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# Determining and Evaluating the Strategies of Air Cargo Freight Forwarders to Increase Business Volume with AHP Method

## Filiz Mızrak<sup>1\*</sup>, Gonca Reyhan Akkartal<sup>2</sup>

<sup>1</sup>Istanbul Medipol University, Business and Administration Department, Istanbul, Türkiye. (fmizrak@medipol.edu.tr) <sup>2</sup>Istanbul Medipol University, Logistics Management Department, Istanbul, Türkiye. (gonca.akkartal@medipol.edu.tr)

Article Info	Abstract
Received: 09 March 2023 Revised: 30 April 2023 Accepted: 19 May 2023 Published Online: 09 July 2023 Keywords: Strategic Management Aviation Industry Freight Forwarders International Logistics Corresponding Author: <i>Filiz Mızrak</i>	Air cargo forwarders plays an essential role in air cargo transportation process. They provide service providing communication between the stakeholders in the supply chain. However, there is a fierce competition in this sector due to huge number of companies. For this reason, this companies need to respond to changes in the globalization era by applying some strategies. In this scope, the aim of this study is to determine and weight the strategies that forwarders operating in the air cargo sector can implement to increase their business volumes, using the studies in the literature, interviews with 10 experts working in different forwarder companies in Turkey, and the AHP method. Although strategies for companies to increase their business volumes examined in various studies, there is no study specifically for 'Air cargo transport companies'. In addition, any study using the AHP method for the sector has not been found in the literature. In this context, the study is unique in terms of sectoral practice and methodology. The finding of the study suggests that staff trainings to improve customer relations is the most
	important criteria for air cargo freight forwarders.

### 1. Introduction

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With the effect of globalization, the change in markets, products and customer demands necessitated a change in the marketing understanding of the enterprises. Global marketing envisages that the existing marketing functions will be focused on global markets with the effect of globalization. With the changing strategies and activities of businesses operating in global markets, the concept of competition has left its place to global competition. In this respect, global competition is a phenomenon that businesses need to analyze to acquire the new marketing understanding (Ng, K. T et al., 2022).

Air logistics, which is a component of modern logistics, plays an important role in international trade due to the services it provides for the efficient transportation of small and value-added materials. The development of international trade improves air logistics, and along with this development, the economy in general and international trade are also developing (Cay & Kocyigit,2023). However, if air logistics does not develop, some economic constraints arise. The development of the global supply chain and the increase in international competition position air logistics in a special field in economic development because a global supply chain should be developed to increase economic efficiency, reduce inventory costs, and accelerate the flow of raw materials and commodities on a global scale. In addition, the acceleration of life increases the demand for trade and services to be met more quickly. In this context, air logistics is important for the development of modern economy with its characteristic features such as fast, safe, and long-distance material flow (Merkert, 2022).

Air cargo forwarders are commercial institutions that provide service by providing communication between the stakeholders in the supply chain. Forwarders who are members of IATA (International Air Transport Association) are organizations authorized by IATA that can issue documents on behalf of the airline, coordinate loading and unloading, determine freight, and fulfill customs formalities. These agents can contact airline companies directly and request direct airline reservations to ship products. In fact, it is not possible for the shippers who will export with air cargo to contact the airline companies directly. Carriers' direct shippers to these forwarders. Agencies that are members of IATA have the authority to represent the airline company in cargo services to be made with all member airlines (Zhu et al., 2022).

The aim of this study is to analyze the investment strategies of forwarders working in the air cargo sector. There are very few studies in the literature in this area. With this study, the gap in the literature will be filled and a source will be provided for future studies. Benefiting from studies in literature and interviews with 10 specialists working indifferent freight forwarder companies in Turkey, criteria set has been determined. To weight these criteria, AHP method has been applied. Thanks to this analysis, criteria can be ordered according to their importance and investment strategies can be proposed to air cargo forwarders. In this scope, this study is unique in terms of sector and applied method.

In the second part of study after the introduction part, recent studies on the concept of freight forwarders and strategies that companies apply to increase business volume have been analyzed. In the methodology section, content of interviews and information about interviewees have been given. Besides, steps of AHP method have been explained. In the next part, application of AHP method with predetermined criteria have been fulfilled and findings have been demonstrated. Last but not the least, the conclusion part has proposed the most important strategy that air cargo forwarders can invest on.

## 2. Literature Review

In this part, recent studies in literature on concept of freight forwarders and strategies that companies, specifically operating in logistic sector have been analyzed.

