THE POLAR SILK ROAD AND EAST ASIA: POTENTIAL, PITFALLS AND IMPLICATIONS

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The brief closure of Poland's Małaszewicze rail hub in September 2025, halting over 130 China–Europe freight trains worth €25 billion, exposed how quickly geopolitics can disrupt global supply chains. Seizing the moment, Chinese carrier Sea Legend launched the first Arctic Express voyage from Ningbo to the UK via the Northern Sea Route (NSR), completing the 20-day journey and reviving Beijing's long-planned Polar Silk Road. The NSR, an Arctic branch of the Belt and Road Initiative, reflects China's effort to safeguard trade routes against chokepoints such as the Malacca and Suez straits while tightening strategic links with Russia. For Singapore, the rise of an Arctic corridor carries both risk and opportunity. While extreme conditions and sanctions make the NSR commercially limited for now, its gradual maturation could divert some high-value, time-sensitive cargoes from Southeast Asia. This underscores Singapore's need to diversify port services, upgrade transshipment capabilities and deepen cooperation with Northeast Asian hubs to remain indispensable in the evolving global maritime network.

(Click on the link to read the above in Chinese, French and Spanish)

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Chinese:
北极丝绸之路与东亚：潜力、风险与影响

2025年9月，波兰马瓦谢维切铁路枢纽短暂关闭，导致超过130列中欧班列停运，货值达 250 亿欧元，揭示出了地缘政治能够多么迅速地扰乱全球供应链。抓住这一时机，中国航运公司“海传奇”开通了首趟经由北方航道（NSR）的“北极快线”，从宁波驶往英国，用时 20 天，重启了北京长期规划的“北极丝绸之路”。作为“一带一路”的北极分支，NSR 体现了中国为防范马六甲海峡、苏伊士运河等咽喉要道的风险而保障贸易航线，同时强化与俄罗斯战略联系的努力。对新加坡而言，北极通道的兴起既有风险也有机遇。尽管极端环境与制裁使 NSR 目前在商业上受限，但其逐步成熟可能会分流部分高价值、时效敏感的货物，减少经由东南亚的运输。这凸显了新加坡需要多元化港口服务、升级转运能力，并深化与东北亚枢纽的合作，以在不断演变的全球海运网络中保持不可或缺的地位。

French:
LA ROUTE DE LA SOIE POLAIRE ET L’ASIE ORIENTALE: POTENTIEL, OBSTACLES ET IMPLICATIONS

La brève fermeture du hub ferroviaire de Małaszewicze, en Pologne, en septembre 2025, a immobilisé plus de 130 trains d’une valeur de 25 milliards sur la principale artère du fret ferroviaire reliant la Chine à l’Europe. Se faisant, elle a révélé à quelle vitesse la géopolitique peut perturber les chaînes d’approvisionnement mondiales. Saisissant l’occasion, le transporteur chinois Sea Legend a lancé le premier voyage Arctic Express de Ningbo vers le Royaume-Uni via la Route maritime du Nord (RMN), achevant la traversée en 20 jours et relançant le projet de Route de la Soie polaire, planifié de longue date par Pékin. La RMN, branche arctique de l’Initiative la Ceinture et la Route, reflète l’effort de la Chine pour sécuriser ses routes commerciales face aux goulets d’étranglement que constituent notamment les détroits de Malacca et de Suez, tout en resserrant ses liens stratégiques avec la Russie. Pour Singapour, l’essor d’un corridor arctique comporte à la fois des risques et des opportunités. Si les conditions extrêmes et les sanctions limitent pour l’instant le potentiel commercial de la RMN, sa maturation progressive pourrait détourner à terme une partie des marchandises précieuses, sensibles au temps, de l’Asie du Sud-Est. Cela souligne la nécessité pour Singapour de diversifier ses services portuaires, de renforcer ses capacités de transbordement et d’approfondir la coopération avec les hubs d’Asie du Nord-Est afin de rester indispensable dans un réseau maritime mondial en mutation.

***Spanish*:**
LA RUTA DE LA SEDA POLAR Y ASIA ORIENTAL: POTENCIAL, RIESGOS E IMPLICACIONES

El breve cierre del centro ferroviario de Małaszewicze, en Polonia, en septiembre de 2025, que detuvo más de 130 trenes de carga China–Europa por un valor de 25.000 millones de euros, evidenció lo rápidamente que la geopolítica puede perturbar las cadenas de suministro globales. Aprovechando el momento, la naviera china Sea Legend lanzó el primer viaje del Arctic Express desde Ningbo al Reino Unido a través de la Ruta del Mar del Norte (NSR), completando la travesía de 20 días y reactivando la largamente planificada Ruta de la Seda Polar de Pekín. La NSR, una rama ártica de la Iniciativa de la Franja y la Ruta, refleja el esfuerzo de China por salvaguardar las rutas comerciales frente a cuellos de botella como los estrechos de Malaca y de Suez, al tiempo que estrecha los vínculos estratégicos con Rusia. Para Singapur, el auge de un corredor ártico entraña tanto riesgos como oportunidades. Aunque las condiciones extremas y las sanciones hacen que la NSR esté comercialmente limitada por ahora, su maduración gradual podría desviar parte de las cargas de alto valor y sensibles al tiempo desde el Sudeste Asiático. Esto subraya la necesidad de que Singapur diversifique los servicios portuarios, modernice las capacidades de transbordo y profundice la cooperación con los centros del noreste asiático para seguir siendo indispensable en la evolución de la red marítima global.

THE POLAR SILK ROAD AND EAST ASIA: POTENTIAL, PITFALLS AND IMPLICATIONS

Victor TEO*

Genesis of the Polar Silk Road

1. **Context:** China's inaugural Chongqing-Duisburg rail service (2011) laid the foundation for a Belt and Road Initiative (BRI) network that links 227 cities across 25 European countries and, in reverse, 100 cities in 11 Asian nations. To bypass congested sea routes, exporters have shifted to four main rail corridors: (1) the eastern route via Manzhouli, (2) the northern via Erenhot, (3) the central via Alashankou to Poland and (4) the southern via Khorgos, with the central corridor carrying over 90% of Europe-bound shipments.[1] By 2016, Warsaw had established direct freight links with China, and by 2019, regular services connected Gdańsk and Xi'an.[2] In 2024, cargo volumes rose 10.6% and shipment value surged 85% to more than €25 billion, about 4% of total EU–China trade and yielding about US$200 million in Polish customs duties.[3]

2. **Problematic:** On 12 September 2025, Poland closed the Małaszewicze crossing with Belarus, citing security concerns over Belarus–Russia military exercises and drone incursions, severing the primary break-of-gauge hub between Belarus and the EU, especially Central and Eastern Europe. After a 13-day halt, over 130 trains were stranded at Brest by 30 September, disrupting e-commerce (Shein and Temu), EV-battery supply chains and food and medicine flows. Eastbound shipments were

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1 "China-Europe Freight Trains Still Stuck in Bottleneck After Poland Reopens Border With Belarus", *YiCai Global*, 30 September 2025.

2 "Poland sends its first freight train from Warsaw to China", *New Silkroad Discovery*, 10 September 2025, https://www.newsilkroaddiscovery.com/poland-sends-its-first-freight-train-from-warsaw-to-china/, accessed 25 November 2025.

