

## The Effect of the Agreement between the Saudi Railway Company (SAR) and MEDLOG Company on the Quality of Logistics Services between Dammam and Riyadh

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### Abstract

The current study aims to identify the extent to which the agreement between the Saudi Railways and MEDLOG Company affected the quality of logistics operations between Dammam and Riyadh, determine the challenges and problems facing the conclusion of the agreement, explore the extent to which customers and partners satisfied with the agreement, and suggesting future expectations for concluding an agreement between the Saudi Railway Station and Madlouk Company. The researcher employed the descriptive method. The study population consisted of interested individuals, therefore, an electronic link was distributed, and the sample included (97) individuals from the study population. A questionnaire was used to collect the responses from the study sample. The agreement between the Saudi Railway Station and MEDLOG Company has increased the quality of logistics operations between Dammam and Riyadh greatly by increasing the volume of shipments transported between the two cities, reducing costs, improving delivery time, and raising the efficiency of operations in general. The researcher recommended concluding strategic partnerships with other companies in various sectors, such as industry and trade to enhance supply chains.

**Keywords:** Saudi Railway Company, MEDLOG Company, Quality, Logistics Services.

## Chapter One: Introduction

### 1-1 Background

Logistics is the complex process of planning, implementing, and managing the efficient flow and storage of commodities, services, and information from their point of origin to consumption. It includes many kinds of tasks such as transportation, warehousing, inventory management, and processing orders. The basic goal of logistics is to ensure that things arrive at the correct location, time, and condition, serving the needs of both customers and enterprises.

In today's highly competitive and fast-paced economy, logistics is critical. Effective logistics management is critical for ensuring that commodities arrive at suppliers and then reach the final consumer, especially during certain seasons and times. This is especially important in businesses like retail, agriculture, and manufacturing, where timely delivery has a considerable impact on sales, customer happiness, and overall business performance. For example, during peak seasons such as vacations or harvest periods, the capacity to deliver goods quickly and efficiently can be the difference between satisfying consumer demand and experiencing stockouts or delays. Timely logistics ensures that products are available when needed, improving the customer experience and increasing brand loyalty. Furthermore, it enables companies to improve their supply chains, cut costs, and maintain a competitive advantage in the market. In essence, logistics is critical to the smooth transfer of goods from producers to consumers, allowing businesses to operate efficiently and meet their client commitments on time.

### 1-2 Problem Statement

Despite the importance of logistics, various obstacles remain, particularly in the districts between Dammam and Riyadh. Inadequate infrastructure, traffic congestion, delays, and transportation network inefficiencies are all major challenges. These

issues can result in higher transportation costs, longer delivery times, and diminished supply chain reliability. Such challenges limit organizations' capacity to answer consumer needs quickly and efficiently, affecting economic growth and competitiveness. To address these issues, the Saudi Railway company (SAR) signed an arrangement with MEDLOG, a prominent global logistics organization. This strategic cooperation intends to improve logistics infrastructure and services between Dammam and Riyadh, eliminating existing issues and increasing overall freight transit efficiency.

Under the terms of the agreement, SAR and MEDLOG will work together to optimize logistical infrastructure, resulting in faster and more dependable cargo transit. This initiative focuses on:

1. **Improved Logistics Efficiency:** By improving freight transport services between Dammam and Riyadh, the agreement aims to streamline the logistics process, shorten transit times, and improve reliability. This is critical for companies that depend on timely deliveries and for overall economic efficiency.
2. **Technological Integration:** Using advanced logistics technology to improve tracking, inventory management, and real-time communication.
3. **Operational Efficiency:** Streamlining operations to eliminate delays and improve collaboration across the supply chain.
4. **Sustainability:** Advancing eco-friendly transportation technologies to lessen the environmental impact of logistical operations.
5. **Economic Growth:** This collaboration supports Saudi Arabia's Vision 2030, which aims to diversify the economy and reduce dependence on oil. By increasing the logistics sector, the agreement encourages economic diversification and increases the country's attractiveness as a logistics hub in the region.
6. **Support for Vision 2030:** The agreement is part of the larger Vision 2030 program, which aims to convert Saudi Arabia into a world-class logistics hub.

Increasing railway logistics capabilities directly helps this strategy by strengthening the country's transportation infrastructure and operating efficiency.

This collaboration is expected to streamline supply chains, save transportation costs, and shorten delivery times for enterprises located in these critical economic regions. The cooperation will address the growing demand for efficient cargo transport solutions by combining MEDLOG's significant logistics experience with SAR's expansive rail network.

Finally, this deal represents a significant step forward in Saudi Arabia's efforts to modernize its logistics industry and is consistent with Vision 2030's overarching goals. The collaboration between SAR and MEDLOG is expected to play a critical role in developing the Kingdom into a worldwide logistics hub while also fostering sustainable economic development and diversification.

### 1-3 Objectives of the study

The main objectives of the study can be reviewed as follows:

1. Identifying the extent to which the agreement between the Saudi Railways and MEDLOG Company affects the quality of logistics operations between Dammam and Riyadh.
2. Determining the challenges and problems facing the conclusion of an agreement between the Saudi Railway Station and MEDLOG Company to increase the quality of logistics operations between Dammam and Riyadh.
3. Exploring the extent to which customers and partners are satisfied with the agreement between the Saudi Railway Station and Madlouk Company to increase the quality of logistics operations between Dammam and Riyadh.
4. Suggesting future expectations for concluding an agreement between the Saudi Railway Station and Madlouk Company to increase the quality of logistics operations between Dammam and Riyadh.

#### 1-4 Questions of the Study:

The main questions of the study can be investigated as follows:

1. To what extent does the agreement between the Saudi Railways and MEDLOG Company affect the quality of logistics operations between Dammam and Riyadh?
2. "What are the challenges and problems facing the conclusion of an agreement between the Saudi Railway Station and MEDLOG Company to increase the quality of logistics operations between Dammam and Riyadh?"
3. To what extent are customers and partners satisfied with the agreement between the Saudi Railway Station and Madlouk Company to increase the quality of logistics operations between Dammam and Riyadh?"
4. What are the future expectations for concluding an agreement between the Saudi Railway Station and Madlouk Company to increase the quality of logistics operations between Dammam and Riyadh "?

#### 1-5 Hypotheses of the Study

The main hypotheses of the study can be shown as follows:

1. There is no statistically significant effect at the significance level ( $0.05 \geq \alpha$ ) of the agreement on logistics operations".
2. "There is no statistically significant effect at the significance level ( $0.05 \geq \alpha$ ) of the agreement conclusion between the Saudi railway station and Madlouk company on customer satisfaction."

#### 1-6 Limitations of the study

When considering the limitations of a study on the agreement between the Saudi Railway Company (SAR) and the MEDLOG Company, consider the following potential constraints:

1. Methodological Limitations:

- Sample Size and Representativeness: - A small number of stakeholders interviewed or polled may not capture all opinions within the company or industry.
- A non-representative sample may limit the generalizability of the results.

2. Data Availability and Quality:

- Incomplete or inaccessible internal data from SAR or MEDLOG may limit comprehensive analysis.
- Reliance on secondary data sources, which may be outdated or biased.

3. Research Design:

- The study might use a cross-sectional design, providing only a snapshot in time and failing to capture the long-term impacts of the agreement.
- Potential lack of control groups to compare against, making it difficult to attribute observed changes solely to the agreement.

4. Access to Information:

- Confidentiality agreements and proprietary information might restrict access to crucial data and documents.
- Limited access to high-level executives or key decision-makers for interviews.

5. Resource Constraints:

- Time and budget limitations may restrict the depth and breadth of the research.
- Limited manpower to conduct extensive field observations or in-depth interviews.

6. Geographical Constraints:

→ Difficulty in accessing remote locations or multiple sites for on-ground observations and data collection.

7. Measurement Issues:

→ Challenges in developing reliable and valid measurement instruments for complex constructs like operational efficiency or stakeholder satisfaction.  
→ Potential inaccuracies in self-reported data.

8. External Influences:

→ External factors such as economic conditions, regulatory changes, or political instability might affect the agreement's outcomes, making it difficult to isolate the effects of the partnership itself.

9. Temporal Constraints:

→ The short duration of the study might not capture the long-term effects and benefits of the agreement.  
→ Rapidly changing industry dynamics may lead to findings becoming quickly outdated.

**1-7 Research Design:**

→ The study might use a cross-sectional design, providing only a snapshot in time and failing to capture the long-term impacts of the agreement.  
→ Potential lack of control groups to compare against, making it difficult to attribute observed changes solely to the agreement.

## Chapter 2: Literature Review

### 2-1 Introduction

Logistics is a crucial component in supply chains. The goal is to provide goods in the right quantity, quality, and time at the right destination, from the right origin, with the right equipment, and at the right cost. The quality and availability of logistics services are essential for economic growth and employment opportunities. Globalization, competition, complex products, and changing customer demands have led to new challenges in the logistics sector (Kovács, 2016).

In this sense, Radivojević & Milosavljević (2019) asserted that logistics has evolved to reflect social, industrial, and technical advancements. Logistics 4.0 emerged in recent years because of the fourth industrial revolution and technological advancements of the twenty-first century. ICT has enabled innovative data interchange, value chain integration, and business models.

Logistics and transportation refers to the management of the movement of resources between the point of origin and the point of consumption. Information flow, material handling, production, packaging, inventory, transportation, and warehousing are typically integrated throughout the entire process. Companies that transport, store, and distribute freight by land, sea, air, or road make up the transportation and logistics sector (Al Masah Capital Management Limited, 2015).

On the other hand, the major logistics trends include the separation of strategic physical infrastructures and operational business processes, industrialization and professionalization in logistics, and the development of logistics applications to support new economic paradigms like local production economies, cyclical sustainable economies, and outcome economies. Strategic physical infrastructures include static and mobile infrastructures with long-term deployment objectives, while operational business processes are defined in the context of current business



models with short life spans due to rapidly changing economic and business contexts. Industrialization and professionalization of decision-makers are necessary due to the growing complexity of logistics processes and their supporting infrastructures (Grefen et al., 2018). Thus, Shumaev (2015) concluded that logistics is a vital aspect of business management, promoting optimal decision-making and ensuring competitiveness for market actors and goods and services. It involves developing rational methods for organizing material and information flows, focusing on optimization. Logistics ensures the efficient securing of necessary goods at the right quality, quantity, time, place, and cost, based on thorough organizational and analytics optimization.