# 2.1. Concept of Freight Forwarder

Companies that see themselves as logistics service producers specializing in the transportation and storage of goods to be transported on behalf of the carrier are called freight forwarders. They are intermediary organizers who usually provide a wide range of services in the follow-up of domestic transport, preparation of shipping and export documents, shipping, booking process, freight negotiation and freight consolidation, insurance of cargo and filling insurance claims. Freight forwarders usually provide their own bills of lading or document delivery and consolidation services of their agents and partners (overseas shipping companies) at the destination (Van, 2022).

The works and services provided by freight forwarders are generally considered as fulfilling export and customs documentation, port, insurance and terminal obligations and handling. Some of these businesses have a wide range of services, while others specialize in a few services or geographic scopes. Forwarders serve as agents or representatives of businesses within the framework of changing legal regulations by taking their place in the processes. The main task of freight forwarder companies is to organize, coordinate and deliver the cargo from the shipper to the consignee. It is the freight forwarder company that is responsible for the timely delivery of the goods, provided that the quantity and quality are maintained within the specified or specified time frame. It should be known that in the wrong decision to be made by the freight forwarder, inefficiency and companies will suffer losses. Freight forwarder companies follow the day in operation and can use modern methods and information technologies effectively (Feng et al., 2020).

Air cargo forwarders are commercial institutions that provide service by providing communication between the stakeholders in the supply chain. Forwarders who are members of IATA (International Air Transport Association) are organizations authorized by IATA that can issue documents on behalf of the airline, coordinate loading and unloading, determine freight, and fulfill customs formalities. These agents can contact airline companies directly and request direct airline reservations to ship products. In fact, it is not possible for the shippers who will export with air cargo to contact the airline companies directly. Carriers' direct shippers to these forwarders. Agencies that are members of IATA have the authority to represent the airline company in cargo services to be made with all member airlines (Amaruchkul and Lorchirachoonkul, 2011). In addition, forwarders cooperate with agencies abroad to organize custom formalities in the destination or receiving the cargo and fulfilling door to door deliveries. In this scope, it is essential for forwarders to improve their relations with the agencies abroad. Leading forwarders in Air Cargo sector such as DHL, DB Schenker, UPS, FedEx, Expeditors have wide agency network all over the world which provides them competitive advantage in the personnel of the agencies with IATA membership, provide operational information such as cargo handling, loading, storage, packaging, basic sales, and training on dangerous goods transportation, and provide wellequipped and conscious service (Ha et al, 2016).

# 2.2. Strategies to Increase Business Volume

It has been observed that the strategies implemented by companies to increase their business volumes are frequently encountered in the literature. However, there are very few studies in literature about freight forwarders and possible strategies they have applied to increase their business volume. Therefore, strategies and tactics in general applied by companies operating specifically in service business has been analyzed to support the analysis of the strategy.

1. Staff training to improve customer relations

Today, change takes place very quickly and dynamically. In this age of change, businesses must be ready and adapt to all developments to survive. This harmony is only possible with education. Because education is a process that develops individuals, gives necessary information, and brings them to certain standards. The prerequisite for the success of the training given in the enterprises is to organize the training according to the needs of the employees (Appelbaum and Fewster, 2004).

Education has an important function for individuals to be successful in their working lives and to adapt to changing conditions. Due to the inadequacy of the information obtained in educational institutions or the limited application areas, it is necessary to train not only the individuals working in the enterprise, but also the new employees who will enter the enterprise. Today, businesses undergo some in-service trainings for their personnel both at the beginning of their work and throughout their working lives, especially since employees can keep up with the rapid developments in information and technology, follow professional developments closely, and work efficiently for themselves and their workplaces. Thus, businesses try to provide the highest efficiency from them by giving them the features they need. Under intense competition conditions, businesses that attach necessary and sufficient importance to education can continue their activities by developing, but it is increasingly difficult for businesses that do not attach the necessary importance to this issue to continue their activities (Itani et al., 2019).

The objectives of businesses include making profit and making life permanent. Achieving these goals is possible by working effectively and efficiently. Effective and efficient operation of the enterprise is possible if the qualifications of the personnel are suitable for the requirements of the job. Training of newly recruited or employed personnel plays an important role in the effective and efficient operation of enterprises. The purpose of personnel training is to ensure that the personnel work effectively and efficiently by making changes in their knowledge, ability and skill level (Chen, 2022).

