EVENSTAR INSTITUTE

AN OVERLOOKED RISK: CHINA'S INDIRECT INFLUENCE OVER THE UNITED KINGDOM'S NATIONAL SECURITY SUPPLY CHAIN

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EXECUTIVE SUMMARY

1. The United Kingdom's national security supply chain is exposed to China in three ways: directly, indirectly (through third countries), and through China's strong position in the global logistics chain.

2. Beijing has repeatedly used its influence in trade and its control over certain raw materials to achieve its own strategic and political aims, for example through cutting off supply to countries which it disagrees with.

3. There is every reason to suspect that Beijing would employ similar tactics to achieve its strategic aims if relations with the UK were to significantly deteriorate.

4. Although effort has gone into de-risking the UK's direct exposure to China, more work is needed to reduce the indirect and logistics risks.

5. Using Southeast Asia – a key source of goods and materials for the UK – as a regional case study, we show how the UK's national security could be readily compromised by China in the event of a downturn in relations.

ABOUT THE EVENSTAR INSTITUTE

The Evenstar Institute is a non-partisan, not-for-profit think tank focused on measuring and understanding the evolving nature of national influence in the twenty first century.

Our current core programmes are the China Influence Index, and Macro Supply Chain: Risks, Challenges, and Opportunities.

For more information on our research please contact the CEO and co-founder, Sam Olsen *sam.olsen@evenstarglobal.com*

INTRODUCTION

The People's Republic of China (PRC) is at the heart of the world's supply chain. The PRC accounts for almost 30% of global manufacturing output, and according to the UN, ranks first in terms of share of global output in 16 categories of 22 tracked manufacturing categories, and second in six others.[1] However, it is not only finished goods that China produces, but many of the materials and components that are used in manufacture by other countries. In 2021, for example, China accounted for 85% of the global supply of refined rare earths, 17 metals that are crucial to the modern economy.[2]

As such, much of the UK's national security supply chain is exposed to China either directly or indirectly, in finished products, components (including semiconductors), or critical minerals. In addition, China has significant influence over the global logistics chain. The Chinese shipping firm Cosco is one of the largest in the world, and also has controlling stakes in 37 ports worldwide.[3] Altogether, companies from China own over 93 ports in 53 countries.[4] Chinese technology is also increasingly being used worldwide to power logistics data and information flows, for example the LOGINK logistics platform.[5] This gives Beijing significant insights into global supply chains, and gives China the power to track and potentially interrupt shipments needed for Western national security.

In general, China's capacity to intentionally disrupt supply chains directly is well known. However, the ability of Beijing to disrupt indirectly through third countries, or through its global logistics network, represents a proven, significant, but overlooked risk to UK national security. The Evenstar Institute addresses these risks and summarises them in this paper.

We draw upon three main sources of information. First, research gathered as part of the Evenstar Institute's Macro Supply Chain Risk programme; second, analysis using data from the Evenstar Institute's China Influence Index, which measures and understands China's influence over other countries; third, our interviews with companies working in the UK national security supply chain.[6]

1. https://bit.ly/barrons3EReGwa
2. https://www.mining-technology.com/analysis/china-rare-earths-dominance-mining/
3. https://doc.irasia.com/listco/hk/coscoship/interim/2022/intrep.pdf
4. Kardon, IB, and Leutert, W, "Pier Competitor: China's Power Position in Global Ports", *International Security* vol. 46, issue 4, Spring 2022
5. https://bit.ly/uscc3XmbNKV
6. Note that these companies are anonymised given the sensitivity of the information provided.

CHINESE INFLUENCE OVER THE UK'S NATIONAL SECURITY SUPPLY CHAIN

While national security has traditionally been thought of in terms of a country's military and other defensive capabilities,[7] the complexity of international supply chains, the development of weapon systems and strategic technologies reliant on multiple supplier countries, digital infrastructure, and overall global connectivity, along with ongoing or recurrent phenomena such as climate change and pandemics, mean that such a definition is no longer sufficient for managing geopolitical and geoeconomic risk.

National security is about far more than bombs and bullets. The Evenstar Institute has formulated a broader concept of national security, defining it as the capacity for a country to function autonomously based on four key areas: Defensive Capacity, Government Functionality, Economic Prosperity, and Human Security. Based on this, we understand the influence of one country over another in terms of its capacity to threaten national security by posing an ultimate risk to autonomy in one or more of those areas.

Figure 1 below illustrates how we model China's influence and the risk it poses to UK national security.

THE EVENSTAR INFLUENCE MODEL

CAUSAL DIRECTION OF INFLUENCE BUILDING

Enabler of Influence (how influence is established)	**Strands** (sectors affected)	**Cross-Strand Impact** (knock-on effects of Strand on each other)	**Ultimate Risk to National Security**	
Institutional Control	Government and Aministration		Defensive Capacity Government Functionality Economic Prosperity Human Security	National Autonomy
Elite Capture Diplomacy	Defence and Security			
Diplomatic Presence	Finance, Trade, and Investment			
United Front Activity	Food, Water, and Agriculture			
Economic Activity	Energy and Mineral Resources			
Regional Linkages	Civil Society and Cultural and Demographic Reach			
Institutional Collaboration	Academia, Research and Education			
Technology and IP Cultural and Societal Engagement	Transport and Logistics Digital Infrastructure			

Figure 1: The Evenstar Influence Model how influence affects national security

7. The concept of security is inherently subject to varying definitions. The approach we adopt is in line with those which consider broader dynamics, extending beyond the military to society, politics, economics, and the environment (Buzan, Waever & Wilde (1998) Security: A New Framework for Analysis, (Boulder: Lynne Rienner Publishers).

