

Roland Berger

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Maritime chokepoints – Fault lines of the global economy

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Abstract

Global trade depends on a handful of narrow maritime corridors, and the events of 2026 have shown how quickly a single incident can fracture global supply chains in ways that extend far beyond shipping and energy. This report treats the closure of the Strait of Hormuz and the subsequent seizure of the key Red Sea chokepoint Bab el-Mandeb by Houthi rebels not as an isolated crisis but as a stress test of a structural vulnerability that has been building for some years, through the Red Sea, Panama, and a widening set of states willing to treat geography as leverage.

Three findings follow: First, chokepoint risk is no longer a tail risk to be managed at the margins of supply chain strategy; it is a core variable in the commercial and geopolitical outlook of any organization engaging in global trade. Second, the damage occurs in two dimensions at once – upstream, where lost access to inputs halts production regardless of domestic demand, and downstream, where finished goods cannot reach their markets. Third, the optimization logic that has governed supply chain design for the past three decades – minimizing inventory, consolidating suppliers, and compressing lead times – was calibrated for a world of stable, low-cost maritime access; recalibrating it for a world where that access is neither guaranteed nor politically neutral is no longer optional.

Chapter 1 – At the heart of global trade: Sea transportation and maritime chokepoints

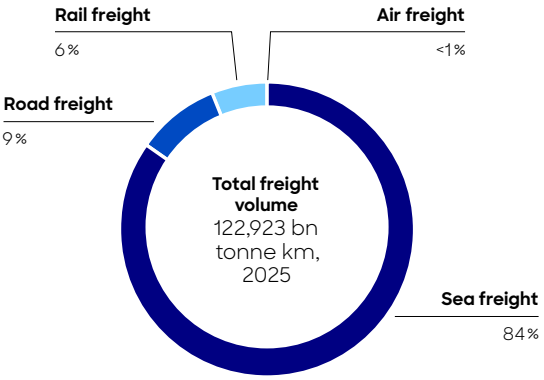
Our global economy depends on trade. And trade depends on sea transportation. Sea freight moves the highest volumes of any mode of transportation, at the lowest cost per unit. It is suitable for virtually every category of goods – from bulk commodities to containerized consumer products – and is supported by a global network of major ports with highly developed infrastructure, logistics capabilities, and interconnected supply chains. No other mode of transportation can match this combination of scale, cost efficiency, and versatility.

The numbers are unambiguous. Sea freight accounts for approximately 84 % of global trade by volume, with seaborne trade volumes projected to continue growing through 2050 as global trade expands. Rail, road, inland waterway transportation, and air freight each are indispensable for long-haul transportation and – in the case of road transportation – for serving the last mile as well, but none can substitute for the sheer capacity and economics of maritime trade at global scale.

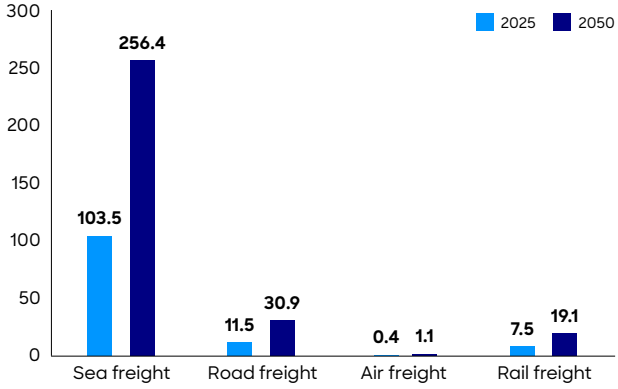
Maritime trade remains the most important mode of transportation by far

Global freight volumes by transport mode

Global share of freight volume by transport mode, 2025 [%]



Forecasted evolution of global freight volumes by transport mode ['000 bn tonne km]



Source DHL, Roland Berger

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Maritime trade has long relied on a handful of narrow corridors, also called maritime chokepoints, to move goods across the world's oceans. A maritime chokepoint is a narrow strait, canal, or passage through which a disproportionate share of global seaborne trade is concentrated.[1] Its economic significance rests on three properties. First, chokepoints concentrate and enable high-volume trade flows: the geographic structure of continents and ocean basins means that certain passages are not merely convenient but structurally necessary for efficient routing of trade between major economic regions. Second, chokepoints enable cost efficiency: by shortening distances between origin and destination, they underpin the economics of global

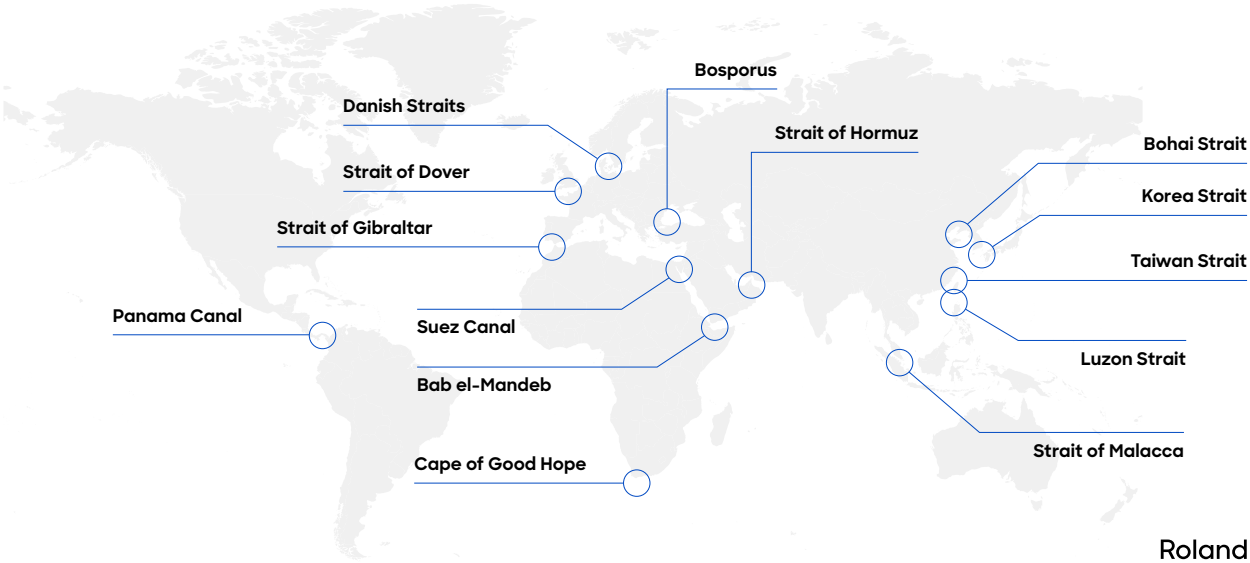
1 In the following, we use the term "chokepoint" as a synonym for "maritime chokepoint," as this text focuses exclusively on maritime chokepoints and does not cover other types of chokepoints – such as those relating to roads, railroads, aviation infrastructure/routes, pipelines, electricity grids, or digital networks.

