

TRANSPORTING VARIOUS CARGO TYPES BY ROAD IN LITHUANIA *DAŽĀDU VEIDU KRAVU PĀRVADĀJUMS PA AUTOCEĻU LIETUVĀ*

Deimantė Marija Litvinaitė

Kaunas Kolegija Higher Education Institution, deimante.lit554@go.kauko.lt, Kaunas,
Lithuania

Martynas Barkus

Kaunas Kolegija Higher Education Institution, martynas.bar046@go.kauko.lt, Kaunas,
Lithuania

Nikas Dauskartas

Kaunas Kolegija Higher Education Institution, nikas.dau056go.kauko.lt, Kaunas, Lithuania

Juras Tamelis

Kaunas Kolegija Higher Education Institution, juras.tamelis@go.kauko.lt, Kaunas, Lithuania

Nana Bardavelidze

Caucasus University, nana.bar014go.kauko.lt, Tbilisi, Sakartvelo

Scientific supervisor Mg.philol. Simona Jankauskaitė

Abstract. *In the modern day, logistic companies face many challenges: from cargos getting stolen or damaged to planning the routes to be more efficient. Transport logistics plays a large role in all markets, but the most common option is to transport goods by road. When transporting various loads by road, drivers or transport companies face many problems. The most common problems are related to economy, nature preservation, and pollution. However, there are other issues that determine or affect the company's performance, that are discussed in the article, such as finding optimal routes, cargo specific regulations, sustainability issues.*

Keywords: *challenges in cargo transportation, logistics market, road transport.*

Introduction

Transport logistics serves as the lifeblood of global commerce, seamlessly connecting industries, businesses, and consumers across vast distances. With its versatility, road transport plays a main role in the logistics landscape, offering unparalleled accessibility to both urban centres and remote regions. As a cornerstone of modern supply chains, it facilitates the movement of goods of all types, from perishable commodities to oversized machinery, with efficiency and reliability. Despite advancements in other transportation modes, such as air and sea freight, road transport remains indispensable for its door-to-door delivery capabilities and ability to navigate intricate last-mile logistics challenges. However, it is not without its complexities, as road infrastructure quality, regulatory compliance, and safety considerations present ongoing hurdles for logistics providers and transportation companies. In this context, exploring the nuances and significance of cargo road transportation unveils its crucial role in sustaining global trade and economic prosperity.

The aim of the research is to reveal the problems faced by cargo transportation companies.

Tasks of the research are:

- to analyse the challenges of logistics serving for the global businesses;
- to depict the main problems a Lithuanian an international company face in their performance;
- by comparing both logistics companies draw the solutions helping overcome the main issues.

The object of the research is the problems that companies face by carrying cargo by road.

Research methods: Scientific literature analysis, structured interview method.

The results of the research are provided in the article.

Importance and challenges of transport logistics in the global business

Transport logistics plays a pivotal role in the functioning of the global economy, serving as the backbone of trade and commerce. At its core, transport logistics encompasses the intricate network of systems and processes involved in the movement of goods and people from one place to another efficiently and cost-effectively. Without efficient transport logistics, the global supply chain would grind to a halt, disrupting the flow of essential goods such as food, medicine, and raw materials. It facilitates international trade by connecting producers with consumers across vast distances, enabling businesses to access larger markets and diverse resources.

Technology is revolutionizing transport, making it smarter, faster, and more transparent than ever before. The industry's high level of connectivity is evident in the fact that business customers now expect the same track-and-trace services commonly available in the consumer market (Birks, 2019). According to Thompson (2023), green logistics is the business practice of reducing the environmental impact of these processes. An example of green logistics is an e-commerce business using electric vehicles for last-mile deliveries to reduce its carbon footprint.

