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Horizontal Collaboration Types In Logistics Centres: A Case Study in Türkiye[1]

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ABSTRACT

Logistics centres were built in a specific area to facilitate logistical activities. Their influence on global freight traffic and their significance in sustainability and multimodal transportation are enhancing. Collaboration represents an advanced and long-term form of incremental cooperation, fostering mutual trust among partners. They are viewed as a modern approach to addressing various challenges in the logistics sector. Logistics centres are also examples of logistic clusters resulting from collaborations between logistics service providers. Therefore, logistics centres provide an opportunity to develop collaborations by providing facilitators such as physical proximity, relationships, and contract management. In this regard, horizontal collaborations and logistics centres are mutually driving and facilitating each other. This study aims to investigate horizontal collaboration types in logistics centres and the impact of logistics centres on the collaboration level between logistics service providers. Data were collected from primary and secondary sources. The results were interpreted based on the analysis's findings.

Keywords: *Logistics Centres, Horizontal Collaboration, Horizontal Collaborations in Logistics*

Lojistik Merkezlerde Yatay İşbirliği Çeşitleri: Türkiye'de Bir Vaka Çalışması

ÖZET

Lojistik merkezler, çeşitli aktörler tarafından tüm lojistik faaliyetlerin gerçekleştirilmesi için belirli bir alanda inşa edilmiş olup, küresel yük trafiği üzerindeki etkileri ile sürdürülebilirlik ve multimodal taşımacılık açısından önemleri artmaktadır. Uzun vadeli yatay işbirlikleri, lojistik sektörü için birçok sorunun çözümü için güncel bir yöntem olarak kabul edilmektedir. İşbirlikleri (collaboration), ortaklar arasında karşılıklı güveni geliştirerek, kademeli olarak birlikte iş yapmanın (cooperation) kapsamının gelişmiş ve uzun vadeli biçimidir. Lojistik merkezler ayrıca, lojistik hizmet sağlayıcıları arasındaki işbirliklerinden kaynaklanan lojistik kümelenmelerin örnekleri olarak kabul edilmektedir. Lojistik merkezlerin, fiziksel yakınlık, ilişki ve sözleşme yönetimi gibi kolaylaştırıcılar sağlayarak işbirliklerinin geliştirilmesine fırsat sağladığı da söylenebilir. Bu bağlamda, yatay işbirlikleri ve lojistik merkezleri birbirinin itici gücü ve kolaylaştırıcısıdır. Türkiye'de ve dünyada lojistik merkezlerinin gelişimi göz önüne alındığında; Bu çalışmanın amacı, lojistik merkezlerindeki

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yatay iş birliği türlerini ve lojistik merkezlerinin lojistik hizmet sağlayıcıları arasındaki iş birliği düzeyine etkisini araştırmaktır. Veriler birincil ve ikincil kaynaklardan toplanmıştır. Sonuçlar analiz bulgularına göre yorumlanmıştır.

Anahtar Kelimeler: *Lojistik Merkezler, Yatay İşbirlikleri, Lojistikte Yatay İşbirlikleri.*

1. INTRODUCTION

Due to the need for efficient and sustainable logistics systems, Logistics centres first emerged in the USA in the 70s and spread worldwide (Notteboom et al., 2017). Logistics centres aim to promote intermodal transportation, contribute to local, regional and national economic development, and help logistics companies gain sustainable competitive advantage (Europlatforms, 2004). The public and private sectors have attempted to establish logistics centres in Turkiye since the 2000s. Of the 23 planned logistics centres by Turkish Republic State Railways (TCDD), 12 have been completed (2025, March). In addition, the private sector has attempted to establish logistics centres, such as Ankara Logistics Base, Manisa Organized Industrial Zone Logistics Centre and Mersin Logistics Specialized Organized Industrial Zone.

On the other hand, horizontal collaboration in logistics is seen as an approach for lowering increasing transportation expenses, the achievement and growth of intermodal services, and a solution to increasing traffic congestion and transportation emissions. Although horizontal collaborations benefit logistics companies, they are not easy to manage. Logistics centres can facilitate this process; however, despite numerous studies on horizontal collaborations in logistics and logistics centres, their relationship has not been significantly examined. This study aims to investigate horizontal collaboration types in logistics centres and the effect of logistics centres on the horizontal collaboration level between logistics service providers. As collaborations are an advanced and long-term form of incremental extent of cooperation by developing mutual trust among partners (Pomponi, 2015), both terms are used in this study. Since “collaboration” is the goal, it is preferred by the author. The use of cooperation by other authors cited has not been changed.

For this purpose, the following sections present a literature review of both concepts (logistics centre and horizontal collaboration in logistics) and explain the findings of the interviews conducted at the Ankara Logistics Centre.