maritime trade – the difference between the Suez route and the Cape of Good Hope alternative is not merely nautical miles but the viability of entire supply chains. Third, chokepoints create systemic vulnerability: the same concentration that makes a chokepoint economically valuable makes it a single point of failure for the supply chains that depend on it. For decades, these passages functioned as the invisible infrastructure of globalization – taken for granted precisely because they worked. That assumption, however, is no longer universally valid.

This study aims to examine the most strategically significant maritime chokepoints to equip executives and decision-makers with the analytical framework needed to assess their exposure. Our study focuses on the most important maritime chokepoints , ranging from the Strait of Malacca – through which approximately 24 % of global seaborne trade passes annually – to lesser-known but volumetrically significant passages such as the Bohai Strait and the Korea Strait. The closure or restriction of any one of them restructures, however temporarily, the geography of world trade.

Major maritime chokepoints

Most important trade chokepoints globally [by avg. number of transit calls]



Source IMF, Roland Berger

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Chapter 2 - Strait of Hormuz: The anatomy of a shock

The 2026 military confrontation pitting Israel, the United States, and their allies against Iran and its proxies has strikingly demonstrated how quickly a single maritime chokepoint can disrupt global supply chains. Following military strikes against Iranian targets, Tehran responded by restricting transit through the Strait of Hormuz. Rather than immediately sealing it, Iran progressively transformed the waterway into an economically and operationally unviable shipping route. Initial attacks on a limited number of commercial vessels were sufficient to prompt marine insurers to withdraw or reprice war risk coverage, causing insurance premiums to surge and discouraging many shipping companies from transiting the Strait. Only later did the deployment of naval mines and the effective closure of key shipping lanes turn this economic disruption into a physical blockade.

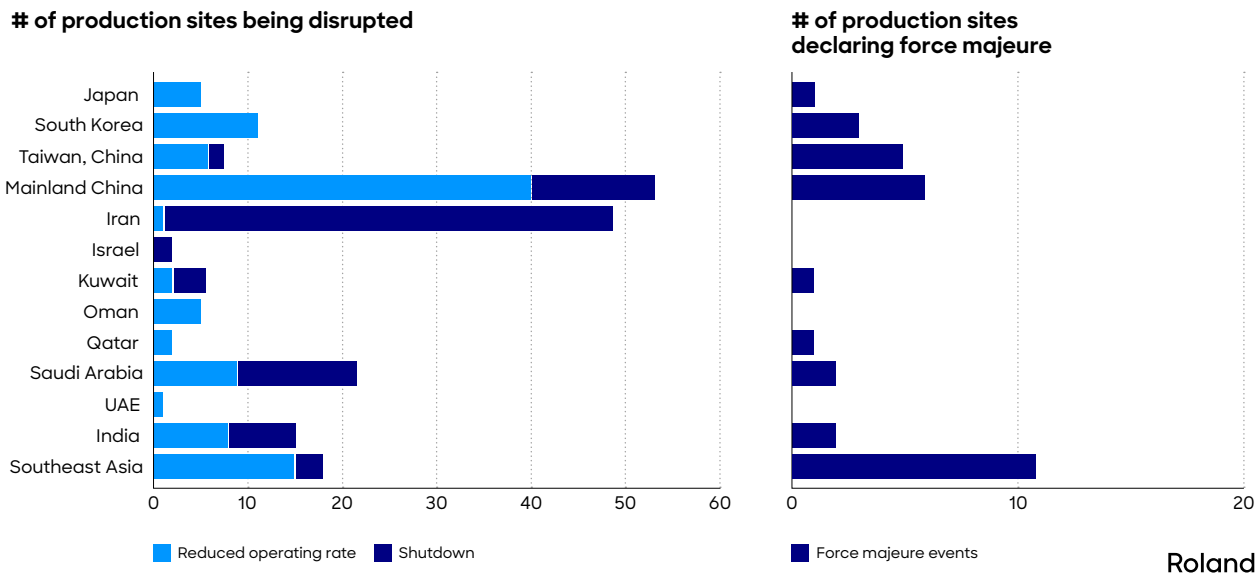
The impact on maritime traffic was immediate. Prior to the conflict, approximately 90 to 120 vessels transited the Strait of Hormuz each day, mostly loaded with energy commodities. Following the escalation, daily traffic fell to fewer than ten vessels as shipping companies rerouted fleets, delayed sailings, or suspended operations altogether.

The immediate debate surrounding the closure of the Strait of Hormuz rightly focused on the risk of an energy shock. After all, the Gulf states account for a substantial share of globally traded crude oil, refined petroleum products, and liquefied natural gas, making any disruption to maritime exports an immediate concern for global energy markets. But energy is only the first link in a longer chain – and it is what happens further downstream that reveals the full systemic reach of a Hormuz closure.

