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Project logistics: influential factors of transporting project cargo in the Balkan region

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Abstract: Purpose of the article – Abnormal cargo will create abnormal problems and those require exceptional logistics solutions. This study delves into the complexities and challenges of transporting project cargo, explicitly focusing on items with extraordinary dimensions, weights, and shapes. Despite its small volume in global cargo flow, project cargo presents significant operational risks and contributions, particularly in the logistics sector. The research concentrates on the Balkan Peninsula, aiming to unravel the critical factors influencing project cargo transport and highlighting the challenges faced by industry experts.
Research methodology – Employing the Delphi method, initially developed for military applications and now prevalent in project management, the research seeks expert consensus on critical elements affecting project cargo logistics in the Balkans. This method facilitates the gathering and analysis of expert opinions to identify and address the core factors impacting project cargo transport.

Keywords: project logistics, project cargo, abnormal transport, Balkan region, Delphi method

JEL Classification: K41, L91, N70

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Projektna logistika: vplivni dejavniki prevoza projektnega tovora v balkanski regiji

Povzetek: Namen članka – Izredni tovori ustvarjajo izredne probleme, ki zahtevajo izredne logistične rešitve. Ta študija se poglobi v kompleksnost in izzive transporta projektnega tovora, s posebnim poudarkom na tovoru z izrednimi dimenzijami, težami in oblikami. Čeprav ima projektni tovor majhen obseg v globalnem pretoku tovora, predstavlja pomembna operativna tveganja in prispevke, zlasti v logističnem sektorju. Raziskava se osredotoča na Balkanski polotok in si prizadeva razvozlati ključne dejavnike, ki vplivajo na transport projektnega tovora, ter izpostaviti izzive, s katerimi se soočajo strokovnjaki v industriji.
Raziskovalna metodologija – Z uporabo metode Delphi, ki je bila sprva razvita za vojaške namene in je zdaj razširjena v upravljanju projektov, raziskava išče soglasje strokovnjakov o ključnih kriterijih, ki vplivajo na logistiko projektnega tovora na Balkanu. Ta metoda omogoča zbiranje in analizo mnenj strokovnjakov za identifikacijo dejavnikov, ki vplivajo na transport projektnega tovora.

Ključne besede: projektna logistika, projektni tovor, nenormalni transport, balkanska regija, metoda Delphi

1 INTRODUCTION

Transport and logistics services are crucial for international trade and local economic growth, with their quality directly impacting global trade connections. The logistics sector is essential for regional development, requiring equal investment and expertise (Devlin & Yee, 2005; Karayun, Aydin & Gulmez, 2012).

Global economic trends are shifting from globalization to regionalization, with countries focusing more on strengthening trade with nearby nations while maintaining international trade growth (Altman & Bastian, 2023). This shift affects trade strategies, emphasizing local collaboration while maintaining global connections. The Balkan region has a strategic importance region for trade and geopolitical influence, connecting Europe, Asia, and Africa (Okano-Heijmans, 2018).

Project logistics manages cargo, referring to large industrial, construction, energy, and manufacturing equipment and material shipments. It is considered one of the most challenging forms of transport logistics (Asean, 2014). Abnormal cargo will create abnormal problems, and those problems will require exceptional logistics solutions. The demand for these services depends on the industry, energy sector, infrastructure development, investment projects in specific countries, and economic policies (Pisz & Łapuńka, 2016). Project logistics requires personnel with specialized knowledge, special equipment for transportation and handling, and appropriate transport infrastructure to create high-added value for countries and regions. This field is recognized as a niche area within logistical operations (Blecker et al., 2018). Exceptional or project cargo significantly impacts a country's economic development (Prause, 2009). Authors Zalluhoğlu, Aracıoğlu, and Erden (2020) also acknowledged the importance of this form of transport to economic development. They suggest that it is necessary to start producing and implementing projects earlier, even though it may initially seem challenging.

Balkan countries present unique transportation challenges based on their landscape, political context, and development stage. Kosovo is excluded from this study due to limited data. Project logistics requires specialized expertise and equipment due to its unique cargo, often large and associated with industrial and construction sectors. Our research aimed to identify critical factors in project logistics affecting project cargo transport in the Balkan region. This involves analyzing various factors, including the potential impact of EU integration for some countries and transportation system improvements for global competitiveness. Utilizing theoretical frameworks, expert opinions, and empirical data, we employ the Delphi method and propose improvements in the Balkan project logistics sector.

The research paper is organized into the following sections. First, we talk about the methods we used in our research. Then, we go through the literature we studied, providing the necessary theoretical background and context. After that, we show the results we found. Finally, we end it all with a summary of everything covered.

2 LITERATURE RESEARCH

The Balkan region's strategic location, connecting multiple continents, offers a unique logistical perspective for enhancing trade and transport (Ash, 1996). However, its performance in the Logistics Performance Index (LPI), as reported by The World Bank in 2018, reveals a disparity with most Balkan countries ranking lower than other European nations. For example, Slovenia ranks 35th globally while Albania ranks 88th, highlighting the region's untapped logistical potential and need for improvement.

