IPRPD
International Journal of Business & Management Studies
ISSN 2694-1430 (Print), 2694-1449 (Online)
Volume 06; Issue no 09: September, 2025
DOI: 10.56734/ijbms.v6n9a11

STRATEGIC TRADE CORRIDORS: THE SUEZ CANAL AND EMERGING MARITIME AND OVERLAND ALTERNATIVES IN GLOBAL SUPPLY CHAINS

Chien Wen Yu[1], Yihong Xiao[2]

[1 2] *Bridgewater State University*

Abstract

As global trade continues to grow, the Suez Canal remains the primary conduit for Asia-Europe maritime trade, handling 12% of global cargo and 30% of container traffic. However, its strategic monopoly faces challenges due to rising security threats, congestion, high transit fees, and occasional disruptions like the 2021 *Ever Given* incident. These factors have sparked interest in identifying and utilizing alternative routes to mitigate risks and optimize costs.

This study aims to comparatively analyze all the alternative routes to the Suez Canal Route (SCR), including the Cape Route (CR), Northern Sea Route (NSR), Trans-Siberian Route (TSR), China-Europe Railways Express (CRE), International North-South Transport Corridor (INSTC), and the recent India-Middle-Europe Economic Corridor (IMEEC). The comparison involves an examination of each route's prices, costs, distances, advantages, disadvantages, and economic and political implications.

Findings underscore that, despite the growing appeal for alternative routes, none currently matches the SCR's cost-effectiveness and established infrastructure for the Asia-Europe trade. Alternatives are primarily supplementary, offering diversification during disruptions but lacking the capacity to displace the Suez Canal as the dominant trade route. Furthermore, geopolitical factors, such as tensions in the Middle East and sanctions against Russia, significantly impact the viability of several routes.

This research contributes to the study of global supply chains and the development of trade routes for global maritime and overland transportation. The findings are intended to inform the readers of broader discussion on transportation and logistics by providing a comprehensive, up-to-date analysis of all major trade alternatives. It highlights the enduring importance of maritime transportation while advocating investment in emerging alternatives to ensure global trade security in the face of evolving geopolitical and environmental challenges.

Keywords

Suez Canal Route, Cape Route, Northern Sea Route, Trans-Siberian Route, China-Europe Railways Express, International North-South Transport Corridor, India-Middle East Europe Economic Corridor.

Introduction

The Suez Canal plays a pivotal role in today's global shipping network, particularly in accommodating vessels sailing on the important Asia-Europe trade lane. Together with the Panama Canal, the Suez Canal serves as one of the oceanic canals contributing to the large concentration of shipping and port activities along the world's maritime route (Notteboom & Rodrigue, 2011).

In recent years, the monopolistic position of the Suez Canal Route (SCR) has been threatened by rising security concerns caused by piracy acts, armed robbery in the Gulf of Aden and Houthis attacks in the Red Sea on vessels transitioning in the region. It is also challenged by high Suez Canal transit fee charges, canal blockage, and an ever-changing geography in world trade patterns. Several alternative all-

water and land-based routes are competing for part of the cargo passing through the Suez Canal. Shippers and shipping lines are continuously reassessing the design of their shipping and distribution networks in search of high-cost efficiency, manageable risks, and increased routing flexibility (Ranzan et al, 2024).

When the *Ever Given* owned by Japanese, one of the world's largest container ships, lost control amid a dust storm and high winds on March 23, 2021, and became wedged across the Suez Canal, it was an event of international significance that rekindled Japanese interest in finding alternative routes to Europe. Leaving aside the very long route around the Cape of Good Hope in South Africa, Japan has two potential alternatives, both reliant on Russia – the Northern Sea Route (NSR) and the Trans-Siberian Railway (TSR) (Penn, 2021).

The NSR and the TSR are both important transportation routes for Russia, and both have been negatively impacted by the war in Ukraine. The NSR has seen increased shipping activity and cargo volumes in recent years. However, the war in Ukraine has disrupted international shipping through the NSR. Russia is building new trade routes to diversify its transportation and weaken the sanctions from the West. These routes include a longer rail link via central Asia and a Trans-Caspian Sea network.

The short-term impact of the Red Sea crisis is particularly notable, with various shipping companies announcing the suspension of services to ports such as Haifa, Ashdod, and Jeddah. With ongoing attacks on ships along the crucial Red Sea shipping route, some Chinese exporters are opting for the China-Europe Railway Express (CRE) services to be on the safe side. The CRE provides a viable alternative, offering a more secure and reliable transportation option for exporters amidst the challenges posed by the Suez Canal and Red Sea shipping routes (Ranzan et al, 2024).

The International North-South Transport Corridor (INSTC) was proposed in 2000 and initially meant to transport goods from India to Russia via Iran as an alternative to the SCR. The INSTC could put pressure on those who benefit from the status quo, particularly maritime hubs. Traffic through the Suez Canal is already declining as more ships opt to take advantage of low fuel costs and take a longer journey around the Cape of Good Hope. New routes overland and through the Artic could add to its growing financial burden of the country of Egypt (Hillman, 2017).

The India-Middle East-Europe Economic Corridor (IMEEC), a US-led connectivity project and rival to China's Belt and Road Initiative, proposes a cost-efficient alternative to the heavily choked Suez Canal for shipping goods from India to Europe. This is essential to counter the Chinese influence in the regional infrastructure projects and to safeguard supply chains following the increase in trade arising from India's foreign trade agreements with the United Arab Emirates, the United Kingdom and the European Union (Palit, 2023). All these potential alternative routes could affect the dominant position of the Suez Canal in the longer term.