To illustrate the need for such an approach, consider the impact of a knock to the global automotive industry. A squeeze in the global supply of microchips, caused by the impact of COVID, was a major factor behind a significant reduction in global car production in 2021, equivalent to a projected USD 210 billion loss.[8] In the UK, car production slowed to its lowest output since 1956.[9]

China and Taiwan are major sources of parts needed for the global automotive industry, including but not only microchips. If car makers were to be cut off from China or Taiwan, even temporarily, then major manufacturing turmoil would be expected.

An event of this type would have not only a financial impact (threatening Economic Prosperity), but social and political consequences too (Human Security). Around 800,000 jobs in the UK are dependent on the automotive sector, and if the factories were to be closed for a prolonged period of time, then the resultant job losses would be expected to be high.[10]

Moreover, this would pose a threat to Defensive Capacity, given the close overlap of the supply chains of the UK military and the automotive industry. As such, disruption to a small part of the global supply chain can have knock-on effects impacting UK national security in multiple dimensions.

The UK is heavily dependent on the PRC for its supply chain. 13.3% of all goods imported into the UK in 2021 were from China, the largest category being machinery and transport equipment (£27.5 billion) of which laptops, computer equipment, and mobile phones were important constituent parts.[11] The UK is also heavily exposed indirectly to China, via third countries over which Beijing has significant influence. For instance, Cambodia makes many of the uniforms used by the British Armed Forces, but Evenstar Institute research shows that two thirds of Cambodia's garment manufacturing inputs come from China. This is a risk for the UK because, as discussed below, Cambodia is a country which has previously shown willingness to incur economic costs to align with China's strategic goals.

8. https://www.cnbc.com/2021/09/23/chip-shortage-expected-to-cost-auto-industry-210-billion-in-2021.html
9. https://www.imeche.org/news/news-article/uk-car-production-falls-to-lowest-level-since-1956
10. https://www.smmt.co.uk/industry-topics/sustainability/employment/
11. https://bit.ly/onsuk3AB9udo

The overall concern is that if relations between China and the Western alliance were to drop, for example over an attempt by Beijing to blockade or invade Taiwan, then China would not only potentially cut off direct trade to Western countries like the UK, but would also put pressure on third party countries to curtail their economic interchange with the West. Not only that, but China's influence in the global logistics network, and the use of its own technology to power supply chains, means that Beijing could take action to prevent goods reaching their intended Western destinations. Figure 2 below shows how these risks are not obviously visible.

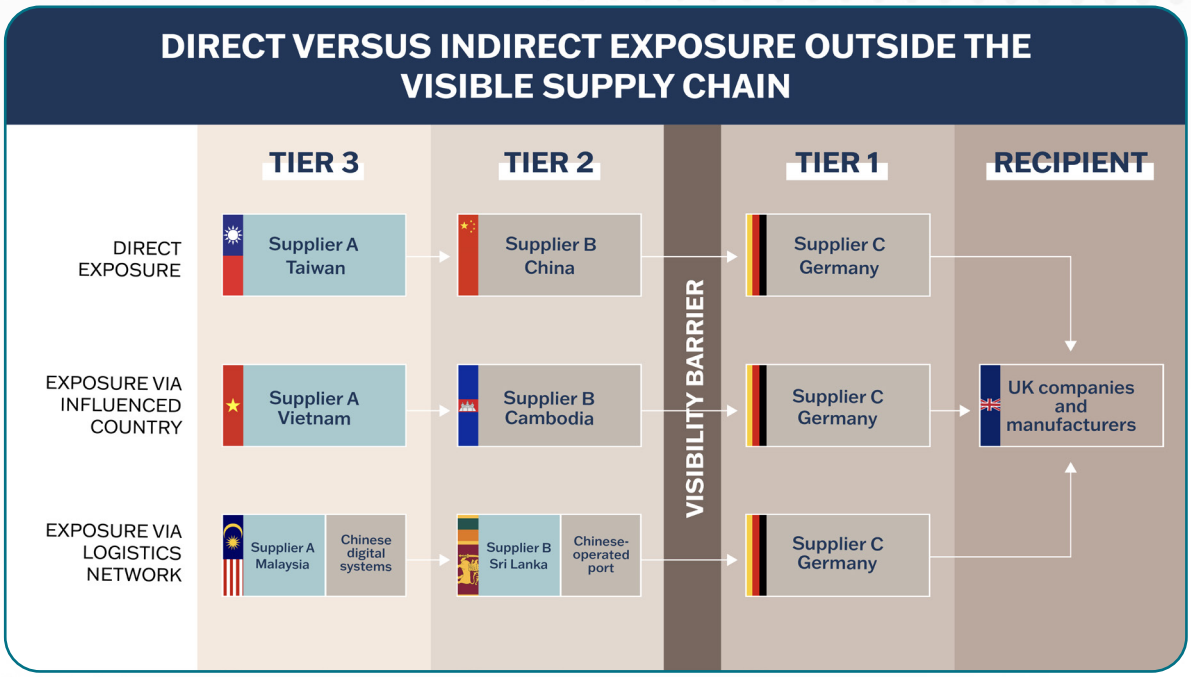

Figure 2: Direct versus indirect exposure outside the visible supply chain

The risk to supply chains from China is not new, and the COVID pandemic encouraged numerous Western initiatives to reduce dependency on Beijing. This is, however, easier said than done. The relative lack of Western or Western-aligned alternative suppliers makes shortages and price increases key obstacles to onshoring and friendshoring. At the same time, China is peerless in its supply chain situation for many industries and readily able to upscale its production. Potential alternative suppliers are themselves often dominated by Chinese companies, or rely on Chinese components (such as the Vietnamese telecoms sector, the third largest supplier of UK telecoms imports accounting for £1.3bn of the total).[12] [13]

The aim of this paper is to highlight the breadth of vulnerabilities that the UK national security supply chain has to potential punitive action ordered by Beijing. We also reveal how China has demonstrated that it is willing to directly and indirectly disrupt supply chains in order to further its own strategic interests. Finally, we discuss how some of the intended mitigations to this risk, such as onshoring, have deep flaws.