Based on the above-mentioned, it can be noted that logistics is a vital component of supply chains, influencing economic growth, employment opportunities, and global competitiveness. It involves delivering goods in the right quantity, quality, and time to the right destination, using appropriate equipment, and at a reasonable cost. The quality and availability of logistics services are crucial for economic development and job creation. The logistics sector has evolved to align with social, industrial, and technological advancements, with the emergence of Logistics 4.0. ICT has enabled innovations in data exchange, value chain integration, and business models. The transportation and logistics sector involves companies transporting, storing, and distributing goods. It plays a vital role in business management, facilitating optimal decision-making and enhancing competitiveness.

## 2-2 Definition of Logistics Services

Baumgartner et al. (2019) defined logistics services as all services provided from the time an order is placed until it is delivered to the consumer. The objectives of the logistics services are outlined in this section first, followed by a description of the services that can be provided at different stages of the logistical operations. In this sense, Zhang et al. (2023) described logistics services as the procedure that

determines whether or not customers can receive professional services like professionalism, dependability, and speed, as well as whether or not they can obtain items in a timely and reliable manner.

Besides, Kao & Zheng (2020) referred to logistics services as the process that includes canvassing, taking orders, tallying, booking, handling cargo insurance, inspection, customs declaration, loading and unloading, issuing bills of lading, and paying. These services are provided by port enterprises and third-party logistics companies. In addition, Rudskaia & Eremenko (2020) defined logistics services as activities that provide an opportunity to meet customer needs at the lowest total cost and guaranteed receipt of goods of the appropriate quantity and assortment in the right place, at the right time at the right price. Therefore, for all parties involved in the logistics process, cost minimization is closely correlated with pricing, quality, and delivery time.

Therefore, the researcher defined logistics services as the activities that encompass all stages of order placement to delivery, ensuring professionalism, dependability, speed, and timely item acquisition. They include canvassing, taking orders, booking, cargo insurance, inspection, customs declaration, loading, unloading, issuing bills of lading, and paying. The goal is to provide the lowest total cost for all parties involved.

### **2-3 Logistics industry in Saudi Arabia**

Saudi Arabia's Vision 2030 program aims to boost the economy and become an international hub linking Asia, Europe, and Africa. The country's strategic location near emerging markets and key marine routes supports this change. Government-led investments in rail, maritime, road, airport, and logistics infrastructure sustain the sector. To address economic expansion, population ageing, and urbanization, Saudi Arabia is enhancing its transportation systems, pursuing public-private partnerships

with global logistics businesses, and promoting special economic zones for industrial clusters with multimodal freight ties (Bahrini et al., 2024).

In this context, the logistics industry prioritizes meeting customer expectations, which boosts business competitiveness and promotes economic growth. Fulfilling customer needs is crucial for logistics organizations to survive, and increase sales, and profit (Sobaih & AlSaif, 2023). Saudi Arabia's logistics industry is valued at 27.6 billion USD in 2020, accounting for 43% of activity in the MENA and GCC markets. Saudi Arabia is already the sixth most prominent country on the 2021 Emerging Markets Logistics Index. To fully realize the potential of Saudi Arabia's logistics business, the country should prioritize domestic development through innovation in three important areas: digitalization, infrastructure, and e-commerce (YCP Solidiance, 2021).

Saudi Arabia has a robust transportation network, consisting of 27 airports and 12 seaports connected by 65,000 kilometres of roads and 4,130 kilometres of railroads. All ports are owned and maintained by private sector companies under long-term contracts. Saudi Arabia offers a 10-day exemption on export charges and 50% off on port taxes for all export deals. The 27 airports, including four in Riyadh, Jeddah, Dammam, and Al-Madinah Al-Munawarah had a combined capacity of 81 million passengers in 2015. Air flights are the preferred mode of transportation for passenger transfers due to the long distances between major cities. Major international airlines offer services both inside and outside the country (Jaziri et al., 2020).

Thus, Saudi Arabia aims to boost its economy and achieve Vision 2030's goals by developing its logistics sector, which contributes to 30% of global seaborne trade. The sector is expected to contribute to GDP from 6% to 10% by the end of the decade, fuel business growth, expand investments, and increase non-oil revenues to SAR45 billion (\$12 billion) annually by 2030. Key initiatives, such as the National Industrial Development and Logistics Program (NIDLP), National Transport and

Logistics Strategy, and Global Supply Chain Resilience Initiative (GSCRI), are accelerating the sector's development (U.S.-Saudi Business Council, 2023).

In summary, the researcher indicated that Saudi Arabia's Vision 2030 program is transforming the logistics industry to strengthen the economy and position the country as an international hub. The country's strategic location near emerging markets and major maritime routes supports this transformation. The government is investing in transportation infrastructure projects to support growth, address economic expansion, population ageing, urbanization trends, and enhance transportation systems. The logistics sector, valued at 27.6 billion USD in 2020, is crucial for business competitiveness and economic growth. Key initiatives include the National Industrial Development and Logistics Program, National Transport and Logistics Strategy, and Global Supply Chain Resilience Initiative.

#### **2-4 Saudi Railway Company (SAR)**

In the late 1940s, Saudi Arabia aimed for economic growth and improved citizens' welfare through oil extraction. King Abdulaziz Al Saud approved the construction of a commercial port and the start of the railway sector in 1947. The first railway line between Riyadh and Dammam was inaugurated in 1951. In 2021, the Saudi Railways Company (SAR) took over operations and management of the North Train Railway Network, established in 2006. The railway industry has been successful in the past decade with numerous infrastructure developments. The SAR took over operations of the Al Mashaer Al Mugadassah Metro line in 2021, following the decision in 2019 that the SAR owns all operational railway transport projects in the Kingdom (Official Website of Saudi Arabia Railways, 2024). SAR is a railway specialist company controlled by the Public Investment Fund (PIF), established to establish connections between the Kingdom's eastern and central areas and its northern region. In compliance with worldwide performance and safety requirements as well as

economic operating principles, the firm manages and operates the railways, along with all of its facilities, with the requisite efficiency (MSC, 2023).

The SAR connects the northern and eastern regions of the Kingdom. In 2021, it merged with the Saudi Railway Organization to form Saudi Arabia Railways. The company operates daily passenger services between Riyadh, Hufuf, Abqaiq, and Dammam. The SAR North Train operates between Riyadh and Hail, serving Majmaah and Qassim, and sleeper services between Riyadh and Qurayyat. The SAR East Train operates between Riyadh and Dammam, serving Hufuf and Abqaiq. The company offers Business Class and Economy Class seating accommodations, including a padded headrest, table, universal power socket, USB point, and exclusive baggage check-in (Official Website of Saudi Arabia Railways, 2023).

The SAR is a state-owned company that operates Saudi Arabia's rail network, providing freight services on two main lines totalling 1018 km. These lines connect Riyadh with the port of Dammam on the Persian Gulf coast. SAR also operates passenger trains between Riyadh and Dammam. The network is planned to extend to the Red Sea port of Jeddah, Jordan, Yemen, and possibly Egypt. Projects include the Saudi Land Bridge, a 945 km line from Riyadh to Jeddah and a 115 km line from Dammam and Jubail, connecting the Persian Gulf with the Red Sea. The North-South Railway is also planned for mineral transport, general freight, and passenger transport (Official Website of Mohawarean International Group, 2024).

## **2-5 MEDLOG Company**

MEDLOG is a global logistics and supply chain operator that focuses on meeting the needs of its growing customer base. They facilitate trade, handling, and transportation of goods with integrity, responsibility, and environmental respect. MEDLOG invests in infrastructure, assets, and people, and adapts to technology trends. They offer flexible multimodal transportation solutions and inland storage

services to customers in all industries. Their mission is to provide exceptional logistic services, meet their needs, and contribute to their value chain (Official Website of MEDLOG, 2024).

MEDLOG, a global logistics company, integrates environmental criteria into procurement and assessment processes by collaborating with logistics suppliers. The company's route optimization and energy-efficient lifting equipment, such as electric gantry cranes, have reduced the last-mile distance between production and consumption centres. Digitalization and process review in yards are increasing efficiency, and productivity, and reducing unnecessary moves while easing traffic congestion. The company's commitment to sustainability is evident in its operations (MSC Mediterranean Shipping Company S.A, 2021).

The company provides customized transport services using both owned and subcontracted fleets. They invest in assets to better serve customers and offer comprehensive inland transportation solutions. Off-dock storage provides accessible logistics platforms for containers and commodities, while warehouses and distribution store goods on a large scale for convenient delivery. Depot yards maintain and repair containers, while contract logistics organizes deliveries and offers fumigation services across Australia. Project cargo is handled with special equipment and experienced staff. Reefer services include continuous investment in refrigerated warehouses, plugging stations, container monitoring, and pre-trip inspections (Official Website of MEDLOG, 2024).

## 2-6 Technology Adoption in Logistics

The logistics industry has undergone significant transformation due to the advancements in AI, blockchain, and autonomous vehicles. Cloud-based systems can streamline workflows, storing and transferring information securely. Autonomous vehicles and drones can be safer, less expensive, and easier to manage than manually

driven vehicles. The IoT can enable shipment tracking and container management, while blockchain can enable carriers and shippers to share sensitive data, improving global trade efficiency. Smart contracts can automate commercial processes, and artificial intelligence can improve transportation, route planning, and demand planning (Riyadh Valley Co., 2022).

The logistics industry experiences rapid growth due to factors such as globalization, just-in-time supply chains, and e-commerce. Disruptive technologies like FreightTech and Log-Tech transform the industry, enhancing transparency and efficiency. Intelligence and automation drive productivity and reduce robot costs. Integration tech applications increase transparency and communication between market players. Applications include autonomous vehicles, roadside sensors, digital freight brokerage, telematic devices, online booking, cargo management, route optimization, signalling, traffic management, digital train control, predictive maintenance platforms, and e-ticketing (Riyadh Valley Co., 2022).

In this context, blockchain technology improves supply chain transparency by eliminating a single point of failure and protecting data with advanced security techniques. It is used in the logistics industry for reducing paperwork, identifying counterfeit products, tracking origin, and facilitating IoT networks. Smart contracts like Shipchain accelerate bill-of-lading digitization and improve efficiency. Shipchain uses a digital cryptocurrency called ship token for process automation, ensuring data and transactions are permanently saved on the blockchain. However, challenges like scalability and privacy concerns persist (Alqarni et al., 2023).