2. LITERATURE REVIEW

2.1. Logistics Centre Concept

The logistics centre concept is an evolving field that attracts researchers and studies. While there is a shared background, the idea of logistics centres differs from one country to another country, and there is no clear view of a single definition of a logistics centre (Meidute, 2005). Various authors provide explanations for the lack of consensus on the terminology;

a. The continuous advancement of freight and logistics concepts has led to the development of new types. (Kondratowicz, 2003).

b. A brief overview of the literature on supply chain management (Rimiene & Grundey, 2007).
c. These facilities come in various shapes, serve multiple functions, and occupy different positions within networks (Rodrigue & Notteboom, 2009).
d. Logistics researchers have made minimal attempts to develop a cohesive conception of logistics" (Rimiene & Grundey, 2007).
e. They differ based on local, regional, and national characteristics (Higgins et al., 2012).

Rimiene and Grundey (2007) analysed the scope of logistics centre definitions and concluded that logistics centres could be classified as freight villages, transport nodes, or distribution centres. Rodrigue and Notteboom (2009) referred to the inland facilities; inland nodes, inland logistics centres, inland terminals, inland hubs, inland ports, and inland freight villages, among others. Roso (2008) explains the fundamental concept behind dry ports; these are directly connected to ports by rail to enhance the capacity and productivity of the ports. Logistics centres represent a specific type of transport node. This can be substantiated by assessing the scope of factors from logistics centre definitions. A logistics centre is a logistics node, freight village, or distribution centre (Rimiene & Grundey, 2007). Some authors describe logistics centres as an overarching concept, embodying the broadest interpretation of a centre for companies engaged in activities related to transportation and logistics (Meidute, 2005). Their owners also designated numerous warehouses or terminals as logistics centres (Jaržemskis, 2007). Additionally, some authors consider them as functional equivalents for freight villages (Higgins et al., 2012). These facilities vary in geographical coverage, volume, capacity, and services (Higgins et al., 2012; Rimiene & Grundey, 2007). Most commonly, the concept of a logistics centre is consolidated with the understanding of facilities such as distribution centres, container yards, distriparks, dry ports, freight villages, inland container depots, inland terminals, intermodal terminals, freight/transport terminals, transport nodes, and warehouses (Rimiene & Grundey, 2007). Logistics and distribution centres are vital nodes in supply chains, necessitating the development of their facilities to adapt to global or regional markets (Kostrzewski et al., 2021).

When examining the definitions of logistics facilities in relation to logistics centres, it becomes evident that these facilities provide a range of services, from basic logistics to the most sophisticated. In regional contexts, these facilities are categorised as local, regional, national, or international. Some centres facilitate international transport, while others focus on urban logistics operations (local distribution). Consequently, although various definitions of logistics centres exist, establishing a general definition proves challenging. Thus, instead of relying solely on one definition, adopting different definitions that highlight functional characteristics is more common (Meidute, 2005).

In Turkiye, the terms "Logistic Centre" and "Logistic Village" are generally used, and these facilities typically share the same characteristics as those found worldwide. In this study, the term “Logistics Centre” was preferred, considering the characteristics of the existing facilities in Turkiye and its widespread usage.

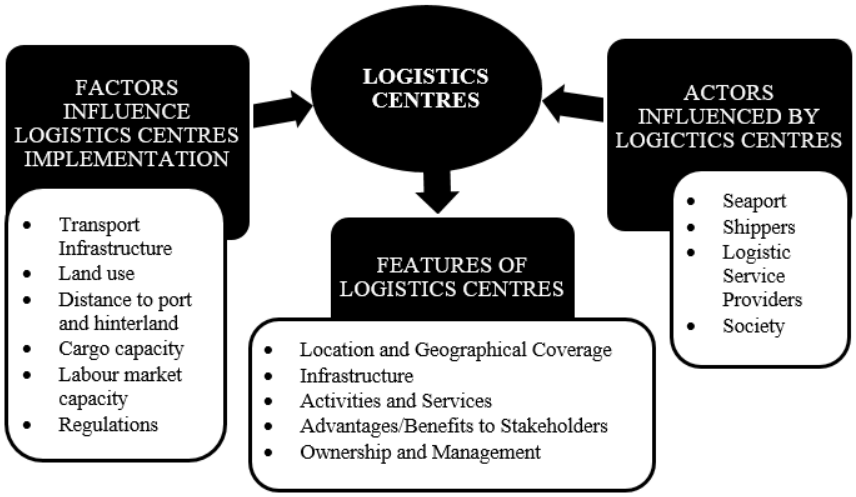
Despite the definition, a consensus appears to have developed in the literature among various authors regarding the aims and objectives of logistics centres, as listed below.

