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From Crisis to Resilience: The port of Klaipeda and the Reshaping of Baltic Trade Flows (2014-2023)

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ABSTRACT: Geopolitical tensions on the European Union's eastern borders are profoundly reshaping trade flows and logistics chain organization. Through the study of the port of Klaipeda (Lithuania), this article analyses the impact of successive crises (Russian-Ukrainian conflict since 2014, tensions with Belarus in 2020-2021, war in Ukraine since 2022) on the activity of a major port in the eastern Baltic. Based on quantitative traffic data (2010-2023), AIS data and interviews with port stakeholders, this research highlights a triple dynamic: the disruption of traditional East-West flows, particularly for hydrocarbons and fertilizers; the emergence of new North-South trade routes; and the accelerated diversification of port activities. The results demonstrate the port's adaptation capacity to geopolitical shocks while emphasizing its structural vulnerability in an unstable regional context. This study contributes to understanding the interactions between geopolitics and port geography in European border areas.

1 INTRODUCTION

The geopolitical landscape of the Baltic Sea Region (BSR) underwent significant transformations during the late 20th and early 21st centuries, profoundly impacting its transport networks and regional integration. During the Cold War era, the Iron Curtain effectively bisected the Baltic Sea, creating two distinct and largely isolated zones. The conclusion of the Soviet period saw the Baltic Sea only partially interconnected by transport infrastructure, reflecting the region's political division. The disintegration of the Soviet Union and the subsequent accession of the Baltic States to the European Union (EU) redefined this area as a frontier between Russia and the EU. In the immediate post-Soviet period, the newly established boundaries remained relatively permeable. However, as the 21st century progressed, these borders became increasingly defined and less ambiguous.

The 1990s witnessed substantial disruptions in the transport sector due to these geopolitical shifts. As the situation stabilized in subsequent years, the 2004 enlargement of the EU fundamentally altered the nature of the border with the Former Soviet Union (FSU). This expansion effectively relocated the EU's eastern frontier, introducing a new geopolitical discontinuity in the eastern Baltic region.

The eastern shore of the BSR experienced a profound economic transition, evolving from centrally planned economies to market-oriented systems. The Baltic States have garnered significant attention due to their emergence as new markets within the EU and their crucial role as transit corridors for trade with Russia. This dual function underscores their strategic importance in the evolving economic and political landscape of the region.

Over the past few decades, the Lithuania port of Klaipeda has experienced remarkable growth,

transforming from a Soviet-era facility into a key player in global trade. However, the Port of Klaipeda's trajectory has been deeply influenced by the volatile geopolitical environment surrounding it, particularly the political turmoil in Belarus and the war in Ukraine.

This paper aims to provide an analysis of the impact of successive geopolitical crises on the operations of the Port of Klaipeda and, by extension, trade flows in the Baltic region. The crises under scrutiny include the Russo-Ukrainian conflict (2014), tensions with Belarus, and the ongoing war in Ukraine (2022). The study seeks to highlight the port's capacity to adapt to these shocks while also highlighting its structural vulnerability in an unstable regional context. The hypothesis underpinning this analysis is that geopolitical crises disrupt traditional east-west trade flows, particularly in regard to hydrocarbons and fertilisers, and concomitantly foster the emergence of new trade routes, particularly towards the north and south. In order to achieve this objective, the paper employs a range of methodologies, commencing with a conventional approach to transport geography which is predicated on the study of port traffic. The analysis is enriched by field interviews with key port players and analyses based on the use of AIS data (Kerbiriou, Serry, 2023). In doing so, it offers insights into how ports like Klaipeda can navigate both crisis and opportunity in an increasingly interconnected and volatile world.

2 KLAIPEDA, A BALTIC PORT WITH COMPLEX DYNAMICS

2.1 *Baltic ports, tensions and their consequences*

During the 1990s, the problem arose of finding a safe and economically satisfactory route for Russian products to reach the Atlantic. Although Russia has regularly pursued policies aimed at using the economy to serve political ends, flows on the scale of the globalised market have crossed the Baltic borders relatively easily. The evidence is clear: since the mid-1990s, the ports of the eastern Baltic have been characterised by steady growth in traffic and port modernisation. Initially, this trend was shared by the majority of ports, both Baltic and Russian. Total traffic in the Baltic Sea doubled between 1997 and 2019 (from 420 million tonnes to more than 800 million tonnes). According to severall forecasts, a continuous growth of cargo turnover was expected in the Baltic ports (Matczak, N.K. Meyer, E. Ooms, M. Vološina, H. Warmelink, J. Zaucha, E. Czermański, C. Coornaert, A. Koch, 2018). Growth has been most sustained on the eastern shore. Till 2013, cumulative cargo turnover has kept an increasing level even and was dominated by bulks, mainly oil products. In reality, maritime transportation had a positive evolution until the mid-2010s. For instance, the Baltic Sea Region has a regular rise in containerised transport (Wolff, Herz, Flamig, 2011). Container flows in the Baltic Sea were growing roughly in line with the worldwide market from 2010 until 2014 but suffered a severe downturn in 2015 (Ojala, 2016).