Further, logistics adds value to a firm's output by cutting costs and providing delivery solutions. Innovations such as automated transport management systems benefit economies and consumers. A strong association exists between automated transport management systems and logistical optimization. Route planning, freight audit, load

optimization, order visibility, and yard management positively influence the logistical optimization of third-party service providers (Amogola, 2017).

Moreover, logistics is essential for precise and effective warehouse management and maintenance across the supply chain. IT Logistics systems enable firms to efficiently manage their IT applications. Warehouse Management Systems (WMS) play a crucial role in IT Logistics systems, ensuring smooth logistics flow and timely order fulfilment. Logistics organizations utilize WMS applications to optimize warehouse procedures by evaluating available data (Andiyappillai, 2019).

On the other hand, self-driving delivery robots offer flexibility for on-time deliveries and improved protection for drivers and customers by minimizing contact. Automation technology has led to innovative business applications in last-mile logistics, offering a cheaper, safer, and greener solution. Robots can replace bike couriers in urban areas where delivery vans are inefficient. A specific type of delivery van can ferry robots from neighbourhoods where they are the fastest to make deliveries, with robots taking over for the final step. The electric van is designed as a "mothership" system, holding several ground robots, which park in a neighbourhood and deploy robots for nearby deliveries (Chen et al., 2021).

Therefore, artificial intelligence, machine learning, and deep learning are used in Smart Logistics to optimize strategic and tactical processes, transition from conventional systems to smart logistics systems, and improve decision-making efficiency. These technologies are also being used in predictive maintenance, hybrid decision support systems, production planning and control systems, and operational processes in logistics. They are also being integrated into intelligent transport logistics systems and processes. These advancements are expected to revolutionize the logistics industry (Woschank et al., 2020).



To conclude, the researcher revealed that the logistics industry has seen a significant transformation due to the adoption of technologies like AI, Blockchain, and autonomous vehicles. These advancements have improved efficiency, safety, and transparency. Cloud-based systems have streamlined workflows, while FreightTech and Log-Tech have reduced costs. Intelligence and automation drive productivity and operational cost reduction. Applications include autonomous vehicles, IoT, telematics, blockchain, smart contracts, digital freight brokerage, route optimization, and smart logistics. The integration of these technologies is reshaping traditional processes, optimizing operations, and driving efficiency throughout the supply chain.

### **2-7 Logistics Services Between Dammam and Riyadh**

Saudi Arabia has declared the first special economic zone in Riyadh, aiming to boost the road freight industry's growth. The zone will focus on integrated logistics, offering unique benefits and norms to attract global firms. As part of its Vision 2030, Saudi Arabia plans to encourage foreign investment and expand industry through special zones with financial, trade, and visa exemptions. The new special economic zone will prioritize integrated logistics and exempt goods in zones with pending status or temporary maintenance or repair (Bahrini et al., 2024).

In this context, Saudi Arabia's first rail line, opened in 1951, connected Riyadh and Dammam. Founded by King Abdul Aziz and King Saud, it transported 1.8 million passengers in 2018 and 700,000 containers from Dammam Port to Riyadh's Dry Port. Operated by the Saudi Railway Organization (SRO), the network covers 449 miles from the Arabian Gulf port to the capital, including stops in Hofuf and Abqaiq. The line also has a 556-mile Dammam-Riyadh line via Haradh. In the 1990s, the SRO carried around half a million passengers and nearly two million tons of goods annually (Flanders Investment & Trade, 2019).

Additionally, SAL is the leading air cargo handler in Saudi Arabia, offering ground handling services across 18 airports. Its client base includes government entities, foreign airlines, and low-cost carriers. The company has a large cargo handling capacity, with Jeddah station being the largest. In 2022, Riyadh handled 159 flights/day, reaching 358k tons of cargo volume. Dammam terminal handled 53 flights/day and 71k tons of cargo (SAL, 2023).

Moreover, rail transport carries 80% of the container freight volume transported between Dammam and Riyadh. This percentage provides a working assumption for the volume of containerized goods that would be carried by the Landbridge between Riyadh and Makkah Province. This translates to the movement of 8.64 million tonnes by rail between Riyadh and Makkah, equal to a modal shift from road to rail of around 11%. This reduces fuel consumption for freight transportation by about 13% by 2030, assuming Landbridge comes into effect in 2020 (Lopez-Ruiz et al., 2020).

Further, Saudi Global Ports Company seeks to cooperate with Saudi Railway Company to modernize the Riyadh Dry Port Ecosystem, contributing to the Kingdom Vision 2030's second pillar of a healthy Saudi economy. This is a key milestone for SGP as we expand our benchmark performance beyond ports to become an integrated cargo solutions provider. We will collaborate with Saudi Railway Company to ensure a smooth transition and simplify the supply chain for efficient cargo movement between Dammam and Riyadh (Saudi Global Ports Company, 2021).

To summarize, the researcher found that Saudi Arabia enhances its logistics services between Dammam and Riyadh to improve connectivity and efficiency. The country has established a special economic zone in Riyadh to boost the road freight industry and attract global firms. The first rail line, operational since 1951, connects the two cities, facilitating passenger and container transportation. Saudi Arabian Logistics handles significant cargo volumes annually in Riyadh and Dammam. The modal shift from road to rail is planned to improve fuel efficiency and reduce emissions. The

Saudi Global Ports Company is collaborating with the Saudi Railway Company to modernize the Riyadh Dry Port Ecosystem, aligning with Vision 2030's goals for a robust Saudi economy.

### **2-8 Development of Railways in Saudi Arabia**

Saudi Arabia expands its rail network as part of a GCC-wide push to boost regional transportation. The Public Transport Authority plans to build a 1,150km land bridge linking the east coast to the west coast, extend the railway to Jubail Industrial City, and eventually to Mecca, Jeddah, and Madinah. Another extension will link Riyadh to the north's mining areas. The Haramain High-Speed Railway, launched in 2018, is a state-of-the-art 450km line connecting Madinah and Mecca at 300km/hour. The North-South Line (NSR), opened in 2017, is a 2,750km railway line connecting Al-Haditha and Jalamid with the new port city Ras Al-Khair. An 85km link is planned to connect the NSR with Jubail. The line also introduced night trains with sleeping coaches, the first in the country. The NSR is operated by the private Saudi Railway Company (SAR), owned by the Public Investment Fund (PIF) (Flanders Investment & Trade, 2019).

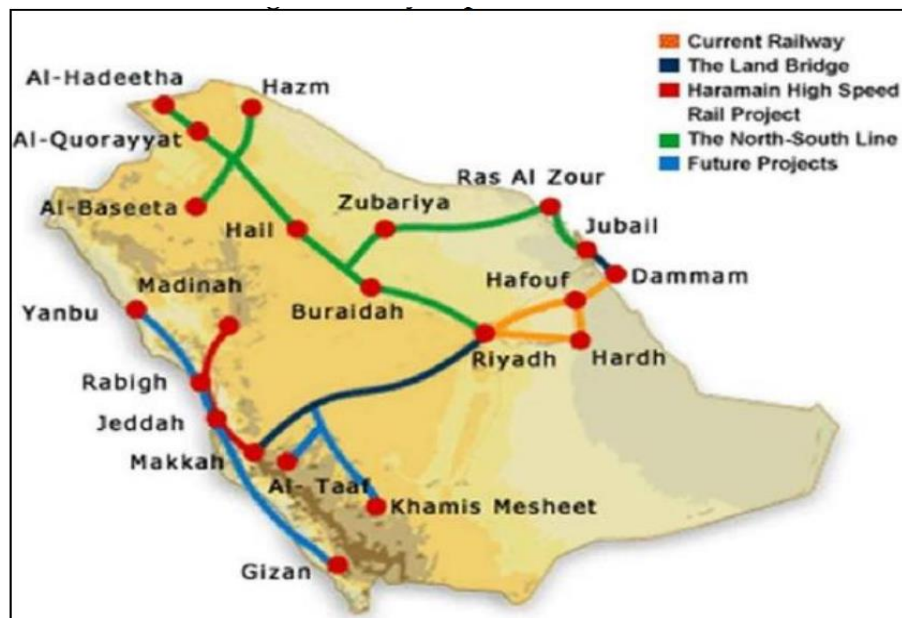


Figure 2.1: Railway map of Saudi Arabia - Source: (Jaziri & Alanazi, 2019, P. 256)

This figure depicts the Saudi railway development. The Kingdom Railroads provides transportation services via a 1,423 km railway network connecting Dammam and Riyadh, either directly or via Abqaiq and Hofuf. Saudi Railways delivers 1.1 million people and over 3.4 million tons of goods each year. Saudi Arabia plans to expand its railway network from Riyadh to Jeddah, Al-Hadeetha to Riyadh via Al-Quorayyat and Hail, Dammam to Jubail, and Zubariya to Jubail via Ras Al-Zour (see Figure 2.1). Between 2005 and 2040, around \$100 billion is expected to be invested globally in expanding the train track network.

Further, the Saudi government has initiated smart city projects to help realize the country's Vision 2030. The initiatives included metro projects in Riyadh, Dammam, Makkah, Madinah and Jeddah. For instance, in Dammam, the plan was to build 50 km of light rail transit, 110 km of bus lanes, and 350 km of highways to connect the city's peripheries. The completion of these projects could lead to a decrease in GHG

emissions and traffic congestion in the major Saudi cities. Even if the metro projects were completed, it would be quite challenging to get Saudis to shift from car dependency to public transport (Dano & Alqahtany, 2019).

Therefore, Saudi Arabia plans to revamp the 1950s-built railway line between Dammam and Riyadh, introduce metros in Jeddah and Riyadh, build a 950 km Landbridge railway line, and build Haramain High-Speed Rail to facilitate pilgrimage. The Jeddah Metro project, estimated to cost USD 9.3 billion, is a 180 km, three-line railway, while the Riyadh Metro consists of six lines and 85 stations. The Landbridge project connects the Red Sea and Gulf with a 950 km new track between Riyadh and Jeddah and another 115 km track between Dammam and Jubail. The Haramain High Speed Rail project, estimated at USD13.7 billion, aims to build a 450-kilometer rail link between Mecca and Medinah. Other ongoing projects include a second terminal at Dammam's King Abdulaziz Port, two additional terminals at the King Fahd Industrial Port in Al Jubail, and a Portside Logistics Facility at the Jubail Commercial Port (Al Masah Capital Management Limited, 2015).

