply chain security. However, five heuristics help with prioritisation.

First, the relevance of a specific industry must be considered. What industries matter and why? We propose that our focus must be those industries that allow the UK to survive during a severe global crisis. Those industries that are necessary for physical daily life – food, medicine, and energy, for example – are those that we must consider.

Second, the role of a specific aspect of an industry should be assessed. Any industry has a variety of sub-components and sub-sectors. However, we propose that there are specific sub-sectors that are overwhelmingly critical. For example, fertilisers and specific crop stockpiles are necessary to stave off a food shortage, and a number of crucial Active Pharmaceutical Ingredients that are almost without exception produced at scale beyond the UK and Europe. Hence the specific role of a product in an industry, or the need a population has for that product, requires attention.

Third, the off-shore balance of an industry should be analysed. Certain industries and sub-industries are not wholly offshored. The defence industry, for example, is far smaller than it was during the mid to late Cold War, but still maintains several major plants in the UK. Similarly, electric batteries are primarily sourced from abroad, but there are start-ups and small producers looking to expand scale. Any industry, therefore, should have its offshore balance assessed to identify whether there are extant capacities that can be expanded, or whether instead an industry must be resurrected from scratch.

Fourth, the location of off-shored facilities should be reviewed, with the purpose of identifying unique reliance on any specific country. Import and supply chain reliance cannot be mitigated overwhelmingly, but relying on specific countries, or a distributed network, is far less dangerous than reliance on a unique supplier, particularly if that supplier is hostile. Any industry

identified as critical and at-risk should then be assessed based upon this metric, considering both the political orientation of an identified major supplier and, as relevant, the geographic location of a specific good considering the transport requirements that good might have.

Fifth, market alternatives should be identified to review options for other suppliers. This need not only include those options with extant infrastructure. They should also include friendly states that might lack the infrastructure required for production today, but that would be willing, and with the right assistance, able, to export during a major confrontation. This must include, however, an assessment of the needs of a potential partner, and recognise the way in which this might modify the UK's supply chain partnerships.

This methodology's advantage is its focus: it enables specific analysis of those industries that are known to be crucial, rather than taking a broad, agnostic approach that considers the economy more generally.

### 3.2: British Leverage Points

The UK is thoroughly interlinked with global supply chains, creating the vulnerabilities that our above analysis identified. However, the UK's supply chain linkages also create several strengths that it can leverage to ensure its access to critical goods and bolster its partnerships with friendly powers.

**Education:** British educational institutions are typically understood as tools of “soft power”, a descriptor for British cultural diplomacy. However, British education has a key role to play in long-term supply chain policy. The UK has world-leading universities in every major subject, including in the natural sciences, mathematics, information sciences, and engineering.<sup>171</sup> British universities frequently partner with industry to accelerate strategic development and, at times, work with the British government on long-term strategic priorities. The advantage of this educational system is that it allows the UK to participate in the development of a variety of high-end technologies that will define the global economy, and by extension global supply chains. Two areas are most relevant: quantum computing and AI development.<sup>172</sup> Both have the potential to revolutionise all aspects of economic life, through their impact on long-term productivity, innovation, responsiveness to consumer preferences, adaptability, and forecasting methods. The UK will not become the workshop of the future. Large-scale industrial production in the UK is relatively unlikely barring a step-change in energy production methods, a change unlikely even with rapidly maturing green technologies. It is possible, however, that the UK can ensure its access to capabilities it develops in collaboration with other powers. This Own-Collaborate-Access framework is already recognised as key to long-term British competitiveness, as identified in the original Integrated Review.<sup>173</sup> It must form the core of a supply chains policy writ large as well.

**High End Chip Design:** British educational excellence provides the UK with

171. Any educational data rankings are subjective, but British universities have strengths in nearly every subject. The UK has four universities in the global Top-25. The EU has none. See the latest Times Higher Educational Rankings (2023), accessed via: [link](#).

172. *National AI Strategy*, last updated 18 December 2022, accessed via: [link](#); UK universities also lead quantum research, see the National Quantum Computing Centre, accessed via: [link](#).

173. *Integrated Review*, 21.

a tool to influence long-term supply chain policy. In a semiconductor context, this entails maximising the UK's advantages in high-end chip design and cutting-edge testing, rather than wholesale manufacturing. Semiconductor manufacturing is extremely energy and water intensive. Major pure-play fabs like TSMC benefit from favourable geography. Virtually the entire Taiwanese economy is structured around supporting TSMC's semiconductor production model, while TSCM has access to extensive power generation and water facilities. The UK will struggle to replicate this unless decarbonisation leads to an energy generation explosion, admittedly possible in ten to twenty years, but highly unlikely in the near-term. Hence competing for a share of the fab market is unlikely to succeed. The UK's chip design capabilities are relatively advanced because of intensive industry collaboration. Government architecture and linkages between universities and semiconductor companies bolsters this innovative environment. The UK has particular strengths in advanced compound semiconductor development and silica development.<sup>174</sup> Although Europe's internal market creates opportunities for development at scale, the UK is far more innovative, hosting around 110 semiconductor design and development firms, as opposed to major fabs. British semiconductor development centres upon small startup companies, typically linked to AI and software developers, rather than major corporations with "pure-play foundries" like TSMC. The UK does have several of fab "clusters" in certain reasonable geographies.<sup>175</sup> However, the UK's semiconductor advantage stems not from production but from design and research. The structural issue is that many small design firms struggle to produce initial models for testing at even a small scale because of a lack of British fabs. Hence the fab question returns at a different scale. If the UK can maintain a crucial role in the early stages of the semiconductor value chain, rather than seeking to capture a market share of broader semiconductor production, it may have better success strategically.

*Critical Green Tech Exports:* British scientific leadership is felt far beyond semiconductors. Virtually every aspect of the future decarbonised global economy will rely on some sort of British capability. UK offshore wind is world-leading, as is UK development of Small Modular Nuclear Reactors (SMRs).<sup>176</sup> British subsea developments are also world-leading. UK companies in each of these sectors have positioned themselves to export these critical technologies. UK SMRs are actively marketed globally, and UK offshore wind companies are securing lucrative contracts as wind power proliferates globally. These critical technological developments can fit into the future energy supply chain without demanding that the UK create an industrial base to rival that of Europe, the United States or China.

*Finance and Insurance:* Supply chains are, at risk of stating the obvious, physical. Yet they require linkages to the international financial system to work effectively. Despite post-Brexit fears, the UK remains a finance and insurance hub. London remains the second-largest financial centre in the world, ranked nine spots ahead of Geneva, the next European alternative, in the Global Financial Centres Index.<sup>177</sup> Nearly every major multinational bank

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174. "The semiconductor industry in the UK", *House of Commons Library* (HC 291, 28 November 2022), 12-13.

175. Geoffrey Owen, *Semiconductors in the UK: Searching for a Strategy* (Policy Exchange, 2022), 12-15.

176. See Matt Rooney, *Small Modular Reactors: The Next Big Thing in Energy?* (Policy Exchange, 2017).

177. Global Financial Centres Index, accessed via: [link](#).

has a presence in London, typically operating a European headquarters there. Moreover, Lloyd's, the global insurance marketplace with a stranglehold on shipping insurance, is located in central London. Many other major insurers also have London offices, but Lloyd's in particular is governed by an act of parliament. Hence the UK's financial and regulatory power may be difficult to wield, but nevertheless gives the UK a tangible attractive force in a global trade system.

*Atlantic Safety:* Finally, the simple geography of the Atlantic is likely to improve the UK's long-term economic position if it can capitalise on geopolitical trends. Conflict in Asia is likely in the coming five to ten years. And as other sections of this report demonstrate, global supply chains, and in particular global shipping companies, are overwhelmingly Asian-centric. There is a risk of Euro-American supply chain fragmentation. But there is a relatively low risk of kinetic conflict in the Euro-Atlantic area. Russia poses an obvious threat, and China has a clear interest in expanding its economic and in time military footprint in the Atlantic. But the revisionist coalition is simply too geographically remote or constrained to disrupt Atlantic trade flows sustainedly through kinetic means. Over time, then, the UK can leverage its geography to become a crucial transit point for Atlantic trade as an alternative to Indo-Pacific structures.

The UK's leverage points, alongside its strategic overlap with all its allies and partners, allows for a degree of entrepreneurialism in policymaking. There are few contexts in which the UK can move first: since the Russian invasion of Ukraine, the UK has leveraged specific capabilities in a textbook example of strategic efficiency and outsized policy impact. In the context of supply chains, the UK can emulate that strategic approach, albeit in a radically different and far more systematic and long-term manner – moving first can accrue to the UK the benefit of directing the strategic debate around supply chain harmonisation with allies.

### 3.3: Independent Action, Allied Supply Chains, and the Potential for Integration

Every member of the UK alliance system, at least in Western Europe, North America, and East Asia is almost equally vulnerable, albeit in different respects. Hence it is worth examining the supply chain strategies of the UK's allies, as a comprehensive approach can be fruitful. Moreover, while the UK can be a first mover in some respects, designing policy in concert with allied objectives, either explicitly stated or implicitly understood and analysed on the British side, can create a framework that attracts friendly participation, accelerating the objectives the UK wishes to achieve.

We must also note that the UK is virtually incapable of insulating its supply chain from major shocks without comprehensive political coordination with allies and partners. The infrastructure needed would be too comprehensive and costly to implement, and take far too long, to have an impact in the coming half-decade to decade of instability and geopolitical danger.

Nevertheless, even limited coordination between the UK and its various allies can blunt a supply chain shock. It cannot mitigate it entirely – that is a virtually impossible task given the scale of the problem and the duration of any major disruption. Yet proper planning with the right allies could pay great dividends, even in the short-term, staving off a domestic supply chain crisis.

Additionally, it is crucial for the UK to ensure that it coordinates intellectually and politically its policy between regions, particularly towards the Atlantic powers in the Americas and Europe. The UK can pursue individual approaches initially, and will benefit from specific, targeted agreements with partners. However, in the long-term, the UK's objective should be to ensure that some sort of reasonable understanding is reached between Europe and the US that includes the UK. This objective is achievable only if the UK's supply chain policy is nuanced and granular enough to build transatlantic leverage.

### 3.3.1: Canada

COVID-19 and the Ukraine War have hit the Canadian economy, and supply chain pressure is clear. Canada generally runs a trade surplus because of its petrochemical exports. Canada has advantages. Canada's food balance is far more advantageous than the UK's: Canada became a net food exporter once again in 2019. Key today, however, is a shifting relationship with the United States, particularly with the Trump administration again seeking to renegotiate US-Canada trade relations.<sup>178</sup>

Geography defines Canadian policy. Naturally, its nearly 9,000-kilometre border with the US encourages significant cross-border supply systems. The US is Canada's largest trading partner – Canada maintains a positive trade balance with the US, but its American-bound trade comprises two-thirds of all Canadian trade flows.<sup>179</sup> Hence even more so than the European economies or the UK, Canadian supply chains depend upon American policy choices almost exclusively.

This dependency has prompted the Canadian government, insofar as it is developing a supply chain strategy, to focus almost exclusively on the United States. In June 2022, the White House released a joint US-Canada Supply Chains Progress Report, detailing the countries' joint efforts to insulate themselves from macroeconomic disruption. As it stands, the US and Canada remain in the "mapping" stage of their joint supply chain strategy – the supply chain working group was only stood up in early 2022, stemming from the joint US-Canadian roadmap of February 2021.<sup>180</sup> However, there are several identified areas of cooperation, namely electric vehicle production, critical minerals, PPE, defence production, semiconductors and information technology more broadly, solar power, transportation, and regulatory cooperation. These map onto British supply chain vulnerabilities with relative accuracy. As Canadian-US efforts remain in their infancy, the UK may have a strategic opportunity to engage with two critical allies and bolster its own supply chain security.

