IBIMA Publishing
Communications of International Proceedings
https://ibimapublishing.com/p-articles/46MGT/2025/4651625/
Vol. 2025 (30), Article ID 4651625

Strategic analysis in the Transport Sector: A Case study of Euro-Asian Trans-Logistics Company*

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* Presented at the 46th IBIMA International Conference, 26-27 November 2025, Ronda, Spain

Abstract

International road transport is one of the key elements of supply chains. The theory and practice of transport tasks indicate the risk associated with internal (e.g. related to the organization of processes) and external risks (e.g. changes in the law, increase in fuel costs, competition). The variability of these threats around the world is a contribution to the continuous study of these conditions. The results of hazard research allow the transport entrepreneur to determine the level of risk of the transport service and to make decisions of strategic and operational importance. The use of SWOT/TOWS analysis for risk assessment allowed for a strategic approach to risk factors that may affect the performance of operational and strategic tasks of the audited transport company. Significant risks have been identified, e.g. a shortage of drivers on the labour market, an increase in fuel and fleet operating costs, an insufficient level of digitalisation of logistics processes, as well as strong competition and price pressure. The results of the study indicated the need to use modern IT systems for transport management, modernization and development of the fleet, including the purchase of low-emission vehicles, as well as the training and improvement of drivers of the surveyed company.

Keywords: transport company, transport process, company environment, SWOT/TOWS analysis.

Introduction

Road transport is a key element of the economy, responsible for the efficient functioning of supply chains and the continuity of logistics processes. Its role in the modern world is constantly growing. Still, transport activity is associated with many risks that can seriously affect the efficiency and safety of enterprises in this industry. The literature emphasizes that risks in transport include both internal risks, related to the organization of processes, and external factors, such as legal changes, increased fuel costs or competitive pressure. Risk in road transport depends on the area under analysis. In this context, two key areas are distinguished in which dangerous events may occur that affect the implementation of transport tasks: determining vehicle routes[1] and assigning vehicles to individual tasks[2]. Both of these areas are also where risk can be controlled and reduced by making appropriate decisions, for example, regarding the driving route and the number of vehicles assigned to tasks[3]. The risk assessment should be comprehensive to account for them in the subsequent management process. A holistic approach is important for analyzing the interconnectedness of risks and managing their entire portfolio, not just individual risks[4]. The use of SWOT/TOWS analysis to assess risks enabled a strategic understanding of

[1] Li J., Li Y., Pardalos P.M.: *Multi-depot vehicle routing problem with time windows under shared depot resources*, J. Comb. Optim., 2016, 31, pp. 515-532. doi: 10.1007/s10878-014-9767-4
[2] Izdebski M., Jacyna-Gołda I., Siedlecka-Wójcikowska T.: *Efficiency of the allocation of means of transport in supply chains, Buses. Technology, Exploitation, Transport Systems*, ed. : Oficyna Wydawnicza Politechniki Warszawskiej, Warsaw 2019, No. 3, pp. 71-78. ISSN 1509-5878, e-ISSN 2450-7725
[3] Izdebski M., *Research and risk management in road transport with the use of artificial intelligence algorithms*, Ed. : Oficyna Wydawnicza Politechniki Warszawskiej, Warsaw 2023, p. 20. ISBN 978-83-8156-540-0
[4] Thlon M., Fundamentals of *operational risk management,* Publishing house: Cracow University of Economics, Cracow 2016, pp.7-10, ISBN: 978-83-7252-720-3

Cite this Article as: Darya TKACHOVA and Jerzy KORCZAK, Vol. 2025 (30) "Strategic analysis in the Transport Sector: A Case study of Euro-Asian Trans-Logistics Company " Communications of International Proceedings, Vol. 2025 (30), Article ID 4651625, https://doi.org/10.5171/2025.4651625

risk factors that may affect the success of the audited company in its internal and external environments, as well as to indicate the direction of its further development.