Crude oil is not merely a fuel. In the refining process, it yields a spectrum of products, among them naphtha – a light petroleum fraction that serves as the primary feedstock for steam crackers, where it is converted into the basic chemicals ethylene and propylene. These building blocks form the foundation of thousands of downstream products: plastics, synthetic fibers, packaging materials, automotive components, construction materials, and a vast range of consumer goods.

Because most of the Gulf states' naphtha exports are destined for Asian markets, disruptions to Hormuz shipments translated rapidly into feedstock shortages across the region's petrochemical sector. Within weeks, major producers in Japan, South Korea, Singapore, and Taiwan declared force majeure, reduced operating rates, or temporarily idled production facilities as inventories were depleted. The shortage cascaded downstream through multiple manufacturing sectors – propagating far beyond the chemical industry itself and surfacing as production constraints in industries with no direct line of sight to their own Gulf exposure.

Implications of the war in the Middle East on Asian chemical production as of June 2026



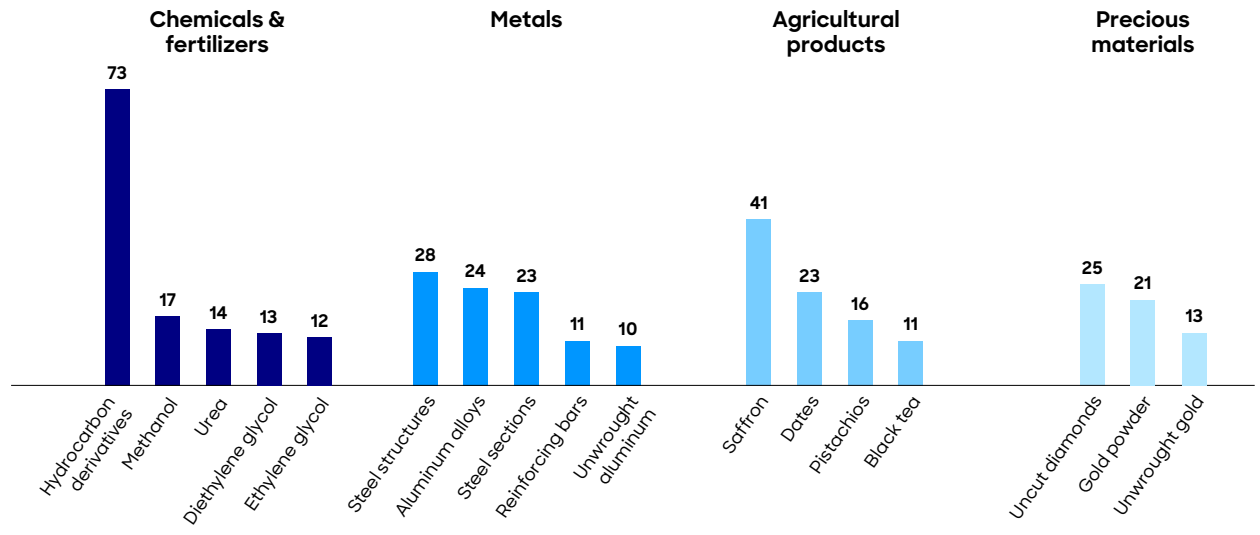
Source S&P Global Energy

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Beyond energy and petrochemicals, the Gulf's role as a supplier of energy-intensive industrial materials added a further dimension to the supply shock. Gulf producers account for a significant – and in some product categories dominant – share of global exports of aluminum, steel, methanol, urea, and other fertilizer precursors, positioning the region as a key node across numerous additional industrial value chains. As market participants anticipated supply shortages and competed for

Gulf states' position in industrial value chain inputs

Share of Gulf state exports in global trade, 2024 [%]



Source Kiel Institute

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alternative sources, prices for aluminum, urea, naphtha, and several other feedstocks recorded sharp increases almost simultaneously.

The consequences propagated swiftly into downstream manufacturing sectors. Automotive producers in Europe and North America rapidly increased purchases of primary aluminum to replenish inventories, recognizing that qualifying alternative suppliers is a lengthy process that typically takes between six and twenty months. For many manufacturers, inventory building was therefore the only viable short-term mitigation strategy – a costly substitute for structural supply chain resilience. The aviation sector faced parallel pressures: as jet fuel supplies tightened and prices increased sharply, airlines reduced flight schedules, consolidated routes, and adjusted capacity to contain operating costs and preserve limited fuel availability. Governments in several energy import-dependent economies were simultaneously forced to release strategic fuel reserves and implement emergency measures to safeguard domestic energy supplies.

The recent war in the Middle East with the closure of the Strait of Hormuz and the subsequent capture of the entire Red Sea coast by the Iran-backed Houthis in September 2026 and the accompanying takeover of Bab el-Mandeb illustrates just how quickly the disruption of single maritime chokepoints can cascade far beyond shipping and energy supplies itself, interrupting manufacturing operations thousands of kilometers away and exposing the vulnerability of highly specialized global value chains.