Tabel 1: Logistics Performance Index Ranking of Balkan Countries

Countries	EU LPI Rank	LPI Rank	LPI Score
Slovenia	21	35	3.31
Greece	24	42	3.2
Türkiye	26	47	3.15
Romania	27	48	3.12
Croatia	28	49	3.1
Bulgaria	29	52	3.03
Serbia	32	65	2.84
Bosnia in Hercegovina	36	72	2.81
Montenegro	37	77	2.75
North Macedonia	38	81	2.7
Albania	39	88	2.66

Source: The World Bank, 2018

This variation in LPI ranking underscores the need to leverage the Balkans' geographical and infrastructural advantages. The LPI assesses aspects like customs, infrastructure, and shipment timeliness, which are crucial for managing the intricate demands of project cargo. These issues are compounded by political instability and a lack of international funding, emphasizing the need for substantial investment and reform. A SWOT analysis by Gavanas and Pitsiava (2013) further elucidates the Balkan transport system's situation. Strengths include its strategic location as a crossroad between significant regions and a network of ports connecting major seas. However, weaknesses like uneven highway distribution and underdeveloped inland waterways and airports hinder its efficiency. Opportunities for improvement lie in the region's recovery from socio-political turbulence, EU integration prospects, and the development of multimodal transport networks.

Conversely, barriers include economic challenges, resource limitations for transport projects, and the complexity of aligning diverse transport policies across the region. These insights reveal a complex landscape for the Balkan transportation sector, calling for strategic interventions to address infrastructural deficits, enhance logistical capabilities, and exploit the region's geographical advantages for economic growth and improved trade connectivity (Gavanas & Pitsiava, 2013).

In the case of exceptional road transport, the legislation within countries does not focus on the cargo but on the entire composition, which includes the cargo and the vehicle. Here, limitations and standards are set, which need to be met for exceptional transport. Interestingly, there are differences between countries in terms of legislation, requirements, implementation methods, and actual permits Barrot (2019).

ESTA, the European Association for the Transportation of Heavy Goods by Road and Mobile Cranes, conducted a survey in which companies specialized in exceptional road transport, obtaining permits, or conducting escorts participated. They prepared a report on the transport of exceptional cargo to study the differences in permits and regulations among 22 European countries. Six of these countries were in the Balkan region: Albania, Bulgaria, Croatia, Serbia, Slovenia, and Turkey. Missing are Bosnia and Herzegovina, Montenegro, Kosovo, Romania, Greece, and Macedonia (ESTA, n.d.). Six surveyed Balkan countries -

Albania, Bulgaria, Croatia, Serbia, Slovenia, and Turkey - have distinct regulations and systems for exceptional road transport. These differences are evident in various aspects, such as the availability and duration of long-term permits, the requirement of maps or specific routes for transport, the necessity of additional documents for permits, and the existence of electronic systems for permit applications. Additionally, there are variations in requirements for civilian or police escorts, the need for approval from authorized organizations, and the time taken to obtain permits. While some countries require additional transport insurance, others find standard CMR sufficient. The responsibility for ensuring valid permits also varies, with some countries placing it on the sender or loader. This diversity in regulations highlights the importance of understanding and complying with local rules in each country for exceptional road transport.

In the sector of exceptional road transport, the legislation focuses on the cargo and its entire composition, including the vehicle. This area exhibits significant disparities between countries regarding legislation, requirements, implementation methods, and permits. The European Association for Abnormal Road Transport and Mobile Cranes (ESTA) conducted a study on this, highlighting the variations in permits and regulations among 22 European countries, which includes six Balkan nations. However, there is a lack of harmonization in permit acquisition for exceptional transport, with each country having its system, underscoring the importance of local presence (ESTA, n.d.).

Historical transport routes in the Balkans were significantly altered post-1993 due to regional conflicts, as Hameršak, Hess, Speer, & Mitrović (2020) noted. This change led to a reliance on alternative paths through countries like Romania and enhanced short-sea shipping services from Turkey and Greece to Italy. Despite an extensive transport network, the Balkan region faces considerable challenges in terms of infrastructure maintenance, with most investments dating back to the 1970s and 1980s and significant backlogs in maintenance, as reported by Hameršak et al. (2020). Despite considerable investments, there is a noticeable disparity in transport infrastructure standards between the regional countries and the member states of the European Union. Throughout the period from 2004 to 2012, road infrastructure consistently received the largest portion of annual investment funds, with 795 being the highest receiver. However, other modes of transport, notably airports and seaports, have seen an increase in their share of overall investments (Gjorgjievski, 2019). Lukić and Djapić (2011) briefly detailed a significant railway project cargo transport in 2011, involving the repair of a transformer by French manufacturer CEM, model TR - 9208. This transformer, used in the TENT-B Thermal Power Plant in Obrenovac, had specifications of 410/21 kV, 1020/19930 A, 725 MVA, and a total weight of 490 tons, including 90 tons of oil and 380 tons for the transformer, with the remaining weight comprising associated equipment.