Methodology

Transport services are the core of the audited company's operations and encompass all activities from order acceptance to final settlement with the customer. Each of the processes has specific tasks, its own organizational requirements and difficulties that may arise during implementation. Their correct identification allows you to understand how the company operates, what elements affect the quality and timeliness of services, and which stages are most exposed to disruptions. The transport process should be treated as a system of interrelated activities, in which decisions and actions taken in one area affect the course and outcome of subsequent stages[5]. Disruption to one of them may cause delays, additional costs, or reduced service quality. For this reason, identifying key conditions for its implementation is the basis for analyzing the company's operations at the operational and strategic levels. The subject of the research is a transport company carrying out road transport of cargo in Western Europe, as well as to Eastern European and Central Asian countries, such as Belarus, Russia, Kazakhstan, Uzbekistan, Azerbaijan, Tajikistan, holding the prestigious European Trans.eu Certified Forwarder certificate. The research objective of the article is to identify the key factors influencing the implementation of transport services. The research problem was formulated as a question: What are the key determinants of transport service provision, and how do they affect the company's functioning? Research methods used in the research process: literature analysis, SWOT/TOWS analysis, inference.

Research results

SWOT/TOWS analysis tools were used to assess the risk in the audited company. The analysis of external and internal factors of the company allowed their identification and hierarchization (weight assignment), which was carried out using the Delphi method. The results of this process, together with the assignment of the weights of the factors and the strength of their influence on the factor, are presented in Tables 1 and 2.

Table 1: external and internal factors and the weights assigned to them

Weight	Internal factors	Weight	External factors
1.00	Strengths	1.00	Opportunities
0.20	Experienced and trained drivers.	0.20	Possibility of obtaining a subsidy for the training of the company's staff.
0.20	A modern and well-maintained fleet.	0.15	Possibility of obtaining a subsidy for the purchase of ecological or electric vehicles.
0.10	The implemented telematics elements (GPS) enable efficient fleet tracking.	0.25	Implement an ERP platform that integrates all departments of the enterprise and facilitates reporting.
0.15	Constant cooperation with trusted customers ensures the stability of orders and revenues.	0.15	Expanding the customer base.
0.05	Clear operating procedures and health and safety rules followed.	0.05	Implementation of internal audits and digital checklists.
0.25	Full control of the costs and profitability of the routes.	0.20	Obtaining external financing for the implementation of analytical and forecasting tools (BI, AI)
0.05	Flexible work model and the ability to quickly change routes or resources.		
1.00	Weaknesses	1.00	Threats

[5] Hajduk M., Stajniak M., Foltyński M., Koliński A., Andrzejczyk P., *Organization and monitoring of transport processes*, Institute of Logistics and Warehousing in Poznań, Poznań 2015, p. 13, ISBN: 9788363186012

0.15	Difficulty in recruiting new drivers and employee turnover.	0.10	Growing shortage of drivers on the labour market.
0.20	Ageing vehicles in the fleet incur higher repair costs and more frequent downtime.	0.25	Increase in fuel and spare parts costs.
0.15	Low level of digitalisation of administrative processes leads to delays.	0.10	Cyberattacks and IT system failures lead to data loss.
0.10	Too much dependence on the main contractors.	0,15	Aggressive price competition leads to customer loss.
0.10	Insufficient control of drivers' compliance with procedures.	0.05	Negligence in the field of health and safety resulting in severe financial and legal sanctions.
0.25	The lack of financial reserves makes it difficult to respond flexibly to emergencies.	0.20	Fluctuations in exchange rates, fuel prices and tolls.
0.05	The lack of a systemic approach to forecasting seasonal forecasts will burden fleets and drivers.	0.15	Sudden fluctuations in demand (e.g., lockdowns, weather anomalies).

Table 2: weight of the factor and its power of influence

Weight	**Description**
0.25	The factor has the greatest influence and determines the company's operation.
0.2	A very important factor that has a substantial impact on the company.
0.15	A moderately important factor, its impact is moderate.
0.1	The factor has little influence and does not determine the whole.
0.05	The least important factor, its importance is minimal.

In the next stage of the analysis, eight key questions were formulated, which allowed to identify the interactions between the factors, taking into account the values of their weights:

- Do strengths allow you to take advantage of opportunities?
- Can strengths mitigate threats?
- Do weaknesses hinder taking chances?
- Do weaknesses increase the threats?
- Can opportunities strengthen strengths?
- Can opportunities weaken weaknesses?
- Can threats weaken strengths?
- Can threats exacerbate weaknesses?

The study was conducted using an Excel sheet. An example table of strengths-to-opportunity interactions is presented in Table 3.