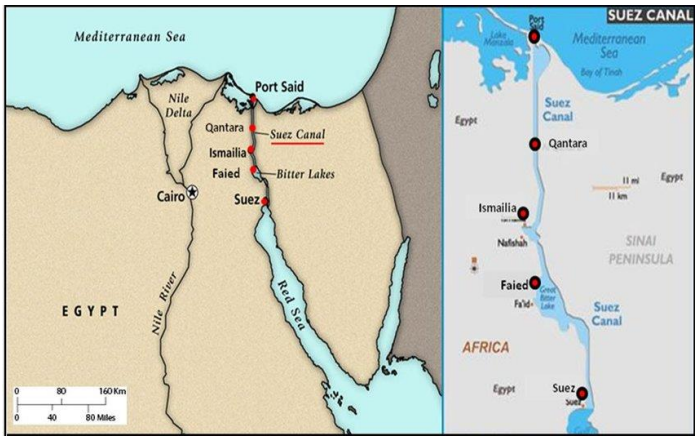
While these alternatives have been considered individually, recent geopolitical shifts have rendered previous analyses incomplete, creating a clear research gap. The war in Ukraine has negatively impacted the viability of the NSR and the TSR, while the Red Sea crisis has simultaneously increased the appeal of the CRE for some exporters. This study fills the existing gap by providing a timely, comprehensive, and comparative analysis of all major alternative routes in the context of these current geopolitical and security challenges.

The significance of this research is its contribution to a deeper understanding of the evolving dynamics of global trade and supply chain security. By assessing whether these emerging corridors can serve as viable supplements or long-term competitors, the findings aim to provide critical insights for shippers, policymakers, and logistics professionals navigating an increasingly complex and uncertain global trade environment. A key contribution of the research is its conclusion that, despite growing interest in alternatives, none currently rival the Suez Canal's combination of cost-effectiveness and established infrastructure for Asia-Europe trade. The paper posits that these alternative routes are primarily supplementary, offering valuable diversification during disruptions like the *Ever Given* incident, but they lack the capacity to displace the SCR as the dominant corridor.

Suez Canal Route (SCR)

Maritime trade between Asia and Europe comprises a large portion of global trade. The Suez Canal Route (SCR) stands out as the main maritime route for trade between the continents. Currently, 12% of global cargo transportation and 30% of container trade pass through the SCR, making it vitally important for supply chains, not just in Europe and Asia, but all around the world. It is important to highlight the growing congestion crisis that the canal faces due to its limited capacity. This situation is projected to

worsen due to an estimated increase of 73% in the volume of international trade between continents by 2030, and 300% by 2050, as well as to the increase in piracy of the Aden region, which holds the SCR route. The effect of maritime piracy on the price of transport shows that an additional hijacked ship results in a 1.2% increase in maritime transport costs between Europe and Asia (Ranzan et al, 2024).



(ResearchGate, n.d.)

In the past few months, global trade has been held back by disruptions at the critical shipping route. The Iran-backed Houthi militia from Yemen's attacks on vessels in the Red Sea area reduced traffic through the Suez Canal. Many shipping companies diverted their ships around the Cape of Good Hope. This increased delivery times by 10 days or more on average. In the first two months of 2024, Suez Canal trade dropped by 50 percent from a year earlier, disrupting supply chains (Kamali et al., 2024).

Despite the Red Sea crisis, China has maintained a deliberate distancing from the issue. China is heavily involved on both shorelines of the Red Sea. At the northern end of the Suez Canal, China has a 20 percent stake in the running of the Port Said. At the southern end of the Suez Canal, China bought a 25 percent share in March 2023 in the running of the Ain Sokhna Port. China chooses not to involve itself in the US-led operation against the Yemeni Houthis, as Chinese ships have been actively transmitting their "all Chinese crew" to gain almost unmolested passage by the Houthis (Scott, 2024). In some cases, Chinese ships may have been attacked in the Red Sea by the Houthis mistakenly. The Suez Canal is still Chinese main shipping route of the 21st Century Maritime Silk Road while they are building road and rail infrastructure for the Silk Road Economic Belt.

Suez Canal blockage and route disruptions in the Red Sea affect the maritime transportation and economies of the regions of Asia, Middle East, Africa and Europe. On March 23, 2021, the Panama-flagged MV container ship *Ever Given*, carrying 20,000 containers from China's Yantian International Container Terminal in Shenzhen, Guangdong Province bound for Rotterdam, accidentally grounded its bow on the Suez Canal's eastern bank while transiting north from the Red Sea. It completely blocked the passage in both directions for six days, stranding hundreds of waiting vessels and paralyzing the global shipping industry. While hundreds of vessels idled *in situ* for the canal to be cleared, some ships with time-sensitive cargoes were forced to take the longer route around South Africa's Cape of Good Hope, requiring fuel and added costs (Daly, 2021).