The crisis in Ukraine has indeed had multiple repercussions on logistics and port activities in the Baltic region. Before the crisis, the Baltic countries were strategic transit points for trade between Europe and Russia (Liebuvienė, Čižiūnienė, 2021). With the economic sanctions imposed on Russia, the volume of trade between the European Union and Russia, including exports and imports of Russian goods, has significantly decreased. In fact, the cargo turnover of many Baltic ports was heavily dependent on Russian foreign trade transhipments through these ports. Primarily, the ports strategy and infrastructure were being developed with the hope of attracting Russian transit. Except the Russian ports, the ports of Riga and Klaipeda were the most dynamic in the region, using the Russian proximity but also different hinterland possibilities toward Belarus, Ukraine or Central Asia. In 2012, the port of Riga estimates transit to account for approximately 70%-77% of all freight handled. In Lithuania, the port of Klaipeda was less dependent on transit traffic than other ports of the Baltic States with 42% of transit traffic, out of which 78% came from Belarus.

Relations deteriorated further with the economic sanctions imposed on Russia in July 2014. Russia responded with an embargo on Western agri-food products, and Moscow used the sanctions to pursue a substitution strategy: hitting imports to boost domestic production. As a result, competition between ports has intensified since 2014. The stagnation of Russian demand and European economic sanctions against Russia, as well as the strategies of maritime alliances, have challenged the overall increase in demand and shared growth in favour of increased competition between port centres. The decline in traffic in some Baltic ports is indicative of this trend: overdependence on Russia is a factor in the vulnerability of the Eastern Baltic ports. While the mutual economic sanctions imposed by the European Union and Russia did not initially have a significant impact on the operation of Baltic ports, Moscow's decision to stop exporting its petroleum products via Baltic ports in 2018 has changed the situation. This has caused a drastic reduction in goods transiting through Baltic ports. The reduction in trade with Russia has had a direct impact on Baltic Sea ports such as Saint-Petersburg, Klaipeda, Riga, and Tallinn. To compensate for the decrease in Russian traffic, ports are trying to diversify by attracting goods from other regions. This includes agricultural products from Central Europe or energy products destined for Northern Europe. However, this transition requires investments in logistics and infrastructure.

It is particularly the case in the energy sector. The Baltic countries, once dependent on Russian supplies, have accelerated the transition to other energy suppliers, notably by building LNG (Liquefied Natural Gas) terminals. The port of Klaipeda, for example, plays a key role in importing LNG for Lithuania and its neighbours (Serry, Gritsenko, 2015). Russia also used to export significant quantities of coal and minerals via Baltic ports. With the sanctions, these flows have considerably decreased, negatively impacting the logistics sector in the Baltic region. Concretely, the seaports of the Baltic states continued to play a significant transit role in the shipping of Russian foreign trade cargo till 2021 (Volovoj & al., 2021).

Land traffic was severely disrupted by sanctions and the war. Particularly, railways were a key infrastructure for transporting Russian raw materials,

such as coal, fertilizers, and oil, to Baltic ports. The crisis and sanctions have reduced this type of transport, leading to a decrease in revenue for Baltic railway companies and a reconfiguration of logistics networks. Consequently, new routes have been favoured, bypassing Russia, Belarus and Ukraine and using transit corridors via Poland or other Northern European ports. For example, some Scandinavian and Polish ports have seen an increase in their activity with flows redirected from Baltic ports.

Even if it's not at the heart of our approach, the conflict has increased risks in the Baltic Sea, causing insurance costs for ships transiting the region to rise. Additionally, the increase in fuel prices and operating costs due to geopolitical instability has made operations more expensive for logistics operators. Moreover, sanctions imposed on Russia have added administrative complexity for companies operating in the region. Enhanced security inspections, as well as checks to ensure goods do not violate sanctions, increase delays and costs for logistics operators.

Evidence indicates that the eastern coast of the Baltic is experiencing adverse effects (Figure 1) due to events in Belarus and Ukraine, while ports in the west are relatively unscathed. The map, based on 2013, the last year before the sanctions, clearly shows the strong impact of the sanctions on Baltic ports. However, this development remains precarious due to its vulnerability to international geopolitical uncertainties, unilateral decisions by the Kremlin, and global energy tensions that directly impact maritime flows (Serry, 2023). After 2022, in the majority of ports, a fundamental change in the structure of transhipments was observed over the course of a single year (Kuźmiński, 2023).