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178. Jonathan Martin, "How Canada Hopes to Thwart Trump", *Politico*, 24 February 2025, accessed via: [link](#).

179. Data from "Canada Trade Summary 2019", *WITS*, accessed via: [link](#).

180. "U.S.-Canada/Canada-U.S. Supply Chains Progress Report", *The White House* (June 2022) 1-3.

### 3.3.2: Australia

Australia's geographical and economic situation is unique among the UK's allies and partners. It lies at the beginning and end of global supply chains, being a consumer economy and raw materials exporter, especially iron. However, it imports relatively few intermediate goods, reducing its dependence upon the vulnerable mid-point of the global supply chain. Moreover, as a key member of the AUKUS pact, it deserves explicit strategic attention in a British supply chain policy.

Australia's geography insulated it from COVID-19's supply shocks. Its greatest concern was whether export and import markets were functioning, which were less subject to the vagaries of international supply given the structure of Australia's economy. Australia's export markets are vulnerable to disruption, precisely because of the factors that insulated it from COVID-19's effects. Australia is a world-leading steel and iron exporter, and is a mining hub, with a focus on copper, gold nickel and palladium, primarily in the country's west.<sup>181</sup> Its primary export partner is China. While other states and blocs – the EU, Japan, US, and UK – are reasonably significant economic partners, Australia's top Chinese-bound export is iron ore, and the majority of its other exports are natural resources and metals.<sup>182</sup>

Despite Australian linkages to China, Canberra has been the most forthright Indo-Pacific power in confronting China. There is a robust bipartisan Australian consensus on the China question, indicated by explicit policy continuity between the Morrison and Albanese governments on foreign and defence policy.<sup>183</sup> AUKUS is the primary bridge issue. Under the AUKUS Pact, Australia, the UK, and US pool a variety of advanced technologies and industrial capacities, both to deliver nuclear-powered attack submarines to the Royal Australian Navy and to accelerate the development of quantum, AI, cyber, and other advanced capabilities with military-strategic and economic relevance. AUKUS signals Australia's distinct willingness to participate in structured supply chain linkages.<sup>184</sup>

Australia's response to Chinese trade pressure also demonstrates significant economic and political resilience and foresight on Canberra's part. After several years of trade tensions, China imposed a variety of sanctions upon Australian exports in 2020, including on timber, wine, and other popular food exports. Australia's crime was its endorsement of an international inquiry into the origins of COVID-19, a move that no major Western country had fully endorsed at the time. Prior to the sanctions, the Australian government conducted several long-range planning assessments to identify China's likely courses of action, the cost of a Chinese embargo, and the ways in which Australia could enhance its resilience against economic pressure. The assessment correctly concluded that Australia was well-positioned to handle Chinese economic bullying – two years on, Australia's economy remains robust, and its exports are booming.<sup>185</sup> This demonstrates the seriousness with which Australia treats supply chain questions, and reinforces its potential to serve as a valuable long-term partner.

The March 2023 AUKUS submarines announcement is explicitly

181. Sean DeCoff, "Australia – Mining by the numbers, 2021", *S&P Global*, 8 February 2022, accessed via: [link](#).

182. The most complete data is from 2020, but the latest statistics from July 2022 reinforce this trend. "China-Australia", OEC, accessed via: [link](#).

183. Elena Collinson, "Despite the apparent thaw, Australia's core China policy remains hardline", *SCMP*, 10 October 2022, accessed via: [link](#).

184. Fergus Hanson and Danielle Cave, "The real potential of AUKUS is about far more than submarines", *ASPI Strategist*, 20 September 2021, access via: [link](#).

185. "Australia's resource and energy exports forecast to reach \$450 billion", *Australian Department of Industry, Science and Resources*, 4 October 2022, accessed via: [link](#). See also Nic Fildes, "Australia rides out Chinese sanctions as exports boom", *Financial Times*, 27 October 2022, accessed via: [link](#).

relevant to British supply chains. The deal provides a major capital injection to Barrow-in-Furness by providing it with a guaranteed production line of nuclear-powered attack submarines, likely six to eight of them, along with additional industrial support for Australia's indigenously-produced eight SSN-AUKUS hulls.<sup>186</sup> This will require supply chain and labour force harmonisation between the US, UK, and Australia, given the amount of US technology that will be built into these submarines. Achieving this will require overcoming a number of hurdles, particularly the modification of the US' ITAR framework.<sup>187</sup>

AUKUS, however, is far broader than a submarine co-development pact. It also includes, as its second pillar, a variety of high-technology effort lines – namely investments into undersea capabilities, quantum technology, AI, advanced cyber, hypersonics, and electromagnetic development – along with a major emphasis on joint innovation and information sharing.<sup>188</sup> Some of these capacities are explicitly military. But joint quantum and AI research in particular will have broader effects on British, American, and Australian economic prospects. Thus, Australia must be considered a major partner moving forward, as its regulatory framework becomes more harmonised with the US and UK's.

### 3.3.3: New Zealand

New Zealand's supply chain issues are more problematic than Australia's. Despite their geographical propinquity, their distinct economic profiles modify the way each economy responds to supply chain stress. New Zealand's greatest issue is its general trade and import dependence, and inability to avoid trade-induced inflation. Even prior to the Ukraine War, New Zealand's inflation rate was near six percent, overwhelmingly because of increasing costs for tradeable goods that Pandemic-induced lockdowns prompted.<sup>189</sup>

New Zealand's greatest supply chain strength, however, is its limited reliance on food and energy imports. New Zealand imports around a fifth of its food, and the vast majority – nearly four-fifths – of New Zealand's exports are food products. This is a highly favourable situation given the prospect of global supply chain disruption. Similarly, New Zealand meets the vast majority of its electricity and power needs with domestic resources. It has invested heavily in renewables. Hydroelectric power provides the majority of New Zealand's energy, although around 80% of it is renewable-generated, with slightly under 20% of it coming from oil, natural gas, and coal combined.<sup>190</sup> This, combined with New Zealand's proximity to Australia, makes it relatively insulated from global supply shocks, at least compared to other OECD countries.

### 3.3.4: United States

The US is also the UK's closest and longest-standing ally, and its heftiest trading partner. American macroeconomic performance, and even small-scale US downturns, have an outsized effect on British economic health.<sup>191</sup> Hence US supply chain policy is of central interest to British strategy and

186. "The AUKUS nuclear powered submarine pathway: a partnership for the future", *Ministry of Defence*, 14 March 2023, accessed via: [link](#).

187. As of March 2023, the revision process has begun. See HR1093, accessed via: [link](#).

188. "Fact Sheet: Implementation of the Australia – United Kingdom – United States Partnership (AUKUS)", *Prime Minister's Office*, 5 April 2022, accessed via: [link](#).

189. Adrian Orr, "Tackling Inflation During a Pandemic", *Reserve Bank of New Zealand* (25 February 2022), 5.

190. "Country Profile: New Zealand", *IEA*, accessed via: [link](#).

191. Central bank coordination between the UK and US is a crucial, if underappreciated, aspect of global macroeconomic dynamics. Michael David Bordo, "Monetary Policy Cooperation/Coordination and Global Financial Crises in Historical Perspective", *Open Economics Review*, 32:3 (2021), 602-609.



economic planning.

American supply chain policy has an increasingly coherent perspective behind it per the Second Trump administration's tenor. It is thus crucial to identify its evolution and key elements. The UK must include all these considerations in its own supply chain policy.

American supply chain policy began to shift in 2016. Prior to this, the US embraced globalisation wholesale, offshoring and outsourcing the overwhelming majority of its low-end labour needs and manufacturing capacity. "Chimerica" actually existed as a coherent economic entity – the US provided the high-tech capabilities, China the manual labour.<sup>192</sup>

However, the erosion of the US industrial base became apparent by 2016. The US government, reflecting a broad demand for some sort of re-shoring, acted – albeit only semi-coherently – to reorient American production. The First Trump administration's signature initiative were tariffs on steel and aluminium, which ultimately extended to the EU, Canada, and Mexico. The US then renegotiated NAFTA, backed out of TTIP, a proposed trade agreement with the EU, and initiated a trade war with China.<sup>193</sup> The US also began to re-shore crucial manufacturing elements, promoting specific projects as policy victories.<sup>194</sup>

The US' protectionist policies and tariffs on Chinese goods did have an emotional effect. They brought to the fore of public and elite discourse a subject avoided since the late 1980s: Western trade policies and the embrace of globalisation had created a severe vulnerability, a dependence upon China and Indo-Pacific trade that could be disrupted relatively easily during a major-power confrontation.<sup>195</sup> However, the Trump administration could never articulate a comprehensive political-economic strategy or industrial policy to match its economic efforts with its strategic imperatives.

The Biden administration shifted tack. Upon assuming office, the President authorised a preliminary review of American supply chains, to be completed within six months. Six major executive agencies put out their own assessments of their supply chains: Energy, Transportation, Agriculture, Health, Commerce, and Defence. The administration then collated their recommendations into a larger, more comprehensive series of executive orders to shore up the American supply system. This includes moderate reshoring of key capabilities, most notably semiconductor fabrication, a variety of incentives for domestic production, and the initial components of a comprehensive global supply chain coordination system with 18 other countries, including the UK but notably excluding the EU as a body.<sup>196</sup>

The US lacks the workforce to scale up manufacturing rapidly – in the 1980s around 34% of the US worked in manufacturing or industrial capacities, while as of today only 12% are employed in these professions. Regulatory frameworks impede a rapid scale-up of manufacturing capacity. In turn, the US still lacks a coherent broad-scope industrial policy that involves private players in public actions beyond defence purposes. Only the defence "Primes" like Lockheed Martin, Northrop Grumman, General Dynamics, and the UK's BAE Systems are treated as explicit

192. Ferguson and Schularick, "The End of Chimerica", 3-5.

193. Mireya Solis, "Trump withdrawing from the Trans-Pacific Partnership", 24 March 2017, accessed via: [link](#).

194. Several years later, the project seems to have degenerated. Grady McGregor, "We're stuck with this white elephant: A Wisconsin town's big bet on electronics maker Foxconn hasn't panned out as planned", *Fortune Magazine*, 4 August 2022, accessed via: [link](#).

195. Policy Planning Staff (OSD), *The Elements of the China Challenge* (revised December 2020), 9-13.

196. "2022 Supply Chain Ministerial", *US Department of State*, 20 July 2022, accessed via: [link](#).

state industrial projects. This is not solely the fault of American policy. Google, for example, terminated an AI development contract with the Defense Department in 2018 primarily because of employee discomfort over working for the American defence industrial complex.<sup>197</sup> However, the Ukraine War has demonstrated the relevance of dual-use industrial capacity and high-technology. American business magnate Elon Musk has employed StarLink’s sensor, communications, and cyber and Electronic Warfare defences to bolster Ukrainian combat effectiveness and prevent Russian military-technical disruption. Ukraine has shifted production of critical industries from the country’s east and centre to its west, relying upon private partners to accelerate the process.<sup>198</sup>

The closest the US has approached to an industrial policy, meanwhile, has the potential to disrupt alliance relationships in a manner that the UK must navigate with extreme care. Three steps are most relevant: the CHIPS Act, the Inflation Reduction Act (IRA), and the US’ controls on Chinese semiconductor development.