Table 3: trength-to-opportunity ratio

Opportunities/ Strengths	[A1]	[O2]	[O3]	[O4]	[O5]	[O6]	Weight	Number of interactions	Product of weights and interactions	Rank
[S1]	1	0	0	0	0	0	0.20	1	0.20	5
[S2]	1	0	1	1	0	1	0.20	4	0.80	2
[S3]	1	0	1	0	1	1	0.10	4	0.40	4
[S4]	0	1	0	1	0	1	0.15	3	0.45	3
[S5]	0	0	0	1	1	0	0.05	2	0.10	6
[S6]	0	0	1	1	1	1	0.25	4	1.00	1
[S7]	0	0	1	1	0	0	0.05	2	0.10	6
Weight	0.20	0.15	0.25	0.15	0.05	0.20				
Number of interactions	3	1	4	5	3	4				
Product of weights and interactions	0.64	0.17	1.06	0.77	0.15	0.84				
Rank	4	5	1	3	6	2				
Sum of interactions								41		
Sum of products									6.69	

An analysis of the relationship between the company's strengths and opportunities from the environment indicates strong links. The sum of interactions is 41 and the sum of the products is 6.69, which means that many internal factors of the company can be used to develop and strengthen its competitive position. The results show that the company has the right resources to take advantage of the most critical opportunities emerging in the market. The most important is S6 – control of costs and profitability of routes (1.00), which allows for assessing the profitability of activities and reducing financial risk, as well as S2 – a modern fleet (0.80), which gives the company a technological advantage and the ability to quickly respond to new customer needs, e.g., related to ecological transport. O3 (1.06) and O6 (0.84) are also important complements – the first is associated with the possibility of acquiring new technologies or financing, and the second with the development of operations in new markets and an increase in the share in the segments already served. These combinations create the most significant potential for the company's growth. A summary of the results of the SWOT/TOWS analysis is presented in Table 4.

Table 4. Summary of SWOT/TOWS results

	Results of the SWOT analysis		Results of the TOWS analysis		SWOT/TOWS summary statement	
Combination	Sum of interactions	Sum of products	Sum of interactions	Sum of products	Sum of interactions	Sum of products
Strengths [S]/ Opportunities [O]	41	6.69	38	6.15	79	12.84
Strengths [S]/ Threats [T]	46	6.90	32	5.30	78	12.20
Weaknesses [W]/ Opportunities [O]	26	4.40	26	4.00	52	8.40
Weaknesses [W]/ Threats [T]	32	5.10	24	3.65	56	8.75

The analysis of the data compiled in Table 4 indicates that the most critical combinations are those of strengths with opportunities (12.84) and with threats (12.20). This means that the company should base its strategy on its strengths. Thanks to them, it can take advantage of market opportunities while defending itself against threats. Lower values indicate weaknesses in combination with opportunities (8.40) and deficiencies in combination with threats (8.75). This shows that the company's weaknesses exist and can be a hindrance, but they should not be the basis of the strategy. They need improvement, but the most important thing is to develop their strengths.

Table 5: results of the SWOT/TOWS analysis – strategy selection

	Opportunities	Threats
Strengths	Aggressive strategy	Conservative strategy
	Number of interactions	Number of interactions
	79	78
	Weighted number of interactions	Weighted number of interactions
	12.84	12.20
Weaknesses	Competitive strategy	Defensive strategy
	Number of interactions	Number of interactions
	52	56
	Weighted number of interactions	Weighted number of interactions
	8.40	8.75

In conclusion, the best development strategy for the surveyed company will be to maximize the use of strengths and opportunities (maxi-maxi). This will allow you to grow, gain customers and at the same time reduce the risk associated with threats.

Conclusion

The key areas of risk for the surveyed company turned out to be the shortage of drivers, rising fuel costs and the fluctuating level of demand for transport services. Despite these risks, the company has strengths – a modern fleet and effective cost control – that help mitigate their adverse effects. The SWOT/TOWS analysis showed that the most advantageous direction of development is an aggressive strategy (maxi-maxi), which consists of using the company's strengths combined with market opportunities. The study identified significant threats to the company: a shortage of drivers on the labour market, an increase in fuel and fleet operating costs, an insufficient level of digitalisation of logistics processes, as well as intense competition and price pressure. The research process allowed for the development of recommendations related to the need to invest in digitization and systems supporting transport management, modernization and fleet development, including the purchase of low-emission vehicles, as well as in the implementation of training and motivation programs for the drivers of the surveyed company.

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