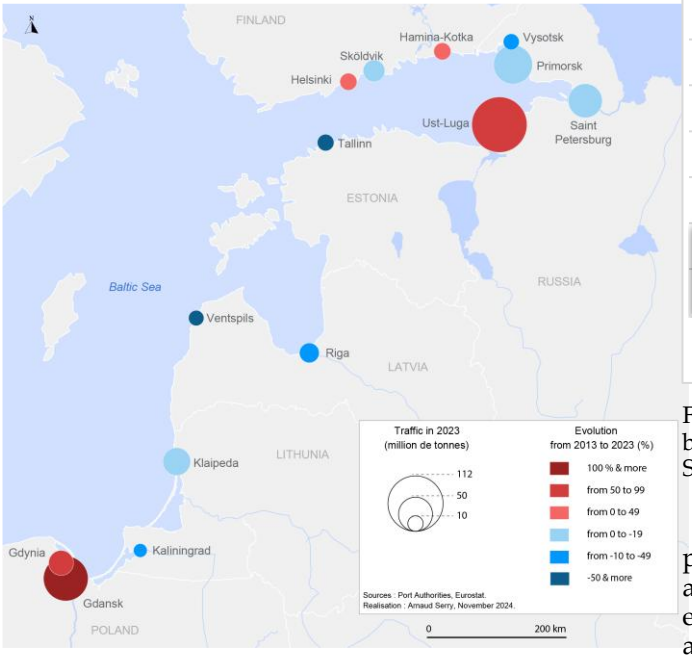

Figure 1. Traffic trends for eastern Baltic ports from 2013 to 2023.

2.2 *Evolution of the Port of Klaipeda*

At the point where the Curonian Spit joins the Baltic Sea, the port of Klaipeda has been established. This is Lithuania's primary, if not sole, port, with an estimated capacity of 25 million tons (mt) in 2001 (Brodin, A., 2003) which grew to more than 52 mt today (Bagočius, Zavadskas, Turskis, 2013). The evolution of the Klaipeda port since the early 1990s can be delineated into three distinct phases. The initial phase encompassed the port's pivotal administrative and financial reorganization, a crucial step in aligning the port with the tenets of the market economy. The second phase entailed the restoration of traffic levels that had declined following the declaration of independence and the modernisation of existing infrastructure. Once nationalist fervour gave way to reason, the port agreed to re-establish trade relations with CIS countries. The specialization of the Soviet port in a particular area of trade meant that former partners were in demand. As a result, the port quickly regained its pre-independence freight levels. The third phase involved attracting new traffic, particularly containers. From this point of view, the port of Klaipeda has benefited from numerous investments, such as those in the Smelte terminal, which has been under the control of Terminal Investment Limited since 2008. The aim of these investments has been to increase the terminal's capacity, modernize its tools, and turn it into a regional hub.

The results have been substantial, as the port's traffic has increased from barely 10 million tons in 1990 to a maximum of 47.8 million tonnes in 2020 (Figure 2). The Klaipeda port has been the leader in terms of cargo volume among the ports of the Baltic States for the fifth consecutive year (Liebuvienė, Čižiūnienė, 2021).

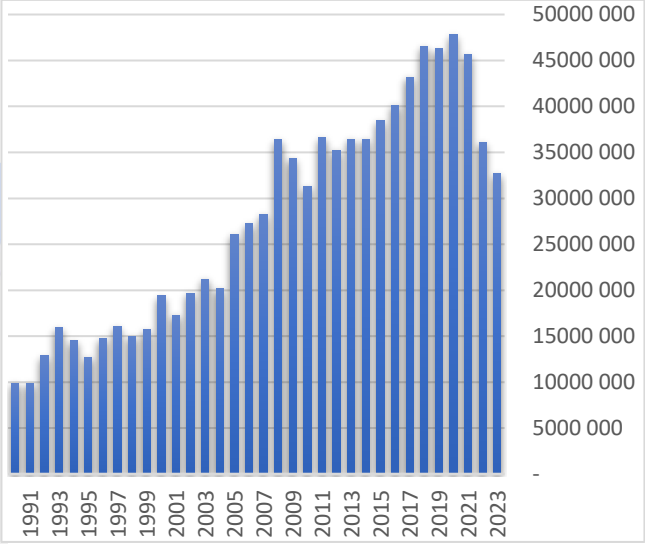

Figure 2. Traffic development of the port of Klaipeda between 1990 and 2023 (in tons). Source: Eurostat, Klaipeda State Seaport authority.

Despite the fierce competition between the region's ports, the port of Klaipeda has managed to diversify its activities while remaining true to its core business of exporting dry bulk from the CIS (Serry, 2019). With almost half of all fertilizer traffic in the Baltic, Klaipeda has dominated this activity since the early 2010s. It benefits from a number of advantages, including its ideal location for transporting Belarusian potassium salt, which has encouraged players in the industry to invest there. In this sector, integration was at work, as illustrated in 2013 by the acquisition of a stake in the BKT (Biriu Kroviniu Terminalas) combined terminal dedicated to the fertilizers of the leading Belarusian manufacturer, Belaruskali (Serry, 2013). Additionally,

it invested in the modernisation of rail connections to facilitate the export of its products.