We intend this to kickstart a debate as to how to add more resilience to the UK's national security supply chain.

12. https://bit.ly/onsuk3TYPFDm
13. https://bit.ly/dituk3XnOzEc

A RISK FROM DIRECT EXPOSURE TO CHINA

Direct exposure to China poses the risk of China being able to execute its influence over the flow of goods to a target country, for example by restricting its own exports to it.

Precedents for China's use of direct supply chain disruption as a strategic tool

China has demonstrated that it is willing and able to use trade as a strategic weapon, having repeatedly conducted highly targeted direct supply chain disruption campaigns in recent years in an effort to ensure other countries, including Western allies, adhere to its geopolitical goals. Suspensions often target foods, as bans can be plausibly blamed on the presence of pests, thus avoiding retaliation.[14] China has targeted commodities other than food, notably coal imports from Australia and sand exports to Taiwan.[15] [16] The impact of these bans is economically questionable, and is thus largely symbolic, but they send a message to other countries about opposing Beijing.[17]

Country	Product	Start Date	Alleged Trigger	Alleged Dispute
Japan	Rare earth imports	2010	Detention of Chinese trawler	East China Sea dispute
Philippines	Bananas	2012	Scarborough Shoal claims	South China Sea dispute
Canada	Rapeseed	2019	Dispute over arrest of Huawei CFO	Diplomatic Tensions
Australia	Coal	2020	Calls for investigation into COVID-19 origin	Diplomatic Tensions
Taiwan	Pineapples	2021	Targeting industry in key political region	Taiwanese Independence
Taiwan	Sugar Apples	2021	Planned renaming of Taiwan's office in US	Taiwanese Independence
Lithuania	Beef	2022	Taiwanese Embassy opening	Taiwanese Independence
Taiwan	Sand imports	2022	Nancy Pelosi visit	Taiwanese Independence

Figure 3: Selected examples of Chinese direct, trade-related punitive action against other nations

14. Confirmed reporting on such bans is difficult because the direct cause and its impact is hard to accurately assess, particularly given how liberally China blocks food imports over alleged coronavirus cases and other biological issues.
15. https://bit.ly/smhau3Vk7Vs8
16. https://bit.ly/aljazeera3GAildB
17. The General Administration of Customs of China will often target products from politically important regions, particularly in the case of Taiwan. Chiu Chui-cheng, deputy chair of the Mainland Affairs Council, Taiwan's cabinet-level China policy body, said that Beijing could target regions where the Democratic Progressive party is strong.

By examining China's record of punitive trade actions (see Figure 3, above), we can see that Beijing has shown itself willing to directly target supply chains when this is at minor risk to itself.

That said, there have been occasions when China has purposefully targeted strategically important supply chains. A major example of this was Beijing's willingness to use its position as the world's largest producer of rare earths as a tool of geopolitical manipulation.[18] In 2010, following a maritime dispute in the East China Sea, China restricted rare earth exports to Japan with knock-on effects on the global supply chain.[19] When accused of bringing in such a ban, Beijing denied it had done so, and instead cited a general reduction of export quotas.[20] As with pest inspections for foodstuffs, the quota claim allowed plausible deniability and avoided the need for an officially announced ban. As with much of the Western world, Japan was unconvinced by China's denial, and launched a strategy to diversify its suppliers as proof against further punitive action by its neighbour.[21]

B RISK FROM INDIRECT EXPOSURE TO CHINA

Indirect exposure to China poses the risk of China's disruption of intermediary countries having knock-on effects on countries further along the supply chain (for example, because they import finished products from an intermediary country which sources the components from China).

Research carried out by the Evenstar Institute's China Influence Index has shown that the more influence China has over another country, the more that country aligns itself to China's strategic goals. This in turn reduces the need for coercion.

The consequence of this is that UK supply chains are at particular risk if they originate in or pass through countries where China's influence is high. Such nations can be expected to cooperate with hypothetical Chinese efforts to execute influence over the UK supply chain.

Previous Evenstar Institute studies have established that Chinese reticence to execute influence coercively is linked to its desire to be seen as a cooperative actor and avoid criticism or isolation, as well as to limit direct demonstration of its influence. In the context of decoupling, we should not expect China to maintain such a desire and should therefore be prepared for Chinese coercive use of influence to increase, and for it to have the potential to impose heavier costs than might be anticipated.