a. Contributing to advancing intermodal transport, fostering regional economic activities, optimising land use, and enhancing local freight distribution (Roso & Lumsden, 2009).
b. To serve various purposes, such as freight transfer, production synchronisation, and facilitating trade (Song & Panayides, 2015).
c. Strengthen the country's logistics capability to make it more attractive in the competitive market (Song & Panayides, 2015).
d. Support a seamlessly integrated transport network (Du Jun & Bergqvist, 2010).
e. Enhance logistics companies' market attractiveness and competitiveness (Du Jun & Bergqvist, 2010).
f. Provide a sustainable competitive advantage to logistics companies (Jensen, 2008).
g. Create synergy and foster cooperation between logistics service providers (Europlatforms, 2004).

Some studies identify the key factors for implementing and developing logistics centres. Song and Panayides defined the fundamental requirements of a logistics centre (Song & Panayides, 2015), while Rimie and Grundey compared conventional and modern logistics services (Rimienė & Grundey, 2007). Roso and Lumsden described the characteristics of a dry port (Roso & Lumsden, 2009), and a United Nations report in 2020 outlined the functions of dry ports (United Nations, 2020). According to these studies,

a. Various factors influence logistics centre implementation.
b. Logistics centre operations influence different actors/stakeholders.
c. There are certain characteristics of logistics centres in general.

Figure 1. Factors Influencing the Implementation and Development of Logistics Centres



Location and Geographical Coverage: Logistics centres are established within a defined area, at a key nodal point within a transport system (Jensen, 2008). It is essential to position logistics centres where their services can be delivered most effectively. Most European logistics centres are situated at hub points as they are close to major motorways, railways, and seaway connections. Being positioned at a hub point facilitates the coordination of all transport modes (Europlatforms, 2004).

Infrastructure: The development of infrastructure aims to optimise area utilisation, protect the environment by relocating congested traffic from residential areas to logistics hubs centres, meet the necessities of operators, and enable tenants to access common facilities (Europlatforms, 2004). The infrastructure of logistics centres comprises both hard infrastructure (e.g. buildings and equipment) and soft infrastructure (e.g. ICT) (Asian Development Bank, 2012). The most crucial infrastructures are the warehouses and the intermodal terminals, as logistics companies predominantly conduct their operations in the warehouses (Europlatforms, 2004). Fast, efficient, and reliable intermodal connections are essential for the internal terminals mentioned (Rodrigue & Notteboom, 2009). Logistics centres must possess the infrastructure, equipment, and facilities appropriate to existing and anticipated freight volumes (UNESCAP, 2020).

Activities & Services: Du Jun and Bergqvist (2010) observed that logistics centres provide three categories of services: basic logistics services, ancillary services, and value-added services. The basic services include storage, transfer of cargo, consolidation, distribution, handling of cargo, sorting-packing, and intermodal transportation. The ancillary services comprise vehicle auxiliary services and public and commercial services, such as restaurants, hotels, retail stores, financial institutions, post offices, banks, parking areas, truck stops, and rest areas, as well as customs services, including the submission of vehicles, containers, semitrailers, reverse logistics services, customs mediation, maintenance, and repair facilities as part of customs clearance. Finally, the value-added services encompass inventory management, goods processing, inspection, labelling, packaging, barcoding, order picking, adding components, final assembly and tuning, semi-production, servicing and repairs, reverse logistics, quality assurance testing, installation, inclusion of instruction manuals, and product customisation.

Advantages/Benefits: The advantages and benefits can be categorised into several sub-groups:

Benefits for ports primarily arise from the shift of modal transport from road to rail; dry ports that are established as a seaport's immediate hinterland and have a train connection to the seaport offer several advantages (Roso & Lumsden, 2009).

Shippers benefit mainly from shorter delivery times, reduced distribution costs, broader service integration, enhanced information services, material flow control, improved seaport access, savings on administrative expenses, sustainable marketing strategies and potentially lower prices over time (Roso and Lumsden 2009:92, Sezen and Gürsev, 2014: 109).

The benefits for the region and country largely relate to reduced road congestion, less accidents, reduced road maintenance costs, and diminished local pollution. This connectivity makes rural areas more appealing for new business establishments, creating job opportunities. Furthermore, it attracts foreign investments into the region and country (Rodrigues, 2009).

The benefits for Logistics Service Providers predominantly include IT solutions, new transportation flows, cost sharing, joint marketing, horizontal cooperation, and influencing customer decisions (Jaržemskis, 2007).