"Since 2004, Belarus made a decision that, well, we will more and more use Klaipeda port. And they started to do that. And probably 2020, 2021 was those two years of peak of Belarusian transit cargo" (Port of Klaipeda, Head of Communications and Marketing, December 2024). From a structural perspective, dry bulk was a pervasive feature of the Klaipeda port. In 2013, dry bulk accounted for 47% of the port's total traffic (Figure 3).

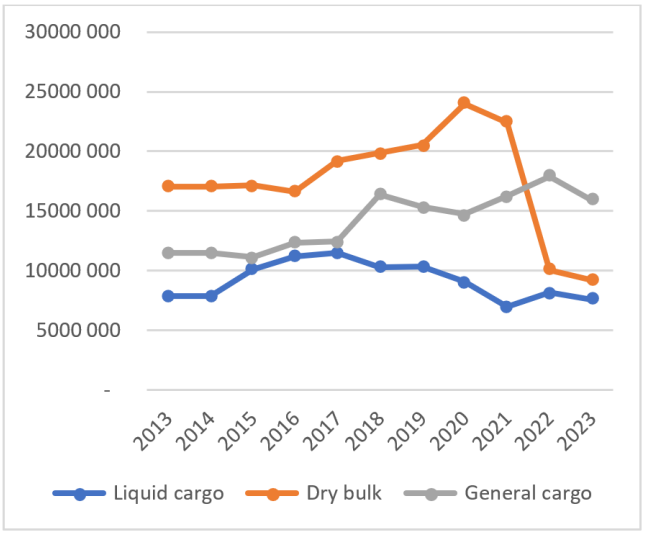

Figure 3. Traffic structure and evolution (2013 – 2023). Source: Eurostat, Klaipeda State Seaport authority.

Liquid bulk is mainly carried by the Būtingė oil terminal inaugurated in 1999 to meet Lithuania's crude oil import needs, mainly to supply the Mažeikiai refinery. It is also historically connected to the Klaipedos Nafta business for the export of manufactured goods and since 2014 to LNG flows. Indeed, un autumn 2014, the first terminal in the Eastern Baltic Sea, the floating LNG barge with a symbolic name "Independence", was commissioned in Klaipeda allowing Lithuania to fulfil its energy diversification goal. The terminal, leased from Norway's Hoegh LNG, has the capacity to supply 4 bcm of gas annually, covering then about 80% of the total Baltic States' consumption (Serry, 2017).

Finally, the port handles a diverse range of general cargo mainly ro-ro and containerized traffic even if Klaipeda port is also handling goods like metal products, construction materials, packed fertilizers or oversized cargo. Container handling is a significant and growing aspect of Klaipeda's port operations with record-breaking performances exceeding 1 million TEUs (Twenty-foot Equivalent Units) in 2022 and 2023. From a regional point of view, Klaipeda is now one of the market leaders (Bartosiewicz, Kucharski, 2023), the second-largest container hub in the Baltic Sea behind Gdansk. Ro-ro traffic is also omnipresent in the port (5,25 Mt in 2023). Ferry traffic in Klaipeda remains robust, with multiple weekly sailings to various destinations, Sweden (Karlshamn), Germany (Kiel) or Denmark (Koge). The port continues to serve as a crucial link between Lithuania and other Baltic and North Sea countries, facilitating both passenger and cargo transport. Klaipeda attracts regional leaders in ferry segment like TT-Line and DFDS (Urbanyi-Popiołek, 2023).

In addition to stevedoring in Klaipeda port, there is also a sufficiently intense movement of cruise ships (Rapalis, Šilas, Žaglinskis, 2022). It is also interesting to mention the existence of the shipyards as they are making fishing trawlers and some floating docks. The strength of Klaipeda Port lies in the diversification of cargoes, as the port is suitable for stevedoring any type of cargo. This is one of the main reasons why the port maintains good results and overtakes its competitors (Table 1), who only handle one or specific types of cargo. Another strength of the port is the long-term and continuous investment in the port infrastructure and technological development of the terminals. About half a billion euros have been invested in the port's infrastructure since 2007, in addition to the technologies installed by private stevedoring companies (Argyropoulou, 2022).

Table 1. Market share of Baltic ports (2022).

Port	%	Tons
Ust-Luga	35,1	124,2
Primorsk	16,2	57,3
St. Petersburg	11	38,9
Klaipėda	10,2	36,1
Riga	6,7	23,5
Tallin	5	18
Vysotsk	4,5	15,9
Ventspils	4,2	14,9
Kaliningrad	2,3	8,1
Liepaja	2,2	7,8

Source: Klaipeda State Seaport authority.

So, with 4,000 employees in all of the companies (Port of Klaipeda, Head of Communications and Marketing, December 2024), the port is not only the economic lung of the city and the region, but also plays an active role in the 14% of the GPD represented by the Lithuanian transport sector.

