



PROSPECTS FOR INTERMODAL AND CONTAINER TRANSPORTATION FOR GEORGIA'S INTEGRATION INTO THE GLOBAL TRANSPORT MARKET

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ABSTRACT

Objectives: Understanding of advantages and disadvantages of Georgia as a transport corridor country in intermodal transportation. The challenges, strong and weak spots of intermodal transportation through the transport corridor on which lays Georgia. Overview of existing Black Sea basin and Georgian seaports and container terminals, their throughputs, and obstacles inherent for the container business in the black sea in common, which is the main obstacle to receiving bigger vessels. **Methods/Approach:** During the research has been used empirical and theoretical methods. In order to study container shipping has been reviewed and analyzed the data published by Georgian and foreign publications and scientific works, which made it possible to study the current situation and dynamics of container shipping in Georgia, as well as to study and investigate the existing problems and factors in this sphere, which affected the increase in the volume of cargo turnover. Analyzing the data provided by different information sources such as the National Statistical Office, shipping companies, terminal operators, and government bodies, made it possible to observe the increase in container shipping in recent years and calculate the cumulative average gross rate of container turnovers. **Results:** It was determined and explained that intermodal land transportation of containers through Georgia could not compete with maritime transportation turnovers, but still has a significant part as a backup of alternative transportation modes and delivery terms. Also, has been found that the growing trend of container turnover in the Black Sea countries and Georgia, in particular, has a strong and positive dynamic. **Conclusions:** The study shows how Georgia, as an intermodal and transit transportation country, improved its cargo turnover in a time of ongoing challenges in the region. It also shows the causal relationship between the sanctions and increased cargo turnover through the Georgian Sea ports. As a recommendation is provided suggestions to improve Georgia's cargo turnover and throughput.

Keywords: Logistics, Intermodal Transportation, Container Transportation, Black Sea Region, CAGR Calculation, Container Turnover

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INTRODUCTION

The world economy globalization processes lead to changes in the requirements for the qualitative and quantitative characteristics of goods and cargo distribution, which contribute to changes in the types and

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methods of competition in various sectors of the transport market, including the container shipping market, which has an important place in both global and domestic transport-logistics systems (Matyushenko et al, 2020; Mitkov et al, 2021). Container shipping, in recent decades, has become one of the main factors in increasing the efficiency of the transportation process, as evidenced by the ever-increasing trend and pace of cargo transportation by containers. Georgia is not an exception from this growing trend of containerized cargo turnover and its market steadily increasing year over year. The container shipping market had a few moments with harsh times, especially in the period of global economic crises and the covid pandemic, but despite difficulties, container shipping has shown its ability to adapt to the new realities and recover the shipping services. The development of Georgia's trade transit function is one of the country's strategic initiatives. The framework has been established that is intended to allow investors to conduct processing activities in Georgia in connection with the transit of goods without being subject to Georgian taxes. Seaports play an important role in this function (Abuseridze et al, 2022).

Container shipping in Georgia operates through its two seaports, Batumi and Poti. Both seaports are operating internationally well know container terminal operators namely “BICT” – a subsidiary of “ICTS Inc.” and “APM Terminals Poti” accordingly. So far, the capacity and throughput of both the abovementioned seaports and container terminal operators are able to handle the volumes received, but the continuously increasing container shipping trend and other circumstances in neighboring countries show that in the nearest future Georgia will need additional capacity to meet market requirements because the mentioned ports are not serving only Georgia, but also such as Azerbaijan, Armenia, and other landlocked countries of Central Asia. These countries are using intermodal transportation for shipping and in this regard, intermodal transportation and infrastructure capacities becoming important as well. Taking into consideration all the above mentioned it is important for Georgia and the Region overall to keep developing its infrastructure to pace with the growth of capacities, throughput capabilities, and elaborate “single window” principle to minimize miscommunication for the transport corridor member state bodies and legal entities, simplify customs procedures and legislation, and bureaucratic obstacles.

In the case of Georgia, container shipping growth besides the growth trend external factors also plays a significant role, which facilitated its growth, meaning the US sanctions against Iran and its seaports back in 2011 (UK P&I, 2011) and the Russia-Ukrainian war in February 2022, which led to that leading shipping lines suspended their operations in Russian seaports (Reuters, 2022). As a result of those external factors, market cargo turnover rerouting has happened, as a consequence of which cargo turnover was partially diverted through the Georgian ports. If we can call the abovementioned with the word “opportunity” then Georgia should use this situation in its favor to start attracting key players in container shipping and establish new routes for transportation and provide them with a favorable economic environment for doing business, attract more investors in the transportation business and start upgrading its infrastructure, by the time when those external factors won't be in place.