Rail infrastructure, having suffered from underinvestment, is now seeing ongoing and planned projects that promise improvement, with significant rail line upgrades scheduled to commence soon. By 2016, the focus is expected to shift more towards railway development, with €1.2 billion in committed funds to be disbursed by 2021 (Gjorgjievski, 2019). Inland waterways, despite their optimal suitability for oversize cargo and low infrastructure costs, attract minimal investment, with only €30 million allocated towards enhancing navigational conditions. This is particularly concerning given the potential in Bosnia and Herzegovina, Croatia, and Serbia, which have navigable rivers (Gjorgjievski, 2019). Investments have been predominantly private sector-driven, especially in the expansion and modernization of seaports and airports. These investments continue to match current capacity demands (Gjorgjievski, 2019). Ash (1996) noted that most of the twenty ports reviewed, except for Durres in Albania, Istanbul-Haydarpasa in Turkey, and Varna and Burgas in Bulgaria, either have adequate current capacities or well-planned

expansions, along with necessary road and rail access improvements, to meet present and near-future demands.

Prause (2011) identified several challenges logistic service providers face in Europe due to inconsistent regulations and national approaches. These challenges include varying rules on vehicle types, load limits, and permit acquisition processes, leading to delays and inaccurate cost estimates. Differing barriers for transporting significant and unusual cargo impact regional economic growth and competitiveness. The complexity of obtaining special transport permits, varying by country, increases costs and delays business development. Standardizing these requirements and establishing a centralized permitting authority could save time and resources. Another issue is the lack of proper route planning considering infrastructure capabilities, impacting safety and environmental sustainability. Streamlining rules for special cargo transport could reduce the number of trucks needed and enhance the efficiency of industrial projects. This analysis underscores the need for a more coordinated and simplified approach to managing cargo European logistics.

In their 2018 study using the Delphi method in Turkey, Şakar, Yildirim, and Mansuroğlu found that planning is crucial in project logistics, mainly due to the high value and risk associated with project cargo. They noted the importance of strategic planning and the versatility of transport combinations in ensuring the safe delivery of goods. The role of freight forwarders in coordinating and streamlining logistics processes was emphasized, along with challenges like port infrastructure, handling equipment availability, and storage inefficiencies. The study highlighted that road transportation, often the most costly segment, is essential for final cargo delivery, necessitating careful planning for budget compliance and efficient route development. The authors also pointed out that legal and regulatory compliance could delay project cargo delivery, underscoring the need for comprehensive planning and strategic infrastructure development.

Despite Turkey's advantageous location and socio-economic attributes, Blecker et al. (2008) further explored the challenges in the Turkish logistics sector. They categorized the issues into infrastructure, legal regulations, education, and economic conditions. Key barriers included inadequate transport infrastructure, bureaucratic and inflexible operational conditions, and inconsistent legal interpretations affecting international logistics services. The lack of practical training in logistics programs and the impact of economic difficulties on logistical operations were also noted. This comprehensive analysis highlighted the need for a coherent strategy to strengthen Turkey's logistics sector in the face of these diverse challenges.

Transporting projects or special cargo in the Barents Sea region faces several challenges, according to Aamuvuori's (2014) research. Infrastructure, particularly in less developed areas, struggles to support efficient transportation due to deterioration and lack of improvements, as Gourdin (2001) and Regmi and Hanaoka (2012) noted. Legal regulations, with inconsistencies at both international and national levels, further complicate matters, impacting the smoothness of the transport process (Gourdin, 2001; Bowersox, Closs, & Stank, 2000). Border crossings introduce additional complexities, with road tolls and tariffs impeding transport efficiency (Regmi & Hanaoka, 2012). As Carter and Ferrin (1995) and Wong et al. (2009) highlighted, a lack of collaboration among stakeholders at different transport stages hinders performance. Emerging stricter environmental regulations and prioritizing eco-friendlier transport methods add another layer of complexity (Gourdin, 2001; Large et al., 2013). Distance issues, particularly in areas with poor traffic connections, significantly extend travel times, as Tongzon (2009) and Bowersox and Calantone (1998) mentioned. Customer demands for high-quality service, low prices, and quick delivery further challenge service providers, as observed by Hickey and Cassidy

(2004). Seasonal challenges, especially during winter, also affect consistent transport logistics in the region (Aas, Halskau Sr, & Wallace 2009).

The Delphi method, originating in the 1950s and developed by the Rand Corporation for a U.S.-sponsored military project, aimed to gather expert opinions on long-term trends in military science and technology and their impact on political issues (Mitchell, 1991; Gordon, 1994). Recognized for its ability to elicit reliable consensus-based opinions from groups of experts, the Delphi method operates on the principle that collective insights are more accurate than individual ones. It is a multi-round questionnaire technique designed to converge on a consensus about significant matters (Rowe & Wright, 1999; Keeney, McKenna & Hasson, 2011).