3 PORT OF KLAIPEDA: NAVIGATING GEOPOLITICAL SHIFTS AND ADAPTING TO NEW TRADING REALITIES

As demonstrated in the preceding discussion, the port of Klaipeda functions as a pivotal logistics hub, not only for Lithuania but also for several neighbouring countries within the region, including Belarus, as well as Russia and Ukraine. Its significance in global trade, particularly in the context of facilitating the export of Belarusian products, has been a notable aspect of its recent economic activity. Nevertheless, the geopolitical dynamics of the region, most notably the ongoing situation in Belarus and the ongoing crisis in Ukraine, have had a profound influence on port activities, both prior to and following the outbreak of the conflict in Ukraine in 2022.

3.1 *A port affected by the regional (geo)political situation.*

Prior to the crisis in Ukraine, the port of Klaipeda played a pivotal role in Belarusian foreign trade, functioning as a nexus for the export of Belarusian products, particularly fertilisers, and as a pivotal hub for the supply of general cargo. Belarus, under the leadership of President Alexander Lukashenko, has

historically utilised the Lithuanian port as a conduit for its exports to global markets, notably the European Union. The strategic importance of Klaipeda as a transport hub for Belarus is further underscored by its advantageous geographical proximity and the presence of well-developed rail infrastructure that is well-suited to the transportation of heavy and sensitive goods. Additionally, the Lithuanian port functioned as a transit hub for Russian exports bound for Western markets. However, these exports were predominantly directed towards Russian ports or the more northerly Baltic ports.

The impact of the domestic political situation in Belarus on the port of Klaipeda intensified from 2020 onwards, with the escalation of political tensions and mass demonstrations against Lukashenko's disputed re-election. In response to the violent repression of opponents and Belarus's growing diplomatic isolation, the European Union intensified its sanctions against the country, thereby limiting trade opportunities.

Since December 2021, Belarus has been unable to export potassium chloride through the Lithuanian port of Klaipeda, which accounted for 90 % of its shipments. Belaruskali has been forced to shift its focus to alternative markets, including new ports in Russia.

The outbreak of hostilities in Ukraine in February 2022 had a considerable impact on trade relations between Belarus and Lithuania, thereby exacerbating geopolitical tensions in the region. Due to its provision of political and military support to Russia, Belarus was subjected to novel European economic sanctions, which had a considerable effect on cross-border trade. In response to these sanctions, Lithuania has taken diplomatic steps to reduce trade with its Belarusian neighbour, particularly with regard to the transport of goods through the port of Klaipeda. “We are not dealing anymore with Russian transit cargo with some exceptions. For example, food products.” (Port of Klaipeda, Head of Communications and Marketing, December 2024).

The most notable consequence of these measures has been a substantial decrease in the transit volumes of Belarusian goods through the Klaipeda port. Indeed, in 2022, several shipping and logistics companies phased out their activities with Belarus, redirecting their trade flows to other Baltic ports, notably Poland and Finland. The drop in traffic was particularly significant between 2021 and 2022, from 45.6 to 36.1 million tonnes. A further decrease followed in 2023, to 32.7 million tonnes. This shift in trade patterns has had a substantial impact on the port's revenue and employment in the maritime sector, particularly with respect to exports of Belarusian fertilizers and oil, which constituted a considerable portion of the port's traffic.

From a categorical perspective, liquid cargoes have remained relatively stable, fluctuating between 7 and 11 million tonnes per year. Conversely, dry cargo has exhibited considerable variability, increasing from 17 million tonnes in 2013 to a peak of 24 million in 2020, subsequently declining to 9.2 million in 2023. Concurrently, general cargo experienced an overall increase, rising from 11.5 million tonnes in 2013 to 15.9 million in 2023 (Figure 4).

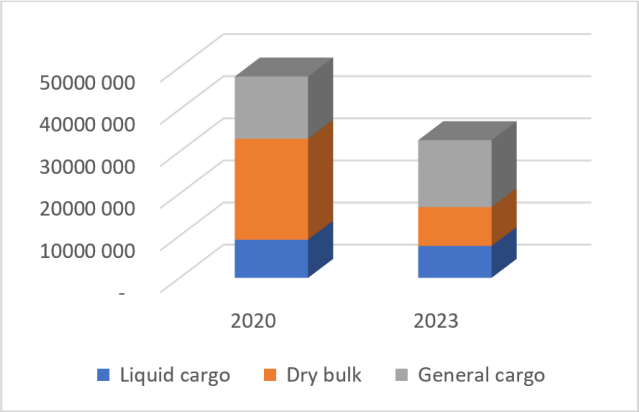

Figure 4. Traffic structure before and after the beginning of the war in Ukraine. Source: Klaipeda State Seaport authority.