18. https://chinapower.csis.org/china-rare-earths/#breaking-down-chinas-rare-earth-exports
19. https://www.nytimes.com/2010/09/23/business/global/23rare.html
20. https://www.reuters.com/article/us-china-japan-minerals-idUKTRE68M0PF20100923
21. https://qz.com/1998773/japans-rare-earths-strategy-has-lessons-for-us-europe

Precedents for China's indirect supply chain disruption

Indirect supply chain disruption can take the form of knock-on effects from direct targeting. For example, in recent years China appears to have pressured Vietnam to cancel a number of oil-drilling projects in the South China Sea (seen by China as a core strategic interest); this has constituted a form of indirect supply chain disruption for UK and other Western companies through cancelled contracts, as for London-based Noble Corp in 2020 and Spain's Repsol in 2018.[22] Similarly, Chinese actions against South Korea have affected US businesses. In 2017 a wave of anti-South Korean sentiment was inflamed across China following the country's embrace of a US missile defence system (THAAD). State media urged boycotts of South Korean products, and Chinese authorities shut down nearly half of the 112 stores operated by Lotte, which had provided land for THAAD, as well as a factory jointly owned by US company Hershey "after the results of a fire inspection".[23] In this case, impact on a US company appears to have been a byproduct rather than an explicitly intended outcome.

China has shown that it is aware of its capacity to achieve such effects, and precedents exist for its deliberate indirect targeting of other countries. The 2021 trade sanctions against Lithuania were a typical case of PRC economic coercion, triggered by a perceived challenge to China's 'core interests'.[24] In November 2021, Lithuania opened a 'Taiwan Representative Office'. The limited effect of initial direct retaliatory sanctions led China to introduce informal secondary sanctions. Firms sourcing products from Lithuania, such as German automotive manufacturer Continental, were warned that they could also find their commercial relations with China restricted; soon afterwards, it was reported that automotive parts produced by Continental were unable to clear customs in China.

These informal secondary sanctions increased the price borne by domestic firms in Lithuania. Before the additional measures went into effect, Lithuanian firms could exploit the country's membership in the EU to shift production of China-bound exports to subsidiaries in third countries, circumventing restrictions and limiting the already minimal economic impact of China's actions. As well as increasing costs to industry, this targeting of German firms like Continental also served to increase indirect political pressure on Lithuania; China, in effect, was using its own relationship with Germany, and Germany's influence over Lithuania, to force Vilnius to back down.

While Lithuania has ultimately not yet yielded to China's demands, this case study nonetheless demonstrates precedent for China attempting to indirectly disrupt supply chains. In third countries where Chinese influence is stronger, as in most Southeast Asian nations, we should expect such measures to have a greater impact.

22. https://www.voanews.com/a/east-asia-pacific_did-china-block-vietnam-offshore-oil-contract/6193088.html
23. https://www.nytimes.com/2017/03/09/world/asia/china-lotte-thaad-south-korea.html
24. https://www.csis.org/analysis/chinas-economic-coercion-lessons-lithuania

How Chinese Influence Over Countries Could Allow China to Indirectly Impact the UK National Security Supply Chain: A Regional Case Study

The scope of these incidents, and their triggers, indicate that China was not attempting to use the entirety of its supply chain to obtain a political response. Instead, it appears that Chinese influence building in global supply chains is primarily focused on ensuring that it spreads economic links, likely to ensure its own prosperity.

However, the degree of Chinese influence, particularly in the Southeast Asia region, means that should other triggers or disputes emerge, China does have the ability to impose a severe cost on countries not adhering to its foreign policy goals, or organisations which rely on components sourced from high-influence countries. Figure 4 below shows *China Influence Index (CII)* scores for critical national infrastructure in Southeast Asia as an example of the PRC's influence in the region, revealing which countries could be most likely to adhere to requests by Beijing to do its bidding.

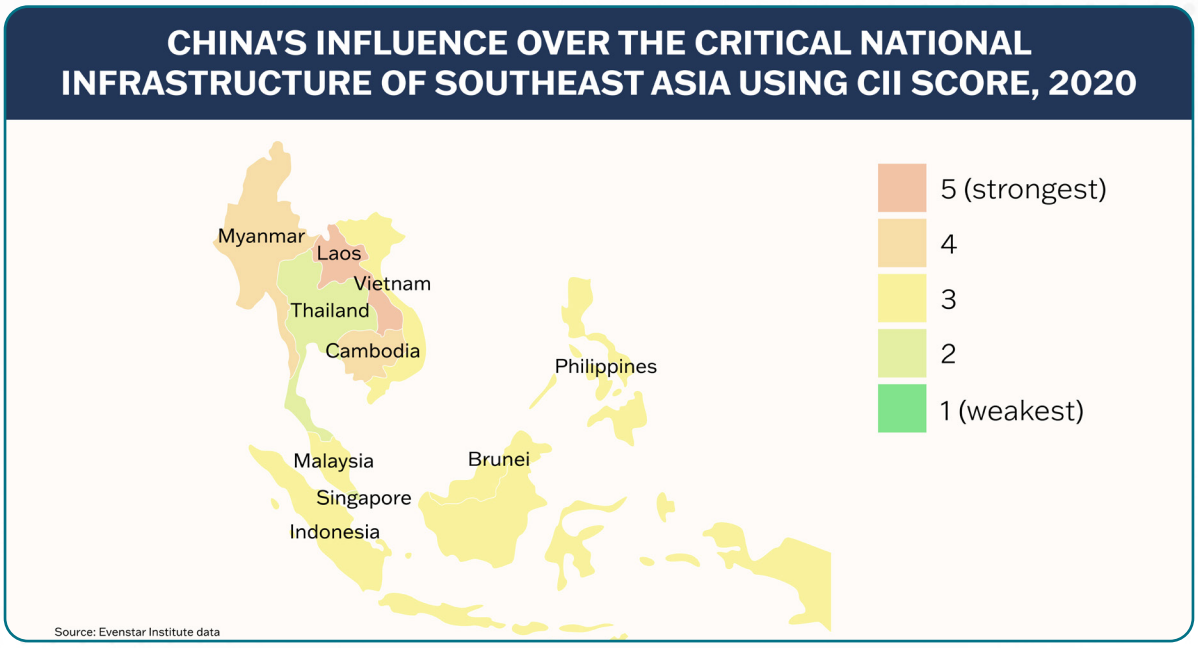

Figure 4: China Influence Index influence scores by country for 2020. This is sourced from a high number of quantitative and qualitative data sources and includes economic, defence, academic, cultural, and political indicators, among other data.