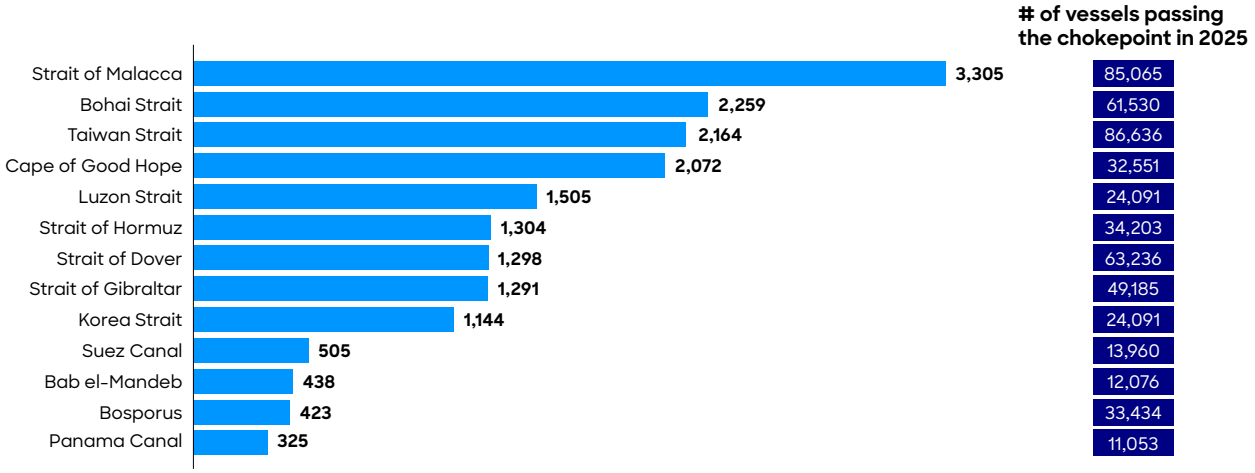
Chapter 3 - Critical passages of the global economy

The Hormuz crisis, severe as it is, represents only one node in a far more complex web of maritime vulnerabilities. The same structural dependencies that make Hormuz so consequential exist at other critical chokepoints across the global shipping network. A closure or even a partial restriction of those chokepoints could generate supply chain disruptions of equal or even greater economic magnitude.

What makes maritime chokepoints systemically significant is not merely their traffic volume but the intersection of three factors: the share of global trade they carry, the concentration of specific goods or commodities routed through them, and the absence of viable alternatives should they become impassable. A corridor that handles large volumes of diversified cargo and has credible rerouting options poses a manageable disruption risk. One that funnels a disproportionate share of a single critical commodity – energy, semiconductors, agricultural bulk – through a passage with no realistic substitute represents a structural vulnerability of an entirely different order. The chart below illustrates the most relevant global maritime chokepoints as measured by trade volumes.

East and Southeast Asia host the most relevant chokepoints globally

Annual maritime trade volume, by chokepoint, 2025 [m metric tons]



Source IMF PortWatch

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The ways a chokepoint can get blocked

Armed conflict, as witnessed in the Strait of Hormuz, is the most visible form of chokepoint disruption – but it is neither the most common nor the only mechanism through which a critical corridor can fail. The historical record of the past decade identifies three distinct risk vectors – accidents, climate, and geopolitical considerations – that also stop short of military force. Each vector has already demonstrated its capacity to generate disruptions of global economic consequence.

Accidents

In March 2021, the grounding of the Ever Given, a 400-meter container ship, blocked the Suez Canal for six days. More than 430 vessels backed up at both entrances, holding up over USD 9 billion in trade a day, and the congestion took weeks to clear, with effects on ports and inventories felt into late 2021. Allianz estimated the blockage cut annual global trade growth by 0.2 to 0.4 percentage points. The incident was not the result of geopolitical calculation – it was caused by strong winds. Yet its economic footprint was global and immediate.

Climate

Between mid-2023 and early 2024, an El Niño induced drought drove water levels in Gatún Lake, the freshwater reservoir feeding the Panama Canal's locks, to historic lows. Daily transits fell from 36-38 vessels in July 2023 to just 18 by February 2024, and full capacity was not restored until August. The canal, which carries roughly 6 % of global maritime trade and 40 % of US container traffic, ran at half capacity for the better part of a year, not because of conflict but because of insufficient rainfall. Climate modeling suggests such events will become more frequent.

Geopolitical considerations

The most acute form of chokepoint disruption remains military force. A naval blockade, the deployment of mines, or sustained attacks on commercial vessels can render a corridor impassable within days, as the Strait of Hormuz has shown. Yet military confrontation is not confined to the Arabian Gulf. The Taiwan Strait sits at the center of the most consequential unresolved territorial dispute in the world, with a potential conflict between China and Taiwan — and its likely US response — representing the single largest systemic risk to global semiconductor supply chains. In the South China Sea, low-level military confrontations between China and the Philippines have become routine, while the Korea Strait remains exposed to North Korean provocations that could, under certain escalation scenarios, disrupt one of Asia's most heavily trafficked maritime corridors. However, geopolitical calculation does not require military force to reshape the economics of a critical corridor.

A major and growing risk lies in the intersection of geopolitics and geoeconomics: the temptation for sovereign states to translate geographic advantage into political or fiscal leverage without firing a shot. The events of 2026 have demonstrated, with unmistakable clarity, the economic power that accrues to any actor capable of influencing a major maritime corridor. It would be naive to assume that this lesson has gone unnoticed by the governments that border them. In April 2026, Indonesia's Finance Minister proposed levying transit fees on commercial vessels passing through the Strait of Malacca, a corridor carrying roughly 24% of global seaborne trade. Indonesia borders the strait, alongside Singapore and Malaysia, and has long regarded its position there as an underused strategic asset. Whether or not the proposal advances, it marks a new frontier of chokepoint risk: one that requires no military action, only a sovereign government's unilateral decision to reprice access. As the strategic value of chokepoint control becomes more legible to governments, the calculus around transit rights and fees is being reassessed worldwide.

Taken together, these three risk vectors — accident, climate, and geopolitical considerations — suggest that the question for supply chain strategists is not whether the next chokepoint disruption will occur, but which corridor will be affected, and whether their organizations are positioned to absorb the shock. Answering that question requires moving beyond a qualitative taxonomy of risk types toward a probabilistic assessment of where disruption is most likely to materialize — and what it would cost when it does.