3 "Poland's Shutdown Of Belarus Border Disrupts China-Europe Trade Flows", *Forbes*, 19 September 2025, https://www.forbes.com/sites/lidiakurasinska/2025/09/19/polands-shutdown-of-belarus-border-disrupts-china-europe-trade-flows/, accessed 25 November 2025.

rerouted through Lithuania. China's Foreign Minister Wang Yi visited Poland on 15 September, but Warsaw rebuffed China's requests. Although the China–Europe corridor through Poland represents only 4% of total trade, its strategic importance was rising, prompting exploration of alternative routes, such as the southern rail route through Kazakhstan across the Caspian Sea to Turkey, or an intermodal route via St Petersburg and across the Baltic Sea to reach Europe.[4]

3. Amid the disruption, the Chinese shipping company Sea Legend (founded 2022) launched a direct Arctic Express container service via the Northern Sea Route (NSR) from Ningbo, Zhejiang, to Felixstowe, UK, departing 22 September and arriving 10 October 2025, a 20-day transit. While most carriers shun the NSR's underdeveloped, high-risk profile,[5] Sea Legend's COO Li Xiaobin contended it "passes through politically and economically stable regions, reducing risks such as piracy, congestion, and conflict spillover".[6] This voyage underscored BRI-enabled network resilience, providing alternate routes when main corridors are blocked. On 23 October 2025, a day after the widely publicised Arctic Express sailing, Polish President Tusk reopened Poland's border crossings following Zapad 2025's conclusion. The NSR launch may have influenced Poland's decision[7] to resume traffic, given substantial transit revenues.

4. **Polar Silk Road:** "The Silk Road on Ice" concept utilising the NSR was first formally raised by President Putin during China President Xi Jinping's 2017 state visit as a BRI joint project.[8] After the 19th National People's Congress' elevation

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4 "China-EU railway shipping companies say trade to slowly recover after reopening of Poland-Belarus border, some planning alternatives", *Global Times*, 24 September 2025, https://www.globaltimes.cn/page/202509/1344393.shtml, accessed 25 November 2025.

5 "World's Largest Container Shipping Company MSC Again Rules Out Arctic Shipping, As Chinese Companies Push Ahead" *Highnorth News*, 2 October 2025, https://www.highnorthnews.com/en/worlds-largest-container-shipping-company-msc-again-rules-out-arctic-shipping-chinese-companies, accessed 25 November 2025.

6 Ibid.

7 "Poland to Reopen Border With Belarus" *The Moscow Times* 23 September 2025, https://www.themoscowtimes.com/2025/09/23/poland-to-reopen-border-with-belarus-a90604, accessed 25 November 2025.

8 "Eluosi zhu hua dashi: Huanying Zhongfang jiji canyu Beifang Hangdao de Kaifa he liyong" (Russia Ambassador to China: Welcome the Chinese to participate in the NSR's Development and Utilisation),

of the BRI as China's development and internationalisation blueprint, Beijing released the 2018 White Paper on China's Arctic Policy.[9]

5. **Rationale:** China's call for a new Polar Silk Route should be understood not only in the context of the brief Polish stoppage but also amid broader trends in global politics and the US–China rivalry. Beijing seeks to diversify its trade routes against mounting geopolitical risk, using the BRI[10] as the organising blueprint to expand economic influence and tap new markets, especially in the developing world. Of the eight Arctic states, only Russia is a BRI partner and only Iceland has a free trade agreement with Beijing.

6. **Drivers for This Push:** First, a US-oriented global force posture heightens interdiction risks[11] for China at the Indian Ocean or at strategic chokepoints like the Strait of Malacca or the Taiwan Strait. Second, as BRI projects and trade expand, and correspondingly incidents of piracy, terrorism and labour unrest increase, Beijing's ineptness in protecting its merchant fleet and overseas assets becomes apparent. The November 2023 Houthi attacks[12] have forced Cape of Good Hope reroutes, adding roughly 11,300 km to journeys, driving up costs. Third, since 2017, US-led allied coordination to secure supply chains and economically constrain China—amplified by Baltic/Polish politics post-Ukraine and the broader Trade-Tech War to erode China's market share and counter the BRI—coupled with

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Peoples Net News, 5 July 2017, http://world.people.com.cn/n1/2017/0705/c1002-29383470.html, accessed 25 November 2025.

9 State Council Information Office, PRC, *China's Arctic Policy* (Zhongguo de Beiji Zhengce), 26 January 2018, http://english.scio.gov.cn/2018-01/26/content_50313403.htm, accessed 25 November 2025.

10 In particular, the BRI framework emphasises the six economic corridors: (1) New Eurasia Land Bridge Economic Corridor; (2) Mongolia-Russia Economic Corridor; (3) China-Central Asia-West Asia Economic Corridor; (4) China-Indochina Peninsula Economic Corridor; (5) China Pakistan Economic Corridor; and (6) Bangladesh-China-India-Myanmar Economic Corridor. The Polar Silk Road consists of three corridors: (1) Northeast Passage, along which the Northern Sea Route runs; (2) Northwest Passage to Canada; and (3) Central Passage (International Waters) – the most difficult for sailing because of extreme conditions.

11 Christopher J Pehrson, *String of Pearls: Meeting the Challenge of China's Rising Power across the Asian Littoral*. Strategic Studies Institute, US Army War College, Carlisle, PA 17013, https://scispace.com/pdf/string-of-pearls-meeting-the-challenge-of-china-s-rising-4ptpuqi0vk.pdf, accessed 25 November 2025.

12 Alex Blair, Houthi attacks in the Red Sea: a timeline since October, Ship Technology, Ship Technology, 24 May 2024, https://www.ship-technology.com/features/houthi-attacks-in-the-red-sea-a-timeline-since-october/, accessed 25 November 2025.

contests over strategic port control previously operated by Hong Kong enterprises, has strengthened the case for diversification via the Polar Silk Road. Ongoing disputes over CK Hutchison Holdings-operated ports, including the Balboa Port in Panama, further reinforce this rationale.

7. **Russia's Dominance:** The Polar Silk Road therefore reflects China's strong interest in developing an additional artery within the BRI network. Russia's dominance of the NSR is seen as an asset, enhancing the route's potential as a key shipping corridor and route diversification avenue.[13] Although the NSR freight route is currently operated by a handful of Chinese and Russian firms, it should not be dismissed as many BRI initiatives began as private or commercial ventures that were later integrated into the framework as firms sought legitimacy and state support.

8. **NSR Advantages:** The NSR's appeal extends beyond Chinese and Russian firms to Japanese, South Korean and European companies. Its benefits—shorter transit times, route diversification, lower cost and geo-economic opportunities for resource access—are recognised by governments and businesses alike. Table 1 compares the NSR with traditional shipping routes using Chatgpt5 based on assumptions (constant vessel type, fuel, route and speed; Arctic transit assumed to take one day longer) to enable accurate comparison. This normalisation is necessary as source data often vary by vessel class, cargo capacity, speed, season, stop duration and origin/destination port.