A high degree of Chinese influence is associated with the influenced country aligning itself with Chinese strategic goals, with precedents existing for them doing so in spite of it being costly. For instance, in 2019 Cambodia banned online gambling in line with Chinese security concerns, and despite incurring significant economic costs in the form of lost taxation, tourism revenue, and employment.[25] [26] This result was entirely in line with what the Evenstar Institute's China Influence Index would have predicted given the level and breadth of Chinese influence in Cambodia.

Our influence model captures all forms of engagement between China and other states and sets them against the openness and asymmetry of that relationship to deliver a clear, accurate, and comparable score for influence, by country and by sector.

25. https://thediplomat.com/2020/10/cambodia-passes-law-to-regulate-exploding-gambling-sector/
26. https://asiatimes.com/2019/11/boom-to-bust-for-cambodias-chinese-casino-town/

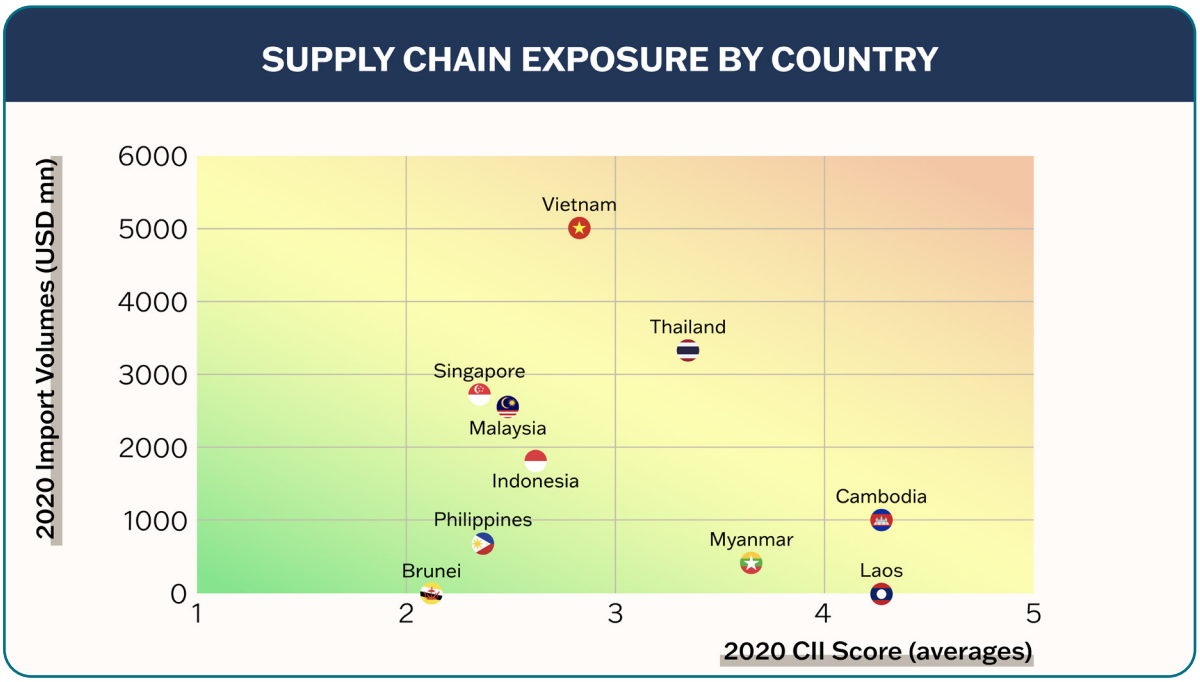

Figure 5: UK Import volumes plotted against average CII Scores for each strand. For reference, the average per country import volume for 2020 was $2801m.

When we plot this influence rating against the UK imports from these countries (Figure 5, above), we get a clear indicator of where the UK has higher exposure across imports. High-influence countries like Cambodia and Laos, while they may be critical to some industries, present a far lower total exposure than high-import mid-influence countries like Vietnam and Thailand.

Box 1: UK Defence Exposure

The exposure of the UK's defence supply chain to China should be a key national security concern. A 2021 House of Commons report notes that Chinese firms have bought six companies specifically in UK defence since 2010.[1] For example, Shaanxi Ligeance Mineral Resources acquired Gardner Aerospace in 2016 and FDM Digital Solutions in 2019, which respectively specialise in aerospace metallic detailed parts and thermoplastics for engineering applications and work in the 'Space and Defence' industries.[2] This consideration of direct Chinese ownership is important, but falls short of adequate consideration of indirect risk from Chinese influence.

The House of Commons report notes that the UK Ministry of Defence has actively sought foreign involvement in its supply chain to give better value for money and expertise and is now mapping its supply chains. However, it is unclear whether this involves consideration of indirect risk posed by Chinese influence over the supply chain and how this might be affected by heightened geopolitical stress. Meanwhile, while the UK's 2021 Defence and Industrial Strategy notes measures to secure the UK defence supply chain and protect against malign actors buying UK companies, it makes no mention of securing the supply chain against reliance on China or countries reliant on China.[3] The recently published 2022 Defence Supply Chain Strategy emphasises the need for supply chain resilience and the risks posed by supply chain interconnectedness.[4] China is mentioned in an illustrative example of the sourcing of military clothing, but once again indirect risks posed by Chinese influence are not mentioned.