Ownership and Management: Logistics centre ownership models include private companies serving their interests, public authorities providing open access, and public-private partnerships (PPP). UNESCAP states that dry port ownership can be public, private, or a mix of both. (UNESCAP, 2020). Europlatforms indicate that the private-public partnership (PPP) model is the most competitive framework for logistics centres because of financial, infrastructure, and planning factors. These centres need significant investment; thus, government support is essential, particularly in the early stages (Europlatforms, 2004). Meidute has suggested that any private investment in a logistics centre project entails some risk implications; thus, to mitigate such risks, public funds are essential (Meidute, 2007).

2.2. Horizontal Collaboration in Logistics

The terms “cooperation” and “collaboration” are both used in the literature. As collaborations represent the advanced and long-term form of incremental extent of cooperation (Pomponi, 2015), both terms are also used in this study. However, since the primary goal is "collaboration," the author favours this term, while the use of “cooperation” by other cited authors remains.

Horizontal collaborations take place among companies functioning at the same level within the market or supply chain. (EU, 2001, as cited in Leitner et al., 2011). These companies engage in various cooperative activities, including R&D partnerships, joint production, joint ventures, and joint marketing (Kock et al., 2005). Horizontal cooperation among companies is recognised as a new and effective approach to optimise costs (Leitner et al., 2011). Horizontal cooperation can occur between rival companies or companies with no relationship (Cruijsen et al., 2007).

The most common types of horizontal cooperation agreements are production agreements, including research and development agreements, purchasing agreements, subcontracting and specialisation agreements, commercialisation agreements, standardisation agreements and information exchange agreements (EU, 2011).

Unsurprisingly, cooperation in logistics is widely recognised as one of the significant challenges ahead (Pomponi et al., 2013). Collaborative logistics among logistics service providers has been proven to increase effectiveness (Cruijssen et al., 2007). The synergies arising from cooperation are consequently the primary reasons for collaboration (Fawcett et al., 2008). Pomponi et al. (2015) proposed a framework that adopts a gradual perspective,

wherein mutual trust between partners is cultivated through sustained and increasing collaboration. They identified three subsequent steps of mutual trust and integrated them into three incremental levels of cooperation. Pomponi (2015) and others consider that horizontal collaboration in logistics is founded on an incremental perspective, which involves two main dimensions: mutual trust among partners and the degree of cooperation.

Although horizontal cooperation practices, particularly in the form of strategic alliances, are prevalent in the maritime and aviation industries, they remain relatively rare in the logistics and road transport sectors. The maritime and aviation industries differ from logistics and land transportation as they are more capital-intensive and have fewer competitors (Cruijsen et al., 2007).

Ship owners and ports used to compete against one another; today, however, the competition lies not between individual ship owners or ports but in their affiliation with an effective international maritime logistics chain. Consequently, more market players seek to maintain constant control over these chains through vertical and horizontal alliances, mergers, and acquisitions (Heaver et al., 2001; Voorde and Vaneslander, 2009).

In particular, liner shipping has long been managed through cooperative arrangements, initially in the form of conferences, and later with the emergence of containerisation, through agreements that take the shape of consortiums, ship-sharing contracts, capacity balancing contracts, strategic/global alliances, and discussion or talking contracts (Voorde and Vaneslander, 2009: 11, 12). The container liner industry now emphasizes carrier alliances due to larger vessels. These alliances expand service scope, increasing direct port calls and reducing transit times. Shipping alliances will evolve from vessel sharing to sharing containers, terminals, inland hubs, and information systems. (Premti, 2016: 2).

The conferences' activities include determining freight rates, agreeing on the frequency and allocation of voyages, establishing membership conditions, providing loyalty discounts, and creating a freight and revenue pool. Negotiation agreements appear to be the main platform for cooperation regarding price and capacity limitations.

Consortia operate regular line carriers under a common programme, sharing total ship capacity and jointly using port equipment and marketing efforts. In contrast, strategic alliances are agreements between carriers in different regions, enabling mutual benefits from each other's networks (Kutoğlu). In addition to the horizontal collaborations common among maritime businesses, there are also vertical collaborations between terminal operators and ship management companies (Voorde & Vaneslander, 2009).

The growing intensity of competition resulting from globalisation heightened customer expectations. Under these conditions, collaboration serves as a business approach for logistics service providers, either vertically or horizontally, with other LSPs (Leon & Juand, 2014). It is widely acknowledged that economies of scale are essential for reducing transport costs, congestion, and emissions in the logistics industry, and horizontal cooperation appears to be a viable solution currently.