Chokepoint disruptions can propagate both upstream and downstream. Upstream, where the failure to receive intermediate inputs — raw materials, components, feedstocks — can halt production lines entirely, irrespective of domestic demand conditions. Downstream, where finished goods cannot reach their markets, resulting in lost sales that cannot simply be recovered once the disruption has passed. The strategic response to each is distinct, and both are constrained by a factor that is frequently underappreciated: value density. Air freight can substitute for sea freight when the economics permit — a consignment of semiconductors or pharmaceutical intermediates can absorb the cost premium; a shipment of petrochemical feedstocks, steel billets, or agricultural bulk cannot.

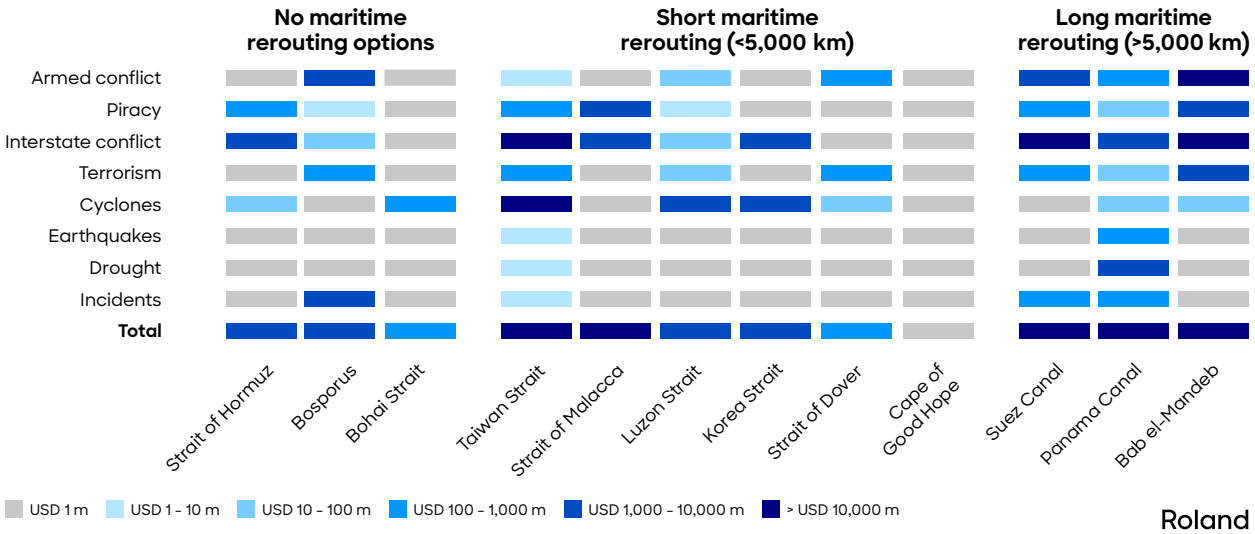
2 Verschuur, J.; Lumma, J.; Hall, J.: Systemic impacts of disruptions at maritime chokepoints (2025)

Rerouting options and their associated time and cost penalties, while relevant, capture only the structural dimension of chokepoint vulnerability. The more consequential variable is the intersection of disruption probability and trade exposure: how much commerce is statistically at risk, across which corridors, and driven by which hazards. A recent study published in Nature Communications in November 2025 provides the most comprehensive quantification of this risk to date.[2] Drawing on historical event data as well as stochastic modeling across eight hazard categories – ranging from tropical cyclones and drought to piracy, armed conflict, and interstate war – the authors estimate an expected value of trade disrupted (EVTD) for the most important chokepoints globally. For each chokepoint and hazard type, the EVTD considers four factors, namely the annual probability of a disruption occurring, the value of trade transiting the chokepoint, the severity of the disruption (share of trade affected), and the duration of the disruption in days.

Taken together, the study finds that USD 191.5 billion of trade is statistically at risk of disruption each year, equivalent to approximately 0.77 % of the value of global maritime trade. As the figure below illustrates, this risk is highly concentrated: the Bab el-Mandeb, Suez Canal, and Taiwan Strait alone account for the dominant share of global EVTD, driven by a combination of geopolitical conflict risk and – in the case of the Taiwan Strait – the high frequency of tropical cyclone events.

Maritime chokepoints at risk

Expected annual value of trade disrupted (EVTD) due to maritime chokepoint disruptions



Source Verschuur, J.; Lumma, J.; Hall, J. in Nature Communications (2025)

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Critically, the EVTD is a measure of exposure, not of economic loss. The two are related but distinct: a chokepoint can carry large volumes of at-risk trade and yet impose relatively modest economic costs if rerouting alternatives are short and inexpensive. Conversely, a corridor with limited rerouting options translates even moderate trade exposure into severe economic damage.

The authors estimate total annual economic losses from chokepoint disruptions – encompassing rerouting costs, delays, insurance premium spikes, inventory shortages, and toll revenue losses – at USD 10.7 billion per year, with a further USD 3.4 billion attributable to container freight rate increases caused by vessels being removed from global fleet capacity during rerouting. Three chokepoints account for 77% of these economic losses: Bab el-Mandeb, the Suez Canal, and the Strait of Malacca. Notably, while the Taiwan Strait registers the highest EVTD among chokepoints with short rerouting distances, its actual economic loss footprint is considerably smaller – precisely because alternative routes, though imperfect, exist and are navigable within a manageable cost and time envelope. This should not, however, be read as a signal that a disruption in Taiwan represents a contained economic risk. The EVTD captures the exposure of maritime trade flows through the Strait itself; it does not capture the far larger economic consequence of a military conflict over Taiwan – one that would simultaneously disrupt the world's most concentrated node of advanced semiconductor production, triggering supply shocks across automotive, defense, consumer electronics, and artificial intelligence industries that no rerouting of shipping lanes could begin to address.