In recent years, the importance of personnel training has begun to be emphasized as much as the development of infrastructure works of rail systems, which are frequently used in the sense of urban logistics. To ensure the passenger visit, it is important that the team and personnel are knowledgeable, especially in logistics. 'In order to perceive a whole railway service, we need to evaluate hospitality of staffs and crews, and provide the information during train delays such as the train schedule and the conditions of equipment of vehicles and stations. In these studies, the train information in Japanese transportation service is focused on, and an appropriate effect of transport information for the passenger's behavior is analyzed and an appropriate concept of information service is presented for the railway transportation system' (Kohtsuki & Izumi, 2014)

The aviation sector is an important mode of transportation in the world, both in passenger and cargo transportation, which is increasing day by day. Customer relationship management has an important role in gaining competitive advantage in the market.' SCI in the airline industry involves a network of passengers, shippers, freight forwarders, shipping carriers, logistics service providers, and agents who perform various value-added activities, usually sequentially, to add value for consumers' (Alshurideh et al., 2019).

#### 2. Improving relations with suppliers

In today's dynamic competitive environment, the importance of unique collaborations established by successful businesses with their customers and suppliers is undeniable. The success of the technological and organizational changes that businesses make to increase their organizational performance largely depends on the development of mutual trust and cooperative relations with suppliers and customers. Relationships based on cooperation offer additional tactics to businesses and contribute positively to the success of their activities to increase their competitiveness, regardless of their strategic structure (Dmytriyev et al., 2021).

Today, there is a trend between suppliers and their customers from the traditional competitive relationship to a new model based on cooperation. This long-term, very close relationship and "win-win" philosophy emphasizes a better approach than the "win-lose" philosophy inherited from the competitive relationship. The joint approach of the parent company and the sub-industries is necessary to meet the expectations of the market, and these expectations lead to a "common life" in the relations between the parent company and the sub-industry. Due to this common life, main companies and sub-industries can realize an effective production thanks to the strategic support they provide to each other (Akkartal & Uludağ, 2022).

At the beginning of optimizing the procurement strategy is the improvement of relations with transport companies. In line with changing technology and customer expectations, strategic partnership provides companies with a competitive advantage. Especially with the pandemic, there have been changes in the competitive strategies of companies. 'Covid-19 completely changed the firms' critical supply chain strategy for improving competition. Additionally, according to the customer's expectations, firms focus on responsiveness and flexibility to support logistics functions' (Akkartal & Uludağ, 2022). In addition, the concept of sustainability in air cargo logistics is an indicator that increases the growth in sales. Therefore, improving relations with business partners provides a sustainable competitive advantage.

### 3. Marketing Strategies

The understanding of income maximization is a systematic management approach that enables businesses to increase income in the short term and increase profits in the long term. The effort to increase the income is directly proportional to the size of the market shares of the enterprises. Their market shares are growing by protecting their existing customers as well as making potential customers active customers. In addition to the pressure on businesses to acquire potential customers, there is a fear of leaving existing customers. For this reason, creating loyal customers in the market and attracting customers with a good image can lead businesses to maximum income and maximum profitability in the long run (Varadarajan, 2010).

The structure of the product in airline businesses differentiates the entire profitability path from other businesses. This differentiation can be explained by evaluating the marketing mix of airline companies. Being in the service sector, a significant part of the personnel of the airline companies puts effort into marketing efforts. Ticket sales and reservation, sales representatives, market researchers, analysts, ground services etc. are some of them. All these transactions in contact with the customer cause the sales and marketing process to become dynamic (Varadarajan, 2010).

One of the ways to be ahead of the global competition in the aviation industry, where competitive advantage is increasing day by day, is to manage marketing strategies. The development of market relations is due to the high level of competition, which forces the management of organizations to review the management strategies used in order to maintain their competitive position in the world market. However, the aviation industry declined with the pandemic. For this reason, airline companies should review their marketing strategies to maintain their competitive advantage.' In recent years, the outbreak of COVID-19 has caused unprecedented damage to the global aviation industry' (Varadarajan, 2010).

### 4. Improvement of the Agency Network

Liberalization activities in air transport have expanded the volume of the aviation sector and changed its structure, with the modern service quality approach and the creation of global collaborations. Increasing sector volume has increased competition in the sector and increasing competition has led airline companies to form global collaborations or partnerships. In today's market conditions, it is seen that the increasing competition with globalization is not between airline companies but between global cooperation groups (Cheung et al., 2020).