The CHIPS Act, signed into law on 9 August 2022, provides \$280 billion (£230 billion) worth of subsidies to American semiconductor research and manufacturing.<sup>199</sup> The CHIPS Act’s explicit goal is to expand the US’ share of the global semiconductor market to reduce Chinese leverage in the long-term. The Act’s indirect target was Taiwan – TSMC’s facilities are highly valuable and vulnerable in a major cross-strait conflict – but more generally, all other semiconductor fabrication geographies will need to react to the CHIPS Act’s provisions.<sup>200</sup> Of the top-line figure, around 20% is channelled into development, with the rest going to a variety of workforce training and production initiatives spread across the US government.

American partners reacted rather rapidly. Taiwan’s moves have been illustrative. Taiwanese President Tsai Ing-wen gave a rather muted post-passage statement in recognition of the dangers that reduced US dependence upon Taiwanese semiconductors might pose to Taiwan’s long-term security. However, TSMC has invested \$40 billion (£33 billion) in a new Arizona production facility, and may expand its investments elsewhere. Asian powers, in the main, have adapted to the CHIPS Act, despite the move’s clear implications for American security guarantees.<sup>201</sup>

The subsequent Inflation Reduction Act, signed into law days after the CHIPS Act, raises a host of broader questions about American industrial policy.<sup>202</sup> It provides a total of \$391 billion (£319 billion) in climate-related funding, particularly for green technology, including \$270 billion (£220 billion) in tax breaks and regulatory bonuses.<sup>203</sup> It is the single largest piece of climate legislation in American history.

Russia’s invasion of Ukraine demonstrates with unmistakable clarity the risks of relying on a hostile authoritarian power for critical materials, particularly energy resources. Additionally, the need to accelerate climate transition demands a series of large-scale investments in carbon-neutral power generation methods. However, the sheer scale of the subsidies in question, along with the rapid energy market rebalancing that the Russian

197. Radical cultural projects have infiltrated Silicon Valley quite thoroughly to the detriment of American and allied national interests. See Steven Levy, “Silicon Valley Conservatives Are Stepping Out of the Shadows”, *Wired*, 12 August 2022, accessed via: [link](#). This directly harm US and allied combat capacity. See Daisuke Wakabayashi and Scott Shane, “Google Will Not Renew Pentagon Contract That Upset Employees”, *The New York Times*, 1 June 2018, accessed via: [link](#).

198. Ukraine’s oligarchs, despite their corrosive effect on the Ukrainian political system, have with only a handful of exceptions consistently opposed Russian predation and supported Ukrainian independence. They naturally act for self-serving reasons, but their actions have been crucial in sustaining the Ukrainian state.

199. White House Fact Sheet, 9 August 2022, accessed via: [link](#).

200. Cheng Ting-Fang, “TSMC to triple U.S. chip investment to \$40bn to serve Apple, others”, *Nikkei Asia*, 8 December 2022, accessed via: [link](#).

201. Kathrin Hills and Demetri Sevastopulo, “TSMC triples Arizona chip investment to \$40bn”, *Financial Times*, 7 December 2022, accessed via: [link](#).

202. Clyde Prestowitz, “Is the U.S. Moving On From Free Trade? Industrial Policy Comes Full Circle”, *Wall Street Journal*, 11 December 2022, accessed via: [link](#).

203. “FACT SHEET: The Inflation Reduction Act Supports Workers and Families”, 19 August 2022, accessed via: [link](#).

invasion of Ukraine prompted, threaten to place Europe at a long-term structural disadvantage.<sup>204</sup>

The US further bifurcated the global semiconductor supply chain through a series of targeted restrictions on China's semiconductor industry. The new regulations, disseminated in October 2022, weaponise the US' control of semiconductor production machinery.<sup>205</sup> Any company using US equipment must abide by a variety of restrictions on high-end semiconductor production. This led a variety of firms to cease operations in China essentially overnight, and high-skilled workers to leave China subsequently. Chinese production will recover in time, perhaps in only a few years. However, in the long-term, Chinese advanced semiconductor production will be entirely decoupled from advanced production in the US value chain.<sup>206</sup>

The Second Trump administration will undoubtedly continue a number of technological-related export restrictions and other elements of the Biden administration's policy – in no small part because many of the crucial Biden technology and supply chain-related measures followed on from First Trump administration developments. However, there may be major differences over green technology and semiconductor production depending upon the Trump administration's view of the CHIPS Act.

Nevertheless, this situation is instructive, since it demonstrates that the UK is grappling with the same underlying trends in US politics, policy, and strategy, even if they are expressed in distinct ways under Trump. The US is likely to become more explicitly industrially-focused, and to bifurcate or onshore key industrial supply chain elements, demanding a coherent UK policy in response. Moreover, the Second Trump administration has already signalled a significantly more aggressive trade policy that integrates tariffs into broader political moves. The only across-the-board, durable tariffs will be against Chinese goods. However, the Trump White House has already demonstrated its willingness to use major tariff threats to induce concessions from key trading partners.<sup>207</sup> The Trump administration already turned to this playbook, prompting rapid concessions from Canada, Mexico, and Colombia.<sup>208</sup>

Despite European rhetoric before the 2024 election, the European powers have largely (publicly) made their peace with the Trump administration.<sup>209</sup> However, there are still a number of outstanding issues to be settled between the US and Europe, ranging from defence spending to broader economic questions, and even the status of Greenland.<sup>210</sup> There are preliminary indications that the UK might avoid the brunt of Trump's tariff pressure.<sup>211</sup> Doing so, however, requires coherent British policy, in particular a sound linkage between security and economics that is absent from the Government's proposed deal over the Chagos islands.<sup>212</sup> Moreover, regardless of the UK's ability to dodge major tariffs, the broader macroeconomic effects of a transatlantic trade war will still be felt.<sup>213</sup>

204. Ambrose Evans-Prichard, "Putin has another gas shock for us: the deindustrialisation of Europe", *The Telegraph*, 24 November 2022, accessed via: [link](#).

205. See BIS explainer on the October semiconductor regulations, accessed via: [link](#).

206. Nicholas Crawford, "A major leap towards decoupling in the advanced semiconductor industry", *IJSS*, 7 November 2022, accessed via: [link](#).

207. Leyland Cecco, "Canada's provincial leaders in disarray over response to Trump tariff threats", *The Guardian*, 14 January 2025, accessed via: [link](#); Srinivasan Sivabalan, "Emerging Markets Face Further Losses on Trump Tariffs, UBS Says", *Bloomberg*, 15 January 2025, accessed via: [link](#); Jenny Leonard and Saleha Mohsin, "Trump Team Studies Gradual Tariff Hikes Under Emergency Powers", *Bloomberg*, 13 January 2025, accessed via: [link](#); Lisa Baertlein and Ellen Zhang, "US importers rush in goods from China as Trump tariff threat looms", *Reuters*, 15 January 2025, accessed via: [link](#).

208. David Alire Garcia, Trevor Hunnicutt and David Ljunggren, "Trump pauses tariffs on Mexico and Canada, but not China", *Reuters*, 4 February 2025, accessed via: [link](#); "Donald Trump pulls US back from brink of trade war with Mexico and Canada", *Financial Times*, 4 February 2025, accessed via: [link](#); Vanessa Buschschlüter and Ian Aikman, "Colombia yields on US deportation flights to avert trade war", *BBC*, 27 January 2025, accessed via: [link](#).

209. Jacopo Bargazzi, "EU leaders deflect Trump on Greenland and on tariffs", *Politico*, 4 February 2025, accessed via: [link](#).

210. Eddy Wax, "'Look, President Trump! We're spending loads on defense!'", *Politico*, 4 February 2025, accessed via: [link](#); Nomia Iqbal, João da Silva & Michael Race, "EU tariffs 'pretty soon' but UK can be worked out – Trump", *BBC*, 3 February 2025, accessed via: [link](#); Lorne Cook and Raf Casert, "EU leaders scramble to avoid friction with the US under Trump and avoid a 'stupid tariff war'", *Washington Post*, 3 February 2025, accessed via: [link](#).

211. Holly Ellyatt, "Trump warns the EU and UK are in line for tariffs – but a U.S. deal with Britain might be in the cards", *CNBC*, 3 February 2025, accessed via: [link](#).

212. See Marcus Solarz Hendriks et al., *Averting a Strategic Misstep: Why the Government should walk away from its draft agreement to cede the Chagos Islands to Mauritius* (Policy Exchange, January 2025), accessed via: [link](#).

213. Renaud Foucart, "The UK would be lucky to avoid US tariffs – but a global trade war would hurt everyone", *The Conversation*, 4 February 2025, accessed via: [link](#).

### Major US Policymakers on Tariffs and Trade Issues in the Second Trump administration

The new American administration, despite its general pro-tariff bent, has a number of specific personalities that differ either marginally or dramatically on trade policy questions. It is eminently useful for the UK to understand these distinctions and leverage them during policy development and negotiations.

Scott Bessent, Trump's Treasury Secretary, is very close to the transatlantic financial establishment, and in the past has had relatively lukewarm views on extensive tariffs.<sup>214</sup> Bessent's commitment to dollar strength and its role as a reserve currency implies a significant degree of political access for the UK, if it can leverage London's financial relevance.<sup>215</sup>

Marco Rubio, Trump's pick for Secretary of State, is the most traditional transatlanticist in the new administration. However, particularly on China policy, Rubio will support robust tariffs, and is likely to accept their use in broader negotiations with Europe, Canada, Mexico, and others.<sup>216</sup>

Trump's incoming Commerce Secretary, Howard Lutnik, has a less straightforward relationship with China policy, particularly given his historical financial ties with Chinese-based entities.<sup>217</sup> Moreover, Lutnik is, historically speaking, softly anti-tariff, meaning the White House will need to provide clear guardrails to ensure he stays on-message.<sup>218</sup>

Incoming Interior Secretary and 'energy tsar' Doug Burgum has warned that the U.S. will lose the 'AI arms race' with China unless it fully utilises fossil fuels.<sup>219</sup> Pointing to the exponential appetite for electricity to power data centres and supercomputers, he in effect called for the U.S. to prioritise geostrategic concerns over the environmental. This bears on the UK's climate and industrial policies, as U.S. technology firms will likely improve their competitive advantage further by not being constrained by currently expensive, and under-resourced, clean electricity.

Although Robert Lighthizer, US Trade Representative during the First Trump administration, clearly has influence over the president's broader outlook towards economic policy, he did not receive a major formal role in the new administration. He is likely to matter, however, given the incoming US Trade Representative, Jamieson Greer, has similar instincts, and worked on trade policy during the First Trump administration.<sup>220</sup>

#### 3.4.5: Japan

Unlike virtually every other UK partner, Japan has a coherent industrial policy that balances the realities of a globalised economy with a long-term understanding of geoeconomic and geopolitical competition. Its success is uneven, but the intellectual-strategic fundamentals of a coherent policy are apparent.

214. Gavin Bade, Sam Sutton, Eli Stokols, Lauren Egan, and Ben Johnson, "Scott Bessent, they're coming for you", *Politico*, 12 November 2024, accessed via: [link](#).

215. Saleha Mohsin, Nancy Cook, Joshua Green, Annmarie Hordern, and Katherine Burton, "Trump Heeds Wall Street by Picking Scott Bessent as Treasury Secretary", *Bloomberg UK*, 23 November 2024, accessed via: [link](#).

216. Michael Martina, "Rubio pick signals a Trump China policy that could go beyond tariffs", *Reuters*, 14 November 2024, accessed via: [link](#).

217. Alexandra Apter, "Lutnick's China ties draw fire after Trump taps him to lead US in trade war", *Reuters*, 22 November 2024, accessed via: [link](#).