In addition to the direct impact on trade with Belarus, the war in Ukraine has also had a significant impact on security dynamics in the Baltic Sea region. For instance, the Lithuanian fertilizer producer Achemos Grupe, ceased production in 2022 due to high energy costs, despite its involvement in the vertical integration of the fertilizer industry. The escalation of tensions has given rise to mounting defence concerns, which in turn have had a bearing on port strategies. Klaipeda, a pivotal port within the region, has been compelled to fortify its resilience in the face of prospective threats, including by implementing novel security measures. The war has also led to heightened concerns regarding the security of energy supplies, impacting infrastructures associated with the storage and transportation of oil and gas.

The crisis in Ukraine has had a significant impact on the organisation of logistics and the configuration of supply chains in the region. The situation has had a pervasive impact on all ports, transport corridors, trade flows and logistics infrastructures. The impact of the Russia-Western world crisis on Baltic ports since 2013 has been considerable and multifaceted. As has been demonstrated, prior to 2013, the port of Klaipėda was reliant, to some extent, on the transit of Russian and Belarusian goods. However, this situation began to change in 2014, following Russia's annexation of Crimea and its support for the Donbass separatists.

3.2 *From Crisis to Opportunity?*

As we already saw, the geopolitical crisis arising from the war in Ukraine has had a significant impact on port activities in the Baltic Sea region, particularly with regard to cargo flows and logistics. However, some ports like Klaipeda have demonstrated resilience by adapting their strategies and exploring new business opportunities.

The initial disruptions, primarily caused by the loss of Belarusian cargo, were particularly acute for the dry cargo terminals. The Executive Director of the Association of Lithuanian Stevedoring Companies (December 2024) noted a significant change: “The same terminal that previously handled Belarusian fertilizers is now processing Lithuanian grain.” Despite the challenges, container traffic has shown a positive trend, somewhat compensating for the downturn in other cargo types, such as transit cargo. Changes in trade routes have been another notable consequence of the

geopolitical situation. As the conflict reshaped traditional trade corridors, new import and export patterns emerged. For instance, the Executive Director observed, "Looking at turnover excluding cargo from or to Belarus, we can say that the remaining cargo volumes have remained stable. However, the direction of trade has shifted—imports now include crushed stone from Sweden and Norway, and steel from Turkey, instead of Belarus."

This shift is indicative of broader strategic adjustments occurring within the Baltic ports.For instance, Tallinn has undergone a redefining of its role, with the port's strategy evolving from a vital link between East and West to one connecting North and South (Vihman, December 2024).This is part of a wider rethinking of regional connectivity, as evidenced by Klaipėda's port also adapting its function. The Head of Communications and Marketing at Klaipėda Port has remarked that the port is seeking to redefine itself, with practical outcomes such as the Rail Baltica project, moving away from its traditional role as a gateway from West to East.

Nevertheless, these transitions are accompanied by a number of challenges. The Head of Communications and Marketing at Klaipėda Port emphasised the constraints imposed by geographical and infrastructural factors, particularly the legacy of rail connections constructed for trade with Russia and the former CIS countries: "In general this idea to quickly somehow reinvent ourselves is rather naïve. It's not possible to just become something else just because you decided so. Geography is limiting you anyway, and there is so much infrastructure which was built, especially for connecting the Baltic states ports to Russia and former CIS countries, railway standard. It's impossible to quickly change that, so it will not happen very quickly, but we are looking. We are thinking in this perspective how to work more with Western European countries." (Port of Klaipeda, Head of Communications and Marketing, December 2024).

From the private sector's standpoint, numerous companies are investigating novel prospects while maintaining a flexibility in their options, anticipating potential future advancements. A case in point is the ongoing relationship between the port and Belarusian fertilizer producer Belaruskali, which remains a shareholder in the BKT terminal. As the Executive Director of the Association of Lithuanian Stevedoring Companies pointed out, "Belaruskali is waiting for the end of sanctions to resume fertilizer exports to Klaipėda. Logistically, it remains the best solution." This indicates a level of uncertainty and caution, with companies hedging their bets on the eventual lifting of sanctions.

Furthermore, the port and port companies have identified transshipment as a potential solution to the issue at hand. Unlike traditional cargo flows, which require extensive hinterland connectivity, transshipment involves the transfer of cargo from one vessel to another, thereby bypassing the need for inland transport. This model has the potential to offer greater flexibility in adapting to shifting trade routes and to reduce dependency on long-established connections.

Concretely, containerised traffic grew rapidly during the period under review, from 450 428 TEU in 2013 to 1 069 678 in 2024. This growth helped partially offset the decrease in other cargo types, particularly transit cargo. The increase in capacity offered by container ships calling in the port is a perfect illustration of this trend, , while the capacity dedicated to dry bulk has decreased. As demonstrated by the graph, the energy independence strategy that has been implemented by Lithuania since 2014 with the commissioning of the LNG terminal, is of particular significance. Following 2022, there was a notable acceleration in the implementation of this strategy.