1. https://publications.parliament.uk/pa/cm5801/cmselect/cmdfence/699/69905.htm
2. https://bit.ly/steenassociates3V0toXk
3. https://bit.ly/hmgov3VkgnHS
4. https://bit.ly/defenceindustrialstrategy3AASNyB

C THE SUPPLY CHAIN LOGISTICS RISK

China has spent many decades building up a strong position in the global logistics chain. This rests on its expertise in port construction, on port ownership and operations, its ownership of major container shipping and logistics companies, and the worldwide spread of its logistics technology.[27] China's port and logistics network provides it with a round-the-clock presence in the global maritime domain that gives it immense potential influence over the flow of goods, including those in the UK national security supply chain.

Chinese state-backed port construction projects in the EU, Latin America, Africa, and South and Southeast Asia pose an indirect risk to supply chains flowing through those regions, granting China the capacity to delay or otherwise disrupt the flow of goods and their tracking. China has established precedent for leveraging control of ports in this way. In 2016, following a stop-off in Xiamen, a cargo of nine Singaporean Armed Forces Terrex armoured vehicles was seized in Hong Kong, apparently as a punitive measure following their participation in military exercises in Taiwan.[28] This incident illustrates China's ability to mobilise its influence over key transport nodes, and to do so in a coercive capacity; there is no reason to assume similar measures could not be directed at disrupting supply chains in other countries.

China also has significant influence over the global logistics network. Again, this takes the form of both direct and indirect exposure. At present, China is home to more shipping ports than any other country, including seven of the ten busiest ports in the world.[29] Consequently, domestic policies can cause significant global disruption. For example, in April 2022, the shipping analytics firm Windward reported that 1 in 5 container ships were stuck outside congested ports, and that close to 30% of that backlog was in China alone as ships piled up outside Shanghai, thanks to the latest COVID lockdown.[30] Before the lockdowns, congestion at China's ports accounted for only 14.8% of the global container backlog.[31]

In terms of indirect influence through third countries, China has in recent years built up controlling stakes in a global network of ports. As shown in Figure 6 below, the PRC owns at least 93 ports in 53 countries, including Piraeus in Greece, the Gwadar port in Pakistan and the port of Djibouti.[32] This includes, through Hong Kong-based Hutchison, interests in major UK ports such as Harwich and Felixstowe. Over 80% of China's overseas port terminals are owned by the "big three" terminal operators: China Ocean Shipping Company (COSCO), China Merchants Group (CMG), and CK Hutchison Holdings.[33] Moreover, these investments are not just about physical infrastructure, but also involve embedding Chinese digital infrastructure in the running of these ports. For example, in the case of Piraeus port in Greece, projects have not solely involved expanding the port's physical capacity, but also saw Huawei overhauling its network systems and the installation of routers, which now supply Wi-Fi to the port's staff and tourists at the cruise terminal.[34]

27. https://www.nationalreview.com/magazine/2019/07/08/how-china-weaponized-the-global-supply-chain/
28. https://www.bbc.co.uk/news/world-asia-38101345
29. https://bit.ly/thediplomat3VfFIbe
30. https://bit.ly/fortune3tS9stz
31. Ibid.
32. Kardon, IB, and Leutert, W, "Pier Competitor: China's Power Position in Global Ports", *International Security* vol. 46, issue 4, Spring 2022
33. https://www.ship-technology.com/analysis/the-ten-biggest-shipping-companies-in-2020/
34. https://maritime-executive.com/editorials/china-wants-to-own-shipping-s-digital-operating-system

Of particular note is the effort by China to encourage the global adoption of a closed-loop platform for the transmission of logistics data, known as LOGINK. According to a September 2022 report by the US-China Economic and Security Review Commission, the use of LOGINK has now spread to partnerships with over 20 ports worldwide, as well as a number of Chinese and international companies.[35] The same report notes that "widespread adoption of LOGINK could create economic and strategic risks for the United States and other countries." As well as the commercial advantages generated for China by using LOGINK to undercut Western competitors, the platform's ability to make global shipping and supply chains visible could also enable the Chinese government to identify Western supply chain vulnerabilities. This in turn could allow Beijing to track, and potentially interrupt, important or sensitive shipments in Western national security supply chains, including those of the UK.