METHODOLOGY

The theoretical and methodological basis of the research is the research used by local and foreign authors in marketing, assessment and competitiveness, and logistics. Different methodological tools were also used, such as system-structural analysis, expert evaluations, and information-gathering methods. Also, has been analyzed publications and scientific works to determine the current situation and performance of cargo turnover and container shipping in Georgia. There was analyzed, calculated, and prepared various tables, figures, and indexes based on the data gathered from state or other legal bodies such as the National Statistical Office, shipping companies, terminal operators, other state bodies, etc., to define the importance of container shipping in recent years.

RESULTS AND DISCUSSION

In the global supply chain, seaports and container terminals play an important role in integrating countries into global trade. Accordingly, seaports and container terminals bring together and involve many entities in the logistics sphere, such as seaports, stevedoring companies, container terminals, carriers (using various modes of transport), shipping lines, customs brokers, surveyors, and forwarders. Meeting the growing needs causes more and more frequent mergers of logistics companies into alliances in order to provide comprehensive services to cargo carriers (Martino et al, 2013). The logistics services industry is a broad structure characterized by modal fragmentation of road, rail, sea, air, and routes (von der Gracht & Darkow, 2010). We will use the term "IMS Companies" (Inter-Modal Service) to determine those companies engaged in various types of transport services, which will combine and include various complex types of transport services.

Various logistics publications often focus on the context of seaports to determine the importance of integration of seaports into the supply chain to improve logistics and supply chain efficiency (Carbone & De Martino, 2003; Lavissière et al, 2014; Woo et al, 2011; Woo et al, 2013). "IMS companies" play an important role in the efficient operations of seaports and container terminals, since with their help it is possible to carry out cargo turnover more efficiently, avoid congestion of container terminals, mobilize and attract more shippers which will lead create an additional turnover of cargo.

From the perspective of organizational capabilities, the resources of "IMS companies" largely determine the different performance indicators of these companies. These resources are unevenly distributed among companies, whereas companies can use intra-firm and inter-firm shared resources to jointly improve the efficiency of the supply chain (Nath, Nachiappan & Ramanathan, 2010).

The intermodality of seaports is becoming one of the important parameters in terms of expanding the range of services to create add-value for shippers (Notteboom, 2008; Chen & Notteboom, 2011). The intermodality of seaports and container terminals simplifies the transit of goods by setting optimal routes, which gives an advantage in time and costs (Panayides, 2008; Panayides, Photis & Song, 2009). However, to improve intermodality frequently is necessary for several "IMS companies" to establish supply chain



services in order to offer integrated services to shippers. This stresses the fact that to provide additional new services in the supply chain, it is necessary to manage assets, resources, and processes through in-house management (Boon-itt, Wong & Wong, 2017). In this case, seaport logistics supply chain services can be managed under the direction of a larger organization that brings together several "IMS companies" and ensures the cooperation and coordination of several "IMS companies" to ensure the creation and offer of additional services for shippers (Caris et al, 2014; Ambra, Caris & Macharis, 2019).

Due to the high intensity of service, the logistics of seaports and container terminals are becoming more and more competitive. Although seaports and container terminals provide transportation of goods from the port of departure to the port of destination, these transportations also include land transportation, to a large extent by road and rail, providing a door-to-door service. "IMS companies" provide many complex types of services, such as rail, air, sea, and road transportation, packaging, sorting, warehousing, declaring, communication with the port administration, container terminals, stevedoring and shipping companies, forwarding and brokerage services, customs clearance and survey services and much more to fully meet the requirements of both shippers and consignees.

Taking into account the current changes in the logistics of seaports and container terminals, "IMS companies" should optimize resources and expand capabilities, by modernizing infrastructure, technologies, and facilities, and in addition to focusing on competitive prices and increasing capacities, they should also raise the bar in terms of offering updated services to customers (Fabbe-Costes, Roussat & Colin, 2011). Transportation companies need to position themselves and ensure that they create unique value propositions for their customers, which in turn means that such companies will need to develop innovative solutions that are customer-centric to provide more quality service for cargo shippers during international shipments through the creation of new guarantees based on the integration of various services. For example, "IMS companies" are increasingly required to provide additional services such as quality control, repackaging, repair, and route analytics in addition to delivery and storage services (Lai, 2004).