Various forms of horizontal cooperation have already been initiated in the Netherlands and Belgium, where logistics centres are densely situated (Cruijssen et al., 2007). Intermodal transport increasingly requires collaboration and coordination among different transport modes and service providers. Only a minority of companies can fill trains alone; they typically need to be supplemented by third-party operators that attract cargo from various sources and charge their customers individually. To ensure sustainable collaboration, it is essential that the costs of collaboration are less than or, at most, equal to operating independently (Theys et al., 2008).

Examples of collaboration in logistics in Turkiye are as follows (Lojistik Hattı, 2012; Yönetim Haber, 2012; Akıncı, 2013: 44; İnci Holding, 2017; Hürriyet, 2018):

a. Gefco and Kuehne & Nagel entered into a partnership agreement in 1999 for road freight transport covering Germany, Belgium, Italy, the Netherlands, Portugal, and the UK.
b. Exel and Türk EFES established the Exel International joint venture in 2002, focusing on automotive and telecommunication logistics in Eastern Europe.
c. The alliance agreement between Schenker and Seino Transportation in 2000 enabled Schenker to strengthen its position as a freight forwarder in the Far East.
d. In 2003, Gefco formed a joint venture with China DTW, becoming the first dedicated logistics service provider for the automotive industry in China.
e. In 2012, OMSAN signed an agency agreement with the Dutch branch of Vantec World Transport. This Hitachi Transport Systems Group subsidiary serves numerous leading companies at every stage of automotive logistics.
f. Netlog Logistics and Farmakim İlaç Logistics made a joint investment in 2012. The two companies invested in a cold storage warehouse for pharmaceuticals and personal care products, enhancing pharmaceutical logistics services and introducing innovation to the sector.
g. In 2017, Inci Logistics and the Japanese multinational Yusen signed a significant strategic cooperation agreement in the logistics sector. Yusen Logistics aims to enhance its position in the Turkish logistics sector through this partnership. At the same time, İnci Logistics will increase its business volume with Yusen's global logistics infrastructure and joint projects to be realised in Turkiye.
h. With the partnership established by Turkish Cargo, Chinese express cargo company ZTO and Hong Kong-based PAL Air in 2018, they have stepped into a joint venture that will concentrate on the global e-commerce market and operate as a Global Cargo/Courier company for door-to-door services.

2.3. Facilitators of Horizontal Collaboration in Logistics

Despite the numerous benefits of horizontal collaboration for logistics companies, building and sustaining it over time is a challenging process; nevertheless, there are several factors that can help make the process successful. These facilitators can be listed as follows;

a. **Information sharing:** Appropriate and reliable sharing of information is essential for maintaining horizontal cooperation. Every member gains from the exchange of information (Cruijssen et al., 2007). Shared information may encompass orders, sales data, inventory levels, capacities and performance metrics (Cruijssen et al, 2007).
b. **Alignment of Goals:** A company's decisions and actions often reflect on other partners as either a cost or a benefit; therefore, for cooperation to be successful, partners must be aligned to achieve common goals. Simatuapang and Sridharan (2002) identified strategies that can be employed to align partners' behaviour with the overall objective of cooperation. According to them, observable actions leading to a common goal should be rewarded. Performance criteria should be established to evaluate the success of each partner, and common goals along with a gain-sharing mechanism should be determined (Simatuapang & Sridharan, 2002).
c. **Relationship Management and Contracts:** While trust is essential for cooperation, the competitive aspect of horizontal collaboration heightens the risk of opportunism and reduces the level of trust, as one participant might exploit the information gathered during the partnership. Nevertheless, connections such as shared customers and industry associations, inherent to horizontal cooperation, can enhance the level of trust between companies (Lambert et al., 1999; Cruijssen et al., 2007). Agreements governing cooperation can be established; Lambert et al. suggest that concise agreements outlining the fundamental philosophy and vision of the partnership are adequate to ensure the success of the collaboration. (Lambert et al., 1999). The absence of a written agreement may lead to difficulties in the event of a conflict or termination of cooperation. Therefore, it would be wise to establish a contract that covers only the essential aspects of horizontal cooperation, such as defining the basic rules and vision for the future and ensuring it is regularly revised (Verstrepen et al., 2006).
d. **Information Technologies:** Information technology fosters cooperation and underpins its long-term success by facilitating effective communication, lowering communication costs, and helping to minimise transaction costs and risks between partner companies. (Esper & Williams, 2003).
e. **Physical Proximity:** The managers of logistics service providers have formally articulated horizontal logistics partnerships in Belgium and the Netherlands, where European logistics centres are densely located. They firmly believe in the potential advantages of horizontal collaboration. for increasing their profitability and improving the quality of their services (Verstrepen et al., 2006).