The suitability of the Delphi method for this topic is also demonstrated by the study conducted by Şakar, Yildirim, and Mansuroğlu (2018) titled "Value Creation in Project Cargo Logistics." They applied the Delphi study within the context of Turkey, involving experts at various levels (director, operational manager, specialist) and service providers in project logistics (freight forwarders, brokers, port operators, maritime agencies, etc.). Participants were asked questions related to value creation in project cargo logistics.

3 METHODOLOGY

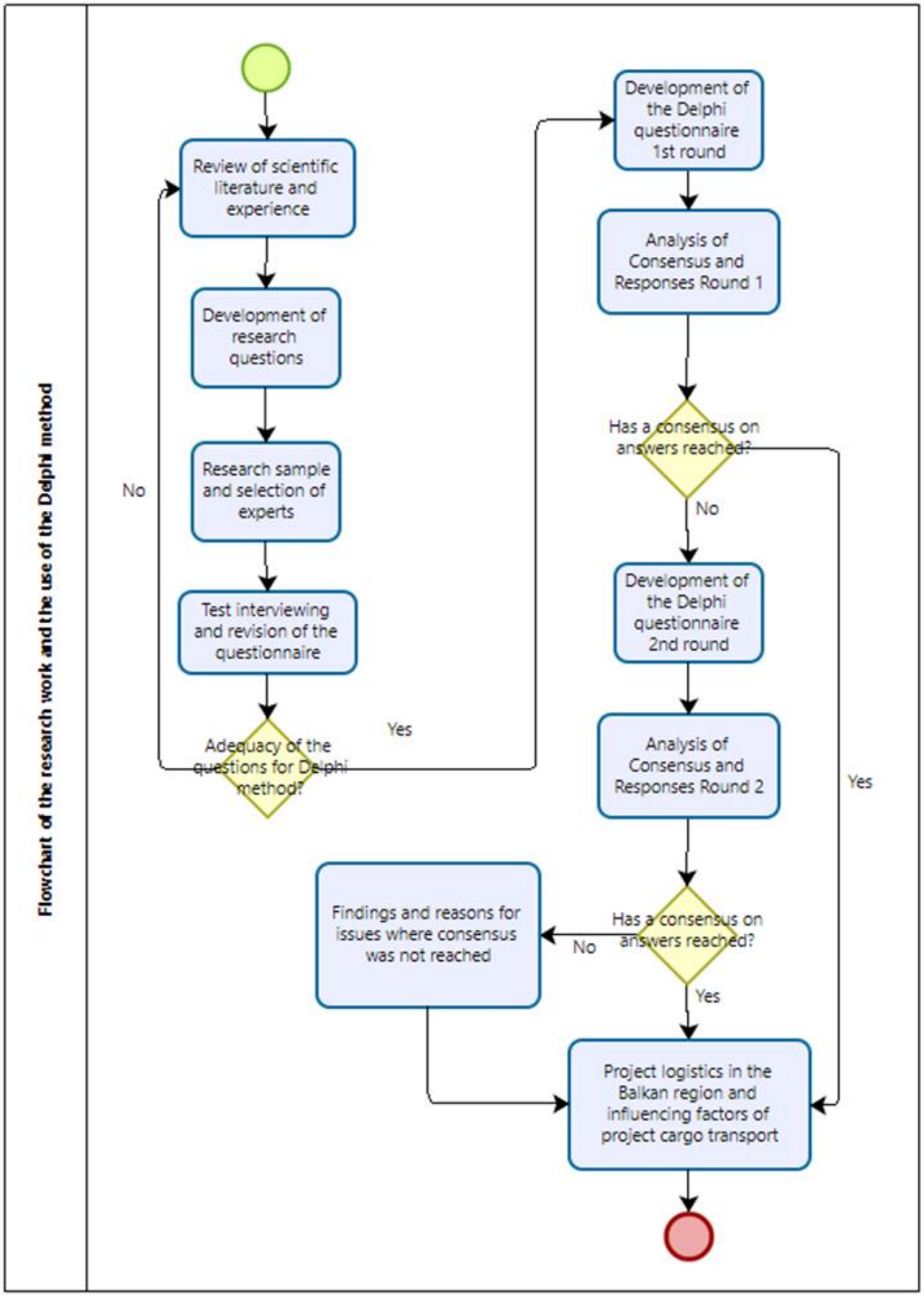
We utilized the Delphi method, surveying experts familiar with project logistics in the Balkans, which includes Romania, Bulgaria, Slovenia, Croatia, Greece, Serbia, Bosnia and Herzegovina, Turkey, Montenegro, Kosovo, and Albania. Our approach was holistic, considering various aspects of the challenge for a comprehensive understanding, and we sought insights from domain experts.