The economical factor must not be forgotten as well. Transport logistics is essential for the economy, its development, and growth. It is a way to access new markets in the world, it helps not only people but producers and consumers by connecting them via transport logistics (Kumar, 2023). Moreover, Sénquiz-Díaz (2021) claims, that transport is a crucial factor in the development of any country. Insufficient transport infrastructure hinders productivity, leading to poor market integration and negatively affecting export levels. According to Rodrigue (2024), since rail and maritime transportation are discrete networks only accessible through terminals, most locations will involve a road transportation segment, which changes the cost of structure. Despite its significance, the transportation and logistics sector encounters notable hurdles that jeopardize its capacity to support the requirements of the global economy. Among these challenges, the escalating demand for transportation services stands out as particularly pressing, exerting strain on current infrastructure and exacerbating congestion. Furthermore, the industry grapples with a deficiency of proficient personnel, notably in sectors like trucking and logistics management (Kumar, 2023). Logistics entails the myriad processes entailed in the internal movement of goods or their transportation from seller to buyer. Oversight and management of these complexities fall under the purview of logistics managers, who often hold various certifications attesting to their expertise. Success in this field hinges on meticulous attention to numerous factors: optimal routes must be charted considering factors like efficiency, regulatory constraints, and circumventing obstacles like road maintenance or geopolitical conflicts. Selections of shipping providers and packaging materials necessitate careful evaluation, balancing costs with considerations ranging from weight to environmental impact. Moreover, comprehensive cost assessments may extend beyond transportation expenses, encompassing elements crucial for customer satisfaction and the availability of suitable storage facilities (Jenkins, 2022). According to Balint (2013), logistics and the intermodal transport sector has faced a multitude of challenges, such as local levies and licenses, greater complexities in coordinating various vendors and suppliers, and navigating central and state taxes along with foreign regulations.

Thankfully, logistics management software aids enterprises in optimizing routing and shipping choices, managing expenses, safeguarding investments, and monitoring the flow of goods. This software frequently offers automation capabilities, streamlining tasks such as selecting carriers based on rate changes or contractual agreements, generating shipping labels, automatically updating transactions in accounting records, arranging carrier pickups, documenting receipts and signatures, and assisting with inventory management and other operational tasks (Jenkins, 2022).

In general, transport logistics includes supply chain management, handling of goods, customs and import/export duties, as well as the transportation process. Without all of these things, import and export would not be possible. Thankfully, transportation logistic companies find their ways work under the new emerging markets, governmental regulations and optimisation of cost not undervaluing the principles of sustainability.

Performance and main challenges of a Europe wide company

As the road transport business is mostly developed mode of transport in Lithuania, two logistics companies were interviewed with the aim to discover, compare and provide the insights on the main problems they encounter, thus creating a background for further researches in the field.

The first company, to be referred to as Z, has been engaging in various activities since 2011, such as excavating water reservoirs with excavators, transporting various equipment on platforms with trucks, including Lithuanian military heavy machinery, various works in the road construction process with self-propelled machinery, tractors, and excavators. However, the main activity of company Z is the transportation of bulk cargo with self-propelled semi-trailers in Lithuania and Europe. For this purpose, the company exclusively uses VOLVO trucks due to their longevity and reliability, currently owning six of them. As the main goals of every company are maximizing profits and expansion, in 2023, company Z also sought ways to achieve this. During a meeting with the company's owner, an interview was conducted to discuss the current challenges faced in the logistics sector and company's Z solutions in addressing these challenges.

As the survey shows, the main problems encountered by company Z are an overcrowded transport market and constantly increasing transportation costs. Due to these factors, competition is constantly intensifying, while the supply of goods is decreasing. However, the solution to these problems implemented by the company's authorities is a separate niche with lower competition than in the regular freight market. This involves the implementation of the GMP+ certificate, which would enable company Z to transport organic feed products. This certificate is globally recognized, as it not only allows for the production of organic feed products but also their storage, transportation, or any other involvement in their logistics chain.

In Lithuania, only six companies possess this certificate allowing the transportation of such goods. This is because obtaining this certificate, which is granted in Europe only by a company registered in Denmark, with audits conducted in the Baltic States, authorised by the only company based in Latvia, involves very strict requirements and a detailed audit of the company. These include not only a review of financial flows but also employee education, competence, hygiene checks, as well as checks on the transport and tracking capabilities, among many other factors ensuring the safety of organic feed products at any point during their journey.

From the perspective of the company Z owner, this also involves training all truck drivers on how to properly handle GMP+ certified cargo, and additional requirements are imposed on the territory where the trucks and their semi-trailers are stored, ensuring hygiene and employee safety during rest periods. However, by meeting all the aforementioned requirements and overcoming the difficulties of documentation and audits, this company guarantees itself lower competition and a much larger supply and a wider range of goods in the freight market at more competitive prices, competing only with a few domestic companies. It should be considered that it will still be difficult to remain at the forefront in the market, and in the future, with an increase in cargo supply, it may be necessary to expand not only the fleet of trucks and their trailers but also the entire company's territory too.