3. METHODOLOGY

In this study, to directly learn about participants' experiences and perspectives, understand current situations, and collect detailed and in-depth data, a qualitative research approach was utilised (Büyüköztürk et al., 2014). Yıldırım and Şimşek (2011) define qualitative research as a type of research that employs qualitative data collection techniques, including observation, interviews, and document analysis. It is also described as a process undertaken to Reveal perceptions and occurrences within a natural environment in a realistic and comprehensive manner.

Semi-structured interviews were conducted as the method of data collection. Additionally, a site visit was carried out to enhance the validity of the research. Some phone interviews and email correspondence were also undertaken to address gaps. A specific set of questions was prepared as clearly and prominently as possible before the interviews, and each interviewee was questioned in the same manner and order. The interview questions comprised open-ended questions that encouraged elaboration and explanation rather than leading to short answers. A recorder was employed to capture the data, making the process of asking questions and listening much more effective. On average, each interviewee was recorded for 45 to 60 minutes.

The interviewees are managers from the Ankara Logistics Centre, the first logistics centre to commence operations in Turkiye. The facility spans an area of 700,000 square meters, comprising 198,000 square meters of indoor space. In total, there are 60,000 square metres consisting of five blocks of rentable warehouses and bounded warehouses within the centre. The facility is designed to accommodate 400 enterprises, providing jobs for 4,000 people. It comprises two sections: international and domestic transportation/logistics. Most products manufactured in Ankara are delivered to their final destinations via the Ankara Logistics Centre. The centre adds value for shippers and logistics companies by integrating various stakeholders, including public institutions, customs units, representatives from associations and unions, and universities, all of which are located within the centre.

The management of companies operating internationally and the board of directors of the logistics centre were interviewed. In-person interviews were carried out with three logistics centre managers and seven logistics company managers. The managers were asked about the characteristics of the logistics centre, as well as the following questions regarding horizontal collaborations within the centre:

Q.1. Do you think logistics companies should collaborate? Why?

Q.2. Do the logistics companies at the logistics centre collaborate with one another? If so, how do they cooperate?

Q.3. If logistics companies do not collaborate, what do you believe are the reasons for this?

Q.4. Do you think being located in a logistics centre will help logistics companies in collaborating more effectively?

The data obtained from the interviews were analysed using descriptive analysis. This approach allows for organising data based on established themes or according to the dimensions identified in the research. The purpose of descriptive analysis is to present the findings to the reader in an organised and interpretative manner. The data derived from the descriptive analysis are summarised and interpreted based on established themes. In this analysis, direct quotations are frequently employed to convey the views of the individuals interviewed or observed in a striking manner (Yıldırım & Simsek, 2011).

This research data was organised and interpreted according to the identified themes interviews. The method of creating categories was employed to establish these themes. Furthermore, each participant was assigned a code to ensure that the data could be analysed and that the participants' opinions were managed in accordance with ethical guidelines. All interviews were recorded according to their code numbers. After the registration stage, the data were evaluated by dividing it into categories based on common or similar characteristics (Bogdan & Biklen, 1992). To maintain the confidentiality of the participants' identities, during the interview, they were coded as P1 (Participant 1) or P2 (Participant 2), and some participants' opinions were presented with direct quotes.

4. RESEARCH FINDINGS

The managers' perspectives on the types of collaborations established between logistics companies within the logistics centre and the impact of being located in the logistics centre on these collaborations have been extensively evaluated. The study's findings are presented according to the themes determined and categorised based on the interviewers' responses.

The managers' opinions on the necessity for logistics companies to collaborate.

When asked whether logistics companies should cooperate, two participants were unsure, while the other eight participants stated that they should. Table 1 shows the frequency and distribution of the managers' opinions on this question.

Table 1. The Frequency and Distribution of Managers' Views on the Need for Collaboration Among Logistics Companies within the Logistics Centre

Need for collaboration	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	Number of Interviewees (Frequency)
Yes	√			√	√	√	√	√	√	√	8
Unsure		√	√								2
No											0

Some of the participants' comments on this subject are stated below as direct quotations:

> "*Collaborations already existing in sector associations inspired the idea of establishing a logistics centre*" (P1)

"*Logistics companies must collaborate to compete in the global market, and logistics centres offer a platform for these collaborations*.". (P4)

"Collaborating is, in fact, a requirement that will take some time for LSPs to comprehend fully. The sector needs to become more aware of collaboration opportunities and options; sectoral associations can also assist in enhancing awareness. (P7)

"*To collaborate, logistics companies need to know and trust each other*" (P3)

"*For effective collaboration, their standards need to align, allowing companies to act together toward a shared goal*" (P2)

The managers' opinions on whether logistics companies within the logistics centre collaborate and, if so, how they collaborate.