Ultimately, the need to create service chains essentially forces different "IMS companies" to merge their organizational resources to integrate. This can be implemented with the integration of physical and human resources to share information to develop inter-organizational information resources (Chee Yew Wong & Noorliza, 2010). Therefore, it will be important for any "IMS company" involved in the supply chain to develop mechanisms through which important information can be shared to facilitate customer-oriented strategic alignment (Kembro, Selviaridis & Naslund, 2014). This will also contribute to the introduction of information technologies and systems in "IMS companies" to support supply chain goals (Gunasekaran & Ngai, 2004). Several companies have already developed similar integrated systems through which they exchange information (for example Panalpina), which can connect the entities involved in the shipping chain with each other to better manage port operations for shippers (Zhang et al, 2014). Information-sharing systems not only effectively facilitate the coordination and sharing of information between "IMS companies" and entities involved in the supply chain regarding demand-supply, inventory in transit, and transshipment



timeliness, but also can provide traceability for shippers (Elofson & Robinson, 2007; Min et al, 2014). Therefore, it is imperative for "IMS companies" to develop systems that facilitate information sharing among entities involved in the supply chain due to the competitive rivalry prevailing in the industry.

Achieving intermodality in seaport logistics is a pre-basis for competitive advantage, whereby "IMS companies" can reduce costs and provide value to customers in terms of the variety and quality of service offerings (Ishfaq & Sox, 2010). Therefore, intermodal transport refers to the movement of goods in the same load unit, which consistently uses two or more types of transport, when the goods themselves are not moved when changing the types of transport (Henderson & Nelson, 2006). It should be emphasized that the aforementioned load unit, such as a container, significantly reduces the time and costs of repacking, reloading, handling, and dwell time, which makes it more competitive and attractive for shippers, especially in the context of intermodal shipping.

Intermodality has the potential to redefine the value creation timeline between "IMS companies", where is important that any "IMS company" would be able to offer a shipper direct or indirect intermodal transport services. Accordingly, the entity that unites the "IMS companies" will be able to cooperate and coordinate with the many "IMS companies" involved in the sphere of logistics of seaports and container terminals to formulate and create intermodal offers for shippers and vice versa for the smaller "IMS companies" participating in the service chain. "IMS Companies" will be able to indirectly meet the intermodal service requirements of shippers. To organize an intermodal service chain, "IMS companies" can focus on expanding capabilities to improve the individual handling and delivery of cargo from one mode of transport to another (Leukel & Kirn, 2011).

Intermodal transport services are associated with many difficulties, such as coordination between many different types of vehicles, differences in volumes and sizes of transported cargo, transit time, and complex transportation costs. The aforementioned difficulties are further aggravated by the interaction between the entities participating in the shipments, since in the time of intermodal transportation of cargo, during which only two modes of transport are used, eight entities may be involved (Dürr & Giannopoulos, 2003). Taking into account the above, providing intermodal shipments needs to share information effectively since each entity participating in intermodal shipments will be a source and receiver of information at the same time. "IMS companies" can facilitate the sharing of the necessary information for various entities involved in shipping, such as shippers, container terminals, and intermodal transport operators, to achieve intermodality by proactively sharing the necessary information between entities. This will make it possible to manage existing cargo resources more effectively, which depends on proper route planning and the use of transport infrastructure. Also, information sharing can improve the operational performance of seaports and container terminals and provide traceability of marine vessels and cargo (Min, Mentzer & Ladd, 2007; Laurent Fedi, 2019).

Entities involved in the facilitation of intermodal shipments may have contradictory objectives, which can make decisions difficult. The uncertainty associated with demand, shipping times, and loading and unloading



operations makes the aforementioned complexity even more difficult. Taking into consideration the importance of information sharing in supply chain services, the intermodality agenda can stimulate “IMS companies” to increase information-sharing efforts in the service chain to achieve further collaborative practices (Esper & Williams, 2003). Information sharing can become an important factor in maintaining the trust and reducing difficulties between entities involved in intermodal transportation, to improve mentioned service (Henstra, Ruijgrok & Tavasszy, 2007). Information sharing can also contribute to the development of knowledge and expertise (regarding current and future intermodal shipping options and alternatives) to prepare participants to overcome uncertainties and contingencies in the service chain. It also implies that a higher level of information sharing would be better for promoting collaborative practices, which in turn would enable intermodal transport services in seaport logistics operations. Accordingly, cooperation ensures equal distribution of risks and incentives among service chain entities, and reduces conflicts or disputes, for the development of long-term cooperation and business relations.

Intermodal transportation services play a key role in forming the overall value in a time of proposition for shippers. With the consideration of intermodality, "IMS companies" can offer a better add value to shippers by offering diversified transport modes and routes. This means that all the attention paid to service and included in intermodality can help "IMS companies" better develop their service capabilities to meet customer requirements. In addition, the expansion of intermodal services can help the "IMS companies" to develop the capabilities of transporting different types of cargo. For example, to provide a variety of services, "IMS companies" can focus on an offer aimed at transporting conventional and specialized cargo that is sensitive to temperature (Yang & Lirn, 2017; Karia & Wong, 2013).