These findings make clear that the economic consequences of chokepoint disruptions are neither uniform nor inevitable – they are mediated by the availability, cost, and speed of alternatives. In principle, every maritime chokepoint has a workaround. Ships can reroute around continents, as the Red Sea crisis of 2023 demonstrated at scale (an overview of maritime rerouting alternatives for each chokepoint is shown in appendix 1). High-value cargo can be transferred to air freight, absorbing the cost premium in exchange for supply chain continuity. And in a small but telling number of cases, entirely new infrastructure is being built to bypass the chokepoint altogether: Thailand is developing a land bridge across the Kra Isthmus – a multimodal corridor linking the Gulf of Thailand to the Andaman Sea – explicitly designed to offer an alternative to the Strait of Malacca for cargo that does not require a maritime transit. Mexico's Tehuantepec Corridor, a multimodal rail link between the Pacific and Atlantic coasts, pursues the same logic as a complement to the Panama Canal. These are not marginal projects; they are sovereign infrastructure investments made in direct response to the recognition that a chokepoint dependency is a structural economic vulnerability.

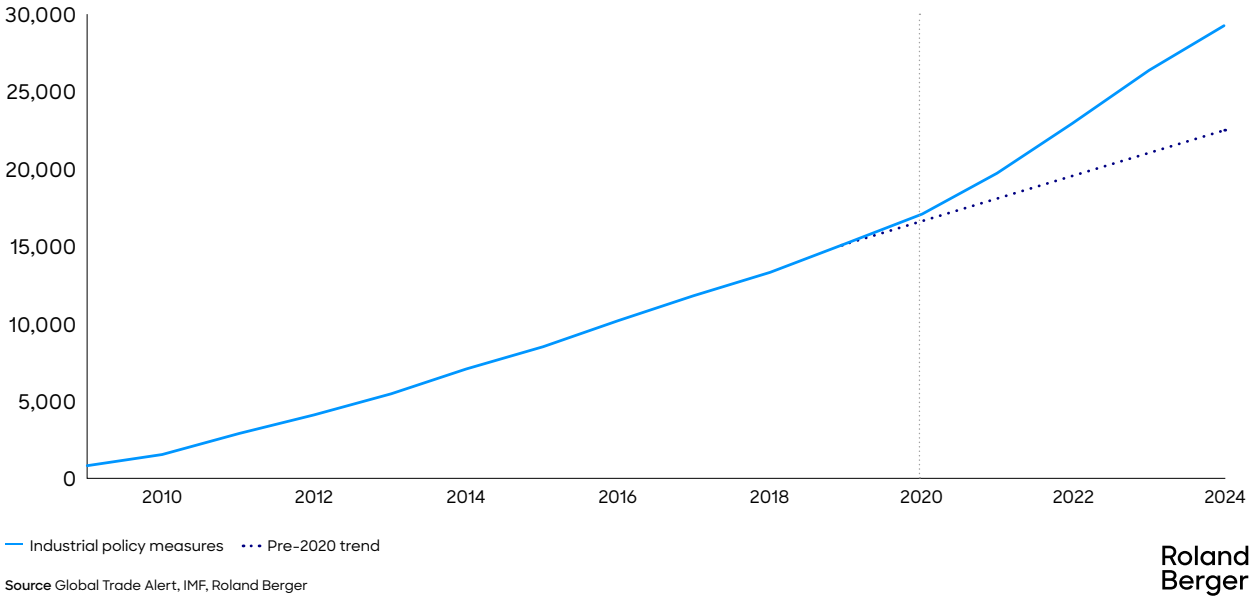
- ## Chapter 4 - Maritime chokepoints in a changing geopolitical era

Today, a new era of geopolitical competition is reshaping the rules of global trade. The tools of economic statecraft have been transformed from instruments supporting market forces to geo-economic weapons, aiming to pursue national interests over multilateral consensus, and to dominate other powers.

Under President Donald Trump, tariffs were deployed as blunt geopolitical weapons, used to extract concessions, punish adversaries, and redraw the terms of international relationships. However, today's playbook of geoeconomic tools is far more sophisticated than tariffs. Industrial policy, long considered a relic of the post-war era, is experiencing a renaissance: the number of industrial policy measures enacted globally has accelerated sharply since the pandemic, with climate transition objectives providing the initial impetus – as epitomized by the US Inflation Reduction Act and the EU's Green Deal Industrial Plan – and increasingly by broader competitiveness and national security considerations as major economies seek to onshore strategic capabilities and reduce structural dependencies on geopolitical rivals. Subsidies distort competitive landscapes. Non-tariff barriers create invisible walls around markets. Currency devaluation undermines the competitiveness of trading partners. Control over critical resources – like rare earths, semiconductors, and energy – as well as over infrastructure chokepoints such as oil and gas pipelines is increasingly weaponized as a source of geopolitical leverage. The creation and dominance of new trade corridors such as the "Belt and Road" initiative add to the interest-driven reconfiguration of global trade. Within this geoeconomic toolkit, maritime chokepoints occupy a unique and particularly powerful position.

Economic statecraft returns with a broad toolkit

Number of industrial policy measures [cumulative]



Source Global Trade Alert, IMF, Roland Berger

Roland Berger

In recent years, maritime chokepoints have moved from the periphery of trade policy to its center. For most of the post-World War II era, the rules governing global trade were clear, if imperfect: goods moved across borders guided by market forces, anchored by multilateral agreements, and protected – at least in principle – by a rules-based international order. Maritime chokepoints were treated as what they physically are: narrow passages of water, strategically situated, through which the arteries of global commerce happened to flow. They were vulnerable, yes. But deliberate, state-level interference with commercial passage was the exception, and freedom of navigation the assumed default. In recent years, however, the control of, access to, and leverage over critical maritime passages has become a live geopolitical question across every major region of the world – and the examples of the past decade - beyond the conflict in the Straits of Hormuz and the proposed levies for passing the Strait of Malacca - make clear that this is no longer a theoretical concern:

- **In the Strait of Hormuz,** Iran has long signaled its willingness to restrict or selectively grant passage as a function of political alignment, most recently operationalizing that threat through differentiated transit conditions following the 2026 escalation.