218. Lori Wallach, "How Trump's billionaire pick for commerce secretary could backfire on Republicans", *MSNBC*, 24 November 2024, accessed via: [link](#).

219. Jamie Smyth and Amanda Chu, Trump's 'energy tsar' says US will lose 'AI arms race' without fossil fuels, *FT*, 17 January 2025, accessed via: [link](#).

220. Samuel Benson, "On front lines of Trump's impending trade war, an 'unflappable' Latter-day Saint", *Deseret News*, 12 January 2025, accessed via: [link](#).

Japanese supply chain policy has lines of effort: a reshoring aspect that improves direct Japanese resilience and a nearshoring/friendshoring aspect that improves Japanese reliance upon neighbouring states with similar anti-China proclivities. Indeed, Japan's broader economic profile demonstrates the potential for strategic and economic recalibration if the UK makes the proper investments in industry and infrastructure.

Japan's manufacturing capabilities have declined since the mid-1970s as the Japanese economy became financialised. However, unlike the UK, Japan did retain some manufacturing capacity. As of 2021, British manufacturing accounted for around 10% of GDP, for Japan, around 20%. Japan also has a relatively similar intermediate goods input proportion of around 20%.<sup>221</sup>

Japanese political elites had considered reshoring critical industries for around a decade. Shinzo Abe's leadership of the Liberal Democratic Party throughout the 2010s, and eight-year premiership in Japan, tilted Japanese political debate against China. As chairman of the Council on Investments for the Future, Abe maintained consistent leadership of Japanese trade policy, linking it directly to foreign policy.<sup>222</sup> This consistent leadership generated to Japanese trade and manufacturing policies targeted at improving its supply chain resilience. Japanese policy had three lines of effort:

- **Critical Manufacturing:** Crucial industries, or “strategically essential products”, are Japan's primary line of effort in the near-term. The objective of Japanese policies through a variety of subsidies, legislative changes, and stockpiling measures is to ensure that Japan has a sufficient supply of crucial goods – predictably semiconductors, EV batteries, rare-earth metals, in short, the same sort of materials that the UK must prioritise – in-country before a major contingency.
- **High Value-Added Production:** Beyond general industrial protection, Japan has also prioritised “Value-added” industries for reshoring. The Japanese government has offered to cover up to two-thirds of the reshoring costs for a variety of relevant industries, particularly for automotive manufacturers that have experienced severe supply disruption during the COVID-19 Pandemic due to China's lockdowns. The goal is to develop within Japan and economic core that can both meet immediate consumer needs and provide an export base over time.
- **The General Production Base:** More broadly, Japanese policy seeks to reduce general industrial reliance on China, not just to reshore. Hence one of Japan's more ambitious actions was to encourage, and in some cases mandate, that businesses expanding operations in China also create a “duplicate” or equivalent plant elsewhere. Japan actively encourages economic-industrial expansion into ASEAN, tying Japan to those smaller southeast and south Asian states that are generally hostile to China but that also lack the

221. The parallels between Japan and the UK have always been striking. Today, while Japan has a slightly lower birth rate and slightly higher life expectancy per the available data, signs of Japan's chronic demographic-age issues, the fact both are island nations, post-industrial financialised economies, and dependent upon a much larger, somewhat ornery if not hostile neighbour makes the parallel reasonable.

222. “Re-shoring manufacturing activities to Japan: what is the current trend?” *Japanese Committee of the French Foreign Trade Advisors* (July 2020), 2-6.

independent power to do more than hedge against Chinese expansion.

Like in the UK's contest, comprehensive decoupling is not Japan's objective. Nevertheless, Japan's experience is illustrative because, once again, its geopolitical, economic, and trade profile is relatively similar to the UK's, and its strategic objectives are relatively closely aligned to those identified in this paper, albeit put in slightly less stark terms.

Japan's greatest difficulty has stemmed from business clustering in China. Like their American counterparts, Japanese business leaders turned to China during the 1990s and 2000s, offshoring crucial manufacturing to a more populous, dynamic Chinese society and economy and de-industrialising.<sup>223</sup> Considering geographic proximity, Japan's de-industrialisation has been more problematic and deep-seated than America's or Europe's. This is not because of *scale* but rather *clustering*. Japanese businesses rapidly developed geographical business clusters in China where multiple elements in the supply chain were located, increasing their relative reliance upon the Chinese economy. Hence while reshoring has had some success for specific industries, Japan's "Friendshoring" attempts are extremely difficult to kick-start. Major Japanese businesses do not want to decouple, and Japan's relative trade reliance on China is around identical to that when Japanese supply chain policies were implemented.<sup>224</sup>

Nevertheless, Japanese policy has had some success. Although the trade balance remains the same, Japanese companies have reshored crucial productive capacities. The more difficult step, as is also true for the UK, is coordinating with allies and partners, given disparities in economic productivity and radically distinct industrial policymaking apparatuses.

However, the dangers that Japanese supply chain policy difficulties indicate for UK-Japan coordination are tempered by Japan's clear desire to engage the UK in Indo-Pacific economic and political structures.<sup>225</sup>

The US' withdrawal from the TPP in 2016 threatened to upend any non-Chinese centric Indo-Pacific trade bloc. However, Japanese leadership revived the project – the late Prime Minister Shinzo Abe's strategic understanding eclipsed that of most regional leaders – and by December 2018 the CPTPP, a TPP successor agreement with primarily legal and logistical modifications, came into force. The CPTPP's eight ratifiers – Mexico, Japan, Singapore, New Zealand, Canada, Australia, Vietnam, and Peru – constitute a trans-Pacific trade bloc, not simply an Indo-Pacific one. After all, it includes three American powers, including the US' first and second ranked trading partners, and extends to the Malacca Strait and Vietnam.<sup>226</sup>

In late March 2023, the UK joined the CPTPP.<sup>227</sup> This will amplify British regional diplomatic relevance and improve the British economy. In supply chain terms, CPTPP membership, as facilitated by Japan, would facilitate a broader supply chain policy that included CPTPP constituent states.

Moreover, the UK and Japan have deepened their defence collaboration

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223. Ohashi Hideo, "The Impact of China's Rise on Sino-Japanese Economic Relations". In Kokubun Ryosei and Wang Jisi (eds), *The Rise of China and a Changing East Asian Order* (Tokyo: Japan Center for International Exchange, 2004), 176-179.

224. William Pesek, "The myth of China-Japan decoupling", *Asia Times*, 23 April 2021, accessed via: [link](#).

225. Anna Isaac and Graham Lanktree, "Japan a key player in UK's tilt to the Indo-Pacific", *Politico*, 16 March 2021, accessed via: [link](#).

226. Hiroshi Matsuura, "Why joining the CPTPP is a smart move for the UK", *Chatham House*, 19 March 2021, accessed via: [link](#).

227. "UK strikes biggest trade deal since Brexit to join major free trade bloc in Indo-Pacific", *Department for Business and Trade*, 31 March 2023, accessed via: [link](#).

over the last year, including in industrial areas that require supply chain linkages. In January 2023, the UK and Japan signed a Reciprocal Access Agreement (RAA), which greatly simplifies the ability of each country to deploy military forces in the other's territory.<sup>228</sup> Japan has an RAA with Australia<sup>229</sup>, and a similar style agreement with France.<sup>230</sup> Moreover, Japan will co-develop its future fighter aircraft with Italy and the UK under the Global Combat Air Programme (GCAP), which merges the BAE Tempest programme with Mitsubishi's F-X programme.<sup>231</sup> These overlapping strategic linkages, along with the AUKUS Pact, indicate the possibility of broader policy coordination between Japan, Australia, and the UK for the benefit of supply chains.

### 3.4.6: India

India lacks a truly comprehensive supply chain and industrial policy. Part of the difficulty is India's federal system: State and Union Territory policies are not well coordinated with federal policy or between each other, and have been made piecemeal over the past 15 years.<sup>232</sup> There is also no comprehensive strategic document outlining Indian industrial policy and supply chain objectives at the federal level. This makes projecting Indian policy difficult. Moreover, Sino-Indian trade volumes remain high, tying India into Chinese supply chains. This has persisted despite an increase in tensions between the two countries. During 2020, multiple border incidents occurred, including a major brawl that resulted in Chinese and Indian military deaths. Despite this, Indian trade volumes with China actually increased, remaining strong in 2020 and surpassing USD 100 billion in 2021.

The Modi government has made a start towards shifting supply chains from China. It unveiled a funding package for telecommunications production, with the goal of increasing Indian production by 15% by 2026. India currently relies heavily on imported Chinese telecommunications equipment, making this a reasonably significant step. India has also eliminated barriers for Foreign Direct Investment, made it far easier for foreign companies to open production sites in India apart from in industries deemed nationally critical, and has even removed nationality requirements for government subsidies in a variety of industries. From this, we may glean a general if disorganised Indian supply chain strategy: India hopes to become a hub for assorted production, allowing it to compete with China in multiple contexts.

From a British perspective, India's most crucial macroeconomic role is in medical production. As discussed previously, India has around 20% of global market share for generic medicines – generics are India's leading medical export by revenue and volume. Indian companies produce over 50% of all global vaccines. They were crucial during the COVID-19 Pandemic. The Serum Institute of India, despite the name a privately-owned biotechnology company and the world's largest vaccine producer, partnered with both Oxford-AstraZeneca to mass-produce the COVID-Shield vaccine, with American Novovax to produce its nasal and injection

228. "Signing of Japan-UK Reciprocal Access Agreement", *Ministry of Foreign Affairs of Japan*, 11 January 2023, accessed via: [link](#).

229. "Treaties Committee supports ratification of Australia-Japan Reciprocal Access Agreement and Global Convention on the Recognition of Qualifications", *Australian House of Representatives*, 1 December 2022, accessed via: [link](#).

230. "Sixth Japan-France Foreign and Defense Ministers' Meeting", *Ministry of Foreign Affairs of Japan*, 21 January 2022, accessed via: [link](#).

231. "Global Combat Air Programme takes centre stage at DSEI Japan", *Ministry of Defence*, 16 March 2023, accessed via: [link](#).

232. Ashish Saxena and Raj Kumar Tomar, "Make in India: Issues and Challenges", *International Journal of Science and Technology Management*, 6:6 (June 2017), 389.

vaccines, and even with the Russian Gamaleya Institute of Epidemiology, affiliated with the Russian Health Ministry, to produce Russia's Sputnik-V vaccine.<sup>233</sup> India's medical industry is a strategic tool that China has targeted: in 2021, Chinese Advanced Persistent Threat 10 "Red Apollo", a hacking group directly supported by the CCP's Ministry of State Security, hacked the SII and other major Indian vaccine producers, seeking to steal vaccine production information.<sup>234</sup>

Despite India's leading role in the medical industry, both in generics and vaccine production, however, its supply chain has a mortal vulnerability that also threatens the UK. Around 60% of Indian APIs are still Chinese-produced. The "Make in India" scheme, which mandates that any medical goods for domestic consumption include 75% Indian APIs, and any export products include 10% Indian APIs, will mitigate India's dependence on Chinese APIs over time. However, Make in India has fallen far short of its goals. Manufacturing as a share of GDP has decreased to 14.5%, far from the target of 25% by 2025, and the growth rate of manufacturing has also declined.<sup>235</sup> Hence there is good reason to doubt that India can insulate its manufacturing in general, let alone pharmaceuticals in particular, regardless of significant FDI.