Efficiency and effectiveness in logistics are key determinants of the competitive advantage that a supply chain can derive from its logistics processes (Mentzer & Konrad, 1991). The service-intensive environment of seaport logistics is driving "IMS companies" in the intermodal service chain to improve the efficiency and effectiveness of their operations to enhance service capabilities. On the other hand, shippers increasingly demand various services for their cargo.

Should be mentioned that transportation infrastructure throughout Georgia needs to be updated and upgraded in terms of reliability and throughput, for land and sea transportation. The stumbling block for land transportation remains the railway and in terms of maritime transportation – draught limitation, the latter will be discussed in more detail below. As for the railway, the main challenge is to renovate existing railways in line with the European and Chinese standards of gauging. Due to the latter trains passing through the BTK (Baku–Tbilisi–Kars railway) and crossing the Georgia-Turkey border needs to be reloaded on the other train set with a different gauge to move forward (www.wikipedia.org), which leads to increased dwell time and costs. To be fair it must be said that the same issues are facing Central Asian countries and Azerbaijan as well, the existing railway with the wider gauge as compared to China and EU gauges was inherited from the Soviet Union.



Even if we will assume that intermodal transportation infrastructure will be fully updated, at the level state-of-art, it could not compete with maritime transportation due to a few factors such as low price, higher capacity, and availability to transport large quantities of goods. Could be said with confidence that Russia's territory is more attractive in terms of intermodal transportation, especially on the landside, as compared to its competitor transport corridors laid in neighbouring countries, which is understandable, because Russia has an almost 11,000 km long Trans-Siberian Railway, so-called "Iron Silk Road", which can deliver freight from China to Europe and vice versa within 14 days, has the less complicated geographical landscape for a land mode of transportations, country's territorial wideness minimizes the number of border crossings, which always is related to additional bureaucratic burdens and obstacles. Should be mentioned that even Trans-Siberian-Railway's throughput for 2016 was expected to be achieved 42,000 (approximately 84,000 TEUs) containers between Europe and China (Shepard, 2016) in the same period via maritime transport has been shipped almost 25 million TEUs (UNTCAD, 2017).

We can consider intermodal transportation as a backup transportation mode of maritime transportation, which diversifies the country's economic risks, and interruptions in the supply chain and offers options to shippers in terms of delivery time and other unforeseen situations, which could be caused by the standstill of maritime transportation, such had a place in the time of the first view of covid pandemics when the railway presented to us like a lifeline when the vessel crews weren't been able to arrive in destination ports due to the lockdown. The latter has happened in 2020 which led to an increase in cargo through the "Middle Corridor" via the BTK railway (Agenda.ge, 2020). Noteworthy, that cargo turnover in the "Middle Corridor", which lies through Georgia in the 2022 January-September period also increased by 30% (Commersant.ge, 2022), which has been led by sanctions on Russia, due to the war with Ukraine, but as mentioned above the main driver of cargo turnover and transportation for Georgia and other member countries of transport corridors is the trade between China and Europe which can be managed mainly by maritime transportation rather than land mode/intermodal type of transportations.

To get an idea and consider what prospects Georgia has in terms of integrating container transportation into the global transport market, first should be considered which countries operate in the Black Sea and what are the features of the Black Sea.

The Black Sea's connection to the world ocean happens via the Bosphorus strait. The latter is a natural strait on the north-western side, connecting the Black Sea with the Sea of Marmara. This strait connects the European part of Istanbul with its Asian part. For centuries till now Bosphorus Strait plays an important role in world maritime trade, as it is a strategically important waterway in the region and also one of the busiest waterways through which passes many container vessels and cargo ships, oil tankers, and fishing boats.

The length of the Bosphorus is about 31 kilometres, and the width varies from 700 to 3700 meters. The depth of the Bosphorus ranges from 36.5 to 124 meters. These features of the strait make it one of the most difficult navigable straits in the world (Misachi, 2021).



The increased number of ships passing through the Bosphorus makes it one of the busiest straits in the world. Based on various estimates, about 48,000 ships pass through the strait every year, which reportedly is three and four times more intense traffic as compared to the Suez and Panama Canals, respectively. Traffic in the Bosphorus significantly increased after the signing of the Montreux Convention in 1936, according to which the strait guarantees the free passage of merchant ships, and restrictions on the transit of warships. Vessel traffic through the Bosphorus strait increased from 4,500 to 49,304 vessels from 1934 to 1998, respectively, although the number of vessels passing through the strait has decreased since 2002, after the introduction of prohibitions on night transit of oil tanker vessels over 200 meters. Despite the abovementioned, the Bosphorus remains an important maritime route for transporting oil from Russia and the Caspian Sea region to Western and Southern Europe and Asia. As of 2020, about 38 percent of Russia's marine crude oil exports go through the Bosphorus. The strait is also an important oil export route for Eurasian countries, namely Azerbaijan and Kazakhstan. More than 3% of world supplies pass through the Bosphorus (about 3 million barrels of oil per day and 20 million tons of oil products per year). Should be mentioned that the Bosphorus is also crossed by 3 suspension bridges and two underwater tunnels that pass under the Bosphorus, one of which is a road and the other is the railway (Mambra, 2020).