All managers have indicated that logistics companies already collaborate to some extent, as illustrated in Table 2. They note that market expansion is the most frequent area of collaboration. They aim to enhance their cooperation, particularly regarding the consolidation of partial loads, and they believe this can only be achieved through logistics centres. Managers specifically noted that their collaborations typically begin as short-term agreements, but if both parties are satisfied, they are likely to partner again on a subsequent project basis.

Table 2. The Frequency and Distribution of Managers' Views on whether Logistics Companies Currently Collaborate at the Logistics Centre.

Already collaborating	**P1**	**P2**	**P3**	**P4**	**P5**	**P6**	**P7**	**P8**	**P9**	**P10**	**Number of Interviewees (Frequency)**
Yes	√	√	√	√	√	√	√	√	√	√	10

Managers generally mentioned 6 types of collaborations. These collaboration types are categorised and explained as below andas listed in Table 3 below.

a. **Vehicle allocation:** This occurs when companies do not have enough vehicles to meet the demand, so they may prefer to ask for vehicles from other companies.
b. **Joint projects:** Two or more companies may collaborate to secure the project for high-volume projects. They cooperate on project pricing.
c. **Combining partial loads:** This collaboration occurs when partial loads from two or more logistics companies are combined (LTL consolidation).
d. **Market expansion:** This happens when a customer requests a market that the logistics company does not serve, and the company may prefer to collaborate with the company that already serves that market rather than reject the opportunity.
e. **Joint use facilities and services in the logistics centre:** Logistics companies share facilities in the logistics centres, such as warehouses, bonded warehouses, offices,

equipment, parking lots, restaurant and accommodation facilities, repair and maintenance facilities, value-added services, bank and insurance services, etc. This allows them to reduce their costs.

f. **Joint purchasing:** Suppliers offer discounts or organise sales campaigns for the companies within the logistics centre, such as discounts on vehicle purchases, fuel, employee training, and information technologies.

Table 3. The Frequency and Distribution of Managers' Views on the Various Types of Collaboration Among Logistics Companies at the Logistics Centre.

Collaboration Types	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	Number of Interviewees (Frequency)
Vehicle allocation	√	√	√	√	√	√	√	√	√	√	10
Joint projects	√	√		√	√		√	√	√		7
Combining partial loads (LTL)			√	√	√	√		√	√		6
Market expansion	√	√		√	√	√	√				6
Joint use of facilities and services	√	√	√	√	√	√	√	√	√	√	10
Joint purchasing	√				√			√		√	4

Below are specific comments regarding collaboration types, presented as direct quotations:

> *"When a customer's request cannot be fulfilled due to insufficient capacity, we contact other companies to secure a vehicle, ensuring the customer's needs are met collaboratively" (P1, Vehicle allocations)*

> *"In high-volume projects, two or more companies may secure the project through collaboration. This approach allows them to share risks while obtaining the project" (P2, Joint projects)*

> *"Market expansion is the most common form of collaboration; we frequently utilise it because this type of cooperation allows us to broaden the markets we serve" (P5, Market expansion)*

Managers' views on the reasons logistics companies refrain from expanding collaboration.

Most managers feel that their level of collaboration is insufficient. They wish to improve their collaboration but are uncertain about how to tackle the issue of trust. They believe that trust is vital and that social relationships are very important in collaborations. They specifically mention the following reasons for avoiding further collaborations: fear of losing customers, unfair sharing of collaboration benefits and lack of logistics companies' desire to collaborate.

Table 4. The Frequency and Distribution of Managers' Viewpoints on the Reasons Logistics Companies Do Not Pursue Collaboration.

Reasons not to expand collaboration	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	Number of Interviewees (Frequency)
Trust problems	√	√	√	√	√	√	√	√	√	√	10
Fear of losing the customer to the partner company	√			√	√	√					4
Unfair sharing of collaborations benefits			√				√		√	√	4
Lack of desire to cooperate		√				√	√	√	√		5

The following are direct quotations from participants' comments on this subject:

"*To enhance horizontal collaboration among logistics companies, sector associations should be more supportive; they should increase awareness among the logistics companies.*" (P9)

"*Collaborations are not meeting expectations; the reason for this is the lack of trust and the underdevelopment of the collaborative working style in our country's culture*" (P6)

"*Although it is essential for logistics companies to collaborate horizontally, they must undertake a process to recognise the necessity of such collaboration, which will be better understood over time*." (P7)

"*While all the logistics companies operating within the logistics centre cooperate to some extent, primarily for the short term, other companies tend to avoid collaboration out of fear of losing customers to their partners. When partners are not equitable in terms of profit sharing, it becomes challenging to maintain a cooperative arrangement partnership.*" (P5)

"*The logistics companies within the logistics centre are keen to cooperate and do so, but not to the desired extent, and this is not pursued systematically. Furthermore, it is questionable whether collaborations enhance or diminish competition. In this regard, the outcome of each collaboration should be evaluated individually to assess its advantages."* (P10)

Opinions of the managers about being located in the logistics centre is an advantage for logistics companies to collaborate more?