When using a Delphi method, we followed the approach proposed by Skulmoski, Hartman, and Krahn (2007):

1. Development of Research Questions
    a. Experience
    b. Professional Literature
    c. Pilot Study
2. Designing the Research
3. Research Sample
4. Development of Delphi Questionnaire Round 1
5. Pilot Survey and Revision of Questionnaire
6. Consensus Analysis and Responses Round 1
7. Development of Delphi Questionnaire Round 2
8. Consensus Analysis and Responses Round 2
9. Development of Delphi Questionnaire Round 3
10. Consensus Analysis and Responses Round 3
11. Verify, Apply, and Document Results

We used a modified Delphi method with closed-ended questions or statements to acquire clear responses of "Agree," "Disagree," or "Unable to Comment," preventing partial agreement or disagreement with the statement. The flowchart below shows our work process and the steps needed to implement this modified Delphi method in our research successfully.

Figure 1: Schematic presentation of the proposed



We first reviewed the existing specialized literature on the Balkan region, project logistics, and cargo to set up the right questions. This initial part covered the logistic and economic characteristics of the Balkan region, the modalities of project cargo transport, and the existing literature that has already partly defined the influential factors in the field of project cargo transport within countries or other regions. The literature review revealed essential findings that aided the next step. With the help of this review, we formulated a

total of 37 statements for participants (experts) to respond to with "agree," "disagree," or "cannot comment" on each statement. Some general questions were also posed before the statements to verify the candidates' suitability further, even though we had already done this during the invitation to participate. Moreover, the last question was open-ended, allowing experts to give their opinion on the research or help identify additional influential factors in project cargo transport in the Balkan region.

In the second step, we formulated statements based on the described literature to obtain responses for our task and define influential factors in project cargo transport in the Balkan region.

The third step followed with the selection of experts. In selecting experts, we focused on local freight forwarders, one individual per country. We focused on project freight forwarders because they must be familiar with all aspects and steps of cargo delivery. The implementation of the Delphi method often involves a smaller number of experts. Given the number of individuals per country included in the research, the scope of participation included 12 respondents or project logistics freight forwarders. These individuals work or have worked in the Balkan region and have dealt with project logistics and cargo for two years or more.

Participants were introduced to the research's content, purpose, and goal in the initial contact. The request for expert participation in the survey was conducted through various channels, namely:

- Telephone call;
- LinkedIn business network;
- Email.

In the fourth step, we tested the questionnaire, validating a series of selected statements. The test was carried out to preliminarily check the suitability and comprehensibility of the statements concerning the chosen topic. We conducted a pilot survey and assessed the suitability of the posed statements with the help of mentors, other academics, and other experts from the field of project logistics and cargo who did not participate in the later survey. The findings from the pilot survey were carried over to the next step, where we conducted the first round of the Delphi research. Mentors, academics, colleagues, and partners from the project logistics field participated in the pilot survey. It is important to note that none of those involved in the pilot part of the questionnaire participated later in the research part. So, during the pilot survey, we then:

- Shortened the introductory or presentation part;
- Adjusted and shortened selected statements for clearer understanding;
- Added a question where the participant confirms attendance;
- Added questions to verify the candidate's suitability for participation in the research;
- An image of the Balkan region and the countries included in the research was added.

Through an online survey (Google Forms), we posed a set of statements related to influential factors in project cargo transport to experts operating as freight forwarders in the Balkan Peninsula countries. This allowed us to reach the desired individuals more quickly and ensured a more appropriate overview of the data. All participants were informed and invited to participate before the survey. The call and link to the survey were sent to each individual via email. To ensure data security, the names of individuals and companies involved in the survey will not be published. We distributed the questionnaire to all participants.

After receiving the responses and carrying out the first round, an analysis of consensus and obtained answers followed. In this part, we will combine the responses of individuals and check the percentage of answers to each of the individual questions.

This calculation is called APMO (Kapor, 1987):

$$APMO\ (\%) = \frac{No.of\ responses\ (agree) + No.of\ responses\ (disagree)}{Total\ no.of\ responses} \times 100 \quad (1)$$

The final result is thus expressed as a percentage. If two-thirds of the participants agreed and the percentage was 66.67% or more in agreement or disagreement, we considered that consensus had been achieved in the research. Where deviations were equal to or less than 66.66%, we reformed these statements according to the goal of the task and transferred them to the second round of the Delphi research. We used one of the following methods:

- We reformulated the statement to check whether there are differences between countries and, therefore, an inability to reach consensus.
- We reformulated the statement to be more specific with a new statement, thus allowing for better understanding.

At the end of the questionnaire, we also posed an open-ended question—the open-ended question aimed to get further insight from experts on influential factors in project cargo transport.

In the second round of the Delphi research, we followed steps similar to the first round. We sent a new questionnaire with reformed statements to all twelve experts, where consensus was not reached from the first round, and statements we received from the open-ended question were added. We again looked for a 66.67% consensus from the experts for the responses obtained. In the last step, we will collect all the findings that we will gather with the help of the participants and the Delphi research and describe the influential factors of project cargo transport in the Balkan region. In the statement where consensus was not achieved, we can conclude it is not easy to standardize them for the entire region. With this conclusion, we decided not to continue to the third round of Delphi research. The last step was the interpretation of the results of the Delphi method, where we interconnected all influential factors and classified them according to importance and the degree of consensus among experts.