There are signs of broader supply chain progress, however, particularly on semiconductor manufacturing. India as of yet has no semiconductor manufacturing facilities. But it does have, at least theoretically, the power generation and water access needed to facilitate semiconductor production.<sup>236</sup> It has also expanded its relationship with Foxconn, the Taiwanese technology provider that is Apple's key partner. Foxconn has encountered difficulties in China and already planned to accelerate investment in other geographies, including a multi-billion capital injection into its Indian plants. Earlier this year, Apple began to produce iPhones in India, a first for the technology company. In the autumn of 2022, Foxconn announced another expansion of its Indian locations, with plans to produce 10% of global iPhone products in India by 2025.<sup>237</sup> Moreover, Foxconn and the Indian Vedanta concluded an MoU under which the Taiwanese corporation will invest \$20 billion in a semiconductor and display plant in Gujarat.

Diversification towards India may be extremely fruitful in the long-term. However, the UK must note that India has explicitly identified high-end chip design as an area of developmental priority. This directly conflicts with the UK's semiconductor policy because of the UK's disadvantages in fabrication at any scale.<sup>238</sup> Because India has the capacity to scale up a major semiconductor industry, it can provide experimental chip manufacturers with far greater capacity to expand and test designs. Hence the UK must treat India's semiconductor expansion with care lest its potential market share is eroded.

Indian food security also remains an issue that will explode during a major Indo-Pacific crisis. Notionally, India meets its food needs with domestic production, and has done so since 2018. However, three factors speak against this. First, malnutrition remains relatively prevalent amongst

233. Kamala Thiagarajan, "Covid-19: India is at centre of global vaccine manufacturing, but opacity threatens public trust", *British Medical Journal*, 372 (28 January 2021), 1-2.

234. Krishna N Das, "Chinese hackers target Indian vaccine makers SII, Bharat Biotech, says security firm", *Reuters*, 1 March 2021, accessed via: [link](#).

235. "Key Economic Indicators", *Office of Economic Advisors* (2021), accessed via: [link](#).

236. "Modified Programme for Semiconductors and Display Fab Ecosystem", *Indian Ministry of Electronics and Information Technology*, accessed via: [link](#). See also John Reed, "India's high-stakes bid to join the global semiconductor race", *Financial Times*, 1 September 2022, accessed via: [link](#).

237. Sudarshan Varadhan and Yimou Lee, "Exclusive: Apple supplier Foxconn plans to quadruple workforce at India plant", *Reuters*, 11 November 2022, accessed via: [link](#).

238. "The semiconductor industry in the UK", *BEIS Committee*, 22 November 2022, 12-13.



India's rural population.<sup>239</sup> Second, while 54% of the Indian population is employed in agriculture, Indian farms are relatively unproductive, owing to a persistent reliance upon manual labour, inefficient farming techniques, and poor land management and division practices.<sup>240</sup> Third, India remains fertilizer import dependent.<sup>241</sup> Indeed, this has driven its relationship with Russia during the Ukraine War as much as its need for petrochemicals. Russia and Ukraine combined produce the plurality of global fertilizer. India has maintained a reasonable trading relationship with Russia to ensure it still receives fertilizer imports.

More broadly, India's relationship with Russia, and its dependence upon Russian oil and gas, makes India an unclear long-term partner for the UK despite its anti-Chinese proclivities. India will not shift its Russia stance at any point soon. In light of accelerating Russo-European economic decoupling, China will only become more integrated into Russia's economic system, both as a destination for petrochemical exports and as a major supplier of advanced equipment, technology, and technical support in place of Western imports. There is therefore a serious risk that India remains wholly reliant upon Russian oil and gas and Chinese APIs, essentially holding it hostage to Sino-Russian policy. Ukraine is not a core Indian interest, nor is any particular event in Eastern Europe. Nevertheless, the logic in Indian strategy is clear – there is no means to support the West in a struggle against the Sino-Russian axis if Beijing and Moscow have a stranglehold over multiple critical aspects of the Indian economy.

All this points to India as a potential liability in the immediate future, rather than a productive partner to which the UK can turn and that could anchor British economic, trade, and supply chain policy beyond China. Indeed, a major contingency is likely to cause severe economic destabilisation in India, reducing the viability of seeing India as “strategic insurance” against a China contingency. In the long-term, India may shift its orientation, necessitating continued contact, attempts to drive forward shared policy goals, and support for Indian initiatives that would improve British supply chains. But in the short-to-medium-term, India is not an anchor for British supply chain policy.

This is not to argue against integrating India into a broader British foreign policy, particularly if that foreign policy is directed towards the Indo-Pacific. Rather, it is that mitigating the vulnerabilities India creates for the UK, and actually operationalising the power that a state of such great population, economic weight, and social-cultural dynamism requires a comprehensive strategy, including trade in general, supply chains, complementary industrial policies, military coordination, and diplomatic coordination. Supply chains are one part of a broader puzzle with India: they are neither the solution nor key to the Indo-British relationship.

### 3.4.7: The European Powers

Europe remains crucial to the British economy. British food imports are primarily European sourced. The UK's transportation infrastructure, heavy industry, and defence industrial base are all thoroughly interlinked with

239. Data as of 2019/2020, “Country Nutrition Profiles: India”, *Global Nutrition Report*, accessed via: [link](#).

240. Atri Mukherjee, Priyanka Bajaj, et. al., “Indian Agriculture: Achievements and Challenges”, *RBI Bulletin* (January 2022), 50-51.

241. India has taken advantage of price and supply disruptions during the Russian invasion of Ukraine to procure additional fertiliser. Harikishan Sharma, “Fertiliser imports from Russia up, make up 20% of total in April-June”, *Indian Express*, 24 July 2022, accessed via: [link](#).

Europe, and will remain so for at least the next ten years.<sup>242</sup> Moreover, the UK will remain inextricably linked to the EU economically barring a supremely unlikely geopolitical transformation. Hence it is necessary to consider the way in which the European powers have signalled they will – or will not – respond to global supply chain issues. A coherent European policy is crucial to UK competitiveness, even if built off the interests of discrete actors and broader EU moves.

Given the state of the debate in Europe, it is for now more reasonable to cross national priorities with the EU, rather than to look solely at the EU. The EU’s member states have radically distinct views on block-wide cooperation on geopolitical and industrial issues – the intersection of which is supply chain policy.<sup>243</sup> Moreover, the EU does not have a coherent, clear, bloc-wide China policy.<sup>244</sup> Hence a coherent, bloc-wide assessment of the state of European supply chains is difficult, and requires some national analysis.<sup>245</sup>

Four states or state groupings are most relevant: Germany, France, the “New European” states, and the Scandinavian powers.

The Russian Invasion of Ukraine has demonstrated the generally disastrous tilt of German foreign policy over the past three decades. It is not precisely that Germany, caught up in the End of History thesis, jettisoned every element of national power and embraced market globalisation and the internationalisation and legalisation of political activity.<sup>246</sup> German leaders and political elites did embrace the supremacy of economy over traditional political rivalry.<sup>247</sup> But rather than naively eroding German strategic security, German policy was premised upon the economisation of international competition. That is, Germany assumed its economic heft, derived from its manufacturing capabilities, relatively balanced financial sector, and *de facto* control of the European Central Bank, would allow it to manipulate European policy as it saw fit, and that international trade flows would continue essentially uninterrupted.<sup>248</sup>

This explains the two troubling aspects of German policy from the British perspective: its persistent engagement with Russia; and its inability to articulate a China policy. Germany authorised Nord Stream 2 only months after Russia invaded Ukraine in 2014, under the pretext that “dialogue” was a far better course of action statecraft.<sup>249</sup> As Germany has violently discovered, encouraging a Russian energy market monopoly is a severe strategic liability.<sup>250</sup>

Similarly, Germany’s China policy remains unclear, despite Berlin’s commitment to human rights practices.<sup>251</sup> Germany remains relatively penetrated with Chinese consumer electronics and general consumer goods, and relies heavily upon Chinese intermediate imports.<sup>252</sup> Even as the EU seems destined to agree to hiked tariffs on Chinese Electric Vehicles in November,<sup>253</sup> Germany has signed a joint declaration with China to cooperate on autonomous and connected driving.<sup>254</sup>

Although France has been slow to recognise the new, more volatile structure of international politics, its industrial policy and supply chain structure is far less vulnerable and at-risk than Germany’s, making it

242. Wim Gysegom, Ruben Sabah, et. al., “Brexit: The bigger picture—Rethinking supply chains in a time of uncertainty”, *McKinsey*, 7 May 2019, accessed via: [link](#).

243. Marianne Schneider-Petsinger, “US and European strategies for resilient supply chains: Balancing globalization and sovereignty”, *Chatham House* (September 2021), 28-29. Francesca Gambarotto, Marco Rangone, and Stefano Solari, “Financialization and Deindustrialization in the Southern European Periphery”, *Athens Journal of Mediterranean Studies*, 5:3 (2019), 151-154.

244. “Why are eastern European countries cosy-ing up to Taiwan?”, *The Economist*, 2 December 2021, accessed via: [link](#).

245. Nine EU members have also objected to a variety of stockpiling directives. Jillian Deutsch and Jorge Valero, “EU Nations Warn Brussels Over Crisis Plan for Supply-Chain Gaps”, *Bloomberg UK*, 8 June 2022, accessed via: [link](#).

246. Andreas Umland, “It’s time Germany abandons its foreign policy la-la land”, *Politico*, 5 May 2022, accessed via: [link](#); Céline Marangé and Susan Stewart, “French and German approaches to Russia: Convergence yes, EU compatibility no”, *Chatham House* (November 2021), 6-7.

247. Ulrike Franke, “A Millennial Considers the New German Problem After 30 Years of Peace”, *War on the Rocks*, 19 May 2021, accessed via: [link](#).

248. Despite its benefits, see the tenor of the following research paper, published weeks before the Russian Invasion of Ukraine. Günther Maihold, Stefan Mair, et. al. (eds), *German Foreign Policy in Transition: Volatile Conditions, New Momentum* (SWP Research Paper 10, December 2021).

249. Claire Mills, “Geopolitical implications of Nord Stream 2”, *House of Commons Library* (2 March 2022), 4-7.

250. Constanze Stelzenmüller, “Merkel’s lack of regrets illustrates the fallacies of Germany’s Russia policy”, *Brookings*, 21 June 2022, accessed via: [link](#).

251. Human rights is naturally complex and has a unique role in British, European, and allied foreign policy. That being said, the fact that Germany so grossly emphasises human rights and liberal international norms in its public discourse and so selectively applies them.

252. Data as of 2020, “China-Germany”, *OECD*, accessed via: [link](#).

253. Andy Bounds, EU capitals set to back tariffs on Chinese electric cars, trade chief says, *Financial Times*, 5 August 2024, accessed via: [link](#).

254. Germany, China sign joint declaration on car data sharing, *Reuters*, 17 April 2024, accessed via: [link](#).

a more viable British partner.<sup>255</sup> While the UK views itself as Europe's premier maritime power, it is worth remembering that French strategic culture is extremely sensitive to maritime considerations, giving it an internationalist outlook.

The British and French economies are deeply intertwined. France is the UK's fifth most relevant individual trading partner, behind the US, Germany, China, and the Netherlands. France and the UK are also both relatively dependant upon intermediate goods. France's energy mix, however, is far more tilted to nuclear power than any other European state – over 70% of French electricity is nuclear-derived<sup>256</sup>, which has softened the severity of Russian oil and gas cuts and may be reducing some inflationary pressures on the French economy.<sup>257</sup> France is, generally speaking, a reasonable partner for a British supply chain and industrial policy, likely the most reasonable partner in Western Europe.