In summary, it can be stated that broader opportunities for a company always ensure a path towards business expansion. A wider spectrum of different cargo transportation guarantees a place at the top of the competition, but also requires a considerable investment of time and

capital. Empowering the company to transport more valuable goods with various certificates not only demonstrates efforts towards higher income but also the reliability of the company and the commitment to perform work only with the highest quality assurance.

Main challenges in fuel distribution logistics

The second company, to be referred to as company Y, is a fuel distribution company, with its units all around the world and has been engaging in logistics industry since 1951. This company started as a convenience store chain in the United States (US) and Mexico but as the years went by company was purchased at that time by another biggest fuel company. Currently, company Y has almost ten thousand stores in the United States, three thousand stores in Europe and additional two thousand stores operating under franchise agreements worldwide. It is the biggest fuel distribution company in the Baltic States and it is the only company that provides appreciated fuel price offers for logistics companies that are engaged in transport logistics.

There are a lot of problems that company Y faces, but the main one is that they have to find the best routes to transport the fuel to their gas stations, because a lot of roads are very poor quality. Due to this factor, the trucks take detours and the company loses a lot of money in fuel costs. There is a solution to this problem. However, most countries do not have the funds to pave new roads all over the country, especially in Lithuania.

What is more, the company had to adapt different tank trucks to different markets. For example, it is not uncommon for tank trucks in the United States to be over 20 meters long and about 4 meters high. In Lithuania, the length of trucks with tanks is only 13 meters, and the height is no more than 2.5 meters. This is due to the factor, that trucks in the US drive mainly on highways, but in Lithuania they are forced to drive under low bridges and cross smaller streets, due to different infrastructure. There are a lot of risks while transporting fuel. Even the tiniest pothole can make a truck roll away and that is why there are a lot of safety regulations.

Due to a climate change and the efforts to protect the nature – there are international security requirements that complicate the company's operations too. The driver and the truck, as well as the company, can be checked by the relevant authorities at any time. As an example, if the valve of the tank is not completely closed - the company and the driver can receive fines of thousands or even millions due to the imminent risk of fuel spillage. However, these safety regulations forced the company to create a safety check routine, due to previous accidents.

Another big problem, that occurs from time to time, is that the drivers are trying to steal the fuel that they are transporting. It is difficult to detect the lack of fuel, because the fuel delivered at the gas stations is poured into storage tanks under the ground, where the fuel never runs out, it is constantly replenished. Such thefts forced the company to count every drop of fuel and select drivers responsibly. As a solution, the company has to choose their drivers carefully due to previous thefts.

In summary, every logistics company, that transports their cargo by road, faces with different problems. Some can be more serious than others. Although this company faces many problems on a daily basis, it finds solutions to combat them. Such challenges in transport logistics only strengthen the company even more, and thus it can try to dominate the market.

Navigating challenges in cargo road transportation: insights from companies Y and Z

In a wide circle of cargo road transportation, the analysed companies Y and Z stand as testaments to the infinite challenges and innovative solutions inherent in the industry. This chapter will provide comparison of the problems the Lithuanian and an international haulage company face, by drawing certain conclusions and insights for the further researches.

Based on the interviews, while each of the companies faces distinct obstacles, their journeys exemplify the resilience and adaptability demanded in the logistics sector. Company

Y, a global fuel distribution powerhouse, boasts a storied history dating back to its humble beginnings as a convenience store chain in the United States and Mexico in 1951. Over the decades, it burgeoned into a fuel distribution giant, with an extensive network of nearly ten thousand stores in the US, three thousand in Europe, and an additional two thousand under franchise agreements worldwide. Despite its dominance, company Y confronts plenty of obstacles, prevailing among them being the frightening task of optimizing transportation routes amidst poor road infrastructure. The company fights with the consequences of detours taken by trucks to bypass bad quality roads, resulting in significant fuel costs. While potential solutions exist, the financial constraints of many countries, particularly in regions like Lithuania, hinder efforts to pave new roads. Moreover, the need to adapt tank trucks to varying market infrastructures presents additional complexities, underscoring the importance of flexibility and adaptability in the face of diverse logistical challenges.