4 RESULTS

Our study aimed to understand and delineate the key factors impacting project cargo transportation in the Balkan region, leveraging expert insights to form a comprehensive perspective.

The result section of the paper, detailed in its chapter, covers research done in 2022 employing the Delphi method. The study involved experts and project freight forwarders from 12 Balkan Peninsula countries - Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Greece, Kosovo, Macedonia, Montenegro, Romania, Slovenia, Serbia, and Turkey. Each country was equally represented in the expert pool, with each nation contributing 8.33% of

participants. All participants were actively engaged in project freight forwarding and unanimously committed to the survey. The experience levels of these experts varied, with 25% having 2 to 5 years of experience, another 25% with 5 to 10 years, and the remaining 50% possessing over a decade of experience in project logistics and cargo. All 12 participants (100%) affirmed their involvement in project cargo logistics. This question was also a prerequisite for continuing. The last general question, a prerequisite for participation, concerned the experts' years of experience in project logistics and cargo.

During the literature review, various factors influencing project cargo transport were identified and incorporated into the Delphi method. The statements derived from these factors, used in the research, were listed in the table below as a start of the first round of the Delphi questionnaire. The results and response ratios from the first round of the Delphi study are shown below, with its analysis of the outcomes, consensus, and responses. A consensus (66.67%) was achieved for 25 of the 37 statements. The statements are summarized in the table below.

Table 1: The results of the first round of the Delphi survey

		"Agree"	"Disagree"	"Not able to comment"
#	Statements	Resp. %	Resp. %	Resp. %
1	The freight forwarder plays a significant role as the architect of the entire project cargo organization and operation logistics.	12 100,00%	0 0,00%	0 0,00%
2	Knowledge and experience of all parties involved need to be at a high level in this line of business.	11 91,67%	1 8,33%	0 0,00%
3	Knowledge of all parties involved in handling and transporting project cargo in the Balkan region is high.	5 45,45%	6 54,55%	1 8,33%
4	Infrastructure (bridges, tunnels, roads, buildings, etc.) is one of the most significant barriers when transporting project cargo.	12 100,00%	0 0,00%	0 0,00%
5	The Balkan region's infrastructure (bridges, tunnels, roads, buildings, etc.) is suitable for transporting project cargo.	7 63,64%	4 36,36%	1 8,33%
6	Differences between Balkan countries from the infrastructural point of view significantly complicate the process of transporting project cargo.	8 72,73%	3 27,27%	1 8,33%
7	Bureaucracy directly affects the ongoing transport process of project cargo.	11 100,00%	0 0,00%	1 8,33%
8	Crossing borders for non-EU countries plays a significant transport challenge for project cargo.	9 75,00%	3 25,00%	0 0,00%
9	Customs authority and procedures make it significantly more challenging to transport project cargo in the Balkan region.	5 41,67%	7 58,33%	0 0,00%
10	Different tariffs and tolls when transporting project cargo in the Balkan region complicate operations.	9 81,82%	2 18,18%	1 8,33%
11	Obtaining a permit to transport project cargo across several countries in the Balkan region takes a relatively long time.	5 41,67%	7 58,33%	0 0,00%
12	Obtaining a permit for transporting project cargo via multiple Balkan countries is expensive and inflexible.	7 70,00%	3 30,00%	2 16,67%
13	Different country requirements for permit securing and escorts represent a significant challenge in transporting project cargo via various countries in the Balkan region.	11 91,67%	1 8,33%	0 0,00%
14	Countries in the Balkan region should collaborate on legislative coordination for transporting project cargo.	11 100,00%	0 0,00%	1 8,33%