The monopoly and exorbitant taxes that the Egyptian government charges for use of the canal motivate shipping companies to opt for other routes to avoid such fees. Suez Canal charges vary according to the size of the vessel, its route, the number of containers carried, and the proportion of laden boxes. A fully laden 20,000 TEU container vessel on a head-haul Asia-Europe sailing could expect to pay around $700,000 in transit fees (Marle, 2020). The canal revenue in 2019 stood at USD 5.72 billion, and the transit traffic was 18,880 ships, equivalent to an average of USD $302,000 per ship for passage. A steep increase in Suez Canal transit fees has been introduced, approximately 15% in 2022 (Ranzan et al, 2024).

All this raises the need for new routes, when the current canal route becomes saturated or blocked – as in the case of *Ever Given*. Considering the exorbitant transit fees and additional issues related to cargo and individuals' security, piracy, or global climate change through Suez Canal, more and more shipping companies are looking for alternative options to transport goods from Asia to Europe.

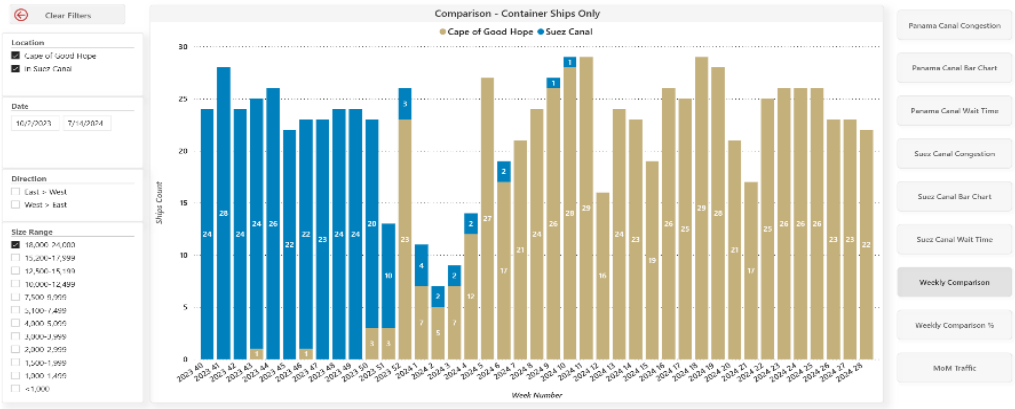
Emerging Maritime Alternatives and Trade Corridors

1. Cape Route (CR)

Macroeconomic geography has contributed significantly to the success of the Suez Canal. The Europe-Far East container trade, Canal's key trade lane, surged in the last decades. The SCR is expected to remain the logical and dominant choice for connecting Asia with Europe. However, the Cape Route (CR) could serve as a good alternative to the Suez option on trades between Asia and South America, Aisa and West Africa,

South America and East Asia. The flows related to the trade lanes through Europe, Africa, Asia and South America now typically pass through the Suez Canal and are interlined in hubs like Algeciras, Tanger Med, or even in more northern ports such as Rotterdam (Maersk) and Antwerp (MSC). However, the interlining via a hub near the Cape is not as popular but is expected to become more competitive compared to the SCR due to a combination of higher Suez Canal transit fees, better vessel economics on the routes to Africa, and subject to a more competitive terminal efficiency and pricing strategy of southern African transshipment facilities in view of attracting interlining flows (Notteboom & Rodrigue, 2024).

Interest in cross-border services increases due to concerns over canal blockage, shipping delays, costs, piracy acts, and Houthis attacks on vessels in the Red Sea. "Our position will not change in the direction of the Palestinian issue, whether a naval alliance is established or not," Houthi official Mohammed Abdulsalam told Reuters, claiming that only Israeli ships or those sailing to Israel would be targeted. However, this contradicts what is seen so far, as many of the attacks targeted ships with no link to Israel (Suez Canal vs. Cape of Good Hope, 2023). These actions have raised the risks for transportation companies operating in one of the world's busiest shipping lanes, causing sharp increases in rates and lengthy delays. Shipping companies diverted their ships around the Cape of Good Hope. Over the past 18 months, not a single ULCS Megamax-class Container Ship of 18,000+ TEU capacity has passed through the Suez Canal. By comparison, before the Red Sea Crisis, between 20 and 30 vessels of this capacity sailed through the Canal weekly (Alphaliner, 2024).



(Alphaliner, 2024)

(Suez Canal vs. Cape of Good Hope, 2023)

Carriers now have crew and cargo safety as the top priorities. Their decision to divert vessels will, however, come at a cost. Traveling via the Cape of Good Hope would delay the trip by over a week in some cases. For example, a ship sailing from Shanghai to New York via Suez will have to travel nearly 12,370 nautical miles. But via the Cape of Good Hope, the distance increases to about 14,469 nautical miles. Since access to European ports is more dependent on the Suez Canal, experts anticipate relatively longer delays in Europe (Suez Canal vs. Cape of Good Hope, 2023).

Traveling from Asia to Europe through CR has become more essential and attracted more attention in the world of transportation today. The CR would not overtake the SCR as the dominant shipping link between East and West. This expected emergence of the CR should be seen as the

embodiment of a promising development of the south-south trade volumes between Asia, Sub-Saharan Africa and South America (Notteboom & Rodrigue, 2024).