The factors driving the liberalization of the aviation market can be identified as market access, market entry, capacity and price. Liberalization movements through these factors determine the structure of the market. The abundance of restrictive regulations on these elements before liberalization made it difficult for airline companies to reach new markets and take an active role in new markets. With liberalization, these factors that limit the decisions, actions and flexibility of airline companies have been alleviated over time, which has strengthened the competitive environment (Ukwandu et al., 2022).

The opportunities and technological developments created by liberalization have reduced the pressure on national borders and ensured the formation of global integrity. As a direct result of globalization, with the reduction of coercive factors such as customs, tariffs, quotas, and capital restrictions applied between countries, global markets have been established where international mobility of products, services and especially capital is provided under more comfortable conditions. The convenience of goods, services, information, and capital transitions in the market has offered businesses the opportunity to take a more active role in new markets with the cooperation and partnerships they have established (Marcela et al., 2002).

In the last period of the 20th century, with the effect of liberalization and globalization, airline companies have been directed to follow different strategies. After the liberalization movement gained momentum, more than 380 collaborations were established between 171 international airline companies in 1996. One of the success criteria in international partnerships is undoubtedly the correct selection of the partner or partners. It should be evaluated whether the partners or partnerships have complementary and supportive qualities in terms of the business, and analysis should be made by providing correct information on this subject (Kellner et al., 2015).

Developing the agency network plays a key role in meeting customer demands and increasing market share in the aviation industry. According to some, while increasing the capacity, according to others, it reduces the costs. Partnerships with government agencies can also be established when building this network.' It is possible that in a policy network some government agencies are more powerful due to their attributes or relations (popularity effect or preferential attachment in the social network terms). In general, popularity effect plays a main role at the early stage of a network's formation while preferential attachment's role is more gradual.' (Sun and Cao, 2018)

5. Development of IT infrastructure

The efficient and effective realization of transportation, which is an important part of logistics, is highly dependent on the informatics infrastructure. At the beginning of this, there are instantaneous changing customer demands and instant sharing of information. In the supply chain, there is continuity of money, goods, and information flow from the beginning to the end of the process. For this reason, one of the most important steps in improving the business volume in the aviation sector with the rapidly developing technology is to technology information develop the infrastructure. 'Globalization of market and business competition over the previous few years has changed the business landscape. To respond to business competition, organizations are using new information technologies to provide quality services, achieve cost leaderships and attain sustainable competitive advantages' (Abeyrathna et al., 2019)

Importance of IT structure in enterprises has been stressed in several studies in literature. One of them is 'The digital capability of a business is fundamental to remaining competitive on today's market. Digital technologies are rapidly changing and evolving, which in turn increases competition and the need for companies to innovate quickly. It has never been more dangerous for companies to neglect the importance of digital technologies' (Molchanova, 2020).

In another study by Lian 2021, the positive of improved technologies has been stressed as 'In aircraft maintenance practices, the feasible utilization of information technology such as Big Data analysis, Internet of Things mode, AI Scenarios, can improve maintenance efficiency and safety. Establishing maintenance data analysis system, technical data analyzation, intelligent expert troubleshooting system, materials and tools sharing system, can be beneficial to allocate integrated resources, implement safety management comprehensively, and dynamically achieve the purpose of controlling or reducing risks to an acceptable safety level' (Lian, 2021).

Furthermore, application of Blockchain technology in supply chain has been explained and exemplified in many

studies in literature. One of them is by Li et al., 2020; 'With the extensive application and reform of Blockchain technology in the fields of finance and supply chain, the further development of Blockchain technology has increasingly attracted great interest of air transport industry.'

However, while developing the IT infrastructure by considering local and global competitors in the market is costly in the aviation industry, it provides a superior competitive advantage in long-term flexibility, agility and meeting changing customer demands. It also contributes to the creation of an effective and efficient agency network. In addition to all these, it provides convenience in meeting the increasing demand in the aviation industry and increases logistics performance. 'Organizations are increasingly turning to information technology (IT) to help them respond to respond unanticipated environmental threats and opportunities' (Tallon et al., 2019). Moreover, internet of things applications also plays an important role concerning increasing capacities of air cargo firms (Abdelhadi & Akkartal, 2019).

# 3. Methodology

The purpose of this study is to determine and weight the strategies that forwarders operating in air cargo sector can apply to increase their business volumes, benefiting from studies in literature, interviews with 10 specialists working indifferent freight forwarder companies in Turkey and AHP method.