15	Usually, there is no adequate flow of information during transport, so there is much uncertainty during the transport itself.	6 50,00%	6 50,00%	0 0,00%
16	Air transportation is suitable for project cargo in the Balkan region.	5 50,00%	5 50,00%	2 16,67%
17	Road transportation is suitable for project cargo in the Balkan region.	11 91,67%	1 8,33%	0 0,00%
18	Road transportation is suitable for project cargo when we have short distances and door-to-door.	11 91,67%	1 8,33%	0 0,00%
19	Institutions are announcing planned road works so that they can be anticipated before the transport itself.	8 66,67%	4 33,33%	0 0,00%
20	Inland waterway transportation is suitable for project cargo in the Balkan region.	8 72,73%	3 27,27%	1 8,33%
21	Inland waterway transportation is suitable for project cargo when we have mid-size distance transportation.	7 63,64%	4 36,36%	1 8,33%
22	Rail transportation is suitable for project cargo in the Balkan region.	3 30,00%	7 70,00%	2 16,67%
23	Compared to other modalities, rail transportation in the Balkan region has the highest restrictions on availability and connectivity for project cargo needs.	10 90,91%	1 9,09%	1 8,33%
24	Maritime transportation is suitable for project cargo in the Balkan region.	10 90,91%	1 9,09%	1 8,33%
25	Maritime transportation is most suitable for project cargo and long-distance transport.	11 100,00%	0 0,00%	1 8,33%
26	Balkan ports have adequate capacities for handling and storing project cargo.	9 75,00%	3 25,00%	0 0,00%
27	Inland terminals in the Balkan region have adequate capacities for handling and storing project cargo.	6 50,00%	6 50,00%	0 0,00%
28	Cooperation between local production companies and project freight forwards starts in the product development phase to reduce costs and improve cargo handling and transportation safety.	10 90,91%	1 9,09%	1 8,33%
29	Before each transport, an appropriate route plan is prepared and inspected through a route survey.	12 100,00%	0 0,00%	0 0,00%
30	Before each transport execution possibility, a risk assessment is made.	9 81,82%	2 18,18%	1 8,33%
31	It is challenging to meet the requirements of customers who expect high-quality service, low prices, and short timelines.	12 100,00%	0 0,00%	0 0,00%
32	Most customers understand the importance of packing project cargo and use it regularly.	7 58,33%	5 41,67%	0 0,00%
33	Packaging of project cargo in the Balkan region meets the requirements for transport and handling.	6 54,55%	5 45,45%	1 8,33%
34	Rush hours and congestion interfere with project cargo transport operations.	7 70,00%	3 30,00%	2 16,67%
35	The Balkan region has a high potential for increasing industry and developing project logistics.	11 100,00%	0 0,00%	1 8,33%
36	Environmental regulations are becoming an increasing obstacle, as they have an increasing impact on the choice of the mode of transport itself.	5 50,00%	5 50,00%	2 16,67%
37	Differences in economic views between countries located in the Balkan region significantly complicate the delivery process of project cargo.	4 36,36%	7 63,64%	1 8,33%

Source: Personal

The above table presents responses to 37 statements related to project cargo transport in the Balkan region, showing the percentage of experts who agreed, disagreed, or could not comment. Additionally, an open-ended question was included to identify any overlooked influential factors.

The open-ended question responses indicated two additional factors:

- Weather and business ethics.
- One expert highlighted the nuanced nature of project cargo transport, where "agree" and "disagree" answers might vary based on specific conditions and cargo requirements, suggesting a more detailed approach.

There were 12 statements where consensus (equal to or less than 66.66% agreement) was not achieved. These statements addressed various aspects of project cargo transport in the Balkans, such as knowledge levels, infrastructure suitability, customs impact, permit acquisition processes, information flow during transport, suitability of air and inland waterways transport, terminal capabilities, packing standards, environmental regulation impacts, and economic differences between countries. For the second round of the Delphi study, these 12 statements were revised to align more closely with the study's objectives. This involved modifying them to explore specific nuances or clarify their meaning, ensuring a more targeted and relevant analysis aligned with the research goals.

In the second round of the Delphi study, 12 statements from the first round, where consensus was not reached, were revised. The revisions aimed to clarify whether differences between countries led to the lack of consensus or to make the statements more specific for clearer understanding. This part discusses the outcomes of these revisions. Along with the reformulated statements, two new ones addressing weather influences and business ethics were suggested by an expert. Thus, the total number of statements in the second round was 14. The experts, same as in the first round, were asked to respond with "agree," "disagree," or "unable to comment." Contacting the experts for their responses was conducted via email, maintaining consistency in communication.

The table below shows the results of the second round of the Delphi method, consensus, and responses. Out of the 14 statements posed, a consensus (66.67%) was reached on 13 of them. The table below provides an overview of these statements.

Table 2: The results of the second round of the Delphi survey

		"Agree"	"Disagree"	"Not able to comment"
#	Statements	Resp. %	Resp. %	Resp. %
1	Certain Balkan Region subcontractors involved in the Project Cargo segment lack sufficient knowledge.	9 75,00%	3 25,00%	0 0,00%
2	Infrastructure (bridges, tunnels, roads, buildings, etc.) limitation levels vary between countries located in the Balkan region.	10 90,91%	1 9,09%	1 8,33%
3	Customs authorities and procedures in the Balkan region play an essential role but do not have an aggravating impact when transporting Project Cargo.	8 72,73%	3 27,27%	1 8,33%
4	The time needed to secure permits for transporting Project Cargo varies between countries located in the Balkan region.	11 91,67%	1 8,33%	0 0,00%
5	The flow of information between involved parties is relatively slow during the project cargo operations.	2 16,67%	10 83,33%	0 0,00%
6	Airports in the Balkan Region are suitable to accept Antonov 225 airplanes.	8 80,00%	2 20,00%	2 16,67%
7	Inland waterways have lower limitations on cargo acceptance compared to road transport.	9 81,82%	2 18,18%	1 8,33%
8	Inland terminals in the Balkan region can handle Project Cargo, but some lack adequate crane lifting capabilities.	10 90,91%	1 9,09%	1 8,33%