2. Northern Sea Route (NSR)

The Northern Sea Route (NSR) is a set of all-water shipping lanes between the Atlantic Ocean and the Pacific Ocean along the Russian coast of Siberia and the Far East. The NSR represents a shortcut for the transfer of goods between Asia and Europe and thus offers significant cost savings for shipping companies. In theory, distance savings along the NSR can be as high as 50% compared to the currently used shipping lanes via the Suez Canal or the Panama Canal. Whereas a voyage from Japan to Europe takes roughly 29 days via the Cape of Good Hope and 22 days via the Suez Canal, it takes just 10 days via the Arctic Ocean. The actual sailing distance between Yokohama in Japan to Rotterdam in the Netherlands is roughly 20,000 kilometers passing through the Suez Canal, but less than 9,000 kilometers via the NSR. The NSR is now approximately 40% shorter than the SCR for such trade (Zeng et al, 2020).

(Satish 2024)

The NSR offers significant distance savings between Asia and Europe, but scheduling uncertainty due to the Arctic environment and the lack of infrastructure in the hinterland will prevent the route from becoming popular with liner services. For bulk dry carriers and wet carriers, in contrast, the route may increasingly represent an alternative to more traditional shipping routes (Humpert, 2011).

The discontinuity of navigation seasons for the NSR presents an obstacle in ship scheduling for a shipping company. For instance, a shipping company that invests in ice-class ships for the NSR will experience high operation and voyage costs when the NSR is not passable. The Artic Ocean off the coast of Northern Russia may be ice-free anywhere from late June until November. During the years, the ice recedes early during the season and does not return until late into Fall, while in other years the ice-free period may be as short as six weeks. There are no guarantees when ice-free conditions start or end. In addition, throughout the summer, drift ice originating further north is likely to be pushed into the shipping lanes by wind and ocean currents. Even during the summer months, the Arctic weather remains unstable. Fog, poor visibility, and violent winds may interrupt the pace of regular liner services (Zeng et al, 2020).

In cost terms, the route today is still less favorable due to the need for ice-class ships and ice-breaker assistance, non-regularity of the liner services, slower sailing speeds, navigation difficulties, and Russian transit fees. Future ice cap reductions would open new possibilities for commercial shipping on this route.

The NSR is referred to as the Polar Silk Road (PSR) by the Chinese and is a relatively new concept for China's Belt and Road Initiative (BRI). It was conceptualized four years after the BRI's 2013 formation. China's economic interests in natural resources extractions and alternative transportation routes largely align with Russia's stated goals to revitalize its Arctic territory. From the Chinese perspective, the joint development of the NSR is a Russian proposal to which China reacted primarily out of strategic and political considerations rather than practical economic ones. While China is in principle interested in the NSR, the potential and practicality of this alternative transportation route remain tentative and yet to be realized. Transit growth has been the slowest within the NSR's operations. Few Chinese experts see the NSR as a viable substitute/alternative to traditional shipping routes (Sun, 2018).

Even in a scenario of great political and social instability in the Middle East, the Arctic Polar Route will not be a credible alternative to the Far East routes (either via Suez or Cape) in the maritime connection between Asia and Europe soon. The route is hampered by practical challenges, including restrictions on ship size (beam and draught) and significant navigation safety issues. A critical flaw is the absence of a port and distribution network, which is essential for commercial shipping. Furthermore, the route's primary advantage of a shorter distance is diminished by the slow average sailing speed required.

Consequently, the NSR is unlikely to assume a significant role in the future world maritime traffic (Goncalves, 2024).

Emerging Overland Alternatives and Trade Corridors

1. Trans-Siberian Route (TSR)

The Trans-Siberian Railway (TSR) runs from Moscow to Vladivostok and is the longest train journey in the world at 9,200 kilometers. It connects Europe and China with a wide-gauge system across Russia, Belarus and Ukraine. In Europe and China, the wide-to-narrow gauge transfer is done in the specially equipped terminals of Brest (Belarus) or Malaszewicze (Poland), for the northern route, and at Chop (Ukraine), Dobra (Slovakia) or Zahony (Hungary) for the southern route. It connects China to European cities, including daily services to some cities in Germany and Central Europe. On this route, cargo is transported from ports in Asia to the eastern extremity of the railway, Vladivostok port in Russia, and goes to the west (Moscow) where there are railway connections to European Union countries. Also, China (Beijing port) and Europe can be connected by railway through the Trans-Mongolian Railway or Trans-Manchurian Railway lines (Ranzan el al, 2024). The following are the four railroad routes of the TSR:

(Encyclopedia Britannica, 2025)

- The main route of the **Trans-Siberian Railroad** begins in Moscow at Yaroslavsky Vokzal, runs through Yaroslavl, Chelyabinsk, Omsk, Novosibirsk, Irkutsk, Krasnoyarsk, Ulan-Ude, Chita, and Khabarovsk to Vladivostok via southern Siberia.

- A secondary primary route is the **Trans-Manchurian Railroad**, which coincides with the Trans-Siberian east of Chita as far as Tarskaya east Karymskoye and in Manchurian area heads southeast via Harbin and Mudanjiang in China's Northeastern Provinces (from where a connection to Beijing is used by one of the Moscow-Beijing Trains), joining with the main route in Ussuriysk just north of Vladivostok.

- The third primary route is the **Trans-Mongolian Railroad**, which coincides with the Trans-Siberian as far as Ulan-Ude on Lake Baikal's eastern shore and from Ulan-Ude, the Trans-Mongolian heads south to Ulaan-Baatar before making its way southeast to Beijing.