In conclusion, it can be viewed that Saudi Arabia is expanding its railway network to boost regional transportation and economic development. The country is constructing a 1,150-kilometer land bridge to connect the east and west coasts, extending railways to key industrial cities like Jubail, and planning further extensions to major cities like Mecca, Jeddah, and Madinah. The Haramain High-Speed Railway links Madinah and Mecca at high speeds, while the North-South Line connects Al-Haditha and Jalamid to Ras Al-Khair. The private Saudi Railway Company (SAR) operates the NSR, which covers 1,423 km. Smart city projects aligned with Vision 2030 include metro systems in major cities to reduce greenhouse gas emissions and ease traffic congestion. These ambitious plans aim to modernize transportation infrastructure, promote sustainable practices, and promote economic growth.

## 2-9 Infrastructure and Railway Development for Logistics

Effective transportation facilities and business management are crucial for the smooth and safe delivery of goods. The mode of transportation used by logistics actors should be considered, as well as the field and administration conditions. Good logistics businesspersons can coordinate physical and information delivery to improve efficiency. Factors related to the urban environment, such as licensing and administrative matters, must be coordinated with local government policies. Administrative problems can hinder logistics activities and efficiency. Regions have their regulations regarding administration, from office operation to delivery. Therefore, selecting the right paths for logistics delivery is essential for efficient operations (Alanazi et al., 2021).

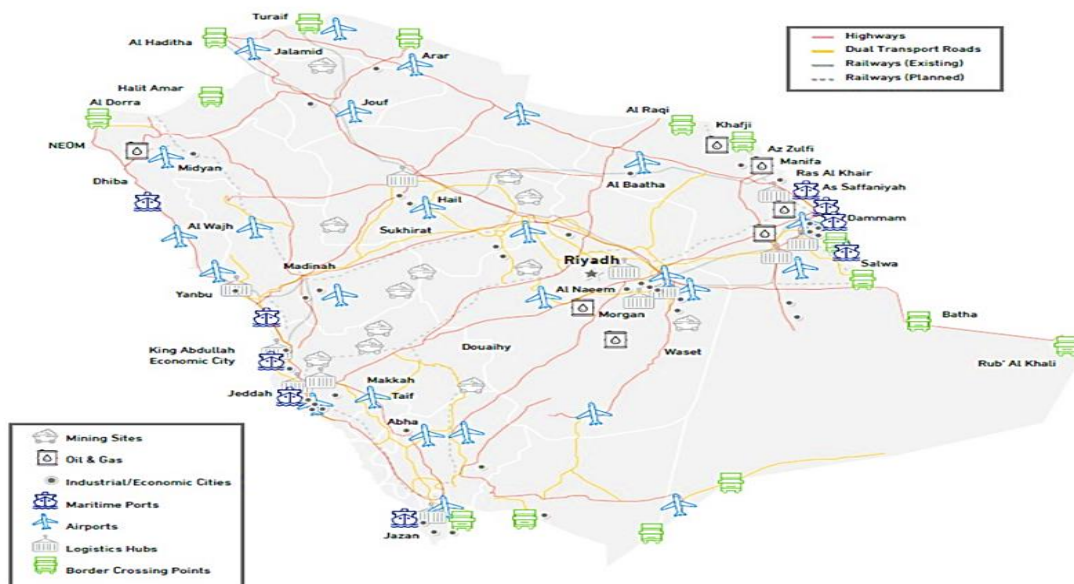
In this sense, Saudi Arabia's 2030 vision focuses on developing its logistics sector and improving its ranking in the World Bank's Logistics Performance Index (LPI) to twenty-fifth. The country has the potential to transform into a global logistics hub due to its extensive internal land connection and access to free trade zones in the GCC. Integrating all transportation layers into a solid logistics network and implementing crossway nodes for activities like cross-docking, sorting, storing, and clearance will strengthen the country's logistics infrastructure and reveal opportunities for improvement and flow bottlenecks (Almalki & Alkahtani, 2022).

On the other hand, the majority of the SAR135 billion allocated for the logistics sector will be spent on railway infrastructure. The Saudi Railway Company (SAR) and Saudi Railways Organization (SRO) were previously overseen by two separate state-owned companies. In 2021, a merger aimed to consolidate the Kingdom's railway development. SAR now oversees two additional lines: the North Railway, which spans 2,750 km and has trains up to 16,000 tons, and the East Train Network, which uses a 1,775-kilometer railway with separate tracks for passenger rail and

freight. A portion of its 2,596 freight cars is dedicated to transporting grain, rock, and vehicles (U.S.-Saudi Business Council, 2023).

Furthermore, the Saudi Arabian rail network has seen significant improvements in recent years, with new passenger stations and lines opened for residents and pilgrims. The Vision 2030 plan has led to a restructuring of the railway industry, now consolidated under the Saudi Railway Company (SAR). The network has expanded to over 5000km, covering central, eastern, and western parts of Saudi. Plans include adding a line between Ras Al Khar and Dammam to connect the North-South railway line with the existing Riyadh-Dammam line. This expansion also ensures proper service to the petrochemicals industry in Jubail via rail. The 950km Saudi Landbridge project aims to strengthen regional integration and trade in the GCC through an east-west corridor connecting the Red Sea with the Saudi Arabian Gulf (Saudi Bulk Transport LTD., 2021).

#### Saudi Arabia Logistics Infrastructure Plan



Source: Saudi Logistics Hub

Figure 2.2: Saudi Arabia Logistics Infrastructure Plan - Source: (U.S.-Saudi Business Council, 2023, P. 20)

The figure is a map of Saudi Arabia highlighting the logistics infrastructure plan. The map is colour-coded to distinguish between aspects such as roads, dual carriageways, current and proposed railways, industrial/economic cities, seaports, airports, logistics centers, and border crossings. The map also includes a key that explains the symbols and colours. The map is related to the Saudi Logistics Hub.

Based on the above-mentioned, it can be shown that effective delivery of goods requires robust transportation facilities and efficient logistics management. Skilled professionals coordinate physical and information delivery, addressing urban environment factors and local policies. Administrative challenges can hinder logistics activities, emphasizing the importance of selecting optimal delivery paths. Saudi Arabia's Vision 2030 aims for a top 25 ranking in the World Bank's Logistics Performance Index. Investments in railway infrastructure, such as the merger of SAR and SRO, enhance the logistics network. Expansion plans like the Saudi Landbridge project link the Red Sea with the Arabian Gulf, and recent developments include new railway lines and stations.

## **2-10 SAR and MEDLOG Agreement**

The foundation of a ceremony between the Saudi Ports Authority, Mawani and Medlog, the logistics arm of the Mediterranean Shipping Company (MSC) has officially opened a new logistics park in King Abdulaziz port in Dammam. The facility aims to boost shipping connectivity, and global logistics services, and improve the quality and efficiency of services delivered to local and international customers (The Maritime Standard, 2024).

The logistics park in Saudi Arabia aims to boost container handling, improve trade movement, and align supply chains with the National Transport and Logistics Strategy targets. It will provide 400 job opportunities for the national workforce in logistics services and contribute to a safe port environment by using alternative



energy to reduce carbon emissions. The park will also link the western regions of the Kingdom to the southern regions and facilitate exports through King Abdullah Port in Rabigh province. It will offer high-quality, integrated logistics services to meet the needs of beneficiaries and local markets, ensuring efficient transport and handling of goods (Saudi Press Agency, 2024).

The Saudi Ports Authority and MEDLOG also have announced plans to build an integrated logistics zone at King Abdulaziz Port in Dammam. The project will be built with an investment value exceeding SR150 million. The development aligns with the authority's goal to develop a sustainable maritime sector and contributes to Saudi Arabia's National Transport and Logistics Strategy, which aims to turn the Kingdom into a global logistics hub. The new zone will cover over 100,000 sq. meters and can handle 300,000 containers per year. The facility is expected to meet local market requirements for transporting and handling goods due to its proximity to Jubail Industrial City and major urban centres in the Eastern Province (Official Website of Arab News, 2023).

This strategic collaboration between the Saudi Ports Authority and MEDLOG promises to improve container-handling capacity at the port by two million TEUs over the next ten years. The project is also in line with the objectives of the National Transport and Logistics Strategy (NTLS), which is to position the Kingdom as a critical logistics hub linking three continents. The logistics park has a complete service facility for the upkeep and inspection of both full and empty containers in addition to serving as a center for handling and storage. It is projected that the project will develop local talent in the logistics industry and generate about 400 direct and indirect job opportunities. In addition, it demonstrates a dedication to protecting the environment by using alternative energy sources to reduce carbon emissions (Harmon, 2024).

Thus, it can be summarized that The Saudi Ports Authority and MEDLOG, the Mediterranean Shipping Company's logistics arm, have agreed to establish a new logistics park in King Abdulaziz Port in Dammam. The park aims to improve shipping connectivity, global logistics services, and service quality for local and international customers. It will offer 400 job opportunities for the national workforce in logistics services, contribute to economic growth, and emphasize sustainability by utilizing alternative energy sources to reduce carbon emissions. The park will also facilitate exports through King Abdullah Port and provide integrated logistics services to meet local market demands efficiently. The integrated logistics zone at King Abdulaziz Port is a significant investment in developing a sustainable maritime sector and positioning Saudi Arabia as a global logistics hub. The project's focus on environmental protection through alternative energy sources demonstrates a commitment to sustainable practices in line with global trends. The collaboration between the Saudi Ports Authority and MEDLOG is expected to drive significant advancements in container handling capacity, job creation, talent development, and environmental sustainability in the logistics sector.

### **2-11 Importance of Collaboration between MEDLOG and SAR**

The Mediterranean Shipping Company's logistics arm, MEDLOG, is partnering with the Saudi Railway Company to improve logistics operations in Saudi Arabia. This strategic partnership, aimed at enhancing efficiency, connectivity, and sustainability, could yield numerous benefits in the country's railway infrastructure sector.