Based on the geographical features and technical infrastructure developed on the Bosphorus, certain restrictions are imposed on certain types of maritime transport that do not meet requirements, which are clarified in detail in the Montreux Convention. The latter document includes the list of requirements that a vessel must meet in order to be able to cross the Bosphorus. Restrictions are imposed on the height of the ship (Air Draft), namely, those vessels whose height is 58 meters or more will not be allowed into the strait (this restriction is associated with the suspension bridges described above). The administration of the strait has not set the norms for the length (LOA - Length Overall) and the draught of the vessel, however, if the length of the vessel is 150-200 meters and/or the depth varies up to 10-15 meters, before entering the vessel into the strait must be submitted a special report to the administration 24 hours ahead, in case of vessels with a length that varies between 200-300 meters and/or the draught is more than 15 meters and vessels more than 300 meters – 48 and 72 hours ahead accordingly. Shipowners or operators operating vessels of 300 meters or more in length must provide the administration of the strait with information about the vessel and type of cargo prior to planning entry into the strait. Based on the information provided, the administration additionally informs the shipowner, operator, or captain of the ship about the requirements and recommendations that must be followed to ensure safety standards when moving through the strait, taking into account the characteristics, dimensions, and manoeuvrability of the ship, the morphological and physical features of the strait, seasonality and many other factors. In addition to the above restrictions and guidelines, there are a number of other guidelines that apply to different types of ships and types of cargo and in different meteorological situations (Passage Restrictions, 2022).

Due to the congestion and heavy traffic of the Bosphorus, there are large traffic jams at the entrance to the strait, which creates a kind of funnel effect when ships accumulate at the entrance and are waiting for their



turn to cross the strait. To solve this problem, the Turkish government has developed and approved a development plan that will dredge an additional 45 km of an artificial canal to relieve traffic in the Bosphorus and allow two-way traffic to and from the Black Sea. The total cost of this project is about 9.2 billion US dollars (Mahmudov, 2021).

With the given characteristics and limitations of the Bosphorus, can be said, that limits the development of existing seaports and container terminals in the Black Sea, which is expressed in the fact that none of them can serve the new class of mega-vessels, such as New-Panamax, VLCS (Very Large Container Ship) and ULCS (Ultra Large Container Ship) in their ports for the simple reason that they cannot cross the Bosphorus. For the Black Sea, a separate class of container vessels has been built, known as the Bosphorus-Max ((Melbourne)), and in terms of its technical characteristics, it is close to the post-Panamax class of container vessels. The Bosphorus-Max class container vessel is the largest container ship that can enter the Black Sea from the Mediterranean. Based on the aforementioned, it can be assumed that the maximum upper limit of the development of the infrastructure of seaports and container terminals in the Black Sea can be determined by the possibility of receiving vessels of this class.

In September 2012, one of the leading shipping lines, CMA-CGM, placed an order for 28 units of Bosphorus-Max class container vessels build, which would allow the shipping line vessels to cross the Bosphorus strait. The first vessel of this class was received by CMA-CGM back in 2015, being named “CMA CGM Thames” and its technical characteristics were as follows: length (LOA - Length Overall) 300 meters, width/breadth) - 48.2 meters, and draught - 14.8 meters. The particular container vessel could accommodate 17 containers wide below and 19 containers wide above the deck, with a total capacity of 9,365 TEU, distributed across decks as follows: 5,670 TEU on and 3,695 TEU below deck. Vessels of a similar design of distributing containers on decks allow the maximum loading of the vessel and the stacking of containers up to 9 tiers high. The capacity of the following vessels of the same class has already increased up to 10,622 TEU, and in some sections of the vessel, the height of containers reaches 10 tiers. Although these types of vessels are ideal for the service route Far East - Black Sea, they can also be used in other directions where a large number of reefer containers are required. The compact dimensions of ships of this class allow them to cross the Panama Canal, which means that they can also be set on the routes of the Far East - the North coast of South America or Europe - the West coast of South America. Their relatively shallow draught of 12.5 meters greatly reduces problems for non-deep-water ports (Introducing the Bosphorus-Max, 2015). Should be mentioned, that none of the seaports and container terminals operating in Georgia meets the requirements for receiving and handling vessels of a similar class. However, should be noted that the seaport of Poti has already submitted an application and has a ready port development plan, which will result in a berth depth of 13.5 meters and the ability to receive container ships with a capacity of up to 9000 TEU (APM Terminals, 2022), though this will still not be enough to receive and handle the Bosphorus-Max class container vessels. The latter type of vessel will be able to receive the deep-water port of Anaklia, according to the announced project of which the port's berth will have a depth of 16 meters, which besides the Bosphorus-max class



container vessels will allow receiving container ships of Post-Panamax types as well (anakliadevelopment, 2022).