- The fourth route running further to the north is the **Baikal Amur Line**, departing from the Trans-Siberian line at Taishet, several hundred miles west of Lake Bakail and passes the lake at its northernmost extremity. It crosses the Amur River at Komsomolsk-na-Amure and reaches the Tatar Strait at Sovetskaya Gaven. On October 13, 2011, a train from Kasan made its inaugural run to Rajin, North Korea (Wandelgek, 2019).

The railway between the Far East and Europe would shorten the transit time between regions and relieve congestion in the ports of southern China. For example, a trip from China to Germany (Beijing and Hamburg respectively), through the TSR, takes on average 15 days. A sea trip from Tianjin, near Beijing, to Hamburg, through the SCR takes 35 days on average. In general, the TSR cost is higher than that of maritime transport. It is equivalent to EUR 2,800/TEU (twenty-foot equivalent unit), while the approximate costs of SCR and NSR are EUR 2,400/TEU (Ranzan el al, 2024). The TSR is economically viable, given its implementation progress, which is already advanced, and its flexibility in relation to the types of cargo that can be transported.

Russia is building new trade routes to diversify its transportation and weaken the sanctions from the West. These routes include a longer rail link via central Asia and a Trans-Caspian Sea network. Russia's 2022 invasion of Ukraine led to this traffic decreasing but not to its ending completely. It also led to the creation or promotion of alternative routes that avoid Russia. Despite less use of the TSR, nearly 20,000 trains were dispatched from Chinese cities to Europe by all routes in 2023, carrying around 2 million containers. This includes those containers destined for Russia itself, but also those using the new routes avoiding Russia (Fender, 2024).

2. China-Europe Railway Express (CRE)

With the implementation of the BRI, the China-Europe railway is developing fast. The railway refers to the international railway container transport service that runs between China and European countries according to a fixed schedule and lines. It provides a new transportation corridor for Sino-European trade and solves the awkward fact that shipping by sea takes a long time whereas shipping by air is expensive (Zeng et al, 2019).

China-Europe now operates through a network of railways that traverse both continents. Originating in China, the route spans across Central Asia and concludes in Western Europe, essentially mirroring the historical Silk Road. The inaugural journey of China-Europe Railway Express took place in 2011, with the first train departing from Chongqing in southwestern China and reaching the German city Duisburg. This marked the commencement of a transformative mode of overland transportation connecting China and Europe (Exploring the Impact of the China Europe Railway Express, 2024).

The growth of direct China-Europe railway services in recent years is particularly dramatic. Some goods were carried by rail between China and Europe, mainly via the TSR. But transit times were slower and less predictable. At change-of-gauge stations, it took longer to transfer cargo from one train to another. Delays also raised the risk of theft and made it impractical to transport refrigerated goods. Companies began experimenting with direct services roughly a decade ago. Through these and other efforts, three primary corridors between China and Europe have emerged. **The Northern Corridor** has three prongs extending from China, all of which join the TSR. **The Middle Corridor** has multiple variations, but all run from China through Kazakhstan but still join TSR towards the end. Some stakeholders believe that a nascent **Southern Corridor** could develop further in the coming years, stretching to Europe via Central Asia, Iran, George, and Turkey (Hillman, 2017).

(Hillman 2018)

Since January 2025, Russian authorities have been stopping containers bound for Europe via the CRE, increasing costs for logistics companies and causing delays. The Russian government tries to ban transit goods such as machinery, electronics and camouflage clothing, primarily goods used for both civilian and military purposes. When the CRE enters Russia from China, there is a change in rail gauge – from China's standard gauge of 1.435 meters to Russian's broader gauge of 1.52 meters. This means containers must be transferred to a different railcar. Typically, in China, a single 40-foot container is loaded onto one railcar. In Russia, due to the broader gauge and different railcar configurations, two 40-foot containers are often loaded onto a single railcar. If one of the containers needs to be checked, the other container is also detained. To avoid the Russian checks and delays, Chinese logistics companies have rerouted many containers, bypassing Russia. Some had to be sent via sea routes or rerouted through the Southern Corridor. This alternative route, which avoids Russia, goes through Kazakhstan, the Caspian and Black Seas, Turkey, and Europe (Zou & Jia, 2025).

Without interruptions and delays, China-European freight trains can complete the journey in about 12 days, significantly faster than the normal sea transit time of 35 to 45 days. Furthermore, considering costs, rail freight is only marginally more expensive than sea transport, especially as the cost differential

narrows after rerouting via the longer Cape of Hope route. However, as the CRE is predominantly utilized for westbound Chinese exports, it often results in empty trains returning to China. The CRE has heavily relied on Chinese government subsidies for both operation and rapid expansion since its inception, as its own profitability level remains low (Exploring the Impact of the China Europe Railway Express, 2024). When it is utilized by more shipping companies with the improvement of the Chinese economy, the CRE profitability will increase gradually.

3. International North-South Transport Corridor (INSTC)

The International North-South Transport Corridor (INSTC) was proposed in 2000 and initially meant to transport goods from India to Russia via Iran as an alternative to the SCR. Two decades later, the trade boom between India and Russia after the invasion of Ukraine coupled with India's vested interests in Iran's Chabahar Port has brought a once dormant transport corridor into focus (Krishnankutty, 2024). The INSTC is a multi-model connectivity project that establishes transport networks (ships, rail, and road routes) for moving freight between India, Russia, Iran, Europe, and Central Asia.