In this sense, MSC Saudi has signed a new contract with Saudi Arabia Railways (SAR) to increase container volumes between King Abdulaziz Port in Dammam and the Dry Port in Riyadh. The partnership aims to improve operational efficiency and facilitate cargo movement, demonstrating the importance of MEDLOG Saudi's role in the regional supply chain. The contract aligns with MSC Saudi's social and environmental commitments, including reducing its carbon footprint and fostering

resilient supply chains. The strategic contract will support future initiatives to support incoming and outgoing goods movement between Dammam Port and Riyadh Dry Port, contributing to Saudi Arabia's role in enabling economic development across the region (MSC, 2023).

Saudi Arabia also encourages private companies to collaborate with the government to develop the country's transport infrastructure, particularly seaports, airports, and supply chains. Major projects are funded through public-private partnerships, and public transport facilities are preparing for full privatization. The Kingdom's vision 2030 aims to make it a logistics hub capable of integrating trade across Asia, Europe, and Africa, with its advantageous position potentially enabling its development into a major regional logistics hub (Bahrini et al., 2024).

Further, Saudi Arabia Railways (SAR) has signed a contract to increase the number of containers transported on SAR trains between King Abdulaziz Port in Dammam and Riyadh Dry Port. The contract aims to increase the number of containers transported through the east train, provide safe and lasting transportation solutions, and boost the Kingdom's competitiveness. It will also help increase operational efficiency, decrease the number of trucks between Dammam and Riyadh cities, reduce carbon emissions, and maintain road infrastructure. SAR emphasized the importance of such contracts in the shipping sector and reaffirmed SAR's dedication to providing safe and creative solutions. The contract also contributes to elevating Dammam Port to a regional station for global trade routes (Saudi Press Agency, 2024).

Therefore, the King Abdullah Port in Rabigh province is strategically positioned, making it easier to move commodities from the western to the southern areas of the Kingdom. The park's goal is to increase exports through this strategic location. By providing complete logistics services, the market's demands are met and effective goods handling and transportation are ensured with unparalleled operational

efficiency. The project is a crucial part of Mawani's all-encompassing plan to improve the Kingdom's transportation network. Mawani has signed multiple agreements in 2023 to initiate, inaugurate, and establish the framework for nine logistics parks and centres located in strategic ports, including the King Fahd Industrial Port in Yanbu, the King Abdul Aziz Port in Dammam, and the Jeddah Islamic Port (Harmon, 2024).

Based on the above-mentioned, it can be said that MEDLOG has partnered with the Saudi Railway Company (SAR) to enhance logistics operations in Saudi Arabia. The strategic collaboration aims to improve efficiency, connectivity, and sustainability in the country's railway infrastructure sector. MSC Saudi has signed a contract with SAR to increase container volumes between King Abdulaziz Port in Dammam and the Dry Port in Riyadh. This initiative supports Saudi Arabia's Vision 2030, which envisions the country as a logistics hub connecting Asia, Europe, and Africa. The contract aims to enhance operational efficiency, provide sustainable transportation solutions, reduce carbon emissions, and boost Saudi Arabia's competitiveness in the shipping sector.

## **2-12 Kingdom as a worldwide logistics hub**

Saudi Arabia aims to become an international logistics leader by leveraging its wealth and geographical location. It has the largest economy in the Middle East. Vision 2030 calls for the Kingdom to build a unique regional logistical hub, integrate regionally and nationally, and support national companies. The country aims to become a distinctive logistics gateway to three continents by deploying technologies to increase efficiency, strengthen its legal and regulatory framework, and support national companies in marketing and exporting their products (Mahdaly & Adeinat, 2022).

In this context, Saudi Arabia aims to build road networks to connect major cities and neighbouring areas, facilitating the movement of travellers and freight. The government's strategy focuses on transport infrastructure as a key component in national transformation. As the country diversifies its economy, the import and export capacity of new economic sectors, combined with high demand, presents new opportunities for ports. Saudi ports have experienced significant increases in throughput over the last decade, indicating a need for increased investment in other transport sectors like roads and rails for better connectivity and accessibility. This will help the KSA become a regional and international logistics hub by 2030 (Al-Otaibi, 2021).

Further, Saudi Arabia's Vision 2030 aims to use oil revenue for social transformation, economic health, and becoming a major international logistics hub. The plan aims to attract companies for value-added transformation, financial services, easy access to Europe, Africa, and Asia, and investment in new technologies. Infrastructure will stimulate investment at all levels of society, with a focus on medium-sized, family-owned, and small company goods and services. The Kingdom plans to optimize investment by attracting business-to-business partnerships (Nash et al., 2019).

Besides, the National Industrial Development and Logistics Program is one of 13 Vision Realization Programs aimed at transforming the Kingdom into a leading industrial powerhouse and international logistics hub. The program focuses on expanding four key sectors - industry, mining, energy, and logistics - targeting the private sector with new incentives to promote growth. The goal is to create jobs and boost the combined contribution of these sectors to one-third of GDP by 2030. The government uses its competitive advantages, increases private sector participation, highlights socio-economic benefits, and stimulates economic loans, with the Saudi Industrial Development Fund as the financial enabler (Saudi Industrial Development Fund, 2020).

Therefore, it can be concluded that Saudi Arabia aims to become a leading international logistics leader by leveraging its wealth and strategic location. The country's Vision 2030 aims to establish a regional logistics hub, enhance regional and national integration, and support domestic companies. Advanced technologies will be deployed to enhance efficiency, strengthen the legal and regulatory framework, and assist national businesses in marketing and exporting goods. The government is prioritizing investments in transport infrastructure, particularly roads and railways, to enhance connectivity and accessibility. The Vision 2030 strategy aims to attract enterprises for value-added processing, financial services, and seamless access to markets across Europe, Africa, and Asia. Infrastructure development will be prioritized, with a focus on medium-sized, family-owned, and small businesses. The National Industrial Development and Logistics Program aims to propel Saudi Arabia into a global logistics hub, expanding sectors like industry, mining, energy, and logistics.

### **Chapter Three: Study procedures**

The chapter herein shall discuss a description of the field study procedures carried out by the researcher to obtain the study objectives and includes determining the methodology followed in the study, the study population, the study sample, the study tool and verifying its validity and reliability, the study procedures and statistical methods used in analyzing the results.

#### **3-1 Research methodology**

The researcher employed the descriptive method, which Darwish (2018, p. 118) defined as "A general study of a phenomenon existing in a group, in a specific place and at present. This is a method of analysis and interpretation in a scientific and organized manner aiming at reaching a specific objective for a social problem".

### 3-2 Study population and sample

The study population consisted of interested individuals, therefore, an electronic link was distributed, and the sample included (97) individuals from the study population.

### 3-3 Characteristics of the study sample:

Frequencies and percentages were calculated for the study sample members and are represented in the demographic data which included (Gender, Geographical Location, and years of experience) as follows.

A – Distribution of sample members according to gender:

Table (1-3) Distribution of sample members according to gender

Gender	Frequencies	Percentages
Male	64	%66.0
Female	33	%44.0
<b>Total</b>	<b>97</b>	<b>%100</b>

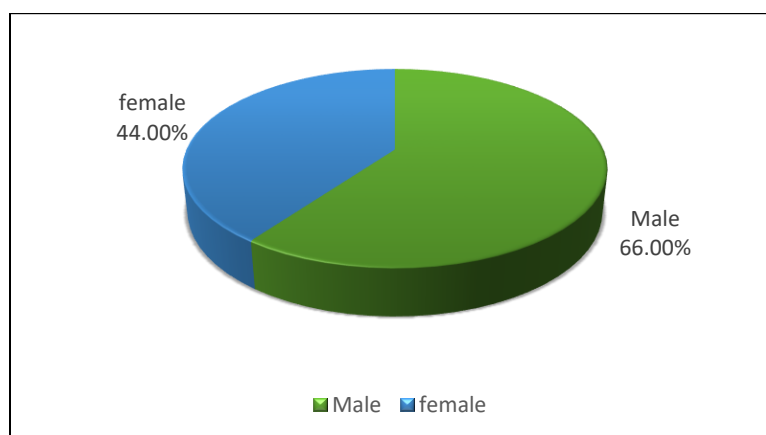


Figure No. (3-1) The distribution of study sample members according to gender

The previous figure indicates that the highest percentage obtained by the study sample members according to (gender) was (66.0%), attributed to (male), while the lowest percentage was (44.0%), attributed to (female).

### B- Distribution of sample members according to geographic location.

Table (3-2) Distribution of sample members according to geographic location

Geographic location	Frequencies	Percentages
Dammam	51	%52.6
Riyadh	46	%47.4
<b>Total</b>	<b>97</b>	<b>%100</b>

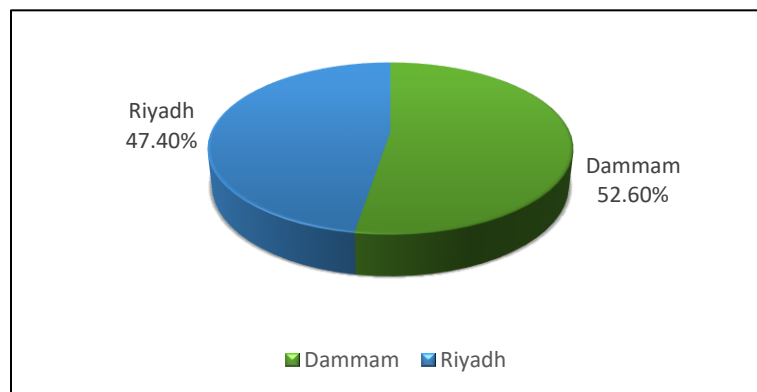


Figure 3.2 Distribution of sample members according to geographic location

The previous figure indicates that the highest percentage obtained by the study sample members according to (geographic location) was (52.6%), attributed to (Dammam), while the lowest percentage was (47.4%), attributed to (Riyadh).