New Europe, namely the Baltic States and Czech Republic, offer intriguing opportunities. None are major manufacturing hubs, but all have entertained supply chain related efforts. Estonia, Latvia, and Lithuania are all small states on the edge of the US defence perimeter.<sup>258</sup> Since the COVID-19 Pandemic began, and China increased its public pressure on Taiwan, all three Baltic states have actively extricated themselves from China's orbit. They have departed from China's 16+1 Eastern European cooperation forum. In November 2022, Lithuania opened a *de facto* embassy in Taipei, and since then has inked an economic deal with Taiwan that exchanges Taiwanese investment in Lithuania for Lithuanian exports to Taiwan.<sup>259</sup> The other Baltic states may soon follow suit, particularly if China imposes sanctions against them, as it did on Lithuanian exports. Poland is more reticent, considering various Polish-Chinese bilateral agreements, but there is enough common ground for policy purposes.

Of course, none of these Eastern European states are industrial, wealthy, populous, or resource-rich enough to transform the UK's supply chain calculus or encourage a major revision of British trade policy. They are all valuable in principle, as a greater number of partners improves resilience in Europe.<sup>260</sup> Nevertheless, they can be at most only a small aspect of a broader supply chain strategy.

Finally, the UK has a distinct interest in the strategic and political orientation of the Scandinavian countries considering their geographic location and relevance to British energy markets. Norway is the UK's largest oil and natural gas supplier by a significant margin. The Scandinavian countries more broadly have a significant stake in the UK's energy mix: overlapping EEZs and territorial claims make them, again particularly Norway, responsible for North Sea oil, and therefore crucial energy partners for the UK in the long-term.<sup>261</sup> Norway, Sweden, and Finland are not manufacturing hubs. However, major firms like Finland's Nokia – arguably the crown jewel in Scandinavian technology and manufacturing considering its role in the global telecommunications market – are still reliant upon global semiconductor and microprocessor fabrication facilities in Taiwan, China, and Japan. This makes a coordinated strategy relevant

255. Denghua Zhang and Eric Frécon, "The China factor in France's growing engagement in the 'peaceful sea'", *The Interpreter*, 11 June 2022, accessed via: [link](#). See also Pierre Morcos, "France's Shifting Relations with China", *War on the Rocks*, 4 January 2022, accessed via: [link](#).

256. "Nuclear Power in France", *World Nuclear Association*, last updated September 2022, accessed via: [link](#).

257. William Horobin, "French Inflation Slows More Than Expected From Record High", *Bloomberg*, 31 August 2022, accessed via: [link](#).

258. Robbie Gramer, "Baltic States Are Pushing NATO for More Than Just a Tripwire Against Russia", *Foreign Policy*, 19 May 2022, accessed via: [link](#).

259. Bei Hu, "Lithuania Opens Taipei Trade Office Monday, SCMP Says", *Bloomberg*, 12 September 2022, accessed via: [link](#).

260. Krzysztof Falkowski, "Competitiveness of the Baltic States in international high-technology goods trade", *Comparative Economic Research*, 21:1 (2018), 38-40.

261. The shocks that the Russo-Ukrainian War have triggered combined with Norwegian strikes to increase price pressures in the UK. Harry Dempsey, David Sheppard, et. al., "Norway strikes threaten to cut off gas supplies to UK within days", *Financial Times*, 5 July 2022, accessed via: [link](#).

when Scandinavia is considered, but expectations must be tempered.

### 3.4.8: A European Industrial Policy?

Although Europe's divisions make a bloc-wide industrial policy difficult to envision, the aggressive pace of US industrial policy, alongside broader European political shifts, indicate the potential for an EU industrial policy. It is therefore worth considering this policy's roots and implications. Germany and France are the central actors in this context, although German policy is more relevant given its gradual but apparent shifts.

The Ukraine War shocked the Germany policy establishment. Pre-24 February 2022 German policy, as expressed through the EU, was the prevention of conflict in any respect to ensure the maintenance of global trade.<sup>262</sup> This also gave the European powers leverage as interlocutors with Russia during crises,<sup>263</sup> and play an overt geopolitical role, which benefited European interests.<sup>264</sup>

The Russian invasion of Ukraine shattered this hedged strategic approach. It became clear that Russia was, in fact, waging a campaign of conquest aimed at tearing Ukraine apart and completely revising the European security system. France and Germany therefore modified their strategic calculations. Most notably, Chancellor Olaf Scholz gave his *Zeitenwende* speech three days into the Ukraine War, pledging nearly £86 billion of additional defence spending.<sup>265</sup> Western Europe rapidly accelerated its energy diversification as well, cutting Russian oil and gas imports, imposing economic and financial sanctions upon Russia, providing military equipment to Ukraine, and welcoming Sweden and Finland into NATO with open arms.<sup>266</sup>

However, Europe has borne the brunt of the Ukraine War's economic disruption, at least in the Western bloc, considering its reliance upon cheap Russian energy before the conflict and its general unpreparedness for supply chain dislocation. This, combined with the US' above-described attempts to cultivate a domestic semiconductor and green energy industry through the CHIPS and Inflation Reduction Acts, has triggered a nascent European response. Alongside the above-discussed potential for a European industrial policy that provides robust protections for EU green energy development – and potentially space-based advance – the European Chips Act will also provide subsidies for EU semiconductor production.<sup>267</sup> The UK must therefore recognise the potential for a structured supply chain strategy in Europe, alongside a broader geopolitical stance.<sup>268</sup> Under a Second Trump administration, meanwhile, the EU may be more likely to pursue an explicit bloc-wide industrial policy, since its member states may buy in more thoroughly to such a move under the threat of US tariffs.

This has implications for all aspects of British foreign, security, and economic policy. From a supply chains standpoint, however, the UK should expect Berlin and Paris to push for more robust, expansive, and coherent EU-wide economic policies that provide Europe access to key supply chain elements. It confirms the possibility of Euro-American supply chain bifurcation.

262. Alexis Carré, "Europeans Have Weapons but Aren't Warriors", *Foreign Policy*, 4 December 2022, accessed via: [link](#). Gustav Gressel, "Dead-end pragmatism: Germany's Russia strategy after Merkel", *ECFR*, 9 February 2021, accessed via: [link](#).

263. Céline Marangé and Susan Stewart, *French and German approaches to Russia: Convergence yes, EU compatibility no* (Chatham House, November 2021), 3-4. Duncan Allan, "The Minsk Conundrum: Western Policy and Russia's War in Eastern Ukraine", *Chatham House* (May 2020), 11.

264. The United States acquiesced to this primarily because it also viewed Russia as a responsible partner. See Michael Doran and Tony Badran, "The Realignment", *Tablet*, 11 May 2021, accessed via: [link](#).

265. See [link](#).

266. Jon Henley, "Finland and Sweden call on Hungary and Turkey to ratify Nato applications", *The Guardian*, 1 November 2022, accessed via: [link](#).

267. The European Chips Act is some 16% of the US CHIPS and Science Act, but it nevertheless constitutes a response to global semiconductor supply modifications. See [link](#).

268. Olaf Scholz, "The Global *Zeitenwende*: How to Avoid a New Cold War in a Multipolar Era", *Foreign Affairs* (January/February 2023), accessed via: [link](#).

### 3.4.9: Allied and International Coordination

There are specific cooperative mechanisms with British allies and partners that can be encouraged today to ensure long-term supply chain stability, and to lay the foundation for a broader, more coordinated policy. One of the most promising areas is in cooperative funding for critical resource extraction. The UK and most Western countries have historically avoided domestic critical mineral and metal extraction, primarily because of their severe environmental effects. The deeper issue, however, is market-related. There are deposits of critical minerals and metals throughout the world, for example in Canada, which has significant deposits of nearly every major mineral and metal.<sup>269</sup> China has hoarded supplies of these relevant minerals and metals to support its own industrial production. Whenever a viable competitor emerges, for example a Canadian, American, or British company seeking to extract tungsten in, say, Canada or Vietnam – both of which have several hundred thousand tons of tungsten reserves<sup>270</sup> – the PRC market dumps, crashing the price and making any new supplier non-viable for three to six months.<sup>271</sup>

A solution to this issue would be a transnational commitment to a price floor for a variety of minerals – touted in Western circles as a ‘buyers’ club’.<sup>272</sup> The UK and its allies – such as through the G7’s Mineral Security Partnership – could agree to guarantee this price floor with providers to new extraction companies focused on specific critical minerals, metals, and elements. By setting a reasonable price floor based upon international market dynamics, the UK can ensure that new operations remain in business despite Chinese market manipulation. Ensuring this price floor is actually internationally guaranteed bolsters the UK’s market credibility – the government can bind itself and other governments to a constraint that ensures new companies actually trust the price floor guarantee. Bifurcating critical markets is far from a simple exercise – as witnessed in the difficulties Europe had in setting a price floor on Russian oil and gas – but will be an essential dimension of a de-risked supply chain strategy vis-à-vis China.

Unfortunately, the government’s current thinking on critical mineral allied cooperation stands far from this level of strategic depth. The Critical Minerals Refresh, mentioned previously, built upon the “A-C-E” approach formulated in the July 2022 Critical Minerals Strategy’s paper. However, the Refresh’s treatment of “C” component – Collaborating with International Partners – is confined to half a page, largely listing individual bilateral engagements and broad engagement in multilateral forums such as the G20 and G7.

Another issue that deserves explicit coordination is energy. The Ukraine War, as we have already stated, has exposed the dangers of relying on a long, cumbersome, single-source energy supply chain. Pursing more explicit agreements on energy supply, and prioritising regional partners, would, over time, reduce the UK’s reliance on volatile foreign energy markets.

More generally, the UK can identify industries with an overwhelming

269. “Minerals and the economy”, accessed via: [link](#).

270. M Garside, “Reserves of tungsten worldwide in 2021, by country”, *Statista*, 23 March 2022, accessed via: [link](#).

271. Chinese dumping practices are common in multiple industries. The UK, for example, has unevenly employed anti-dumping measures. “Britain proposes dropping anti-dumping measures against Chinese steel”, *Reuters*, 13 July 2022, accessed via: [link](#).

272. Nicole Lawler and Francis Shin, “The EU needs a buyers’ club for critical minerals. Here’s why.”, *Atlantic Council*, 15 December 2023, accessed via: [link](#).

single-source reliance in supply chains as those that are highest-priority for diversification, particularly if this single-source supply chain, or aspect of the supply chain, runs through China or Central Asia, as both are vulnerable to being disrupted during a major contingency.

Nevertheless, a crucial issue remains *regardless of a supply chain policy*: that of transportation.

### Assessing Vulnerabilities – Transport

Although food and energy supply chains are both crucial for long-term resilience against unexpected shocks, goods must still reach their destinations. This entails a review of the UK's transportation sector. Initial examination indicates a reasonably insulated system – the UK's primary rail provider, Alstom, is a French-headquartered European company, and Alstom builds a reasonable amount of its rolling stock and rail line in the UK at its Derby factory. However, much of Alstom's equipment is either Chinese-produced or has crucial Chinese or Asian-sourced sub-components. There are several rail repair facilities in the UK that would maintain British tracks and rolling stock, but after several months of a crisis, erosion is probable.

Heavy Goods Vehicle (HGV) shortages are less likely given the less distributed supply chains for HGV manufacturers and the UK's relatively robust domestic HGV industry. Nevertheless, the issue of *semiconductors* is obvious. An average HGV chassis contains 20 microcontroller units (MCUs) that are crucial for power transfers.<sup>273</sup> Each MCU contains semiconductors. Hence a semiconductor shortage disrupts transport as a second-order issue.

### 3.4: Transport Bottlenecks

Any supply chain policy must contend with a fundamental hurdle: that of limited secure maritime transportation infrastructure.