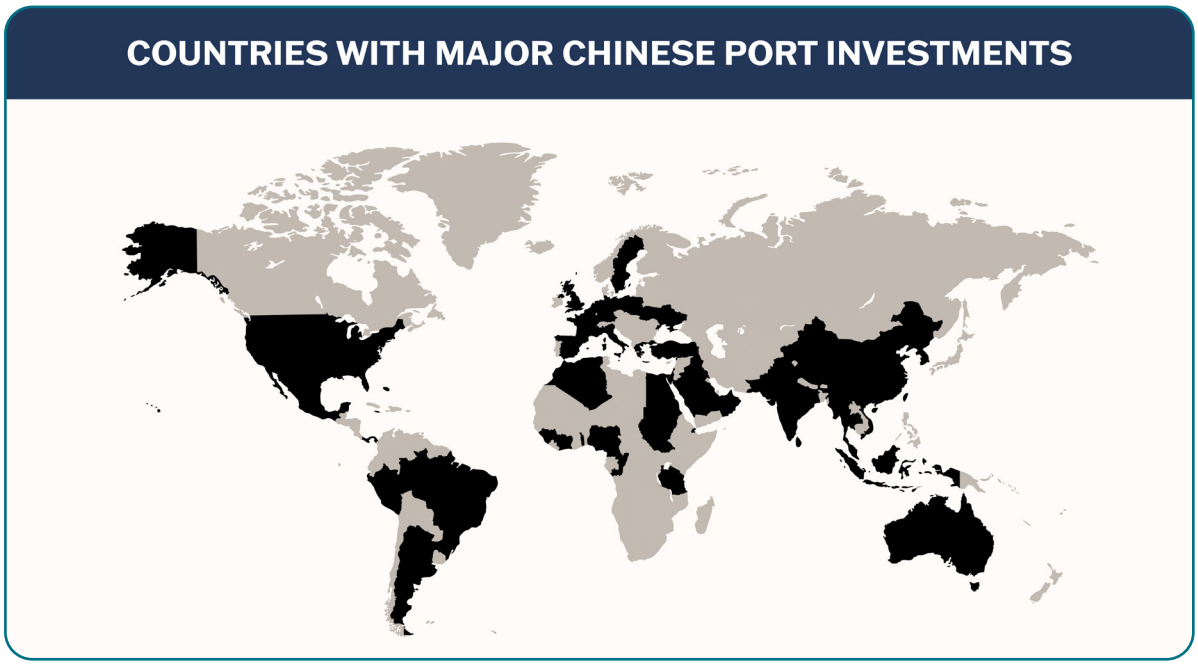

Figure 6: Major Chinese port investments around the world.[36]

35. https://bit.ly/uscc3XmbNKV

36. Kardon, IB, and Leutert, W, "Pier Competitor: China's Power Position in Global Ports", *International Security* vol. 46, issue 4, Spring 2022

D THE ONSHORING AND FRIENDSHORING CHALLENGE[37]

Onshoring and friendshoring are increasingly touted as solutions to overreliance on China, including via legislation in the US and non-legislative efforts in the UK.[38] [39] However, such efforts present challenges. For instance, despite efforts to diversify its supply chain, 150 out of 180 suppliers to American tech giant Apple continue to have operations in China, and it is estimated that it would take around eight years to move just 10% of Apple's production capacity out of China (where 90% of its products are currently produced).[40] [41] Thus, America's most valuable company has a vast degree of direct and indirect dependency on China for its products, and will likely do so for many years to come.[42]

The challenge of onshoring/friendshoring is adding further strain to the post-COVID fragility of the high-tech supply chain. A geopolitical shock involving China, and occurring before the UK has had time to reduce its direct and indirect exposure to China (a process that could take years, if not decades), will likely have a devastating impact on the national security supply chain.

The Evenstar Institute has conducted qualitative research amongst technology and manufacturing companies integral to the UK national security supply chain to reveal the challenges of "de-Chinafication". There are two main conclusions. First, thanks to years of international outsourcing, there are not many alternatives to Chinese suppliers in Western or Western-friendly countries for many essential advanced components. Second, even where such firms do exist, they often have far lower production capacity than their Chinese competitors, something often linked anecdotally to a lack of qualified personnel.

Take as a case study Company X. This is a European company with a strong presence in the UK, producing important components for the national security supply chain. In the period since the end of COVID its order book has boomed, so that it now has a pipeline 15% more valuable than its annual revenue. The company believes that this rocketing demand has been caused to a large degree by worries over the state of geopolitics, with clients looking to stockpile their products.

There are though several critical challenges to overcome, of which the most important is that despite being able to secure 97% of their parts, 3% are in critically short supply. Unfortunately these 3% are irreplaceable, and so their factories are operating at just over 5% capacity. The company has therefore tried to secure these parts on the open market, including through the use of brokers, but non-reputable firms have attempted to break into the market with sub-standard (and therefore unusable) products. Like many other firms in the UK national security supply chain, Company X is currently unable to satisfy a large swathe of its customer base.

The present capacity of many Western firms to execute their orderbooks is not as good as it should be in terms of keeping on top of national security concerns. Further research is needed to ascertain the full extent of this shortfall, but for direct and indirect exposure to China to be reduced, far more support will be needed to ensure that supply can be maintained.

37. We define "friendshoring" as Western countries moving their sourcing and manufacturing sites to friendly shores (with "friendly" being loosely defined as being a nation that they can trust); "onshoring" is bringing sourcing and production back to home shores
38. https://bit.ly/fiercepharma3ESSIZu
39. https://bit.ly/hansard3tXuYgt
40. https://bit.ly/financeyahoo3Er3Tr7
41. https://bit.ly/bloomberg3ABdKcS
42. https://bit.ly/vietnambriefing3AFBVXp

Box 2: Semiconductor Supply Chains

A second area of key importance to UK national security is the semiconductor supply chain. The USA and the EU have responded to risks to this supply chain with dedicated legislation; the UK has yet to take similar action, though a Department for Digital, Culture, Media & Sport (DCMS) review is ongoing. The UK's current record in this area has been subject to extensive criticism from industry figures contributing to the DCMS inquiry, including for the overlapping responsibilities of DCMS, the Ministry of Defence (MoD), and the Department for Business, Energy and Industrial Strategy (BEIS).[1] There is little onshore chip production capacity, and the approach to national security issues has simultaneously hindered international collaboration while allowing major national security risks such as the acquisition of Newport Wafer Fab, the UK's largest microchip manufacturer, by Nexperia, owned by China's Wingtech Technology.[2 3] The UK government has now ordered Nexperia to sell at least 86% of the factory.[4]