9. **NSR Challenges:** Currently, most traditional shipping firms avoid the NSR. Adoption is constrained by three risk categories: environmental-ecological, geopolitical and cybersecurity. ***Environmental-Ecological*** - The Arctic's harsh conditions and limited navigability mean the NSR passage is not suitable for world trade at scale as yet. Vessels typically require ice-reinforced hulls and, ideally, icebreaker escorts—adding to operational costs.[14] The 2,500-mile Siberian tundra coastline between Murmansk and the Bering Strait lacks basic infrastructure (ports,

[13] Alex Blair, "Will the Northern Sea Route become commercially viable in the near future?" Ship Technology, 27 June 2024, https://www.ship-technology.com/features/will-the-northern-sea-route-become-commercially-viable-in-the-near-future/?cf-view, accessed 25 November 2025.

[14] Ibid.

logistics and communications), complicating operations and search-and-rescue. Infrastructure development largely depends on Arctic states; to date, only Russia has made substantial investments in ice research vessels, nuclear-powered icebreakers and ice-resistant platforms to support its goal of transporting 150 million tons of crude oil, LPG, coal and other cargo via the NSR annually by 2030.[15] ***Geopolitics*** **-** Russia fielded an estimated 57 operational ice-breakers and ice-capable ships in 2022 with more on order, versus a combined 47 for Canada, Denmark, the United States, Norway, Finland and Sweden.[16] East Asian capabilities (China, South Korea and Japan) also lag. As a report notes, "the NSR isn't just a shipping shortcut. It's a geopolitical choice… We began by asking commercial questions, such as distance saved, fuel burned, cost per TEU. Now we also have to ask who controls access, under which sanctions, with what security guarantees, and at what reputational cost. When market rules are subordinated to security or sovereignty, policy logic takes over, and the spreadsheet no longer has the last word". [17] Russia's geographic dominance of the NSR raises practical and geopolitical concerns for Japanese, South Korean and Western carriers such as limited refuelling, repairs, logistics and communications infrastructure, security along Russia's extensive Arctic coast and the complication of collaboration with Russian authorities under sanctions and US scrutiny. Technological improvements and détente among the United States, China and Russia would likely decrease these constraints over time. ***Cyber-security*** - A related, often overlooked risk involves cyberattacks on vessels transiting the Barents Sea, the entry and exit point of the NSR. Norwegian firm NORMA Cyber has alleged targeting by Russian military intelligence (GRU) of logistics, transport and energy operators in the region.[18] If accurate, these attacks would likely affect US and allied shipping

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15 Smruthi Nadig, "The nuclear icebreakers enabling drilling in Russia's Arctic", Mining Technology, 8 August 2023.

16 "Dark Arctic: NATO Allies wake up to Russian supremacy in the region", Reuters 16 November 2022, https://www.reuters.com/graphics/ARCTIC-SECURITY/zgvobmblrpd/, accessed 25 November 2025.

17 Christian Hendriksen, "Northern Sea Route Is About Politics, Not Global Commerce", Copenhagen Business School Commentary, https://www.cbs.dk/en/cbs-news-en/119/northern-sea-route-is-about-politics-not-global-commerce, accessed 25 November 2025.

18 Nadig, 2023; also see Advisory, Russian GRU Targeting Western Logistics Entities and Technology Companies, Cyber Security and Infrastructure Security Agency, 21 May 2025, https://www.cisa.gov/news-events/cybersecurity-advisories/aa25-141a, accessed 25 November 2025.

disproportionately. As with geopolitics, improved international relations could mitigate this risk.

TABLE 1

Comparative Shipping Data from East Asia to Arkhangelsk (Russia), Rotterdam (Holland) and Felixstowe (United Kingdom) using (1) The Northern Sea Route (NSR), (2) Straits of Malacca and Suez and (3) Cape of Good Hope Route

Origin	Destination	Route	Distance (nm)	Distance (km)	Transit days
Tokyo	Rotterdam	NSR	9000	16668	26
Tokyo	Rotterdam	Malacca+Suez	11300	20948	29
Tokyo	Rotterdam	Cape of Good Hope	13800	25578	36
Tokyo	Arkhangelsk	NSR	4200	7778	13
Tokyo	Arkhangelsk	Malacca+Suez	10800	20000	29
Tokyo	Arkhangelsk	Cape of Good Hope	12800	23706	33
Tokyo	Felixstowe	NSR	8800	16298	25
Tokyo	Felixstowe	Malacca+Suez	11200	20742	29
Tokyo	Felixstowe	Cape of Good Hope	13700	25362	36
Shanghai	Rotterdam	NSR	7600	14075	22
Shanghai	Rotterdam	Malacca+Suez	10400	19261	26
Shanghai	Rotterdam	Cape of Good Hope	12900	23877	34
Shanghai	Arkhangelsk	NSR	3800	7038	11
Shanghai	Arkhangelsk	Malacca+Suez	9800	18150	25
Shanghai	Arkhangelsk	Cape of Good Hope	12000	22224	33
Shanghai	Felixstowe	NSR	7200	13334	21
Shanghai	Felixstowe	Malacca+Suez	10000	18520	25
Shanghai	Felixstowe	Cape of Good Hope	12600	23335	34
Busan	Rotterdam	NSR	8500	15742	24
Busan	Rotterdam	Malacca+Suez	10900	20185	28
Busan	Rotterdam	Cape of Good Hope	13300	24612	35
Busan	Arkhangelsk	NSR	4000	7408	12
Busan	Arkhangelsk	Malacca+Suez	10200	18890	26
Busan	Arkhangelsk	Cape of Good Hope	12500	23150	34
Busan	Felixstowe	NSR	8300	15372	24
Busan	Felixstowe	Malacca+Suez	10700	19830	27
Busan	Felixstowe	Cape of Good Hope	13200	24422	36

Source: Chat GPT Model 5.0 Estimate.

China's Polar Silk Road

10. **Chinese Perspective:** China is not an Arctic power as it lacks sub-Arctic territory. Its northernmost city, Mohe, borders Russia's Amur Oblast and has a sub-Arctic climate with long, dry winters complete with reindeer herds and Northern Lights. This however does not constitute or make China an Arctic state. Beijing styles itself as a "near-Arctic power" and an "important stakeholder in Arctic Affairs".[19] Since 2013, China has been a permanent observer on the Arctic Council. This allows China to participate in working groups and attend meetings but not to vote or set agenda. In 2014, Xi Jinping called for building China into a "major polar power" and Beijing has since been among "the most active" observers.[20] China's primary interest in the NSR is securing an alternative export corridor to complement existing land and sea links to Russia, Northern Europe and beyond. The Polar Silk Road now carries geopolitical weight as well as commercial trade.

11. **History of Sailings:** The NSR is not new to China or Russia. Voyage data for their vessels date as far back as 2010.[21] In 2021, roughly two million tons of cargo transited the corridor before traffic was disrupted by the Ukraine war. In 2013, Russia and China resumed NSR promotion amid instability along Middle Eastern routes caused by geopolitical tensions including Houthi attacks on shipping. In the same year, Chinese carrier New Shipping Line completed seven voyages between July and December, transporting approximately 9,500 TEU. In 2024, it made over 13 summer voyages, moving more than 20,000 TEU from Shanghai to Arkhangelsk in the Russian Arctic.[22]

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[19] State Council Information Office PRC, *China's Arctic Policy*, January 2018 http://english.scio.gov.cn/2018-01/26/content_50313403.htm, accessed 25 November 2025.