There are seven countries operating in the container shipping business on the Black Sea, namely Georgia, Romania, Ukraine, Bulgaria, Russia, Moldova, and Turkey. Only 5 of these 7 countries carry out significant container traffic in the Black Sea since Moldova is practically unable to handle container vessels due to its difficult geographical position and in the case of Turkey major maritime container traffic, ports and terminals mostly are developed and located on the Marmara and Aegean Seas. Until February 2022, before the Russian-Ukrainian war, Russia, Ukraine and Romania were the top three countries in terms of container turnover, but despite this, should be noted that Georgia's container turnover between 2008 and 2020 period is the highest, in terms of compound annual growth rate, (CAGR) among the Black Sea basin countries, which amounted to 7%, and the overall growth rate of the Black Sea - 2% (tabl.1).

Table 1. Black Sea Countries Container Turnover in TEUs for 2008-2020

in Thousand TEUs	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	CAGR 2008-2019	CAGR 2008-2020
Georgia	209.6	179.4	225.8	299.3	357.7	403.4	447.0	379.8	329.4	394.8	453.9	644.7	490.4	11%	7%
Bulgaria	197.7	134.9	142.6	152.4	169.9	180.4	195.6	200.3	205.4	no data	no data	260.8	253.7	3%	2%
Romania	408.0	339.5	418.1	505.9	482.5	553.5	580.9	611.4	631.7	no data	no data	640.8	615.1	4%	3%
Ukraine	1,253.9	516.8	659.8	760.3	723.9	780.5	661.8	519.3	680.2	no data	no data	995.7	1,018.4	-2%	-2%
Russia (Black Sea)	485.3	317.5	448.0	663.1	673.5	740.4	733.8	584.0	613.4	no data	no data	769.5	786.6	4%	4%
Total	2,554.5	1,488.1	1,894.3	2,381.0	2,407.5	2,658.2	2,619.1	2,294.8	2,460.0	-	-	3,311.5	3,164.1	2%	2%

Source: Author's own calculation by using Black Sea Container Summit and Informal Business Group Publications

As a remark, we would like to clarify the surge of volumes of Georgia starting in 2011 was led by US sanctions against Iran and its seaports (UK P&I, 2011) and for 2019 has been led by the expected new customs regulations related to the increase of customs fees on used cars in Armenia that was an obligatory requirement for the member country of the Eurasian Economic Union (EAEU). This regulation triggered the increase of TEU volumes in Georgia, from where most came to used car import through the Georgian Sea ports.

The Black Sea container terminals in Ukraine, Romania, Russia and Bulgaria handled a total of 3,099,168 TEU in 2021, including empty containers and excluding transshipments.

The data above shows container turnover for five countries in terms of full containers in 2021 compared to 2020 (fig.1). During this period, the overall increase was 2.59% and growth was observed in all countries except Georgia. In 2021, several changes have happened in the top five container terminals in the region, particularly, the "DP World Constanta" container terminal in Port Constanta Romania retained its leadership in terms of the total volume handled, while the container terminal "NUTEP" in the port of Novorossiysk remained in second place. APM Terminals Poti (Georgia) moved to fourth place and gave third place to "CONTAINER TERMINAL ODESSA - CTO" (Odesa, Ukraine). "Brooklyn-Kiev Port" (BKP)" (Odesa, Ukraine) remained in fifth place.