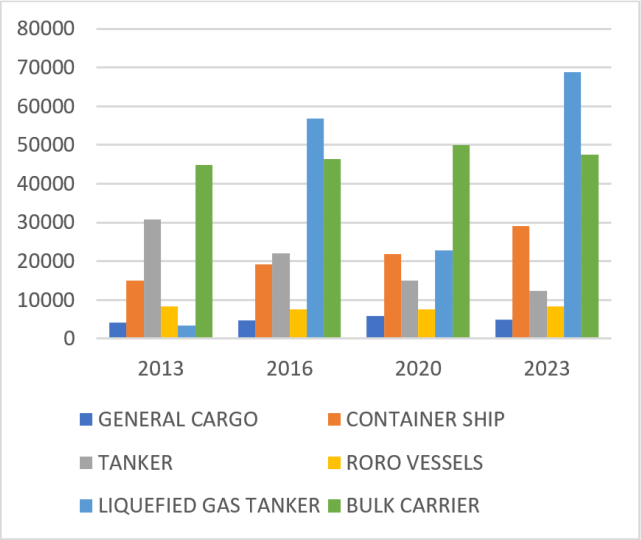

Figure 5. Capacity offered by type of vessel in the port of Klaipeda, 2013-2023. Source: AIS data, 2024.

Returning to containerised traffic, the substantial increase observed in 2022, from 700 000 to 1 million TEUs, can be primarily attributed to the transshipment of empty containers, predominantly those travelling from Russian ports via Klaipeda to other locations. However, since 2023, transshipment volumes have experienced a slight decline, indicating a shift towards full containers stevedoring. This suggests that a greater proportion of cargo is being exported from or imported to Lithuania, rather than merely empty containers being repositioned (The Executive Director of the Association of Lithuanian Stevedoring Companies, December 2024).

The notable increase in container traffic observed at Klaipeda in comparison with other Baltic ports can be attributed primarily to the enhanced capacity of the port and the efficiency of the terminals. The port of Klaipeda, Head of Communications and Marketing (December 2024) states: "we have more capacity, we have kind of efficient terminal. Klaipedos Smelte is ranked as one of the best MSC terminals in their group. What comes to efficiency, what comes to price for movement, and so on and so... So we are kind of strong, because of terminal efficiency, pricing for transshipment"

The increasing focus on container traffic may be attributed to its higher efficiency relative to other cargo types, particularly as ports seek to streamline operations and reduce costs. Efficiency has become a key factor in maintaining competitiveness. A study by Bartosiewicz et al. (2024) on the efficiency of maritime container terminals in the Baltic Sea region emphasized that efficiency can be evaluated from multiple

perspectives, including operational performance, technological integration, and logistics management.

A methodology has been developed for the evaluation of one of the factors contributing to this efficiency, namely the speed with which containers are handled on terminals. The combination of AIS data (number of port calls, vessel capacity) and port traffic enables the estimation of the average length of handling of one TEU in a port (Serry, 2019).

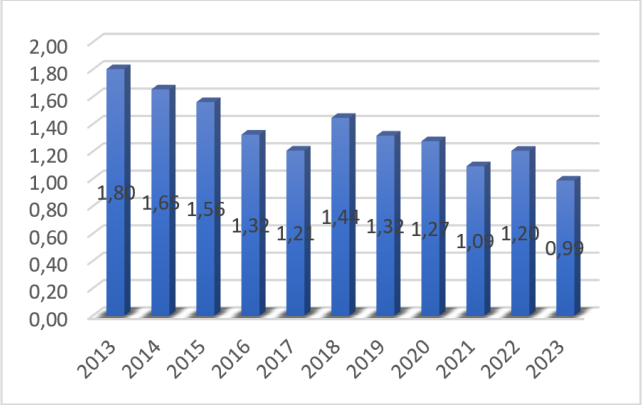

Figure 6. Average handling time per TEU according to AIS data. Source: AIS data, 2024.

As demonstrated in Figure 6, there is a clear and indisputable enhancement in the efficiency of Klaipeda's container terminals over the past decade. Notably, the findings particularly emphasise the accomplishments attained in 2023.

Despite the efforts of ports and businesses to adapt to the new geopolitical landscape, stakeholders have expressed dissatisfaction with the level of support from public authorities. The Executive Director of the Association of Lithuanian Stevedoring Companies remarked, "Public authorities have focused mainly on sanctions and compliance issues, rather than providing assistance to help national businesses survive in these challenging times." This sentiment reflects a broader concern about the lack of strategic support for the private sector, which has had to navigate these crises largely on its own. Vaidotas Sileika, Chief Executive Officer at Klaipeda Container Terminal, thinks that the Lithuanian government, should not change the directions of the port's activities and keep the priorities - investments in the Port of Klaipėda should be encouraged. The activities carried out in the port should be recognised as an important project for the country, and the construction of the city's southern bypass and the European railway line "Rail Baltica" to Klaipėda is expected." (https://ve.lt/verslas/klaipedos-uostas-atsispyre-nuo-dugno).