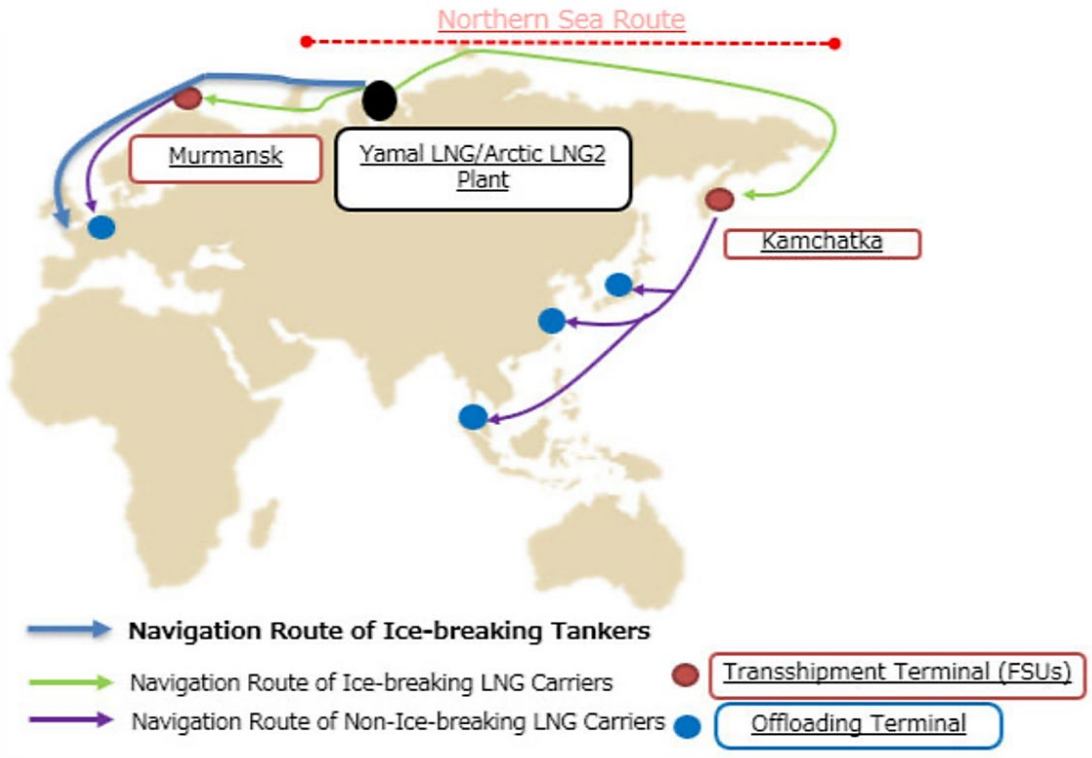
[20] Paul Michael, China's Arctic Turn, Stiftun Wissenschaft und Politik, SWP Comment No. 8 February 2025, Berlin, https://www.swp-berlin.org/10.18449/2025C08/, accessed 25 November 2025.

[21] The Centre for High North has tables and statistics dating back to this period. Various studies have compiled data on this. See Caitlin Keliher, China's Maritime and Transportation in European Arctic, Harvard Kennedy School, 7 April 2020; also see CY Ng, Y Wu, W Zhang, S Jigeer, J Zhang, H Yu, China-Russia Cooperation in the Northern Sea Route Development, *International Organisation Research Journal*, 2025 Vol. 20, No. 1, pp. 46-74.

[22] Malte Humpert, Chinese New Shipping Line To Expand Arctic Container Service After Profitable 2024 Operation, GCaptain, 24 March 2025, https://gcaptain.com/chinese-newnew-shipping-line-to-expand-arctic-container-service-after-profitable-2024-operation/, accessed 25 November 2025.

12. **Advantages:** Beyond shorter transit times, lower costs, lower emissions and avoidance of piracy-prone waters, Chinese firms see first-mover advantages and resource exploitation projects, with potential profits outweighing icebergs risks. Notably, Japanese companies also sailed the NSR and participated in Russian Arctic projects before the Ukraine war; it is not solely a Chinese endeavour (see Figure 1).

FIGURE 1 MAP OF NSR SAILING AND CONNECTIVITY TO EAST ASIA



Source: Mitsui Shipping Japan.

13. **Strategic Opportunities:** For Beijing, the NSR offers distinct strategic upside. The legacy of the USSR-China confrontation has fostered a shared resolve never to let relations between China and Russia deteriorate. The Polar Silk Road provides a concrete platform for enhanced Sino-Russian cooperation, yielding political, security and economic advantages. Both countries are investing to enable faster and potentially year-round transshipments. China is helping expand Russia's Zarubino port, southwest of Vladivostok, to connect directly to the Chinese mainland,[23] while Moscow plans to add 11 Arctic ports and year-round shipping assets. As of

[23] Liselotte Odgaard, Mirroring Russia-China Strategic Cooperation in the Arctic in Cooperation between European and Indo-Pacific Powers in the US alliance system project, Sasakawa Peace Foundation, 21 March 2025, https://www.spf.org/iina/en/articles/liselotte_odgaard_01.html, accessed 25 November 2025.

2025, Russia's Rosatom and China's Hainan Yangpu NewNew Shipping are co-building five Arc7 ice-class container ships (4,400 TEU) to be operational by 2027.[24] Russia also plans four new nuclear-powered icebreakers, with three more under construction, plus a Lida-class icebreaker for extreme northern Siberian conditions;[25] however, the Lida-class project has been delayed by the Ukraine war.[26]

14. **Infrastructure along Arctic Coast:** With Russian shipyards at capacity, China's participation is vital to expanding Russia's merchant, rescue and salvage vessels, as well as laying fibre-optic communications [27] along the Arctic coast. These developments enhance communications, replenishment, repair and search-and-rescue, improving prospects for year-round operations and carrying clear dual-use potential. They also pave the way for joint rail and resource projects in Russia's far north, enhancing China's connectivity to Northern Europe and potentially Canada and the United States. China is pursuing port projects in Iceland (Akureyri) and Norway (Kirkenes) and hopes to leverage Northern European rail, but tangible results are lacking due to ongoing political tensions. Accelerated integration across China, Russia and Northern Europe is still unlikely in the short-term. If realised, these ambitions would benefit all NSR users, subject to political conditions.

15. **"Near Arctic Power":** Together with Moscow, Beijing could implement joint security and search-and-rescue protocols for the NSR to safeguard Chinese shipping from hostile interdiction. China is likely to ramp up scientific expeditions and Arctic infrastructure, strengthening its influence in Arctic governance and protecting the Polar Silk Road, thereby enhancing Beijing's standing as a "near-Arctic" power despite lacking territorial foothold. Strengthening Russia's northern flank where it outpaces US/NATO capabilities also serves China's strategic interests. The two

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24 "New New Shipping, Rosatom to build five container ships for year-round Arctic sailings", *The Barents Observer*, 18 June 2025 https://www.thebarentsobserver.com/news/new-new-shipping-rosatom-to-build-five-container-ships-for-yearround-arctic-sailings/431828, accessed 25 November 2025.