Safety concerns are spinning around company Y, escalated by strict regulations and the ongoing fuel thefts. The ever-present risks associated with transporting fuel, from the threat of accidents due to road conditions to the potential for environmental disasters resulting from fuel spillage, requires strict compliance to safety protocols. International security requirements further complicate operations, subjecting both drivers and the company to constant checking from regulatory authorities. Despite the daunting nature of these challenges, company Y remains one of a kind, implementing safety check routines and strict driver selection processes to diminish risks and ensure compliance.

Vice versa, company Z embarks on a different but equally exhausting journey within the realm of cargo road transportation. Founded in 2011, company Z initially engaged in various activities, ranging from excavating water reservoirs to transporting heavy machinery for the Lithuanian military. However, its primary focus lies in the transportation of bulk cargo across Lithuania and Europe, using VOLVO trucks renowned for their longevity and reliability. Yet, company Z faces with the spreading challenges of a saturated transport market and escalating transportation costs, innovative approaches are necessary to carve out a niche among fierce competition.

Enter the GMP+ certificate - a beacon of opportunity amidst the sea of challenges confronting company Z. By obtaining this certification, company Z enters a specialized market for organic feed products, characterized by lower competition and higher profit margins. However, the path to certification is fraught with obstacles, requiring strict adherence to stringent requirements and meticulous audits. From financial checking to hygiene checks, the certification process leaves no area untouched, underscoring the company's commitment to quality assurance and safety.

In the face of these challenges, both companies exemplify resilience, adaptability, and innovation. Company Y navigates the complexities of fuel distribution with strategic route planning and serious safety protocols, while company Z charts a course to success through niche market exploitation and specific certification processes. Their stories serve as beacons of inspiration in an industry full with challenges, showcasing the transformative power of ingenuity and perseverance in the face of adversity. As they continue to evolve and innovate, companies Y and Z embody the irreplaceable spirit driving the cargo road transportation sector forward into a mature future with possibilities.

Conclusions

1. Literature analysis revealed that efficient transport logistics is essential in increasing the countries' economies, making the competitive and developing. The good infrastructure, optimised routing, technology and revolutionizing transport, as well as professional supply chain management help manage costs, thus helping the goods reach their destinations more effectively and sustainably.

2. The survey, based on the interview with an international transportation company Z showed that the company faces strong competition, traffic regulations and constantly increasing transport costs. After identifying the challenges, the company found solutions by specializing in the niche market and acquiring extra certificates, investing in capital, as well as company's commitment to quality and reliability as the necessary strategic moves to gain the business growth and leadership in the market.
3. Based on the survey analysing the fuel carrying company Y, it can be noted, that the main problems in the specific field are poor road condition, fuel thefts and safety regulations. To overcome these obstacles, the company orients its business towards adapting its tank trucks to diverse markets, navigating varied road sizes and regulations, it also uses responsible human resource management to prevent fuel theft, thus striving for operational excellence, reinforcing its resilience and competitive stance in the logistics market.

Bibliography

1. Balint, A. O. (2013). Connect to Compete. The Link Between Intermodal Transport and Logistics. *Hyperion International Journal of Econophysics & New Economy*, 6(2), 349–368. <https://search.ebscohost.com/login.aspx?direct=true&db=asn&AN=95057245&site=ehost-live>
2. Birks, P. (2019). Without transport there would be no logistics. *Focus*, 21(7), 44–45. <https://search.ebscohost.com/login.aspx?direct=true&db=bsu&AN=137314163&site=ehost-live>
3. Jenkins, A. (2022). *Logistics for Business Defined: Importance Role & Benefits*. <https://www.netsuite.com/portal/resource/articles/erp/logistics.shtml>
4. Kumar, A. (2023). *Importance of Transportation and Logistics in the Global Economy*. <https://www.linkedin.com/pulse/importance-transportation-logistics-global-economy-anvit-kumar>
5. Rodrigue, J. P. (2024). *Transportation Modes, Modal Competition and Modal Shift*. <https://transportgeography.org/contents/chapter5/transportation-modes-modal-competition-modal-shift/>
6. Sénquiz-Díaz, C. (2021). Transport Infrastructure Quality and Logistics Performance in Exports. *Economics: Innovative & Economic Research Journal*, 9(1), 107–124. <https://doi.org/10.2478/eoik-2021-0008>
7. Thompson, A. (2023). *What is green logistics and how can it transform your business?* <https://www.dhl.com/discover/en-global/logistics-advice/sustainability-and-green-logistics/what-is-green-logistics>