Despite advances in automotive and airplane technology, around 90% of global goods are still carried by ship. Maritime transport remains the most cost-effective method to move bulk goods. This will not change barring a transformation in other forms of transport technology – for example, the miniaturisation of a still-notional cold fusion nuclear reactor.

As discussed, the COVID-19 Pandemic and Houthi disruption of Red Sea shipping have

made clear the impact of even limited disruptions to global shipping. Rising shipping costs caused by China's intermittent lockdowns were a major initial cause of Western inflation – see, for example, the severe backlog at San Francisco Port in September 2021 as a clear case. Similarly, part of the Ukraine War's food price inflation has stemmed from the increased insurance costs of Black Sea shipping. Even if grain can exit Ukraine, it must be transported inland to Poland or elsewhere, rather than to Romania or Bulgaria, to avoid shipping cost spikes. Similarly, the

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273. Jennifer Smith, "Chip Shortage Curtails Heavy-Duty Truck Production", *The Wall Street Journal*, 3 September 2021, accessed via: [link](#).

Ever Given, a 200,000-DWT container ship, ran aground while transiting the Suez Canal.<sup>274</sup> It blocked the Canal for six days, creating a 369-ship queue and disrupting nearly £8.5 billion in trade. Mild yet persistent piracy between the Horn of Africa and Malacca Strait triggered a long-term shipping insurance spike in the 2000s severe enough to prompt a NATO-EU naval deployment.<sup>275</sup> Even the smallest of disruptions to global shipping have significant secondary price effects.

Even a minor Pacific contingency would have a far greater economic impact than any of these above-discussed events. The Taiwan Strait has slightly less overall trade volume than the Malacca Strait, considering some of the ships transiting it are local merchant transports destined for ports in the South China Sea. However, the Taiwan Strait is the critical maritime highway through which most Northeast Asian produced goods pass en route to European markets. Around 50% of the global container fleet, and 88% of the world's largest container ships by Deadweight Tonnage – the amount of tonnage a container ship can actually carry, rather than its displacement – pass through the Taiwan Strait. In turn, the world's primary high-volume container shipping companies like China's COSCO, Japan's ONE, South Korea's HMM, and Taiwan's Evergreen, Yang Ming, and Wan Hai are Asian-based and clustered around the Taiwan Strait.<sup>276</sup> Even limited disruption, for example caused by a Chinese intermittent blockade for several months, would trigger macroeconomic instability.

In turn, the global shipping industry's opacity makes it a long-term strategic liability. The world's two largest merchant fleets by DWT are Panama and Liberia, while Malta contributes 34% of EU-member-flagged merchant shipping.<sup>277</sup> These three states, along with the Marshall Islands, do not actually own their flagged shipping. They are instead "Flags of Convenience". Domestic legal regulations are far laxer in these political entities than elsewhere, meaning shipping companies can drastically cut costs and employ a Maltese or Liberian-flagged ship.<sup>278</sup> Combined, the top-five Convenience-Flagged fleets comprise 52% of global merchant shipping by DWT.

The issue here is not the poor conditions that are part and parcel with those who serve on Flags of Convenience.<sup>279</sup> Rather, it is that Flags of Convenience make it difficult to trace a ship's buyer or operator. "Tramp" shipping remains integral to global supply chains – Tramp carriers are ships that lack a fixed schedule, and instead shift their destinations and cargo volumes depending upon the time and buyer.<sup>280</sup> Moreover, family businesses dominate the shipping industry. The majority of notable carriers are family-owned, a fact that authoritarian regimes like China have leveraged to their own benefit.

The result is an opaque, rapidly shifting, nearly impossible to control or regulate shipping industry, in which a ship's nominal flag has little to do with its actual loyalties or reliability. During a major crisis, it is entirely conceivable that a specific family, or series of shell companies, buys up a chunk of global shipping, and then redirects it towards Chinese or allied ports, and away from European and British ones.

274. Kit Chellel, Matthew Campbell, and K Oanh Ha, "Six Days in Suez: The Inside Story of the Ship That Broke Global Trade", *Bloomberg*, 24 June 2021, accessed via: [link](#).

275. "Counter-piracy operations (2008-2016)", NATO, 19 May 2022, accessed via: [link](#).

276. "The world's biggest shipping companies in 2020", *Ship Technology*, 19 October 2020, accessed via: [link](#).

277. All shipping data is from the latest edition of the UK's Department for Transport Shipping Fleet Statistics, accessed via: [link](#).

278. Muhammad Ammar Alam, "The Flag of Convenience: A case study of Liberia's Shipping Industry", *Maritime Study Forum*, 13 February 2021, accessed via: [link](#).

279. Those conditions, however, are extremely poor. Those who serve on Flag of Convenience ships typically lack any legal dispute resolution mechanisms with management as well.

280. Hari Menon, "What Are Liner Services and Tramp Shipping?" *Marine Insight*, 20 August 2021, accessed via: [link](#).

There are only limited means to avoid a major shipping disruption. The US has a mild amount of insulation due to the Jones Act, a law mandating that all traffic between US ports be carried on US-flagged ships with crews abiding by US regulations. From this pool, the US Navy and Merchant Marine/Maritime Administration contract with specific ships to form a reserve logistics fleet during crisis or wartime. Even so, this fleet is far too small – and has far too few merchant mariners – to meet the US’ demands for merchant transport.

The UK, in concert with its allies, could take a major step towards supply chain security if it actually sponsored the expansion of a common merchant fleet, one that would be available during a major crisis. It would, effectively, function as an international, allied merchant marine.

Pooling infrastructure and coordinating development for this fleet would be prudent and feasible. In this respect, the United States does provide a forward-leaning example, albeit one at a grossly insufficient scale. The US Maritime Administration (MARAD) maintains standing contracts with around 100 ships under its Maritime Security Program that obligates those ships to make themselves available to the US government during national emergencies.<sup>281</sup> This concept could be applied far more broadly. The UK’s Merchant Navy is in a better position than the fleets most countries maintain, especially Germany and France, given their extremely lax vessel registration laws. However, the UK’s fleet is grossly insufficient to meet its needs at about three percent of the global merchant fleet total, and 0.5% by Deadweight Tonnage.<sup>282</sup>

A multilateral agreement between various interested parties, likely the US, UK, Canada, Australia, and perhaps Japan, would provide the capital investment necessary to sustain a programme of this size. Some sort of coordination system would need to be identified, of course, and the terms under which this fleet could be deployed delineated. The potential, however, exists for a significant logistical system that provides crucial strategic insurance against a major international disruption, particularly one that intersects, as it likely will, with an Indo-Pacific contingency.

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281. The MSP is, of course, insufficient for the task this paper outlines, but it nevertheless demonstrates a useful initial blueprint from which we might build. See Seth Cropsey and Harry Halem, “The U.S. is wholly unequipped to resupply forces in a great-power conflict”, *Defense News*, 21 October 2021, accessed via: [link](#).

282. “Shipping Fleet Statistics: 2020”, *Department for Transport*, 10 March 2021, 1.



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## 4: Recommendations

A British supply chain policy is concurrently sorely needed and exceptionally difficult to develop in light of the broader international environment. However, a variety of steps can be taken to improve British supply chain resilience and craft a strategy that cuts across government. Recommendations towards that policy can be placed in four buckets: those relating to the machinery of government; the need to stockpile and establish minimum requirements for British-accessible goods; the strategic case for friendshoring; and the necessity of secure and partially autonomous transportation.

### Machinery of Government

Three recommendations are relevant to supply chain policy as it relates to the machinery of British government.

*The UK must integrate supply chain considerations more concretely into its policy process, both domestically and internationally.* This demands an intellectual shift away from the historical British emphasis on commerce and productivity, and towards a new paradigm that highlights the need for strategic supply chain sustainability. Such a shift is directly in line with the Integrated Review and Integrated Review Refresh's attempts to link domestic and foreign affairs. The levelling up agenda and skills agenda, for example, intersect directly with the UK's defence strategy and foreign policy. AUKUS underpins the UK's Indo-Pacific strategy, and the most public pillar of AUKUS is the submarines development programme, under which the UK aids Australia in developing a new class of nuclear-powered attack submarines. This requires a major expansion in the UK's Barrow-in-Furness nuclear submarine shipyard and in the access links to the yard to accommodate a greatly increased workforce, with obvious domestic political and economic implications. Supply chains considerations are equally integrated across all elements of British foreign policy. They should be identified and systematically interwoven with other foreign policy objectives in the UK's future strategic documents.

*The UK should create a strategic supply chains cell within the Cabinet Office, with the task of assessing the likely probable degree of economic shock to the UK during a decoupling event and forecasting the way in which the UK can navigate a post-decoupling global economy.* This should entail a partnership between the MoD's Secretary's Office of Net Assessment and Challenge (SONAC) and a newly-created, small, parallel team within either the Department of Business and Trade or reporting to the Cabinet Office. SONAC, modelled off the US Defence Department's Office of Net Assessment, is tasked with long-term strategic

and technological forecasting to generate an advantageous position for the British military and British state more broadly.<sup>283</sup> However, there is seldom analysis on the economic and commercial elements of long-range strategic competition, simply because net assessment is traditionally a military capacity. Economic net assessment that emphasises technological change and integrates political, strategic, and commercial considerations into long-range forecasts of global macroeconomic shifts would help the UK better understand the possibilities it faces and prioritise policy investments. Moreover, this research and forecasting would also allow the UK to assess more precisely the damage of a Sino-American decoupling event, identify its impact upon the European powers, and in turn recognise the potential this has to disrupt daily British life.

The UK should create a coordinator for Supply Chain policy within the Department for Business and Trade that supports British industrial competitiveness. The UK has avoided explicit support for British industry's exports since domestic liberalisation in the 1980s. But the UK has never engaged in a French-style export and industrial support effort with an economic intelligence unit. The UK should establish this unit under the Department for Business and Trade, with relevant linkages to FCDO. This organisation's objective is to work with British companies to assess supply chain risks and identify friendshoring and reshoring options for various aspects of the supply chain. The coordinator's role should not be one of explicit support for industry, although there will of necessity be some sort of subsidy or tax framework that accelerates industry development. Rather, the objective of this coordinator is to ensure that broader government policy is tilted towards desired British supply chain objectives.

The ongoing Strategic Defence Review (SDR) must provide an assessment and strategy for consolidating robust British defence supply chains. The SDR's published terms of reference do not make any mention of defence supply chains – a concerning omission given their upstream importance to subsequent force development and defence industrial production. In the spirit of closer integrated across industrial strategy, defence and foreign policy, the SDR should map out the Government's plan for building resilience into defence supply chains, and identify existing vulnerabilities and market exposure to adversarial states.

### Stockpiling and Minimum Requirements

Although complete reshoring is impossible, the UK can take steps to increase the domestic resilience and competence of British industry in the face of supply chain disruption. Two steps are necessary.

The UK should stockpile a small number of critical materials, namely basic medicine and medical devices, some microchips and other semiconductor-related materials, and other basic necessities. These stockpiling levels cannot be sufficient for a long-term disruption simply because of the unpredictability of decoupling events, the cost of major stockpiling efforts, and the limits of British industry. However, the UK can engage in a handful of relevant stockpiling attempts. Most critical are NSAIDs and basic medicaments, specific critical minerals,

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283. See Gabriel Elefteriu, *A Question of Power: Towards a Better UK Strategy Through Net Assessment* (Policy Exchange, 2018).

and to an extent semiconductors and microchip-related materials. Over the next five years, HMG should cultivate a stockpile of each identified capability that can sustain the population for 90 days.