9	Companies in the Balkan Region demand packing of project cargo for transport and handling purposes.	3 30,00%	7 70,00%	2 16,67%
10	Project Cargo's packaging quality is high in the Balkan region.	6 50,00%	6 50,00%	0 0,00%
11	Environmental regulations in the Balkan Region do not impact the mode of transport selection when transporting cargo.	10 83,33%	2 16,67%	0 0,00%
12	Direct foreign investments play an essential role in the Project Cargo segment in the Balkan region.	11 91,67%	1 8,33%	0 0,00%
13	Weather is an essential factor to consider when transporting project cargo.	11 91,67%	1 8,33%	0 0,00%
14	Business ethics in the Balkan region are high in the Project Cargo segment.	7 70,00%	3 30,00%	2 16,67%

Source: Personal

In the Delphi study, out of 14 statements, consensus (over 66.67%) was achieved on 13. The one statement without consensus, with a split response of 50% agreement and 50% disagreement, was about the quality of packaging for project cargo in the Balkan region. This lack of consensus indicates notable differences between countries, as shown in other statements where experts unanimously agreed on such regional variances. This finding led to the decision not to proceed with a third round of the study.

5 DISCUSSION

Over two rounds, the study reached a consensus on 38 of 39 statements, with only one remaining unresolved. This process helped me understand the current state of project logistics and cargo transport in the Balkan region, identifying challenges and opportunities in the field. The Delphi method's goal to achieve consensus among experts was primarily met, providing valuable insights into project logistics in the Balkans. With the agreement of experts on a given topic, it becomes easier to understand the current situation in the Balkan region’s domain of project logistics and project cargo transportation processes and to identify the challenges and opportunities faced by professionals in project logistics within this region. In our study, we explored various directions and factors that are interconnected and directly related to project logistics and the execution of project cargo transport in the Balkan region. In the following step, we will categorize the recognized influential factors based on their significance, interconnection, and the level of consensus achieved.

The conclusions and influential factors are identified as follows. In the project cargo transport sector within the Balkan region, there is a unanimous understanding of the freight forwarder's pivotal role in orchestrating transport processes, alongside a recognized necessity for high-level expertise. Experts unanimously acknowledge infrastructure as a significant barrier, with infrastructural differences between countries complicating cargo delivery. The consensus highlights the significant impacts of bureaucracy, border crossing challenges, and complexities added by varying tariffs, tolls, and permit acquisition difficulties. The lack of legislative coordination among Balkan countries and the challenges posed by different national permit requirements are seen as significant impediments. The suitability of road transportation for project cargo, especially for short distances and door-to-door services, is widely agreed upon. However, there are concerns about the inadequacy of roadwork announcements and limitations in rail transport. Maritime transport is preferred for long distances, with seaports having the necessary capabilities. The importance of collaboration during the product development phase, effective transport planning, and meeting customer expectations are universally recognized. Experts also

point out the disruptions caused by traffic congestion, the significant industrial potential of the region, and the need for more excellent knowledge among subcontractors. They note variations in infrastructural limitations, the impact of customs procedures, and the times required for permit acquisition. The suitability of airports for large aircraft, the advantages of inland waterways, and the capabilities of inland terminals are acknowledged. Opinions vary on packaging requirements, but there is agreement that environmental regulations do not significantly influence transport decisions. The role of foreign investments, the importance of weather considerations, and the high level of business ethics in the sector are also recognized. Given the Balkans' strategic location at the crossroads of continents, leveraging its logistical capabilities could significantly transform its trade and transport sectors. This exploration encourages collaboration among policymakers and practitioners to innovate and optimize logistics, enhancing the efficiency of project cargo transport in the Balkan region.

Summary

This research paper aimed to identify factors influencing project logistics and cargo transport in the Balkans. The study focused on discrepancies and imbalances across the region by reviewing relevant literature and the Delphi method. The Delphi method was effective in gathering expert opinions and confirming or challenging pre-established ideas, aligning with the research objectives. The research specifically addressed project logistics in the Balkan Peninsula, an area dealing with challenging cargo that often exceeds standard transportation limits. The Delphi method was chosen based on its ability to harness collective expert opinions, deemed more reliable than individual ones. The research process involved a comprehensive scientific literature review focusing on the Balkans' economic and logistical aspects.

The study concluded that it had successfully met its objectives, gaining valuable insights into project logistics in the Balkans. Professional literature and expert opinions highlighted disparities in logistical capabilities, particularly in ports, terminals, and legislative procedures. The geostrategic position of the Balkan Peninsula, bridging major regions, was recognized as vital for industrial growth and logistics development. However, challenges in legislative coordination and transport permit acquisition were noted as significant obstacles. In summary, the research established a comprehensive understanding of the factors affecting project logistics in the Balkans, emphasizing the need for legislative harmonization and acknowledging the region's potential for logistics development.

In the final part of our analysis, we identified key factors impacting project cargo transport in the Balkan region through the Delphi method. These factors form the foundation for an academic understanding of the complexities of executing project cargo transport. From an academic perspective, it would be beneficial to individually examine each influential factor, as each plays a crucial role in the process and outcome of project cargo transport. Given the lack of coordination among countries, a regional approach that examines groups of at least three countries could provide further insights.

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