As a result of the literature review and interviews with air cargo specialists, 5 criteria have been determined. Table 1 gives information about the interviewees.

Order	Position	Experience (year)
1	Sales Executive	3
2	Air Export Supervisor	10
3	Air Export Supervisor	8
4	Air Export Manager	20
5	Air Export Specialist	3
6	Air Import Specialist	4
7	Air Import Manager	19
8	Air Import Manager	10
9	Sales Manager	22
10	Marketing Specialist	5

 Table 1. Interviewee Information

To determine the importance levels of the criteria obtained, the relevant criteria have been scored by the sector representatives interviewed. The significance levels of the criteria have been obtained using the AHP method. This method was developed by Saaty in the 1970s, which allows the researcher to make a hierarchical modeling.

# 3.1. AHP Method

AHP is a basic approach that is frequently used in decision making, proposed by Thomas L.Saaty (1980) in the 1970s. It is designed to choose the most accurate and best one among multiple alternatives that are compared with each other according to different criteria. In short, the AHP technique is a method that reduces difficult and complex decision problems to pairwise comparison matrices and tries to reach a solution from there. AHP is one of the most preferred very useful techniques for decision making. By hierarchically structuring people's mindsets and ideas, they compare similar pairs according to a certain common feature and judge the intensity of importance of one factor relative to another (Saaty and Hu, 1998).

Since AHP does not only reach a solution with numerical factors, but also includes subjective factors in the system, it is considered an improvement over other decision-making method.

Application steps of the AHP method. AHP has a systematic infrastructure and by applying this infrastructure to every problem, the solution is easily reached. The steps of the AHP method are as follows (Saaty and Hu, 1998).

Step 1: The main target, criteria and alternatives are determined.

First, the problem to be solved must be defined and it is determined whether it can be solved mathematically with AHP. Then, the goal to be achieved in the solution of the problem is determined and the criteria to reach this goal are found. Finally, our problem becomes solvable with AHP by identifying alternatives whose criteria we will compare with each other.

Step 2: Creating the hierarchy structure.

The AHP system consists of a 3-level hierarchy shown in Figure 5.2. While the top step of the hierarchy indicates the target to be achieved, the 3rd level indicates the alternatives that can be selected to reach the target, and the 2nd level indicates the criteria by which the alternatives will be compared with each other.

Step 3: Pairwise Comparison of Criteria

The criteria that are planned to be used in the solution are compared with each other in pairs and their importance levels are determined according to each other. While making this comparison, the comparison scale developed by Saaty is used.

**Table 2.** Pair-wise comparison scale for AHP preferences

Numerical	Verbal Judgements of Preferences
Rating	
9	Extremely preferred
8	Very strongly to extremely
7	Very strongly preferred
6	Strongly to very strongly
5	Strongly preferred
4	Moderately to strongly
3	Moderatey preferred
2	Equally to moderately

How important is which of the two criteria over the other? By answering the question, a pairwise comparison matrix is created.

Step 4: Normalizing the Pairwise Comparison Matrix

In order to normalize the matrix, each column is summed up in itself and each row of the matrix is divided by the total in the column where it is located, and normalization is performed.

Step 5: Calculation of Criterion Weights

To find the weight of each criterion, the weighting process is completed by taking the average of each row in the normalized matrix.

Step 6: Calculating Consistency

After the actions taken, the consistency of the matrix is checked to determine whether the decision makers exhibit consistent behavior. For a matrix to be considered consistent, the consistency value must be less than 10%. The consistency calculation is done with the following steps.

1. The pairwise comparison matrix is multiplied by the weighted eigenvector matrix and then each value is divided by the corresponding eigenvector.

2. The average of each value obtained in the first line is taken and this maximum eigenvalue is expressed as  $\lambda$ max.

3. The consistency ratio calculation is performed in 2 stages. First, the consistency index (CI) is calculated.

Equation 1: Consistency Index

$$CI = (\lambda \max - n) / (n - 1).$$
<sup>(1)</sup>

4. After calculating the consistency index, the Random Consistency Index (RI) is calculated.

Table 3, Average Random Consistency

Size of Matrix	1	2	3	4	5	6	7	8	9	10
Random consiste ncy	0	0	0.5 8	0. 9	1.1 2	1.2 4	1.3 2	1.4 1	1.4 5	1.4 9

Source: Saaty, T. L. (1990). An exposition of the AHP in reply to the paper "remarks on the analytic hierarchy process". Management science, 36(3), 259-268,

Consistency rate is calculated with below formula

Equation 2: Consistency rate

$$CR = CI / RI$$
 (2)

The result is expected to be less than 0.1. If it is lower than this rate, the result is considered consistent, if it is higher, the result is considered inconsistent.