### C - Distribution of sample members according to years of experience

Table (3-3) Distribution of sample members according to years of experience

Years of experience	Frequencies	Percentages
Less than 3 years	20	%20.6
From 3 to 5 years	45	%46.4
5 years or more	32	%33.0
<b>Total</b>	<b>97</b>	<b>%100</b>

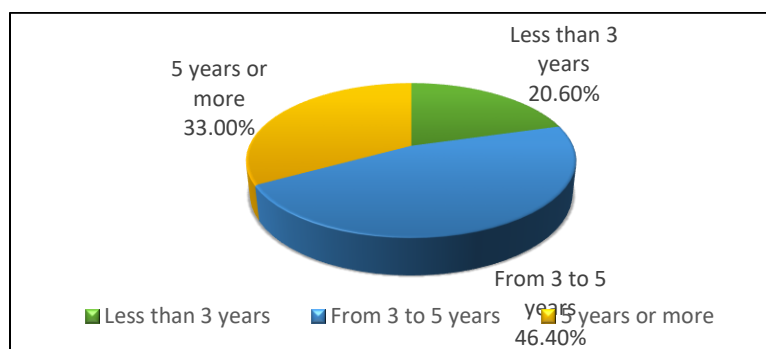


Figure 3-3 Distribution of sample members according to years of experience

The previous figure indicates that the highest percentage obtained by the study sample members according to (years of experience) was (46.4%), attributed to (From 3 to 5 years), followed by (33.0%) attributed to (5 years or more) while the lowest percentage was (20.6%), attributed to (Less than 3 years).

### D- Study Tool and Procedures for Verifying Its Validity and Reliability

The researcher reviewed the objectives of the study, which aimed to reveal the impact of concluding an agreement between the Saudi Railway Station and Madlouk Company to increase the quality of logistics operations between Dammam and Riyadh.

After reviewing the theoretical literature and reviewing previous studies related to the subject of the study, she found that the most appropriate means of collecting data is (the questionnaire). The researcher benefited from the theoretical literature and previous studies in constructing the questionnaire and formulating its phrases, as the main axes included in the questionnaire were identified, as well as the phrases that fall under each axis.

**The questionnaire came as follows:**

### **3-4 Description of the Study Tool (Questionnaire)**

The final version of the questionnaire contained two main parts:

- ❖ Part One: It consisted of preliminary data about the study sample represented by demographic variables of the study sample, including (gender, age, and years of experience).
- ❖ Part Two: The questionnaire axes, consisting of four main axes as follows:
  - The First Axis: The impact of the agreement on logistics operations, comprising statements from No. (1) to statement No. (7).
  - The second axis: Challenges and problems, comprising statements from number (8) to statement No. (14).
  - The third axis: Customer and partner satisfaction, comprising statements from number. (15) to statements No. (21).
  - The fourth axis: Future expectations, comprising statements from No. (22) to statements No. (27).

The Likert (quinary scale) (Strongly agree, Agree, Neutral, Disagree, strongly disagree) was used to correct the questionnaire, where strongly disagree was given = 1, Disagree = 2, Neutral = 3, Agree = 4, and strongly agree = 5

The researcher also relied on the hypothetical mean, which helps in identifying the effect of concluding the agreement between the Saudi Railway Station and Madlouk

Company to increase the quality of logistics operations between Dammam and Riyadh, which Bahi, Nassari, and Abdul Ghani (2013, p. 38) defined as the hypothetical medium as “the method in which one value is subtracted from all values, and each value after subtraction is called (deviation from the hypothetical mean).”

Ali (2020, p. 133) indicated that description and diagnosis of the independent variable include a description of the dimensions of the independent variable for the study, where the frequencies for each paragraph of the questionnaire and the percentages are determined, in addition to extracting the weighted arithmetic mean and standard deviation for all paragraphs of the aforementioned variable.

On the other hand, the hypothetical arithmetic means of (3) was used according to the (Likert quinary scale) as a criterion for measuring the degree of the sample’s response within the verbal estimation of the questionnaire weights, noting that the hypothetical means of (3) is the result of all the ratios of the quinaryscale of (15) divided by the number of ranks of (5).

Hypothetical mean = Total ratio weight ÷ the number of ranks

$$(1+2+3+4+5) \div 5 = 3$$

The response intensity = weighted mean /5\*100

### 3-5 Validity and Reliability of the Tool

#### 1. Expert Validity

After preparing the questionnaire and constructing its statements, it was presented to a group of specialized experts to verify the tool's effectiveness and its ability to achieve the study's objectives. This was to ensure that each statement was related to its respective dimension, and how clear it was clear, and how well-phrased, and suitable for achieving its intended purpose and suggesting ways to improve it by deleting, adding, or rephrasing etc. Of what they deem suitable.

Upon retrieving, the experts reviewed copies and in light of the suggestions of some experts, the researcher reformulated the questionnaire; some phrases in the questionnaire were deleted and reformulated, as agreed upon by more than (80%) of the experts. Thus, the questionnaire became in its final form after verifying its apparent validity, consisting of (27) phrases distributed over four axes.

## 2. Internal Consistency Validity for the Questionnaire Axes:

- The First Axis: The impact of the agreement on logistics operations,

The internal consistency validity was calculated using Pearson's correlation coefficient between each statement's score and the total score for the first axis: The impact of the agreement on logistics operations in the questionnaire as shown in the following table:

Table (3-4) Pearson Correlation Coefficients between the Scores of Each Statement and the Total Score for the Dimension to Which the Statement Belongs in the First Axis of the impact of the agreement on logistics operations

No.	Correlation	No.	Correlation	No.	Correlation
1	.766**	2	.729**	3	.781**
4	.744**	5	.786**	6	.830**
7	.733**				

\*\*Correlation is significant at the 0.01 level

The previous table indicated that the correlation coefficients of the statements with the total score for the dimension to which the statement belongs in the first axis: The impact of the agreement on logistics operations were all statistically significant at the (0.01) significance level. All correlation coefficient values were significant, ranging in the first dimension: service between (.729\*\*-.830\*\*), indicating a high degree of internal consistency validity for the statements in the first axis of the questionnaire.

- Cronbach's Alpha for the First Axis: The impact of the agreement on logistics operations

The Cronbach's Alpha coefficient for the dimensions of the first axis: The impact of the agreement on logistics operations and the overall mean for the axis were calculated. The results are shown in the following table:

Table (3-5) Cronbach's alpha reliability coefficient for the dimensions of the first axis: the impact of the agreement on logistics operations

Serial	dimensions	Cronbach's alpha
1	The implementation of the agreement helped increase the volume of shipments between Dammam and Riyadh.	.866
2	The agreement positively helped with logistics transportation costs.	.871
3	The quality of logistics services provided has improved after the agreement.	.864
4	I believe that the quality of logistics services provided has improved because of this agreement	.870
5	It helped improve coordination between the various parties involved in logistics operations.	.863
6	The agreement contributed to improving the logistics infrastructure in the region.	.855
7	The agreement helped reduce the waiting time for shipments.	.873
<b>reliability coefficientOverall</b>		<b>.883</b>

The previous table indicated that the reliability coefficient values for the dimensions **of the first axis**: The impact of the agreement on logistics operations were high, ranging between (.855-.873), and the overall reliability coefficient value was (.883). These reliability coefficient values indicated that the first axis of the questionnaire is suitable for application and its results can be relied upon and trusted.

#### **The second axis: challenges and problems**

The internal consistency validity was calculated using Pearson's correlation coefficient between each statement's score and the total score for the second axis: challenges and problems in the questionnaire as shown in the following table:

Table (3-6) Pearson Correlation Coefficients between the Scores of Each Statement and the Total Score for the Dimension to Which the Statement Belongs in the second Axis of challenges and problems

No.	Correlation	No.	Correlation	No.	Correlation
8	.761**	9	.769**	10	.757**
11	.734**	12	.794**	13	.771**
14	.767**				

\*\*Correlation is significant at the 0.01 level

The previous table indicated that the correlation coefficients of the statements with the total score for the dimension to which the statement belongs in the second axis: challenges and problems were all statistically significant at the (0.01) significance level. All correlation coefficient values were significant, ranging in the first dimension: service between (.734\*\*-.794\*\*), indicating a high degree of internal consistency validity for the statements in the second axis of the questionnaire.

- Cronbach's Alpha for the second axis: challenges and problems

The Cronbach's Alpha coefficient for the dimensions of the second axis: challenges and problems and the overall mean for the axis were calculated. The results are shown in the following table:

Table (3-7) Cronbach's alpha reliability coefficient and the general average for the dimensions of the second axis: challenges and problems

Serial	dimensions	Cronbach's alpha
8	The implementation of the agreement helped to deal well with sudden changes in the transportation process.	.865
9	The agreement contributed to providing the necessary technical support for its effective implementation	.865
10	The agreement helped to improve the efficiency of the transportation process.	.864
11	The agreement contributed to the ease of preparing goods for shipping to distribution points.	.867
12	The agreement contributed to improving relations between trading partners.	.859
13	The agreement contributed to increasing trust between customers and partners.	.862
14	The agreement enhanced cooperation between different sectors in the field of logistics.	.863
<b>reliability coefficientOverall</b>		<b>.881</b>

The previous table indicated that the reliability coefficient values for the dimensions of the second axis: Challenges and problems were high, ranging between (.867-.859), and the overall reliability coefficient value was (.881). These reliability coefficient values indicated that the second axis of the questionnaire is suitable for application and its results can be relied upon and trusted.

- Third axis: clients' and partners' satisfaction.

The internal consistency validity was calculated using Pearson's correlation coefficient between each statement's score and the total score for the third axis: clients and partners' satisfaction in the questionnaire as shown in the following table:

Table (3-8) Pearson Correlation Coefficients between the Scores of Each Statement and the Total Score for the Dimension of client and partner satisfaction

No.	Correlation	No.	Correlation	No.	Correlation
15	.779**	16	.719**	17	.749**
18	.737**	19	.800**	20	.796**
21	.756**				

\*\*Correlation is significant at the 0.01 level

The previous table indicated that the correlation coefficients of the statements with the total score for the dimension to which the statement belongs in the third axis: clients and partners satisfaction were all statistically significant at the (0.01) significance level. All correlation coefficient values were significant, ranging in the first dimension: service between (.719\*\*-.800\*\*), indicating a high degree of internal consistency validity for the statements in the third axis of the questionnaire.

- Cronbach's Alpha for the third axis: clients' and partners' satisfaction

The Cronbach's Alpha coefficient for the dimensions of the third axis: client and partner satisfaction and the overall mean for the axis were calculated. The results are shown in the following table:

Table (3-9) Cronbach's alpha reliability coefficient and the general average for the dimension of Client and partner satisfaction

Serial	Dimensions	Cronbach's alpha
15	The agreement helped maintain positive customer relationships.	.858
16	The agreement helped keep customers informed on all the information.	.869
17	The agreement provided data analysis to improve operations and decision-making.	.863
18	The agreement helped integrate various technological systems to facilitate logistics operations.	.868
19	The agreement helped receive and process customer request	.855
20	The agreement contributed to improving coordination processes between the various concerned parties	.857
21	The agreement took into account all environmental and economic factors to a great extent	.862
<b>reliability coefficient Overall</b>		<b>.879</b>

The previous table indicated that the reliability coefficient values for the dimensions of the third axis: client and partner satisfaction were high, ranging between (.869-.855), and the overall reliability coefficient value was (.879). These reliability coefficient values indicated that the second axis of the questionnaire is suitable for application and its results can be relied upon and trusted.