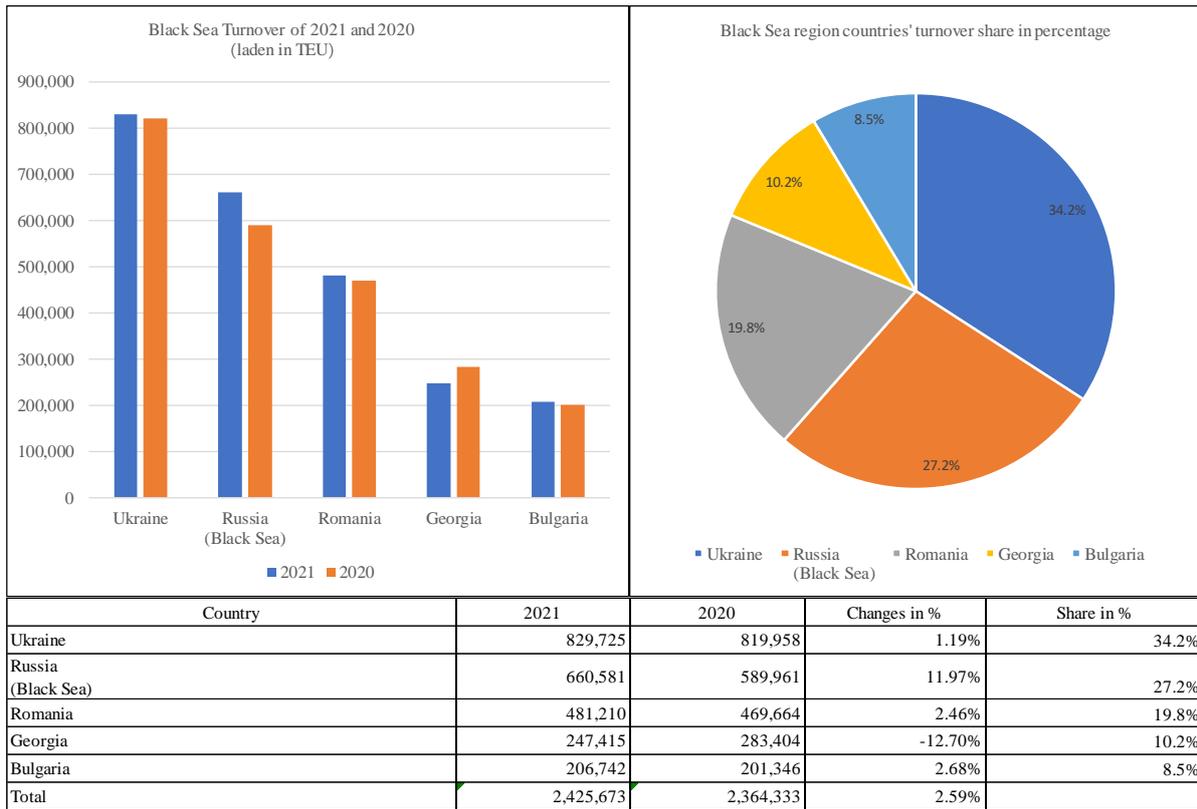


Figure 1. Black Sea Region Countries Full Container Turnover in TEU and Shares in Percentage

Source: Author's own calculation by using Container News data

As for leading shipping lines in the Black Sea region, the partners of the "2M" alliance remain the leaders of the region and the first five are "Maersk", "MSC", "COSCO", "CMA CGM" and "ZIM" with a share of 73,77%, from where 46,79% comes on members of the "2M" alliance "MSC" and "Maersk" (which is 0,65% less than in 2020). Noteworthy that the total share of "CMA CGM" and "COSCO", members of "The Ocean Alliance" was 19.24% in 2021 decreased by 0.49% as compared to 2020 (Container News, 2022).

Despite the growing trend in container shipping in the Georgian market, we are observing a reduction of Foreign Direct Investments (FDI) in the transportation sphere. As can be seen from the fig. 2 container turnover and FDI figures have inverse dynamics.

We also can observe the increase of the Georgian container shipping market in the first half of 2022 as compared to the same period of 2021 (fig.3), which majorly has been led by the closing of the Ukrainian ports for container transportation (Euronews, 2022), with the exception of transportation of grain (Ukrainian News, 2022) and at the same time by suspension of leading shipping line services in Russian seaports (Reuters, 2022).

Should be mentioned that the recent record-high fuel prices (Isidore, 2022; Insider, 2022) have a positive effect on the purchasing power of Central Asian countries since the economy and budget of these countries

are formed by various natural resources, such as crude oil and gas (UNCTAD -United Nations Conference on Trade and Development, 2020).