## 4. Results and Discussions

In the study, the tactics, and strategies that forwarders in the air cargo sector can apply in order to increase their business volumes have been determined after the literature review and interviews with 10 experts working in the sector. To determine the criteria, the questions asked after the demographic characteristics of the person are as follows.

- What are the strategies and tactics that Air Cargo Transport Companies can apply in the long and short term to improve their business volume in general?
- Can you give examples of the strategies and tactics applied to increase the business volume in the businesses you work with? Do you think they are successful?
- Can you rank these strategies and tactics in order of importance?

• Is there an application that you think is specific to air cargo shipping companies?

Taking into consideration both interviews and studies in the literature in the same field, criteria set has been formed as follows:

<b>Table 4.</b> Criteria set for the analys	sis
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Criteria no#	Criteria
1	Staff trainings to improve customer relations
2	Improving relations with carriers
3	Marketing Strategies
4	Improvement of Agency Network
5	Development of IT structure

After the criteria has been determined, 3 of the interviewees have been asked to make pairwise comparisons using Saaty's 1-9 scale in line with their own knowledge and experience. Pairwise comparison matrices have been found by taking the geometric averages of the answers given by the participants. These matrices reflect the consensus of experts. In the application, a four-level AHP model was created. After the importance levels of the criteria have been obtained, the consistency levels have been measured by using randomness indicators. The table containing the importance levels, consistency levels of the criteria of the study and the final ranking of the criteria is given below.

#### **Table 5.** Final Ranking of Criteria

Criteria	Weights
Staff trainings to improve customer relations	0.5021
Improving relations with carriers	0.1462
Marketing Strategies	0.0563
Improvement of Agency Network	0.1544
Development of IT structure	0.1410

Consistency rate is 0,01269409 which is below 0.1. It suggests that the result is consistent.

# 5. Conclusion

Today, international companies apply different strategies to market the goods and services they produce to foreign countries more effectively. Not only the quality of the product, but also every stage of the journey of the product to the consumer markets has been the subject of foreign trade, thus global competition. International companies producing goods and services have realized the importance of transferring their products to global markets quickly and reliably. For international companies to compete in the global market, it is important that their countries have infrastructures suitable for this purpose. Logistics infrastructure is one of the important indicators that reflect a country's view of foreign trade. Transportation emerges as a critical phenomenon here, and its sub-unit, air cargo transportation, has begun to be used as a strategic tool in global commercial competition. Air cargo forwarders plays an essential role in air cargo transportation process. They provide service providing communication between the stakeholders in the supply chain. However, there is a fierce competition in this sector due to huge number of companies. For this reason, this companies need to respond to changes in the globalization era by applying some strategies. In this scope, the purpose of this study is to determine and weight the strategies that forwarders operating in air cargo sector can apply to increase their business volumes, benefiting from studies in literature, interviews with 10 specialists working indifferent freight forwarder companies in Turkey and AHP method.

As a result of the interviews and literature review, following criteria has been determined; staff trainings to improve customer relations, improving relations with carriers, marketing strategies, improvement of agency network, development of IT structure. Thanks to AHP method (The Analytic Hierarchy Process), these criteria has been weighted. Based on this analysis, the most important strategy that air cargo freight forwarders can apply has been determined as 'staff trainings to improve customer relations (0,5021)' followed by 'improvement of agency network (0,1544), 'Improving relations with carriers (0,1462), 'development of IT structure (0,1410), 'marketing strategies (0,0563). This ranking suggest that it is very essential for companies operating in this field to provide trainings to its staffs especially on customer relationship management. Of course, other strategies used in the analysis should not be ignored and forwarders need to make required investment on these areas to improve their business volume.

Conducted interviews with the specialist and use of multicriteria decision-making techniques in an integrated manner will facilitate business analysts and decision makers in the quantitative evaluation of subjective and objective criteria. In the future studies the relations between the criteria can be analyzed and compared using different multi-criteria techniques.

The topic of the study is expected to fill the gap in the literature and will be a guide for future studies. For future studies, different multi-criteria decision making techniques can be applied and results can be compared.

### **Ethical approval**

Not applicable.

## **Conflicts of Interest**

The authors declare that there is no conflict of interest regarding the publication of this paper.

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