25 Ibid.

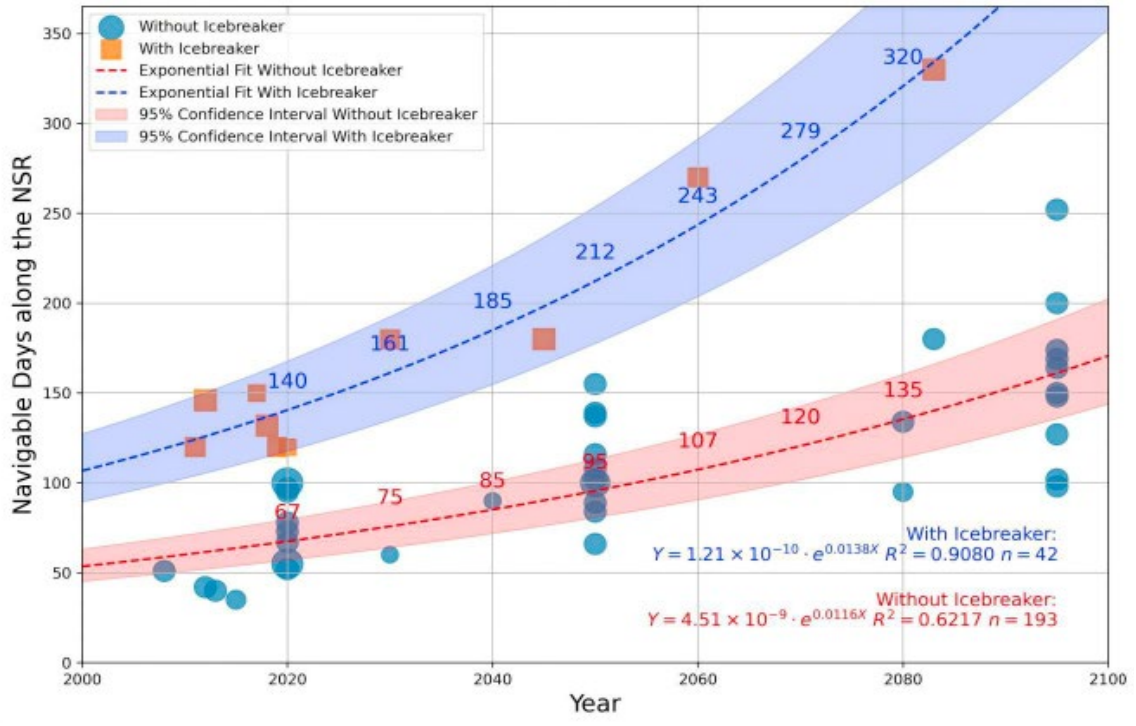
26 "Slow progress, huge budget overrun for Rosatomflot's lider-class icebreaker", *The Barents Observer*, 22 April 2024 https://www.thebarentsobserver.com/arctic/slow-progress-huge-budget-overrun-for-rosatomflots-liderclass-icebreaker/121659, accessed 25 November 2025.

27 This 10,500 km cable project is jointly supported by Japan, Finland, Norway, Russia and China. "China's 10,000-km fiber cable to reach the warming Arctic", CGTN, 14 December 2017, https://news.cgtn.com/news/7949444d32637a6333566d54/index.html, accessed 25 November 2025.

countries may further leverage this cooperation to create conditions for DPRK participation amid their recent trilateral "affinity".

16. **Increasingly Viable:** As operations mature and logistics improve, the NSR would become commercially viable. With more icebreakers coming into service, Chinese companies, supported by local authorities, are expected to advocate for more frequent summer-autumn sailings (mid-June to mid-October), when navigability is highest. Climate change is expected to become more viable in a few decades from now (see Figure 2). Over the next three decades, projections suggest that the NSR could become passable for eight months per year with ice breakers. With improved ports and rail links, route utilisation could increase exponentially.

FIGURE 2 NAVIGABLE DAYS WITH AND WITHOUT ICE BREAK ASSISTANCE ALONG NSR[28]



17. **China's Energy Security:** While the NSR does not resolve China's "Malacca dilemma", it mitigates risk in three ways. First, adding a transhipping corridor for

[28] Created by meta-analysis, reweighted and recalculated across studies on NSR navigable days and seasons, the model also assumes exponential gains in logistics infrastructure and polar maritime technologies over time. This model is not definitive and should be taken as a predictive guide. See CY Ng, Y Wu, W Zhang, S Jigeer, J Zhang and H Yu, China-Russia Cooperation in the Northern Sea Route Development, *International Organisations Research Journal*, vol. 20, no. 1 2025, pp 46-74.

Russian energy to China and East Asia. Second, strengthening BRI connectivity, laying the foundation for future links to the Middle East (NSR sailings need not terminate in Northern Europe). Third, enabling future ship-rail integration via Russia or Scandinavia to move freight from Arctic ports into Central and Southern Europe.

East Asia Perspectives

18. **Commonalities with China:** From an economic and trade standpoint, Japan and South Korea share China's interest in expanding NSR use as the route offers shorter transit times, lower costs, reduced emissions and resource opportunities. Despite their US alliance ties, they remain vulnerable to trade disruptions such as during the 2023 Houthi attacks. For Europe-bound cargo, the NSR offers a lower-risk alternative that bypasses piracy-prone zones and key geopolitical chokepoints including the Taiwan Strait, Strait of Malacca, Suez Canal and the volatile Middle Eastern waters.

19. **Different Realities:** Over the past two decades, Japan and South Korea have periodically expressed interest in the NSR, with the intensity of their engagement fluctuating according to geopolitical conditions. While both share China's recognition of the route's advantages, their approaches differ. Japan's and South Korea's export volumes and market reach are smaller than China's and their interest in the NSR likely stems from distinct strategic and commercial considerations. Geopolitics is a significant factor impeding the development of a collective East Asian approach towards the NSR, and in reality, there is a lot more room for collaboration.[29]

20. **Sensitivities:** As close US allies, Tokyo and Seoul are wary of the NSR's geopolitics: Russia's dominance evokes a Malacca-like dilemma, compounded by physical risks such as icebergs, severe weather and the lack of infrastructure for emergencies. Even if US–Russia relations improve, Moscow may not welcome

[29] Gong Keyu, "The Cooperation and Competition between China, Japan and South Korea in the Arctic", in ed Liev Lunde, Yang Jian and Iselin Stensdal, *Asian Countries and the Arctic Future*, Singapore: World Scientific, 2016, pp. 237-255.

Japanese and South Korean participation in Arctic affairs. Yet caution is tempered by fear of ceding advantage if China fully capitalises on the NSR.