- Fourth axis: Future expectations.

The internal consistency validity was calculated using Pearson's correlation coefficient between each statement's score and the total score for the third axis: future expectations in the questionnaire as shown in the following table:

Table (3-10) Pearson Correlation Coefficients between the Scores of Each Statement and the Total Score for the Dimension of Future expectations

No.	Correlation	No.	Correlation	No.	Correlation
22	.732**	23	.835**	24	.763**
25	.719**	26	.714**	27	.810**

\*\*Correlation is significant at the 0.01 level



The previous table indicated that the correlation coefficients of the statements with the total score for the dimension to which the statement belongs in the third axis: future expectations were all statistically significant at the (0.01) significance level. All correlation coefficient values were significant, ranging in the first dimension: service between (.714\*\*-.835\*\*), indicating a high degree of internal consistency validity for the statements in the third axis of the questionnaire.

- Cronbach's Alpha for the fourth axis: Future expectations

The Cronbach's Alpha coefficient for the dimensions of the third axis: client and partner satisfaction and the overall mean for the axis were calculated. The results are shown in the following table:

Table (3-11) Cronbach's alpha reliability coefficient and the general average for the dimensions of Future expectations

Serial	Dimensions	Cronbach's alpha
22	I have positive expectations for improving logistics activity between Dammam and Riyadh in the coming years.	.833
23	I believe that the agreement will continue to provide sustainable benefits in the long term.	.809
24	I am confident that the agreement will be able to improve logistics services in the future.	.826
25	I expect that the agreement will contribute to stimulating economic growth in the region.	.836
26	I believe that the agreement will enhance innovation and the use of technology in logistics operations.	.848
27	I believe that the agreement will contribute to improving the Kingdom's ability to compete in the global market.	.818
<b>Overall reliability coefficient</b>		<b>.853</b>

The previous table indicated that the reliability coefficient values for the dimensions of the fourth axis: Future expectations were high, ranging between (.848-.809), and the overall reliability coefficient value was (.853). These reliability coefficient values indicated that the fourth axis of the questionnaire is suitable for application and its results can be relied upon and trusted.

### 3-6 Fifth: Statistical Methods

Based on the nature of the study and the objectives the researcher aimed to achieve, the data were analyzed using the Statistical Package for the Social Sciences (SPSS) software, and the results were extracted according to the following statistical methods:

1. Frequencies and Percentages: To identify the characteristics of the study sample according to the demographic data (gender, Geographic location, No. of years of experience) of the sample member and list the sample members' responses to the study questions.
2. Means and Standard Deviations: To calculate the means of the questionnaire items as well as the total scores for the dimensions of the questionnaire based on the responses of the study sample members.
3. Pearson's Correlation Coefficient: To calculate the internal consistency between the statements and dimensions of the questionnaire.
4. Cronbach's Alpha Coefficient: To ensure the reliability of the study tool (the questionnaire) by calculating the internal correlation between the dimensions and statements of the questionnaire.
5. Hypothetical mean
6. One sample T- test: which is used to compare the sample data average with a known value (Hypothetical mean).
7. Range Equation: To describe the mean of responses to each item and variable as follows:

The response degree was determined according to the following scale: Very Low (1), Low (2), Moderate (3), High (4), Very High (5). The verification degree for each variable was determined as follows:

$$\text{Category length} = \frac{\text{Upper limit} - \text{lower limit}}{\text{levels number}} = \frac{5-1}{5} = 0.80$$

- From 1 to less than 1.80 represents a (Very Low) response degree.
- From 1.80 to less than 2.60 represents a (Low) response degree.
- From 2.60 to less than 3.40 represents a (Moderate) response degree.
- From 3.40 to less than 4.20 represents a (High) response degree.
- From 4.20 to less than 5 represents a (Very High) response degree.

## Chapter four: Results of the study questions

### 4-1 Preface:

This chapter presents the findings obtained after applying the study tools and using the mentioned statistical methods to answer the research questions. Following this, the results are interpreted and discussed in light of the theoretical framework and previous studies.

### 4-2 First: Presentation, Discussion, and Interpretation of the Research Questions

"To what extent does the agreement between the Saudi Railways and MEDLOGCompany affect the quality of logistics operations between Dammam and Riyadh?"

To answer this question, frequencies, and percentages were calculated, along with the means and standard deviations for the dimensions of the first axis: the agreement effect on the logistics operation, these statements were then ranked in descending order according to the mean for each dimension, as shown in the following table:

Table (4-1): Means and Standard Deviations of the Responses of the Sample Members for the First Axis: the agreement effects on the logistics operations

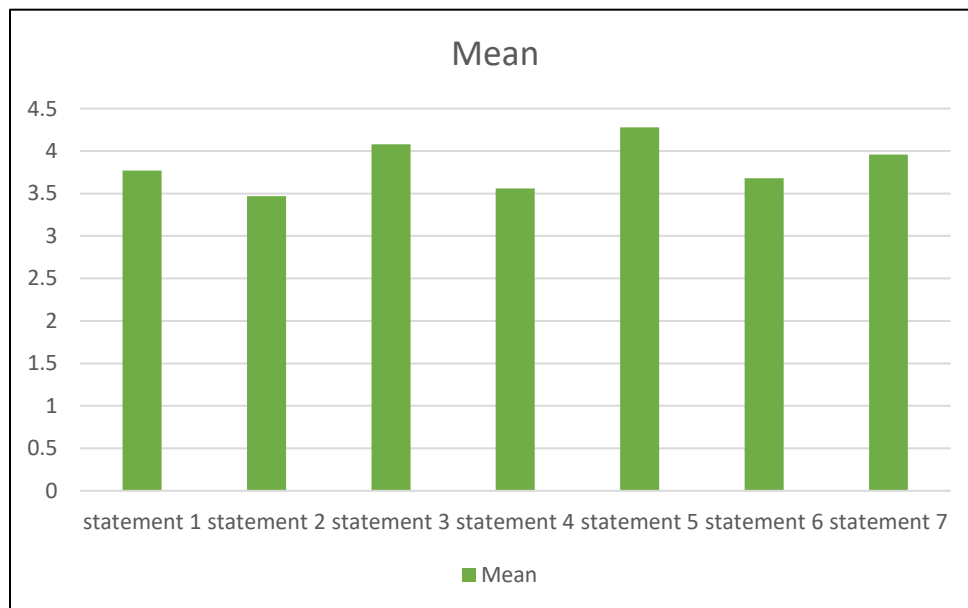
No.	Statement	Response degree						Mean	Standard deviation	Ranks	Response degree
		F	Strongly agree	agree	Neutral	Agree	Strongly agree				
1	The implementation of the agreement helped increase the volume of shipments between Dammam and Riyadh.	F	49	12	13	11	12	3.77	1.476	4	High
		%	50.5	12.4	13.4	11.3	12.4				
2	The agreement positively helped with logistics transportation costs.	F	32	18	21	16	10	3.47	1.370	7	High
		%	33.0	18.6	21.6	16.5	10.3				
3	The quality of logistics services provided has improved after the agreement.	F	62	6	11	11	7	4.08	1.367	2	High
		%	63.9	6.2	11.3	11.3	7.2				
4	I believe that the quality of logistics services provided has improved because of this agreement	F	39	14	19	12	13	3.56	1.458	6	High
		%	40.2	14.4	19.6	12.4	13.4				
5	It helped improve coordination between the various parties involved in logistics operations.	F	65	10	9	10	3	4.28	1.179	1	Very High
		%	67.0	10.3	9.3	10.3	3.1				
6	The agreement contributed to improving the logistics infrastructure in the region.	F	39	16	22	12	8	3.68	1.335	5	High
		%	40.2	16.5	22.7	12.4	8.2				
7	The agreement helped reduce the waiting time for shipments.	F	58	6	14	9	10	3.96	1.436	3	High
		%	59.8	6.2	14.4	9.3	10.3				
Overall mean								3.83	.656	High	

The previous table indicated that the overall mean for the first dimension, " the agreement effects on the logistics operations," obtained a mean of (3.83), a standard deviation of (0.656) and a (high) response degree. The highest-ranking statement was number (5) " It helped improve coordination between the various parties involved in logistics operations.",

with a mean of (4.28) and a standard deviation of (1.179), indicating a high response degree.

The second-ranking statement was number (3), "the agreement helped to improve logistics services quality provided" with a mean of (4.08) and a standard deviation of (1.367), also indicating a (high) response degree. followed by the last ranking statement No. (2) "The agreement positively helped with the logistics cost" with a mean of (3.47) and a standard deviation of (1.370), indicating a (high) response degree.

The standard deviations for the first dimension ranged between (1.476) and (1.179), showing a high value which indicates the variance in the opinions of the study sample members towards these statements.



The first axis "The impact of the agreement on logistics operations" with a response score of (high), can be explained by the agreement combining MEDLOG's experience in the field of logistics with the advanced infrastructure of the Saudi

railway network, which in turn leads to improving the operational efficiency of logistics operations.

It is also expected that this partnership will contribute to reducing the operating costs of companies operating in the field of logistics, by taking advantage of economies of scale and reducing costs related to fuel and maintenance.

As for statement No. (5) "helped improve coordination between the various parties involved in logistics operations" coming ranking first place, with a response score of (very high), can be explained by the fact that the agreement defines clearly the roles and responsibilities of each party, which reduces ambiguity and ensures that each party knows its role accurately. The agreements also provide effective communication channels between the parties concerned, allowing for the continuous and rapid exchange of information and data, which helps in making quick and informed decisions and contributes to solving problems that may arise during logistics operations. As for statement No. (2) "The agreement has positively contributed to logistics transport costs" coming in the last order, with a (high) response degree, can be interpreted as the agreement may lead to an increase in the volume of shipments transported by rail, which allows for achieving economies of scale and reducing variable costs per unit of shipment. The fixed costs associated with rail, such as infrastructure and maintenance costs, can also be distributed over a larger volume of shipments, which leads to a reduction in the cost per unit of shipment.