- **In the Strait of Malacca,** Indonesia's April 2026 proposal to levy transit fees on commercial vessels – framed as a sovereign right over one of the world's busiest corridors – signaled that the monetization of geographic position is no longer exclusively the domain of authoritarian states.

- **In the Danish Straits,** EU sanctions – having started in April 2024 with the 13th sanction package against Russia and supplemented later by additional measures – restrict the service of Russian-flagged and Russian-chartered vessels, using the geography of the Baltic Sea access as a direct instrument of sanctions enforcement.

- **In Panama,** starting in March 2025, the United States applied sustained political pressure to transfer operational control of key canal-adjacent ports from a Hong Kong-based operator to a US-led consortium – an intervention that was explicitly framed in terms of strategic infrastructure security rather than commercial competition.

- **In the South China Sea,** China has pursued a systematic strategy of maritime presence, island fortification, and coast guard assertiveness that amounts, in practice, to a slow-motion assertion of de facto control over waters through which a quarter of global seaborne trade transits annually, since as far back as 2013.

- **And in the Bosporus,** Türkiye invoked the 1936 Montreux Convention in 2022 to restrict the passage of warships – demonstrating how a decades-old legal framework can be activated as a geopolitical instrument with immediate strategic consequences.

The pattern across these cases is consistent: naval chokepoints are no longer simply logistical infrastructure. They are contested assets in the global competition for economic and political leverage – and the range of actors willing to treat them as such is widening. As mentioned before, for most of the modern era, the prevailing assumption was that maritime chokepoints should be open by default. International treaties – most notably the United Nations Convention on the Law of the Sea (UNCLOS) – enshrined the right of innocent passage. Fees were charged only for passage through man-made waterways situated entirely within national territory, such as the Suez Canal or the Panama Canal. Physical control over these passages was exercised to manage traffic and ensure safety, not to block or manipulate it. Disruption, when it occurred, was treated as an aberration to be resolved as quickly as possible. That model is giving way to something fundamentally different.
Today, maritime chokepoints are becoming increasingly treated as strategically managed ecosystems – assets to be leveraged, not merely administered. Fragility and the threat of disruption have become tools of statecraft rather than problems to be minimized. Interest-led politics, rather than adherence to international treaties, increasingly governs decisions about who may pass, under what conditions, and at what cost. The discussion of transit fees – once confined to the Suez and Panama canals – has now extended to natural waterways that were previously considered beyond the reach of sovereign pricing.

For businesses, the implications are immediate and practical: supply chains designed around the assumption of free, unimpeded maritime passage are now structurally exposed to a category of risk that no amount of inventory optimization or supplier diversification can fully eliminate. For governments, the challenge is equally acute. The rules-based international order that once provided a framework for managing these passages is under strain, and the tools available to uphold it are increasingly contested. New coalitions, new maritime agreements, and new infrastructure investments will be required to adapt.

Chapter 5 - Navigating the shift

The analysis presented in this report leads to an uncomfortable but inescapable conclusion: the era in which maritime chokepoints could be treated as background infrastructure – reliable, invisible, and outside the strategic remit of most organizations – is over. What changed in February 2026 in the Strait of Hormuz was not the nature of the risk but its scale – and the speed with which it transmitted from a single maritime passage into energy markets, petrochemical supply chains, fertilizer prices, and manufacturing output across three continents simultaneously.

The geopolitical context in which these risks are embedded is not stabilizing.
The fracturing of the multilateral trade order, the weaponization of economic interdependence, and the growing willingness of state actors to instrumentalize geographic chokepoints as tools of leverage suggest that the frequency and severity of disruptions will increase, not diminish. For executives and supply chain strategists, the relevant planning horizon is no longer defined by cyclical demand fluctuations or carrier rate volatility. It is defined by the intersection of geography, geopolitics, and the structural brittleness of globally integrated production systems that were optimized for efficiency in a world that no longer exists.

The question, therefore, is not whether to act but how – and with what degree of precision. The following five recommendations are designed not as a generic resilience checklist but as a structured response to the specific nature of chokepoint risk: concentrated, asymmetric, and increasingly political.

Systematically quantify chokepoint exposure – at the level where it actually bites

Most organizations have a broad sense of their geographic supply chain footprint. Few have a precise, quantified understanding of which revenues, procurement costs, and margins are exposed to which maritime chokepoints – and at what level of granularity. The first and most foundational step is to translate that broad geographic awareness into a precise, quantified exposure map. Exposure should be mapped at the level of individual product variant, tracing both inbound material flows and outbound product routes through each of the world's critical passages. Crucially, that tracing cannot stop at direct suppliers. A first-tier vendor with no apparent chokepoint exposure may itself depend on a feedstock, component, or input gas that transits one – so the analysis must extend to tier-2 suppliers, and for some products even further, before an organization can claim to understand where it is genuinely exposed.

Prenegotiate alternative routes – treat contingency freight capacity as insurance, not improvisation

When the Bab el-Mandeb disruptions forced carriers to suspend transits and reroute around the Cape of Good Hope, the organizations that fared best were not those with the largest logistics budgets – they were those with prenegotiated contingency arrangements already in place. Freight escalation clauses, pre-committed capacity on alternative routing corridors, and framework agreements with carriers covering Cape Horn and Cape of Good Hope transits are not exotic instruments. They are, in the current environment, the maritime equivalent of business interruption insurance – and should be costed and managed accordingly.