In addition to its strategy for coping with the decline in traffic, the port of Klaipeda has had to multiply its adaptations:

- It had to invest in infrastructure to improve its capacity to accommodate larger ships and diversify its activities. Investments were made in container and bulk terminals to handle more diversified cargo flows. The port also strengthened its links with other Baltic ports, such as Riga and Tallinn, to optimise logistics chains.
- The port also played a role in facilitating the transit of Ukrainian agricultural products after Black Sea ports (such as Odessa) were largely closed due to the conflict. While Ukrainian exports by land and rail were complex, a large proportion of the goods that were previously transhipped through Ukrainian ports have been redirected since 2022 to the ports of Poland (Savchuk, 2024) in which alternative transport chains have been set up (Fernandes, Teixeira, Santos, 2023). But Klaipeda became also an alternative for Ukrainian grain.
- In the context of escalating tensions, the issue of port infrastructure security assumed a heightened priority. Klaipeda was compelled to implement enhanced security measures, particularly in response to the potential risks of cyberattacks and military incidents within the Baltic region. This necessitated investments in advanced surveillance systems and a deepening of collaborative efforts with Lithuanian authorities and NATO.

4 CONCLUSIONS

While the geopolitical crisis triggered by the war in Ukraine has undoubtedly posed significant challenges for Baltic ports, particularly in terms of cargo flow and infrastructure, these challenges have also created opportunities for strategic adaptation and reorientation. Ports such as Klaipėda (and Tallinn) have sought to redefine their roles in regional trade, exploring new routes, cargo types, and operational models. However, the process of adaptation is complex and constrained by infrastructure and geographical factors, requiring time and careful planning.In the private sector, companies are similarly exploring new opportunities while maintaining flexibility, often waiting for geopolitical conditions to stabilise. The role of efficiency, particularly in the container sector, has become a critical element in navigating this new landscape. Notwithstanding the challenges, the crisis has prompted innovative thinking and could, in the long run, offer significant opportunities for those ports and businesses that can effectively adapt.

The ongoing Russo-Western crisis, which has been in effect since 2013, has undeniably reshaped the dynamics of Baltic ports, particularly in terms of trade flows and infrastructure. It has had a profound impact on the Baltic port landscape. The region's ports are facing significant challenges in the face of an unstable geopolitical context, which continues to exert a considerable influence on their operations and development. All the ports in the region have been affected, and some, such as the port of Ventspils, are now in a catastrophic situation, while many are seeking to adapt. This upheaval has also prompted strategic adaptation, as evidenced by the efforts of ports such as Klaipeda to redefine their roles within the regional trade ecosystem. Klaipeda has not only diversified its cargo handling capabilities and modernized its infrastructure but also embraced a more flexible approach to navigating the uncertainties of the region. The port's strategic emphasis on container traffic and energy independence, notably through the development of LNG terminals, underscores its proactive response to evolving geopolitical dynamics.

Notwithstanding the considerable challenges encountered, including a diminution in trade with Belarus and the broader impact of regional tensions, Klaipeda has proven resilient, maintaining its

competitive position in the Baltic by adapting to new trade routes and emerging market demands. The role of efficiency, particularly in the container sector, has become a critical element in navigating this new landscape. However, these adjustments are constrained by legacy infrastructure and geographical factors, underscoring the need for careful, long-term planning. While private sector efforts have been significant, they have sometimes been deemed insufficiently supported by public policies adapted to the new geopolitical realities.

In contemplating the future, the trajectory of Baltic ports, with specific reference to Klaipeda, is inextricably linked to the prevailing geopolitical dynamics. While prospects for growth are evident, particularly in the domains of diversifying energy supplies and enhancing operational efficiency, the ongoing investment in infrastructural development, exemplified by the Rail Baltica initiative, is imperative for ensuring their long-term viability. The crisis has illustrated that adaptability and innovation can engender new opportunities, enabling Baltic ports, notably Klaipeda, to sustain their strategic importance in a continually evolving geopolitical context.

This situation calls to mind the well-known phrase attributed to Rahm Emanuel, the former Speaker of the U.S. House of Representatives, which suggests that crises often bring significant challenges, but that they can also act as catalysts for positive change, pushing organizations or governments to adapt, innovate, and implement reforms that might have been difficult to achieve in more stable times. The crisis forces a rethinking of traditional methods and systems, often leading to breakthroughs or more effective solutions. In the case of the port of Klaipeda, the ongoing geopolitical crisis has compelled it to reconsider its trade routes, diversify its cargo types, and modernise its infrastructure. These are strategies that may not have been pursued as aggressively had the region remained politically stable. Consequently, the port has been able to leverage the disruptions caused by the crisis to make strategic adaptations that will benefit it in the long run.

It is imperative to acknowledge that geopolitical considerations are not the sole factors influencing the region. Indeed, climate change is impacting maritime transportation in the Baltic Sea in several significant ways, including the reduction of sea ice cover and the rise in sea levels. Consequently, coastal infrastructure, including ports, is confronted with novel challenges.

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