Focus on Japan

21. **Japan and the NSR:** Japan's interest in the Arctic dates to 1925 when it became a signatory to the Svalbard Treaty. Since the early 2000s, Tokyo has maintained a consistent focus on the NSR. In 2009, Japan formally recommitted to the Arctic corridor, and by 2012, the *Nikkei* reported that Japan was considering utilising the NSR for a Yokohama-to-Rotterdam route to reduce the distance from 21,000 km to 13,000 km, cutting transit time by up to two weeks and reducing shipping costs by about 40%, including fuel, personnel and sailing fees.[30]

22. **Abe and Russia:** Japan's formal Arctic policy, articulated in its 2013 "Second Basic Plan on Ocean Policy" and the 2015 "Japan's Arctic Policy", emphasises scientific research, environmental protection and international governance, legislation and navigation safety,[31] as well as the pursuance of regional business opportunities, including resource development in the NSR. Japan's Arctic and NSR engagement is shaped by its strategic competition with Beijing, particularly in securing energy supplies from Russia, a priority sustained from the Koizumi to the Abe administrations. Tokyo's diplomatic outreach to Moscow served a dual purpose: to cultivate a strategic hedge against China and advance energy and security interests, encompassing issues from energy to the Northern territories to China. Japan has consolidated its approach to Arctic matters under the Basic Plan on Ocean Policy which emphasises Arctic research on issues linked to climate change, and the pursuit of business opportunities in the area.[32]

23. **Japan-PRC-Russia Projects:** The 2020 arrival in Japan of the "Vladimir Rusanov", an ice-breaking LNG carrier jointly owned by Mitsui OSK Lines Japan

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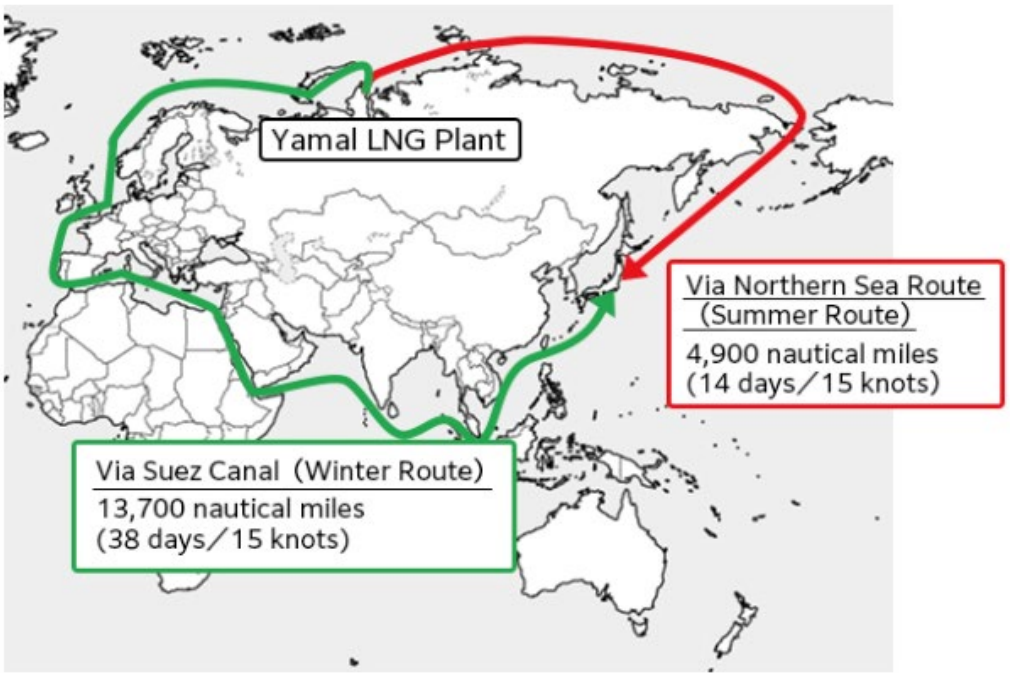
30 "Japan considers opening Arctic shipping lane", Asia Daily Wire, *Tokyo Weekender*, 2 August 2012, https://www.tokyoweekender.com/japan-life/news-and-opinion/japan-considers-arctic-shipping-lane/, accessed 25 November 2025.

31 Japan Cabinet Office, *Japan's Arctic Policy*, The Headquarters for Ocean Policy, 16 October 2015, published https://www8.cao.go.jp/ocean/english/arctic/pdf/japans_ap_e.pdf, accessed 25 November 2025.

32 Onishi, p181.

and COSCO Shipping China, showcased the NSR as the "summer" route which is substantially shorter than the usual Suez Canal route (see Figure 3). Mitsui OSK Lines maintains these joint partnerships with Russian and Chinese firms to build ice-breaking LNG carriers servicing the NSR, transporting energy from Russia's Gydan Peninsula to Europe and from the Yamal Peninsula to Asia.[33]

FIGURE 3 COMPARATIVE SHIPPING ROUTES TO JAPAN USING NSR AND MALACCA/SUEZ[34]



24. **Interruption:** Russia's invasion of Ukraine severely undermined Japan–Russia relations, reversing much of the progress made under Shinzo Abe. In alignment with Western allies, the Kishida administration imposed sanctions such as suspending joint investments and energy cooperation projects, freezing Russian bank assets, restricting business ventures in defence and energy, and banning coal imports.

33 "MOL Signs Charter Contract for a New Building Ice-Breaking Tanker to Serve Russia's Arctic LNG 2 Project" MOL Press Release 9 February 2022, https://www.mol.co.jp/en/pr/2022/22021.html, accessed 25 November 2025.

34 "Ice-Breaking LNG Carrier makes first call at Japan - Northern Sea Route Voyage from Yamal, Russia to Japan", MOL Press Release 20 July 2020, https://www.mol.co.jp/en/pr/2020/20038.html, accessed 25 November 2025.

Nevertheless, Japan continued to import select Russian commodities, including oil, natural gas and seafood.[35]

25. **Balancing Act:** Tokyo recognises the need to perform symbolic gestures of alignment with Washington to demonstrate loyalty to the US–Japan alliance. In May 2025, Japan sent a former senior diplomat to Greenland to discuss an icebreaker research mission,[36] aligning with US President Trump's strategic vision for the region and positioning itself to participate in potential alliance activities there. At the same time, Japan maintains discreet channels of communication with Russia to safeguard its interests in the event of a sudden US–Russia rapprochement and to protect pre-existing investments, such as its participation in the Gazprom-led Sakhalin-2 oil and gas project, which supplies roughly 9% of Japan's LNG imports.[37] This pragmatic approach navigates the risk of Russian retaliation such as increased arms transfer to the DPRK, while allowing Tokyo to secure essential energy supplies from Russia. This is a challenge faced by other US partners such as India, which cannot be weaned from profiting by reselling Russian energy.[38] Japan's policy is a calculated effort to reconcile political alignment with economic necessity.

26. **Pragmatism and Continuity:** In 2023, Japan's Fourth Basic Plan stipulated that "Japan is the closest Asian state to the Arctic Ocean, and thus is in a position to enjoy economic and commercial opportunities, including utilizing Arctic shipping routes and resource exploitation".[39] Prime Minister Takaichi, an Abe protégé, is

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35 Felix Chang, *Japan-Russia Relations After the Russian-Ukrainian War*, Foreign Policy Research Institute, 8 June 2022, Japan-Russia Relations After the Russian-Ukrainian War - Foreign Policy Research Institute, accessed 25 November 2025.

36 "Japan eyes Greenland icebreaker mission to counter Russia and China", *Nikkei Asia*, 2 May 2025, https://asia.nikkei.com/politics/international-relations/japan-eyes-greenland-icebreaker-mission-to-counter-russia-china, accessed 25 November 2025.