The INSTC is designed to provide an alternative and shorter trade route between South Asia and Northern Europe. It connects the Indian Ocean and the Persian Gulf to the Caspian Sea and further extends to Northern and Western Europe. The successful activation of the corridor will help connect India to Russia within 16-21 days at competitive freight rates, leading to the development of trade on the INSTC. At present, they must either use the Rotterdam port or the land route via China to reach Russia and Central Asia, which are long, expensive, and time-consuming. A study conducted by the Federation of Freight forwarders' Associations in India found the route is, "30% cheaper and 40% shorter than the current traditional route" (Raju, 2016).

(Fillingham, 2024)

The corridor could help revive related regional connectivity efforts. The commercial case for extending Iran's railway network to its southern port of Chabahar, for example, would be much stronger. Having invested in Chabahar, India hopes it can compete with the Gwadar port in Pakistan. Similarly, the completion of other emerging rail lines could gain momentum. Iran is pursuing new routes with Afghanistan, Iraq and Turkmenistan. Azerbaijan has made major investments in its port and free trade zone in Baku, as well as a new railway running into Georgia and Turkey. While each connection offers specific gains, all would broadly benefit by joining a stronger regional network (Hillman, 2017).

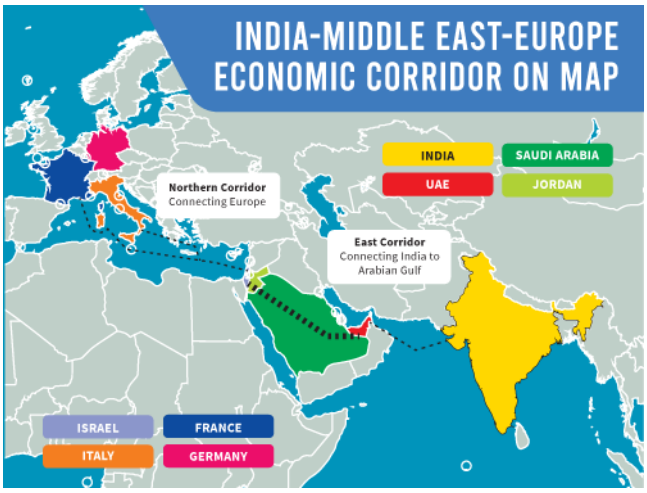
Two dry runs were conducted in 2014 and 2017 on two routes to Azerbaijan via Iran and to Russia's Astrakhan via the Caspian Sea. The studies thereafter found the INSTC more cost- and time-effective than the SCR. Reports began to suggest that the INSTC was Russia's new "economic escape route" in the face of Western sanctions. Originally, the INSTC was viewed as a potential way to transport goods to Europe through Russia, though that has been dampened after Moscow launched its war against Ukraine (Krishnankutty, 2024). The Ukraine war has prompted Russia to refocus attention on the INSTC. The Iranian government has also reviewed its commitment to it (Raju, 2016). The Europeans are not now in favor of such linkages with Russia (Krishnankutty, 2024).

The potential of this route is manifold if India can bring on board its neighbors to the INSTC project. The SCR takes 45-60 days, whereas the INSTC would take 25-30 days. The 2021 blockage of the Suez Canal has further served to highlight the INSTC as a necessary if not better alternative to the Canal (ClearIAS, 2024). However, this is the imagined version of the dormant trade corridor INSTC. The reality, however, is entirely different, as the project has been largely stalled for over 20 years, now requiring significant investments to fill rail gaps and expand terminal capacity in the Caspian Sea legs. Moreover, U.S. sanctions continue to hang like a sword over the project, sapping its momentum (Fillingham, 2024).

4. India-Middle East-Europe Economic Corridor (IMEEC)

At the September 2023 G20 summit in New Delhi, the India-Middle East-Europe Economic Corridor (IMEEC) – a grand US-led connectivity project that would link India to Europe via the Gulf was upstaged

by plans for a rival to China's BRI. The initial Memorandum of Understanding for IMEEC was signed by the United States, the European Union, France, Germany, Italy, India, the United Arab Emirates, and Saudi Arabia (Rizzi, 2024). The IMEEC will comprise two separate corridors-- the east corridor connecting India to the Gulf and the northern corridor connecting the Gulf to Europe. The corridor intends to enhance connectivity, increase efficiency, reduce costs, secure regional supply chains, increase trade accessibility, generate jobs, and lower greenhouse gas emissions, resulting in a transformative integration of Asia, Europe, and the Middle East (Pareek, 2025).



(Biswas, 2024)

The IMEEC was launched to bolster transportation and communication links between Europe and Asia through rail and shipping networks. The G7 and the US also launched a Partnership for Global Infrastructure and Investment in 2022, aiming to mobilize $600 billion in global infrastructure projects by 2027. China has a 10-year head start with the BRI, with total investments of more than $1 trillion so far. Over 150 countries have joined as partners, which has significantly expanded their geographical scope from a regional to a near-global initiative. Neither IMEEC nor Partnership for Global Infrastructure and Investment match the scale or ambition of China's BRI. But IMEEC's ambitions transcend the narrow scope of trade and economics to include everything from electricity grids to cybersecurity (Inamdar, 2023).

The project, however, had failed to make headway because of the Gaza conflict. The IMEEC aims to integrate India, Europe, and the Middle East through the UAE, Saudi Arabia, Jordan, Israel, and the European Union. The route, currently being used to bypass the Houthi blockade, is widely seen as a way to future-proof the India-Europe-US supply chain, avoiding the Suez Canal. The IMEEC seeks to address infrastructure gaps in partner countries. The memorandum of understanding on IMEEC outlines political commitments from partner countries and does not establish legal rights or obligations (Pareek, 2005).