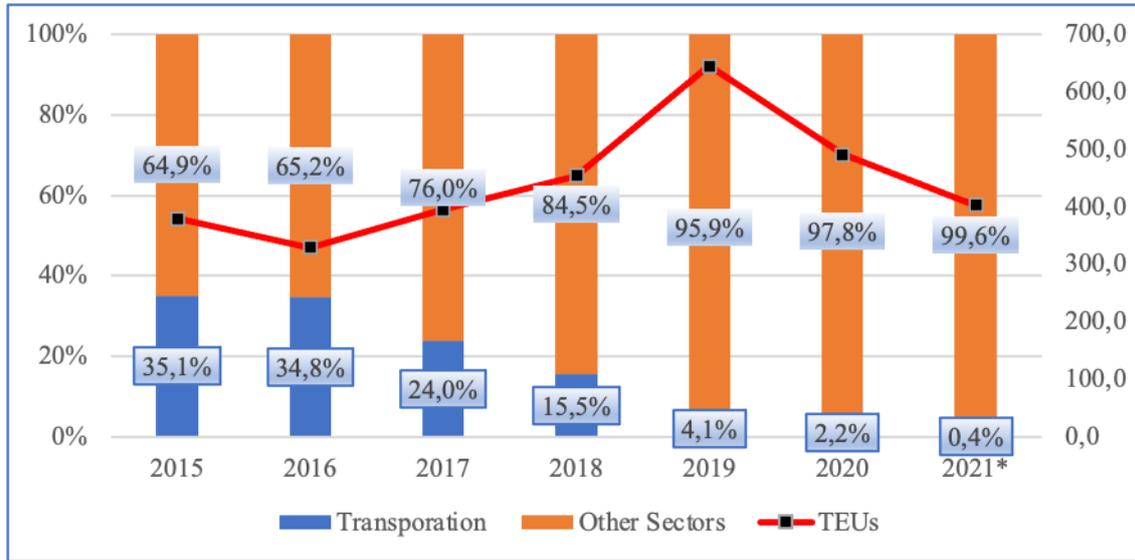


Figure 2. Comparison of Georgia's Laden and Empty Container Turnover in Thousand TEU Against FDI in Percentage

Source: Author's own calculation by using the Ministry of Economy and Sustainable Development and National Bank of Georgia data



Figure 3. Comparison of the First Half of 2021 and 2022 of Georgia's Laden and Empty Container Turnover in Thousand TEU

Source: Author's own calculation by using the Ministry of Economy and Sustainable Development of Georgia data

The increase in world fuel prices certainly contributes to the development of the economy of Central Asian countries, which will be reflected in the increase in trade indicators. Noteworthy that significantly increased the export of vehicles in the first nine months of 2022 by 75% as compared to the same period in 2021. The top exporter countries of vehicles in 2022 were Azerbaijan, Ukraine, Armenia, Kazakhstan, and Russia (Business Media Georgia, 2022). Taking into consideration the latter and other factors mentioned above most probably by the end of 2022 Georgian ports will face the same situation that they had back in 2019 when a surge in container volumes mainly was driven by imported containers loaded with used cars (Business Media Georgia, 2019).



CONCLUSION

Based on the research, the growth rates of the market of Georgia and the Black Sea countries in the direction of container shipping were revealed, in particular, the compound annual growth rate of the Black Sea region was 2%, while the compound annual growth rate of Georgia in the same period was 7%. The latter indicator of growth for Georgia most probably will increase even more in 2022 onwards due to the rerouting of container shipping due to external factors described in the research. Georgia has unique momentum to use existing reality for establishing new shipping line services through its seaports and start attracting leading shipping line operators by offering preferential terms for doing business in Georgia by bigger “Bosporus-mad” class vessels, which will be more attractive for the shipping lines due to scale economy in terms of manpower, fuel, port fees, other transportation costs per container. This will allow Georgian seaports to increase their cargo turnover and their share in Black Sea basin countries. In its turn, increased volumes will make it necessary to create new and upgraded existing infrastructure to pace with the demand of the market. If the transportation system and logistics will represent a good performance in 2022 and onward, it will be a long-term success for the country, because it will guarantee shippers a reliable and sustainable route through Georgia and the established routes most likely will remain even after lifting sanctions on neighbouring countries, but if the existing infrastructure will collapse or will not be able to handle cargo volumes, shippers will start to find other routes of transportation and the volumes will be lost for Georgia.

Since the main driver of intermodal transportation through Georgia is trading between Europe, Caucasus, Central Asia, and China should be upgraded infrastructure of Georgia, to make it compatible with EU and China standards in terms of the railway and with high throughput highways – in terms of land roads. This could be achieved in a short period by attracting foreign investment, the amount of which has significantly reduced in the transportation sector of Georgia for the last few years. In terms of attracting investments, it is important to have information about the container market of Georgia available and this information should reflect relevant situation of the market and cargo turnover, because in some of the statistical databases, such as UNTCAD, the data of recent years regarding the container volumes processed by Georgia are unfortunately incorrect and instead of growth of TEU volumes shows its decrease, which in its turn will have a negative impact on the country's indicator and reduces the possibility of attracting additional investments.

The Georgian government also can make significant steps to make the Georgian container market and potential more attractive for shipping lines and shippers by adopting new preferential regulations for the shipping lines on operating with bigger vessels, continuously developing and deepening cooperation of simplifying and harmonizing legislation, and customs procedures for the shippers and forwarders, create a single information-technological platform that will help the parties to exchange information timely, which will ensure the reduction of the dwell time associated with document circulation formalities.



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