37 "Japan's Ukraine aid creates new rift with Russia", *DW Daily*, 15 April 2024, https://www.dw.com/en/japans-ukraine-aid-creates-new-rift-with-russia/a-68811918 ,accessed 25 November 2025.

38 "India to maintain Russian Oil important despite Trump threats government sources say" *Yahoo News*, 2 August 2025, https://sg.finance.yahoo.com/news/india-buy-russian-oil-despite-084147315.html, accessed 25 November 2025.

39 Cabinet Office, "Haiyang jiben jihua" (4th Basic Plan on Ocean Policy), Headquarters for Ocean Policy, 2023, p. 30 https://www8.cao.go.jp/ocean/policies/plan/plan04/pdf/keikaku_honbun.pdf, accessed 25 November 2025.

likely to hew to Abe-era Russian policy, but without a US–Russia rapprochement, and to prioritise protecting Japan's existing interests. In her October 2025 meeting with President Trump, Takaichi confirmed Tokyo's intention to continue purchasing energy from Russia. Japan recognises Russia's strategic advantage over the NSR and the value of Russian cooperation in contingencies, while remaining wary of naval or aerial interdiction risks, hence a likely emphasis on "freedom of navigation" of Japanese vessels in the NSR.

Focus on The Republic of Korea

27. **South Korea and the NSR:** South Korea became an Arctic Council observer in 2013 and published its Arctic master plan in the same year. Seoul's initial engagement dates to a survey and research mission in 1993, a joint research on the Arctic in 1999, and the establishment of the Dasan Arctic Science Station in Svalbard, Norway.[40] An interministerial task force linking the ministries of Foreign Affairs, Oceans and Fisheries, Foreign Affairs, Science, Land Infrastructure Transport, Trade and Environment was formed to administer the Polar policy. Like Japan, the ROK emphasises international cooperation, scientific research and new business areas. In reality, Korea's Arctic interest is probably broader and more business focus than Japan, reflecting a longstanding focus in Arctic shipping. Major shipping companies, including the Korea Marine Environment Management Corporation (KOEM), have studied NSR shipping options, while the Korean Ocean Business Corporation plans to introduce a test container service to Europe in 2026.[41] If successful, the NSR would complement the longer voyages via the Strait of Malacca, Suez and the Cape of Good Hope.

28. **Busan Focused Growth:** South Korea's President Lee Jae Myung has identified the NSR as a cornerstone of the country's long-term logistics strategy, positioning Busan as a global shipping hub and growth engine for the southern port city (Figure

[40] Ministry of Oceans and Fisheries, *Arctic Policy of the Republic of Korea*, Seoul: Korea Maritime Institute, https://library.arcticportal.org/1902/1/Arctic_Policy_of_the_Republic_of_Korea.pdf, accessed 25 November 2025.

[41] Marpro Group Editorial Team, "The Arctic as a bridge between Europe and Asia?" *Maritime Professional Newsletter*, 28 August 2025, https://maritime-professionals.com/the-arctic-as-a-bridge-between-europe-and-asia/ ,accessed 25 November 2025.

4). To support this vision, the Ministry of Oceans and Fisheries was relocated to Busan, leveraging its strategic NSR gateway. The Korea Shipowners' Association envisions Busan's robust inland infrastructure consolidating cargo from China, Japan and Southeast Asia for NSR services to Europe and North America. Already the world's second-largest transshipment port, Busan handled 13.5 million TEU in 2024, or 55% of South Korea's total freight, after Singapore.[42] A substantial US$150 billion of the recent US-ROK US$350 billion trade deal would be used to revive ROK's shipbuilding industries.

FIGURE 4 ARCTIC SHIPPING ROUTES TO/FROM BUSAN, ROK[43]

Source: Ministry of Ocean and Fisheries.

29. **Strategic Gains and Naval Power:** Leveraging the ongoing Sino–US rivalry, the new ROK administration is offering shipbuilding expertise to support US and Japanese fleets, including merchant vessels for NSR operations.[44] This "one stone,

42 Ibid.

43 From *Joo Ang Daily*, 28 May 2025, https://koreajoongangdaily.joins.com/news/2025-05-28/business/economy/Korea-Japan-may-leverage-icebreaker-capabilities-in-US-tariff-negotiations-amid-Arctic-shipping-expansion/2316077, accessed 25 November 2025.

44 "Korea, Japan may leverage icebreaker capabilities in U.S. tariff negotiations amid Arctic shipping expansion", *Korea Jooang Daily* 28 May 2025, https://koreajoongangdaily.joins.com/news/2025-05-28/business/economy/Korea-Japan-may-leverage-icebreaker-capabilities-in-US-tariff-negotiations-amid-Arctic-shipping-expansion/2316077, accessed 25 November 2025.

two birds" approach is to counter intense competition from China. Seoul's "Make American Shipbuilding Great Again" (MASGA) strategy seeks to fulfil part of the $350 billion trade package pledged to President Trump and to strengthen Korea's economic and security posture.

30. Seoul, like Tokyo, recognises that its Arctic policy is inseparable from relations with Russia. The current administration views Russia as vital to her national interests and is likely to seek rapprochement with Moscow, particularly after the Yoon administration's tough stance on Ukraine backfired on South Korea's security interests. Like Japan, improved relations with Moscow hedge against an increasingly powerful China and help constrain DPRK access to advanced Russian military technology. Moreover, safe and efficient NSR operations, and Busan's emergence as an NSR hub, depend on improved relations with Moscow.

Singapore and Her Neighbours

31. **Implications for Singapore and Her Neighbours:** The rise of the NSR as an alternative route for Northeast Asian economies could have long-term implications for Singapore and her neighbours like Thailand (Laem Chabang) and Malaysia (Port Klang).[45] As Arctic shipping technology and infrastructure improves along with accelerated climate change, the key question for Singapore to consider (for the short, medium and long term) is the extent to which East Asian economies will adopt the NSR, reshaping freight flows traditionally routed via the Strait of Malacca. Such shifts could erode transshipment volume, hub feeder patterns and ancillary port services including bunkering, towing and piloting, berthing, container handling and port revenue, while intensifying competition with neighbouring ports. Ultimately these dynamics bear directly on Singapore's profitability, maritime relevance and its standing within the global shipping industry.

32. **Avoid Kneejerk Reactions:** While it may be tempting to assume that rising NSR traffic will inevitably divert flows from the Strait of Malacca, conducting aggressive PR campaigns or taking obstructive measures would be premature. Current

[45] "Arctic route could undercut ASEAN's trade role", *Asia Times*, 23 September 2025 https://asiatimes.com/2025/09/arctic-route-could-undercut-aseans-trade-role/, accessed 25 November 2025.

dynamics suggest that Singapore remains well-positioned in the short run: operational, geopolitical and ecological concerns continue to deter widespread adoption of the NSR.[46] Moreover, the NSR's limited ports of call and its suitability for end-to-end shipments from Northeast Asia to Northern Europe and Russia constrain its broader appeal. Most of the sailings have to do with bunker shipments of commodities and energy.