With IMEEC, the US and the EU attempt to counter Chinese influence and draw India closer. The corridor would provide a boost to India's strategy to become a leader among developing countries. The United Arab Emirates (UAE) and Saudi Arabia, meanwhile, embrace IMEEC as part of their push to be a bridge between East and West. Europeans should view IMEEC as providing a long-term addition to current trade routes. They also press for the corridor to expand into a network, promote trade liberalization with India, and support all the participants as they transition to renewable energy. However, IMEEC is a difficult project that requires considerable investment and presents significant internal and external obstacles (Rizzi, 2024).

Research Findings and Conclusion

This study was conducted to comparatively analyze the primary maritime and overland trade corridors emerging as alternatives to the Suez Canal Route. The **Suez Canal Route** stands out as the main maritime corridor and is cost-effective for trade between continents, although there are risks of canal congestion and blockage, piracy, and Houthis attacks in the Red Sea. The **Cape Route** serves as a good alternative to the Suez option on trade between Asia and South America, Asia and West Africa, and South America and East Asia. It is longer, more time-consuming, and more expensive to travel. The **Northern Sea Route** represents a shortcut for the transfer of goods between Europe and Asia. In cost terms, the route today is still less favorable due to the need for ice-class ships and ice-breaker assistance, non-regularity of the liner services, slower sailing speeds, navigation difficulties, and Russian transit fees.

As an overland corridor, the **Trans-Siberian Route** connects China to European cities via rail, including daily services to some cities in Germany and Central Europe. Russia's 2022 invasion of Ukraine led to this traffic decreasing and the creation or promotion of alternative routes that avoid Russia. The **China-Europe Railway Express** can complete the journey in about 12 days, significantly faster than the normal sea transit time of 35 to 45 days. As it is predominantly utilized for westbound Chinese exports,

often resulting in empty trains returning to China and low operational profitability. The **International North-South Transport Corridor** is a multi-model connectivity project that establishes transport networks (ships, rail, and road routes) for moving freight between India, Russia, Iran, Europe, and Central Asia. The Europeans are not now in favor of such linkages with Russia. With the **India-Middle East-Europe Corridor**, the US and the EU aim to counter Chinese influence and draw India closer. However, IMEEC is a difficult project that requires considerable investment and presents significant internal and external obstacles.

This research contributes to the study of global supply chains by synthesizing the economic, logistical, and political dimensions of all major Asia-Europe trade routes into a single comparative framework. By providing a current assessment considering recent geopolitical events, this paper highlights the enduring importance of maritime transportation while advocating for strategic investment in emerging alternatives. The implications of these findings are significant for global trade. First, the enduring dominance of the Suez Canal means that global supply chains will remain exposed to the route's inherent vulnerabilities for the foreseeable future. Second, the alternative routes should be viewed as primarily supplementary, offering diversification to mitigate risk during disruptions rather than serving as complete replacements. Third, the research underscores that geopolitical factors, such as Middle East tensions and sanctions against Russia, are powerful determinants of trade route feasibility, often outweighing logistical advantages. Ultimately, this paper offers a clear perspective on the evolving map of global trade, aiming to inform strategies that can enhance trade security against a backdrop of increasing environmental and geopolitical challenges.

Acknowledgement

This research is sponsored by the US Department of Education, Undergraduate International Studies and Foreign Language Program, CFDA #84.016A.

References

Alphaliner (2024, December). Last week, 54 Container Ships crossed the Suez Canal in either direction. This is actually a record in 2024 [Thumbnail with link attached] [Post] [Image attached]. *LinkedIn*. https://www.linkedin.com/posts/alphaliner_last-week-54-container-ships-crossed-activity-7267208911034695680-KUdE/

Biswas, T. (2024, February 17). India Middle East Europe Economic Corridor (IMEC) and its Relationship with India and the World. *LinkedIn*. https://www.linkedin.com/pulse/india-middle-east-europe-economic-corridor-imec-its-world-biswas-sew6c/

ClearIAS Team (2024, November 21). International North-South Transport Corridor (INSTC). *ClearIAS*. https://www.clearias.com/international-north-south-transport-corridor-instc/

Daly, J. (2021). Suez Closure Brightens the Future of China's New Silk Road. *China Brief*, Volume 21, Issue 11, June 7, 2021.

Encyclopedia Britannica. (2025, June 25). Trans-Siberian Railroad. *Encyclopedia Britannica*. https://www.britannica.com/topic/Trans-Siberian-Railroad

Exploring the Impact of the China Europe Railway Express: A Deep Dive into International Freight Forwarding Dynamics. (2024, February 8). *Conqueror Freight Network Freight Forwarding & Logistics Blog*. https://www.conquerornetwork.com/blog/2024/02/08/impact-of-the-china-europe-railway-express/

Fender, K. (2024, January 20). Conflict in the Middle East leads Asia-Europe containers to find new routes. *Trains*. https://www.trains.com/trn/news-reviews/news-wire/conflict-drought-in-middle-east-leads-asia-europe-containers-from-ship-to-trains/