While the UK aims to develop 'partnerships with like-minded countries' to build supply chain resilience and friendshoring in key sectors such as technologies and associated critical minerals, strategically important technologies are often subject to export controls, which have already impacted exports of German technology to the UK for defence.[5 6 7] While UK companies such as Bristol-based Graphcore have developed highly advanced chips, these can only be manufactured by Taiwan's TSMC, and as such their supply would be extremely vulnerable in the event of Chinese actions against Taiwan.[8]

Moreover, securing the raw materials required for chip production poses a significant supply chain issue, also faced by the USA and EU.[9 10] The 2022 UK Critical Minerals Strategy emphasises the need to reduce reliance on single countries for mineral imports, noting China's dominance of the production of 12 out of 18 critical minerals.[11] However, as with recent defence supply chain reports, consideration does not appear to be given to the impact of indirect risks to the supply chain; diversification of source countries as a response to strategic competition increasingly advocated by the UK, USA, and Canada will improve resilience only insofar as new source countries are not themselves subject to high levels of Chinese influence.[12 13 14]

1. https://thestack.technology/what-uk-semiconductors-strategy-govt-mauled/
2. Ibid.
3. https://www.business-live.co.uk/technology/compound-semiconconducter-cluster-needs-swift-24285379
4. https://www.reuters.com/technology/uk-orders-chinas-nexperia-sell-least-86-microchip-factory-2022-11-16/
5. https://www.gov.uk/government/publications/uks-digital-strategy/uk-digital-strategy
6. https://www.gov.uk/government/speeches/atlantic-future-forum-minister-for-the-americas-keynote-speech
7. https://thestack.technology/what-uk-semiconductors-strategy-govt-mauled/
8. https://www.newelectronics.co.uk/content/features/where-next-for-the-uk-s-semiconductor-industry
9. https://www.forbes.com/sites/arthurherman/2022/10/17/the-chip-war-with-china-is-just-getting-started/?sh=60597bf16a08
10. https://thestack.technology/european-semiconductor-strategy-cloud-plans-resilience/
11. https://bit.ly/criticalmineralstrategy3ETHcx5
12. https://www.gov.uk/government/speeches/atlantic-future-forum-minister-for-the-americas-keynote-speech
13. https://bit.ly/atlanticcouncil3OuFmpF
14. https://nationalpost.com/news/politics/john-ivison-economic-friend-shoring-cant-be-our-only-response-to-tyranny

CONCLUSIONS: MITIGATING RISKS TO THE UK NATIONAL SECURITY SUPPLY CHAIN

As shown in this report, China's growing influence around the world poses significant risks to the UK's national security supply chain. These risks are not limited to direct exposure. Indirect exposure to China's influence is equally significant but overlooked in current UK strategies for supply chain resilience in sectors vital to national security, such as defence, semiconductors, and critical minerals.

We know that China has made use of indirect influence over the supply chain in the past, as well as having a record of direct targeting. Policymakers should therefore assume that, in the event of a declining UK-China relationship or disputes over China's perceived core interests, such as Taiwan, the UK's supply chains could be targeted directly and indirectly, with the potential to significantly threaten national security. Our data on UK exposure to Chinese influence in Southeast Asia indicates the extent of this risk in a region of key importance for the UK's supply chains. Notably, although China is the focus of this paper, the UK's direct and indirect supply chain exposure ought also to be considered in relation to other strategic competitors.

Based on our findings, we make the following policy recommendations regarding the UK's national security supply chain exposure to China:

1. The UK government should maintain and extend protection of the UK supply chain from direct and indirect exposure to China, based on the wider definition of national security as defined in this report.
2. The UK government should broaden and accelerate an audit of all goods and materials critical to UK national security, and not just those falling under the umbrella of the MoD. This should include as comprehensive an analysis as possible of direct and indirect exposure to China's influence.
3. The UK government should work with trusted private companies at home, and from allied countries abroad, to improve the resilience of supply chains vital to UK national security, while maintaining an awareness of the direct and indirect exposure to China's influence of the state and commercial partners involved.
4. The UK government should conduct a review of the exposure of critical links and nodes on the UK national security supply chain to Chinese influence over logistics and digital infrastructure, including ports, logistics and tracking software, and modes of transportation.
5. The UK government should comprehensively investigate and then provide the support required by UK companies to be able to better onshore and friendshore critical inputs to the UK national security supply chain, based on as full as possible an understanding of direct and indirect exposure to China.

APPENDIX: THE EVENSTAR INSTITUTE'S INFLUENCE MODEL

The Evenstar Institute uses a proprietary model of geopolitical influence to quantify and situate China's influence around the world. This is based on thousands of quantitative data points layered with country-specific qualitative assessments, and is used to measure and explain the evolution of influence and its mutual impact across different Strands (such as Defence and Security, Energy and Mineral Resources, and Digital Infrastructure).

We define China's influence in terms of its capacity to compromise the autonomy of another country, with a focus on ultimate risks to national security. This is scored according to our China Influence Index (CII) on a scale from 0 to 5, where 0 represents a total absence of influence, and 5 an inability of the influenced country to act autonomously of China's interests. Our model derives CII scores for nine Strands and uses these as a basis for determining China's influence at a national level. The model combines these scores with qualitative assessments, ensuring that country-specific circumstances are accounted for, and allowing comparison across Strands and countries. The model can also be scaled to examine influence in organisations.

Further details on the model and methodology behind it can be obtained by contacting **Sam Olsen, CEO** at **sam.olsen@evenstarglobal.com**