The UK should carefully evaluate the internationalisation of supply chains for critical goods, with an emphasis on partners and the origins and supply chain vulnerabilities of key inputs. One model for this might be the U.S.-Japan-South Korea supply chains early warning system created in 2023. The UK must ensure access to some supply of various implements, particularly basic medicines, microprocessors, and ideally batteries and other energy-storage technologies. The UK can do this through a combination of market requirements that apply to British and identified friendly national business, applying some sort of targeted tariff or minimum production requirement for different industries against countries that have obvious predatory policies. This involves far more aggressive government engagement with industry at the skills level as well, in particular the fostering of a high-tech workforce that can contribute to critical capability manufacturing. The emphasis of this line of effort should be on up-skilling, rather than on market protections per se, to ensure that free enterprise still has a coherent and central role.

## Friendshoring

Friendshoring must be a critical aspect of the UK's supply chain strategy. Indeed, it is likely the most strategic aspect of the supply chain problem more broadly given its linkages with other geopolitical questions. The UK should have a supply chain strategy for each region – Asia, Europe, and North America – to ensure a long-term effective supply chain reorientation. Moreover, the UK must carefully select the context and region in which it wishes to move first, a choice that must stem from contingent political factors and the Government's appetite for rhetorical flair and entrepreneurial policymaking.

The UK should link its East Asian friendshoring initiatives with other regional strategic moves, most notably the AUKUS agreement, the UK-Japan Reciprocal Access Agreement, building off the UK's CPTPP accession. The UK has an opportunity to become the foremost Euro-Atlantic actor in the European trade system. AUKUS, the RAA, and CPTPP accession enable the far greater flow of information, goods, and people between the Indo-Pacific and the UK. The UK should build on this momentum, using AUKUS, the UK-Japan relationship, and the CPTPP as framing devices to advance a series of common supply chain projects that leverage British strengths in high technology, advanced semiconductor processes, and other specific aspects of the supply chain to improve British resilience and market access in Asia.

Beyond established Asian partners, the UK should focus on specific friendshoring agreements for individual industries, rather than comprehensive agreements with each state. The UK would obviously benefit from various FTAs and other joint projects with regional actors, particularly states like India that have taken a major step towards reshoring. The reality is, however, that the distances involved and the political imperatives at play would complicate any comprehensive supply chain strategy that places at its heart countries with which the UK

does not have an extant, long-standing, and clear strategic relationship. The UK should pursue long-term trade policy objectives with non-CPTPP Asian states like India, and ideally conclude a robust FTA in the near future. But rather than making broad cooperation the core of British engagement, the UK should also identify specific potential industry partnerships to begin the hedging process that would, with a limited amount of financial support and coordination between capitals, be operationalised. For example, as India seeks to break into the global semiconductor market and insulate itself from Chinese pressure and international supply shocks, the UK could encourage British semiconductor firms to work with Indian counterparts for production at scale.

In Europe, the UK should link as openly as possible security, defence, and political cooperation in Central and Eastern Europe with supply chain and trade incentives. The UK has garnered an enormous amount of goodwill in Central and Eastern Europe since 24 February 2022. It will maintain this goodwill until the Ukraine War ends. Moreover, now that Finland is a NATO member, the UK should identify the potential for a Central and Eastern European supply chain corridor, that includes Finland, the Baltic States, Poland, Romania and Bulgaria, and post-war Ukraine. This supply corridor would involve joint development of food, critical material, and other relevant capacities in a manner parallel to and independent of Europe's traditional industrial projects. The UK should, to this purpose, deepen the Trilateral Pact with Ukraine and Poland, include Finland and the Baltic States if possible, and integrate into this agreement a series of economic incentives and supply chain policy aspects.

During supply chain discussions in Europe, the UK should integrate concerns about Chinese exposure into every level of its negotiations. Central and Eastern Europe increasingly recognise the threat that China poses to global stability. By contrast, France appears willing to engage with China regardless of its domestic and international actions against Western interests, Germany and Hungary still see China as filled with economic opportunities, and the EU as an entity has not yet developed a consistent identifiable strategy. The UK should take the lead, encouraging its Central and Eastern European partners to emphasise the China question in their EU engagements and, during major negotiations with the EU and bilateral engagements with France and Germany, make it abundantly clear that the UK believes a reasonably coherent China policy should sit at the heart of the European-UK relationship. Moreover, supply chain linkages are capable of encouraging the European powers to think strategically themselves. The UK must negotiate with a European policy far broader than just supply chains: the Europeans, despite de-risking rhetoric, have yet to do the same. Engagement with a British negotiating stance that is legitimately strategic will help ensure alliance policy coherence.

The UK should harmonise as far as possible its regulatory standards with those of the United States. The US is the UK's most critical ally. But the UK is particularly poor at understanding the objectives of US economic or industrial policy and, of equal relevance, applying its strategic weight and actualising the goodwill it has in US policy circles to modify that industrial policy for the

UK's benefit. As the UK develops environmental regulations and engages in a notable, if exceptionally restrained, industrial effort of its own, it should actively harmonise its standards with that of the US to enable long-term future supply chain access. In turn, the UK has some ground upon which to stand through the Atlantic Declaration, which in a limited but still relevant sense begins to harmonise American and British objectives. A coherent bilateral framework can unlock the market mechanisms need to drive energy technological development in a supply chain conscious manner. This should involve explicit British openness to offsets that will satisfy the Trump administration's demands for industrial expansion, while also leveraging its financial markets to support US aims.

To build support for an FTA in the long-term, in the short-term the UK should emphasise cooperation on particular areas of British strength that plug into US industrial strategies. The American attempt to insulate its supply chains from global shocks and build domestic industry naturally stresses green technology. Green energy is increasingly far more than a response to climate questions, but rather a viable long-term source of power and alternative to imported energy resources, meaning the US, with its vast natural gas reserves, would be in an extremely advantageous position if it could create a robust green tech market. American wind power, historically speaking, has received extensive public subsidies. However, the UK remains a global offshore wind leader, with decades of experience operating offshore platforms in the North Sea. It is also a leader in developing Small Modular Reactors (SMRs), which can link into a decentralised power system, a critical step if any major industrialised country is to transition to Green energy. More generally, the UK's geographic and economic profile make it a useful proxy case for green transition efforts, telecommunications development and deployment, and other hyper-modern infrastructure. Hence the UK can build utility by demonstrating its relevance to the American green supply chain.

The UK's strategic goal in the short term should be to plug into US semiconductor manufacturing as cultivated in the CHIPS Act, and to encourage the US to retain its developments in semiconductor manufacturing through its industrial policy. The degree to which the CHIPS Act will remain highly protectionist is not yet known. However, the UK semiconductor industry should be positioned actively to link into the CHIPS Act, meaning it should be able to avoid the *de facto* penalties the US' semiconductor industrial strategy applies to non-American producers. The UK's financial capacity can make it an essential interlocutor that preserves the investments made in semiconductor manufacturing in the US during the new administration, reframing them as part of the US' broader industrial ambitions.

The UK must articulate in the long-term a linked policy that intertwines supply chain considerations from multiple regions, but particularly emphasising its ability to do so to the US and EU. Over time, the US and EU are likely to remain in contact, even as they pursue divergent industrial strategies. The UK has the appetite to serve as a convening power, one that brings together other actors to hammer out a broader consensus on crucial strategic questions. In the

context of supply chains, the UK can use the leverage it generates through an amplified relationship with the US to provide the EU an access path to the US, and thereby ensure European and American supply chain policies become harmonised. Neither power would be capable of conducting such an effort independently because of the politically charged and strategically thorny nature of supply chain questions. British leadership in this context can play an essential role, therefore, in keeping the alliance together.

### Transportation

Transportation is the least appreciated aspect of supply chain policy. But even if the UK implements every recommendation listed above and its partners work seamlessly to cultivate an alternative supply chain resilient to shocks, the UK would remain at significant risk to a disruption of global shipping. Two steps can be taken to ensure long-term British access to global shipping during a crisis.

The UK should work with the European powers and the US to create an integrated, accessible fleet of nationally flagged ships for emergency use. The UK's merchant fleet may nominally still be world-leading, but the proliferation of flags of convenience have undermined actual UK merchant capacity. The European powers and the US also lack significant merchant marine fleets and the construction capacity to rapidly produce merchant ships and crew them in the event of a major supply cut. The UK, along with the US and EU, should create a pooled merchant fleet sustainment system, where each actor commits to sustaining a specific number of ships. In normal times, these ships will operate as standard merchant ships, albeit with vetted crews and ownership that is responsive to national needs. In a crisis, these ships can be activated and tasked with transporting critical supplies between the US, UK, and EU, and thereby preventing a complete supply chain collapse in the Euro and Amero-Atlantic in the event of a major commercial disruption.

The UK should embark upon public-private partnerships for reinsurance to prevent crises from derailing insurance costs. The Ukraine War has demonstrated the risks that militarised disruption can pose to international transport, not only because of the physical danger of conducting commerce, but also because of the disruption that conflict causes for insurance premiums. The global insurance market, and in particular Lloyd's of London's syndicates, responded rapidly to the disruption of Ukraine and implemented various reinsurance and other loss management schemes to enable the Black Sea Grain Agreement of summer 2022. The mechanism for a similar set of actions should be in place today in anticipation of an Indo-Pacific conflict.

## 5: Conclusion – the Future of a British Supply Chain Policy

A structural decoupling event in the global economy is probable in the next two decades, and possible as soon as five to ten years in the future. The UK is not and will never be self-sufficient. Indeed, it has prospered off a free and open commercial system. At bottom, the central objective of British foreign policy should be to preserve that free and open system insofar as possible, working with its allies and like-minded states who all have an obvious interest in the continuation of a stable international commercial system.

Yet two realities point towards the need for a serious hedging effort to prepare the UK for a post-globalised or partly deglobalised world.

First, the sheer friction between the US and China, the two engines of globalisation, has intensified to a point that both parties are actively preparing for decoupling and, in turn, a major military conflict that accelerates or intensifies decoupling. The UK is overwhelmingly dependent upon maritime trade and, by extension, the stability of the international commercial system, but it is at quite obvious risk of a severe decoupling event. Failure to prepare for this event, given the geopolitical trends at hand, would be an act of gross negligence. Even if the UK expends the majority of its energies and directs its integrated foreign policy towards preserving this system, the reality of decoupling demands a response.

Second, Sino-American decoupling, along with a revived strategic competition with Russia and the Ukraine War, have when combined created the serious potential for Euro-Atlantic friction. The EU and the European powers are unlikely to decouple fully from the United States. The EU has objected to specific American industrial practices, particularly those focused on Green technology, while also using the US as a convenient political target to avoid actually confronting its strategic shortcomings. Nevertheless, tensions between Washington and the Brussels-Berlin-Paris trio will only increase as Sino-American confrontation nears and the Ukraine War continues. The UK is therefore at serious risk of being caught between competing trade and industrial blocs that both fund development of key capabilities, both green tech and semiconductor products. Now that it stands beyond any major economic bloc, the UK must position itself to navigate this increasingly protectionist world, while doing so in a manner that lies within British strategic needs.

Decoupling is dangerous, as is deglobalisation. But if both are occurring, the UK cannot afford to remain unprepared. Nor can it afford to make the

entirety of its foreign, economic, and strategic policy an attempt to uphold the current commercial order. The UK lacks the power and resources to serve as a key global power, and is instead a supporting element of a larger Western coalition. It would be grossly imprudent to avoid the conclusion that at least some resources can be devoted to preparing for a less globalised world.





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Policy Exchange  
1 Old Queen Street  
Westminster  
London SW1H 9JA

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