33. **Infrastructure Delays and Ship Size Limitations:** The Ukraine War and US-China Trade War are diverting Moscow's and Beijing's attention from projects needed to make the NSR attractive. Russia's plan to build a fleet of four Lida-class nuclear icebreakers, essential for heavy-duty year-round escort, has been delayed due to budget overruns, equipment losses and setbacks. In December 2024, a Russian vessel carrying two 380-ton port cranes and two 45-ton reactor hatches for an icebreaker under construction sank off Spain following unexplained onboard explosions. Until these icebreakers are operational, the NSR will remain partially navigable. China's newly announced Thorium-reactor technology might affect this trajectory if deployed in icebreakers, but maturity is years away. Even under favourable conditions, transits are slower than expected due to escort requirements and cautious speed limits. Current icebreaking capabilities cannot accommodate the largest modern container ships, whose beam and hull dimensions exceed what existing icebreakers can safely clear.[47]

34. **Established Efficiency and Profitability of Malacca:** Geopolitical constraints have prevented Japan and Korea from embracing the NSR and limited China-Scandinavian cooperation curbs Beijing's use of Northern European ports and rail to access markets in other parts of Europe. Even under favourable conditions, the NSR is unlikely to be the first choice for Japanese, South Korean, or Western carriers given Russia's leverage over the route and the proven efficiency of the Strait of Malacca. The traditional Singapore passage offers a well-oiled network of feeder

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46 "Major shipping companies Hapag-Lloyd and MSC Step Away From Arctic Shipping", *High North News*, 18 October 2019, https://www.highnorthnews.com/en/major-shipping-companies-hapag-lloyd-and-msc-step-away-arctic-shipping, accessed 25 November 2025.

47 Marek Grzybowski, China and Russia, France and Belgium on the Arctic route, European Cluster Collaboration Platform, 3 February 2025 https://www.clustercollaboration.eu/content/china-and-russia-france-and-belgium-arctic-route, accessed 25 November 2025.

ports and mature bunkering, refuelling and repair ecosystems where container lines consistently maximise profitability.

35. **NSR Cost Barriers:** Profit and cost efficiency drive carrier decisions, making insurance pivotal. NSR use typically raises insurance premiums, particularly for vessels underwritten by Western firms, while icebreaker escorts and other Arctic operating costs erode commercial viability versus traditional routes. The lack of state subsidies or preferential policies, freight rates will remain elevated. Ongoing sanctions on Russia further constrain Western carriers' access to affordable Arctic insurance. Current studies on Arctic economics are inconclusive, with some suggesting cost savings are overestimated.[48] Consequently, the NSR is unlikely to replace established routes, as most Western shipping companies see limited incentive and global shipping profitability depends on regular, networked sailings with multiple port calls, not point-to-point full load operations.

36. **Cargo Type Matters:** Singapore's transshipment hub status will be affected only in select segments in the medium to long run. If the NSR becomes a regular, commercially viable route, the main impact will be on time-sensitive, high-value, end-to-end freight between Northeast Asia—particularly China—and Europe. China, Russia and Japan are likely to expand NSR use for energy and resource shipments. South Korea and Japan could further expand their NSR operations once US–Russia tensions ease. However, most Northeast Asian shipments will remain on established corridors. China will continue leveraging Belt and Road rail and traditional maritime networks, while South Korea will prioritise conventional shipping lanes, given limited overland connectivity from Northern Europe to the Korean Peninsula. Unless DPRK joins the BRI and facilitates rail links with the ROK, Korean internal rail integration remains aspirational.

37. **Retain Share if China Increases Shipment to Destinations in Southern Hemisphere:** Singapore is likely to retain much of its transshipment business, particularly for cargo moving along traditional maritime routes. Ongoing upgrades

[48] Wang, Zhaojun, Jordan A Silberman, and James J Corbett, 2020, "Container Vessels Diversion Pattern to Trans-Arctic Shipping Routes and GHG Emission Abatement Potential", Maritime Policy and Management, Vol 48, No 4, pp. 543-562.

to port services amid intensifying regional competition position the Republic well: greater efficiency, expanded service offerings and enhanced cost competitiveness could possibly help Singapore defend its market share. It would be premature to assume that China will divert all its exports northward via the NSR or other Arctic routes. Belt and Road-linked trade—particularly in Southern Hemisphere destinations—is projected to expand and will continue to rely on existing maritime routes. Similarly, South Korea and Japan are unlikely to shift all cargo northward given market patterns and established trade preferences.

38. In the long term, as NSR risks and costs fall, the route could catalyse structural shifts in global shipping. Singapore must therefore reconsider its maritime value chain and port strategies to meet evolving transshipment dynamics. This includes diversification of services, resource redeployment, port infrastructure renewal and workforce planning. It is imperative that Singapore establish clear indicators to monitor the impact of the NSR to assess long-term trends and strategic implications.

39. **More Proactive Participation:** Singapore has both interest and capability to participate in the development of the Arctic.[49] A Permanent Observer to the Arctic Council since 2013, it has fielded a Special Envoy who sailed on Russian nuclear icebreaker in 2016 to survey the Arctic.[50] Singaporean shipping companies have contributed Arctic assets: Keppel built the Toboy and Varandey icebreakers in 2008 for deployment in the Barent Sea[51] and ST Marine recently completed Arctic LNG bunkering vessels for Russia oil company Lukoil.[52] The Foreign Minister has also

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49 Chen Gang, "Asian Economic Interests in the Arctic – Singapore's Perspective" in ed. Lunde, Yang, Stensdal, *Asian Countries and the Arctic Future*, Singapore: World Scientific, 2016, pp. 203-217; also see "Singapore Minister attends Arctic Circle Assembly in Iceland", *ScandAsia*, 20 October 2025, https://scandasia.com/singapore-minister-attends-arctic-circle-assembly-in-iceland-meets-nordic-counterparts/, accessed 25 November 2025.

50 "Special Envoy for Arctic Affairs Sam Tan's Participation in the Russia-Singapore Arctic Dialogue", MFA Press Release, 17 December 2021, https://www.mfa.gov.sg/Newsroom/Press-Statements-Transcripts-and-Photos/2021/12/20211217-Russia-Singapore-Arctic-Dialogue, accessed 25 November 2025.

51 "Keppel Singmarne completes Arctic Ice breakers", *Riveria News*, 19 May 2009.

52 Lydia Woellwarth, Keppel delivers Russia's first LNG bunkering vessel, *LNG Industry*, 12 August 2021, https://www.lngindustry.com/liquid-natural-gas/12082021/keppel-delivers-russias-first-lng-bunkering-vessel/, accessed 25 November 2025.

spoken on the importance of this issue.[53] Singaporean entities such as ST Engineering have joined the ROK in capitalising on opportunities arising from geopolitics and secured a $1.9 million contract to build icebreakers for the US Coast Guard in 2021. Looking ahead, Singapore could also deepen cooperation with ports in Busan, northern China and the Scandinavian Arctic to expand its investment and partnership network, and develop complementary transshipment services linked to the NSR. Should the Ukraine conflict conclude and a US–Russia rapprochement emerge, Singapore would be well positioned to participate in icebreaker building and resource development initiatives in the Arctic alongside China and other partners if it fits Singapore's interests.

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Best regards,
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[53] Ravi Vellor, "The Arctic is hotting up and it's not just climate", *The Straits Times,* 14 February 2025, https://www.straitstimes.com/opinion/the-arctic-is-hotting-up-and-its-not-just-the-climate, accessed 25 November 2025.