They clearly stated that they first contact the logistics companies within the logistics centre when they require collaboration. One of the participants explained that the collaboration developed in sector associations actually led to the idea of establishing a logistics centre. Another participant described logistics centres as areas where logistics requirements are fulfilled, stating that one of the objectives of logistics centres is to expand collaboration and synergy between the LSPs. They believe that logistics centres enhance horizontal collaboration as companies become more familiar with each other, subsequently increasing their trust. They assert that this familiarity fosters mutual influence in driving innovation. Furthermore, they gain advantages through collaboration, such as discounted packages from truck and fuel suppliers and maintenance services. While emphasising the significance of trust and social relationships for effective collaboration, they concur that being in the same location strengthens their social ties and alleviates trust issues.

Table 5. The Frequency and Distribution of Managers' Opinions Regarding the Logistics Centre Influence Logistics Companies to Collaborate More or Not

The advantages of being located in the logistics centre to collaborate more	**P1**	**P2**	**P3**	**P4**	**P5**	**P6**	**P7**	**P8**	**P9**	**P10**	**Number of Interviewees (Frequency)**
Trust each other more	√	√	√	√	√	√	√	√	√	√	10
Influence one another more for innovation		√	√			√		√	√		5
Create synergy				√		√	√	√			4
Get discounts on joint purchases	√	√	√	√	√	√	√	√	√	√	10
Social relations develop between them			√		√		√			√	4

Below are participants' comments on this subject, presented as direct quotations:

> "*Logistics centres promote greater collaboration among logistics firms. Companies are enhancing their interactions due to their physical proximity, which influences each other*" (P2)

> "*Logistics centres positively impact horizontal collaboration. One of the needs that ultimately led to the establishment of logistics centres is to create synergies within logistics companies*" (P4)

> "*Logistics centres enhance collaboration among logistics companies; being situated in the same centre fosters interaction and, consequently, builds trust between these companies*" (P1)

> *"Logistics centres help companies cooperate more effectively. They can follow innovations, encouraging and inspiring everyone while exchanging information and experiences that also enhance their professional expertise"* (P8)

> "*The primary advantages for logistics companies are that logistics centres reduce operational costs, enhancing their competitiveness. Furthermore, these centres improve service quality and speed. Operating within a logistics centre allows companies to collaborate and elevate each other's standards. Concurrently, businesses can work together towards common goals.*" (P3)

5. CONCLUSION AND DISCUSSION

Logistics centres and horizontal collaborations in logistics share common objectives, including reducing logistics costs, enhancing service quality, promoting intermodality, contributing to developing regional and national economies, and minimising the environmental damage caused by logistics.

While numerous advantages exist, forming horizontal collaborations and guaranteeing their effectiveness can be challenging in the long term. It has been understood that the most important reason for this is that the companies do not trust each other. In long-term horizontal collaborations, companies think that they will encounter problems in terms of losing customers and fair sharing of risks, costs and benefits.

Logistics companies recognise that companies located in logistics centres collaborate more effectively; working together in the same location helps them get to know each other better. It has also been observed that certain forms of horizontal cooperation can occur exclusively within logistics centres, such as the joint use of infrastructure and services, including vehicle auxiliary services and both public and commercial services.

This study categorised six types of horizontal collaboration currently practised at Ankara Logistics Centres. These are vehicle allocation, joint projects, combining partial loads, market expansion, joint use of facilities and services within the logistics centre, and joint purchasing.

Furthermore, aspects such as information sharing, relationship management, and physical proximity, which are regarded as facilitators of horizontal collaboration, are already present in logistics centres. However, information technologies are not sufficiently utilised in horizontal collaboration within the Ankara Logistics Centre. These technologies can foster more systematic and enduring horizontal collaborations and enhance the level of collaboration, particularly in consolidating partial loads.

Consequently, horizontal collaborations and logistics centres can be regarded as mutual drivers and facilitators.

Statement of Research and Publication Ethics

In all processes of the article, the principles of research and publication ethics of the Manisa Celal Bayar University Journal of Social Sciences Institute were followed.

Authors' Contribution Rates to the Article

The entire article was written by the Author.

Statement of Interest

The author has no conflict of interest with any person or organisation.

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