Fillingham, Z. (2024, September 10). Geopolitics of International North-South Transport Corridor (INSTC). *Geopolitical Monitor*. https://www.geopoliticalmonitor.com/geopolitics-of-the-international-north-south-transport-corridor-instc/

Goncalves, F. (2024, March 25). Arctic Polar Route – A credible alternative to the convulsion in Suez? Ventodonorteblog. https://ventodonorteblog.blogspot.com/2024/03/arctic-polar-route-credible-alternative.html

Hillman, J. E. (2017, March 14). Russia and India's Plan to Skip the Suez Canal. The North-South Transport Corridor Approaches Completion. *Reconnecting Asia*. https://reconasia.csis.org/russia-india-rail-link-could-undermine-suez-canals-importance/

Hillman, J. E. (2018, March 6). The Rise of China-Europe Railways. *Center for Strategic and International Studies (CSIS)*. https://www.csis.org/analysis/rise-china-europe-railways

Humpert, M. (2011). The Future of the Northern Sea Route – A "Golden Waterway" or a Niche Trade Route. *The Arctic Institute*, September 15, 2011.

Inamdar, N. (2023, October 2). Can India-Europe corridor rival China's Belt and Road? *BBC News*. https://www.bbc.com/news/world-asia-india-66957019

Kamali, P., Koepke, R., Sozzi, A., & Verschuur, J. (2024, March 7). Red Sea Attacks Disrupt Global Trade. *IMF Blog, Chart of the Week*. https://www.imf.org/en/Blogs/Articles/2024/03/07/Red-Sea-Attacks-Disrupt-Global-Trade

Krishnankutty, P. (2024, April 3). A dormant transport corridor between India, Russia, Iran is active 20 years later. Here's why. *The Print*. https://theprint.in/diplomacy/a-dormant-transport-corridor-between-india-russia-iran-is-active-20-years-later-heres-why/2024254/

Marle, G. (2020, June 5). Lines using cheaper Cape of Good Hope route will cost Suez Canal $10m. *The LoadStar*. https://theloadstar.com/lines-using-cheaper-cape-of-good-hope-route-will-cost-suez-canal-10m/

Notteboom, T. & Rodrigue, J. P. (2011). Challenges to and challengers of the Suez Canal. *Port Technology International: the review of advanced technologies for ports and terminals world-wide, 51*, 14-17.

Palit, A. (2023, October 16). The India-Middle East-Europe Economic Corridor: An Alternative to the Congested Suez Canal. *ISAS Briefs*. https://www.isas.nus.edu.sg/papers/the-india-middle-east-europe-economic-corridor-an-alternative-to-the-congested-suez-canal/

Pareek, P. (2025, February 13). What is India-Middle East-Europe Economic Corridor and how will it benefit India? *India Today*. https://www.indiatoday.in/india/story/what-is-india-middle-east-europe-corridor-and-how-will-it-benefit-india-2679305-2025-02-13

Penn, M. (2021, May 9). Japan mulls alternatives to Suez Canal after Ever Given shock. *Aljazeera*. https://www.aljazeera.com/news/2021/5/9/japan-mulls-alternatives-to-the-suez-canal

Raju, J. (2016). The International North-South Transport Corridor (INSTC). *ClearIAS*, July 9, 2016.
Ranzan, P. A., Cislaghi, T. P., & Fernandes, E. B. (2024). Suez Canal: An Exploratory Study on Alternative Trade Routes. *Internext: Revista Electrônica de Negócios Internacionais da ESPM*, v.19, n.1, p.42-62/Jan./abr. 2024.
ResearchGate (n.d.). Map shows the sampling site along Suez Canal Egypt. https://www.researchgate.net/figure/Figure-1-Map-shows-the-sampling-sites-along-Suez-Canal-Egypt_fig1_311717462
Rizzi, A. (2024, April 23). The infinite connection: How to make the India-Middle East-Europe economic corridor happen. *European Council of Foreign Relations*. https://ecfr.eu/publication/the-infinite-connection-how-to-make-the-india-middle-east-europe-economic-corridor-happen/
Satish, S. (2024, November 21). Northern Sea Route. *ClearIAS*. https://www.clearias.com/northern-sea-route/
Scott, D. (2024, May 6). China's Calculated Inaction in the Red Sea Crisis. *CIMSEC*. https://cimsec.org/chinas-calculated-inaction-in-the-red-sea-crisis/
Suez Canal vs. Cape of Good Hope: current situation and challenges. (2023, December 21). KUEHNE + NAGEL Sea News. https://mykn.kuehne-nagel.com/news/article/suez-canal-vs-cape-of-good-hope-current-situa-21-Dec-2023
Sun, Y. (2018, December 5). The Northern Sea Route: The Myth of Sino-Russian Cooperation. *Stimson*. https://www.stimson.org/2018/northern-sea-route/
Wandelgek, D. (2019, October 6). The Great Railway Journey (TransSib). *Wandelgek.nl*. http://www.wandelgek.nl/?p=46763
Zeng, Q., Lu, T., Lin, K., Yuen, K. F., & Li, K. (2020). The Competitiveness of Arctic Shipping over Suez Canal and China-Europe railway. *Transport Policy*, 86, 34-43.
Zou, X., & Jia, D. (2025, February 6). Expanded Russian Customs Checks Disrupt China-Europe Rail Logistics. Caixin Global. https://www.globalneighbours.org/expanded-russian-customs-checks-disrupt-china-europe-rail-logistics