Recalibrate inventory strategy from efficiency to risk-weighted resilience

The just-in-time model was built on the assumption of reliable, low-cost maritime transportation. That assumption has been stress-tested repeatedly since 2020 and has not held. The appropriate response, however, is not a blanket return to high inventory levels across all categories – that would simply transfer the cost of chokepoint risk onto working capital without meaningful reduction in vulnerability. The more precise approach is a risk-weighted inventory strategy: building buffers specifically where disruption exposure is highest and where the cost of a stockout – in lost production, lost revenue, or customer attrition – exceeds the carrying cost of the buffer.

Dual-source against chokepoint exposure profiles, not just geographic proximity

Dual sourcing has become a standard resilience recommendation in the post-pandemic period. Its value, however, depends entirely on how the second source is selected. A supplier located in a different country but on the same side of the same chokepoint offers no protection against a corridor disruption – it does not lower the volume at risk and does not increase the optionality. Effective dual sourcing in the current environment requires chokepoint independence as an explicit selection criterion: the second supplier must be accessible via a materially different routing, such that a closure of any single passage does not simultaneously impair both sources. The geographic diversification that matters is not between countries – it is between chokepoint exposure profiles.

Establish chokepoint-specific early warning systems with predefined escalation protocols

The lead time between the first signs of a chokepoint disruption and its full economic impact is typically quite short. Organizations that act within that window can secure alternative capacity, accelerate inventory drawdowns, activate supplier contingencies, and communicate proactively with customers. Those that wait for disruption to become undeniable lose that flexibility entirely. Effective early warning requires chokepoint-specific monitoring – tracking not just shipping news but the upstream geopolitical, climatic, and operational indicators that precede disruption: naval movements, diplomatic deterioration, water level indices at the Panama Canal, piracy incident frequency, insurance premium trajectories. Crucially, the monitoring function is only as valuable as the escalation protocol it triggers. Without predefined decision rights, response thresholds, and cross-functional coordination mechanisms, even the best intelligence arrives too late to matter. The organizations best positioned for the next disruption will be those that have already decided, in advance and in detail, exactly what they will do when it comes.

The chokepoints mapped in this report will not disappear. The geopolitical pressures bearing on them will not ease. But the organizations that treat this landscape as a known, manageable, and ultimately navigable risk – rather than an exogenous shock beyond their control – will be structurally better positioned to protect their supply chains, their margins, and their competitive standing in an era defined by the weaponization of geography.

Appendix 1: Overview of selected maritime chokepoints and potential alternative routes

The table below maps major strategically significant chokepoints, together with their principal alternative routes, and the additional distance and transit time a rerouting would entail.

Maritime chokepoint	Primary commercial relevance	Alternative route	Additional distance	Additional time	Capacity absorption of the alternative
Strait of Malacca	Trade between the Middle East & SEA & East Asia, but also connecting East Asia with Europe	Lombok Strait, Sunda Strait, Makassar Strait	+500 – 2,000 nm, depending on the port of destination	+2 – 5 days	The Lombok Strait is suitable for VLCCs, but its total capacity is significantly lower than the Strait of Malacca's volume → secondary bottlenecks are likely
Strait of Hormuz	Energy exports from the Arabian Gulf in all directions	No maritime alternative (dead end) – only land-based pipelines			Pipelines cover max. ~20 % of the maritime volume
Red Sea (Bab el-Mandeb & Suez Canal)	Trade between Asia and the Middle East and Europe	Cape of Good Hope (South Africa)	+7,000 – 10,000 nm	+10 – 14 days	Technically feasible but with the simultaneous diversion of large volumes: capacity constraints, including for bunker fuel
Panama Canal	Trans-Pacific trade: US ↔ Asia; intra-US trade, intra-Americas trade	Cape Horn (South America)	+7,800 nm (US west coast → Northern Europe)	+14 – 21 days	Cape Horn is technically navigable but poses risks due to weather conditions; there is virtually no infrastructure
Taiwan Strait	Trans-Pacific trade: China + Southeast Asia ↔ Americas; major route in semiconductor supply chains	Luzon Strait (east of Taiwan)	+300 – 600 nm	+1 – 2 days	Luzon Strait is generally capable of handling traffic, but capacity bottlenecks occur during large-scale traffic diversions
Bosporus	Black Sea exports → Mediterranean: Russian energy, Ukrainian and Romanian grain	No maritime alternative (Black Sea = dead end) – only pipelines for energy exports (TurkStream, BTC). No alternative for grain			No maritime alternative; food supply particularly vulnerable

Strait of Dover	Main corridor connecting North Sea ports (Rotterdam, Antwerp, Hamburg) to the Atlantic Ocean	North of Scotland (North Channel/ Northern Route around the British Isles)	+1,500 – 2,000 nm	+3 – 5 days	Technically viable for deep-sea freighters; not a viable alternative for ferry and Ro-Ro traffic
Korea Strait	Trade between Japan and South Korea ↔ global markets; the only practical Pacific outlet for Russia's Pacific Fleet (Vladivostok); China's naval access from the East China Sea to the open Pacific	Tsugaru Strait (East of Japan) or the open Pacific	+800 – 1,500 nm, depending on the port of destination	+2 – 4 days	The Tsugaru Strait has limited capacity; the Pacific bypass is technically viable, but a large-scale rerouting would create secondary bottlenecks
Bohai Strait	The only maritime access to northern China's major industrial ports (Tianjin, Dalian, Tangshan-Caofeidian, Yantai) – the supply corridor for the Beijing-Tianjin region	No maritime alternative (Bohai = Chinese inland sea) – land routes via rail and road			Rail capacity is insufficient to handle bulk cargo volumes; disruptions have a direct impact on industrial production in northern China

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