#### **4-3 Second: Presentation, Discussion, and Interpretation of the results of the second questions**

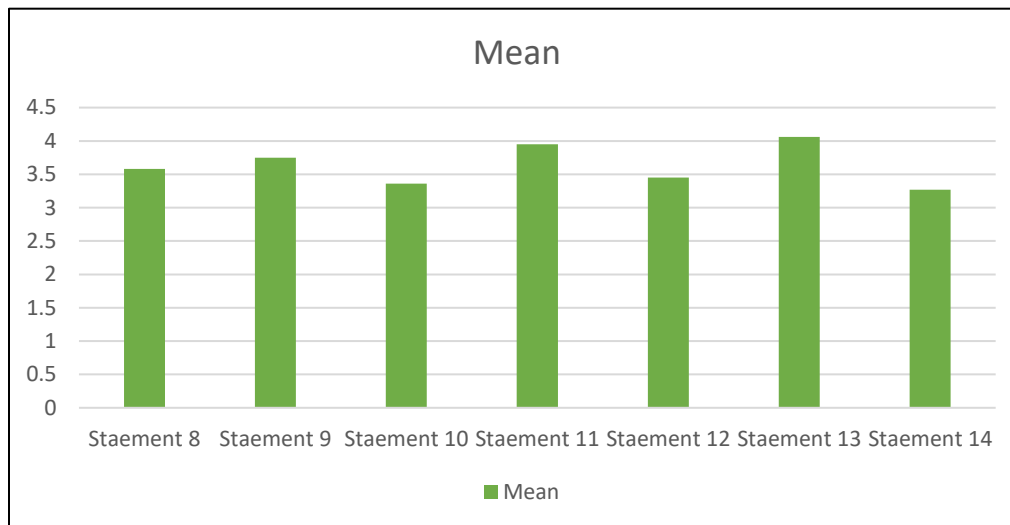
"What are the challenges and problems facing the conclusion of an agreement between the Saudi Railway Station and MEDLOG Company to increase the quality of logistics operations between Dammam and Riyadh?"

To answer this question, frequencies, and percentages were calculated, along with the means and standard deviations for the dimensions of the second axis statements: the Challenges and problems, these statements were then ranked in descending order according to the mean for each dimension, as shown in the following table:

Table (4-2): Means and Standard Deviations of the Responses of the Sample Members for the second Axis: challenges and problems

No.	Statement	Response degree					Mean	Standard deviation	Ranks	Response degree	
		F	Strongly agree	agree	Neutral	Agree					Strongly agree
8	The implementation of the agreement helped to deal well with sudden changes in the transportation process.	F	41	8	26	10	12	3.58	1.435	4	High
		%	42.3	8.2	26.8	10.3	12.4				
9	The agreement contributed to providing the necessary technical support for its effective implementation	F	50	6	17	15	9	3.75	1.451	3	High
		%	51.5	6.2	17.5	15.5	9.3				
10	The agreement helped to improve the efficiency of the transportation process.	F	39	10	12	19	17	3.36	1.542	6	Moderate
		%	40.2	10.3	12.4	19.6	17.5				
11	The agreement contributed to the ease of preparing goods for shipping to distribution points.	F	50	16	16	6	9	3.95	1.334	2	High
		%	51.5	16.5	16.5	6.2	9.3				
12	The agreement contributed to improving relations between trading partners.	F	42	8	14	18	15	3.45	1.561	5	High
		%	43.3	8.2	14.4	18.6	15.5				
13	The agreement contributed to increasing trust between customers and partners.	F	60	5	15	12	5	4.06	1.321	1	Moderate
		%	61.9	5.2	15.5	12.4	5.2				
14	The agreement enhanced cooperation between different sectors in the field of logistics.	F	29	9	36	5	18	3.27	1.425	7	Moderate
		%	29.9	9.3	37.1	5.2	18.6				
Overall mean							3.83	.656	High		

The previous table indicated that the overall mean for the second dimension, " the challenges and problems" obtained a mean of (3.63), a standard deviation of (0.908), and a (high) response degree. The highest-ranking statement was number (13) " The agreement contributed to increasing trust between customers and partners" with a mean of (4.06) and a standard deviation of (1.321), indicating a high response degree. followed ranking last with statement No. 14 " The agreement enhanced cooperation between different sectors in the field of logistics" with a mean of (3.27) and a standard deviation of (1.425), indicating a (moderate) response degree. Meanwhile, the standard deviation of the remaining statements ranged between (1.561 -1.321) that are high values which indicate the variance in the opinions of the study sample members towards these statements.



The second axis "Challenges and problems" receiving a (high) response score, can be explained by the agreement's contribution to significantly reducing travel time compared to other means, which reduces costs related to storing goods and delaying delivery.



The agreement also expands the railway network and increases its capacity, which helps meet the increasing demand for logistics transportation. The railways can also be integrated with other means of transportation such as roads and ports, providing comprehensive solutions for customers.

The statement No. (13) (the agreement contributed to increasing trust between customers and partners) coming in the first place, with a (high) response score, can be explained by the fact that the agreement provides the two companies together with a wide range of integrated logistics services, such as storing, packing and distributing goods, which provides comprehensive solutions for companies operating in various sectors.

It is expected that this partnership will contribute to expanding the railway network and increasing its capacity, allowing for the transportation of larger quantities of goods faster and more efficiently.

The statement No. (14) (the agreement strengthened cooperation between different sectors in the field of logistics) coming last in order, with a response degree (moderate), can be explained by the tendency of government and private investments to develop the infrastructure and logistics services associated with the main partner in the agreement, which may lead to neglecting other sectors.

Other sectors operating in the field of logistics, such as shipping and land transport companies, may feel that they lack the necessary government support, which reduces their enthusiasm for cooperation, as focusing investments on the main partner may increase its influence in the market, which may lead to unfair competition with other sectors.

#### 4-4 Third: Presentation, discussion and interpretation of the results of the third question

"To what extent are customers and partners satisfied with the agreement between the Saudi Railway Station and Madlouk Company to increase the activity of logistics operations between Dammam and Riyadh?"

To answer this question, frequencies, and percentages were calculated, along with the means and standard deviations for the dimensions of the third axis: customer and partner satisfaction, these statements were then ranked in descending order according to the mean for each dimension, as shown in the following table:

Table (4-3): Means and Standard Deviations of the Responses of the Sample Members for the third Axis: customers and partners satisfaction

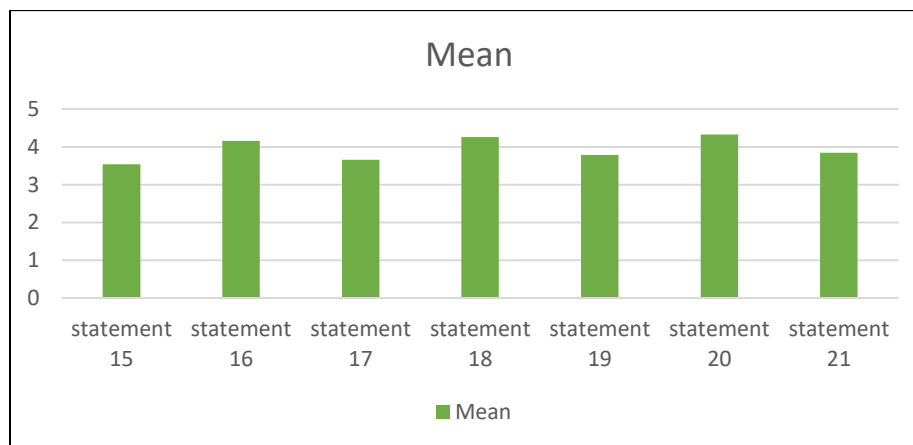
No.	Statement	Response degree					Mean	Standard deviation	Ranks	Response degree	
		F	Strongly agree	agree	Neutral	Agree					Strongly agree
15	The agreement helped maintain positive customer relationships.	F	34	24	14	10	15	3.54	1.451	7	High
		%	35.1	24.7	14.4	10.3	15.5				
16	The agreement helped keep customers informed on all the information.	F	65	10	3	11	8	4.16	1.374	3	High
		%	67.0	10.3	3.1	11.3	8.2				
17	The agreement provided data analysis to improve operations and decision making.	F	48	8	15	12	14	3.66	1.534	6	High
		%	49.5	8.2	15.5	12.4	14.4				
18	The agreement help integrate various technological systems to facilitate logistics operations.	F	70	3	10	7	7	4.26	1.309	2	Very High
		%	72.2	3.1	10.3	7.2	7.2				
19	The agreement helped receive and process customer request	F	56	4	12	10	15	3.78	1.576	5	High
		%	57.7	4.1	12.4	10.3	15.5				
20	The agreement contributed to improving coordination processes between the various concerned parties	F	69	11	4	6	7	4.33	1.248	1	Very High
		%	71.1	11.3	4.1	6.2	7.2				
21	The agreement took into account all environmental and economic factors to a great extent	F	53	6	15	15	8	3.84	1.434	4	High
		%	54.6	6.2	15.5	15.5	8.2				
Overall mean							3.94	.707	High		

The previous table indicated that the overall mean for the third dimension, " the customers and partners satisfaction " obtained a mean of (3.94), a standard deviation of (0.707), and a (high) response degree. The highest-ranking statement was number (20) " The agreement contributed to improving coordination processes between the various concerned parties" with a mean of (4.33) and a standard deviation of (1.248), indicating a very high response degree.

followed ranking second with statement No. 18 " The agreement helped integrate various technological systems to facilitate logistics operations." with a mean of (4.26) and a standard deviation of (1.309), indicating a (high) response degree.

Meanwhile, statement 15 " The agreement helped maintain positive customer relationships" ranked last with a mean of (3.54) and a standard deviation of (1.451), indicating a (high) response degree.

The standard deviation of the remaining statements ranged between (1.576 -1.248) which are high values that indicate the variance in the opinions of the study sample members towards these statements.



The third axis: Customer and partner satisfaction, which received a (high) response score, can be explained by the positive impact of the agreement on increasing the reliability of logistics services as it will lead to reducing delays and damage to goods.

Both companies will also provide a wide range of integrated logistics services together, providing comprehensive solutions that better meet customers' needs.

In addition, railways are a fast and safe means of transportation, which contributes to reducing the time required to transport goods between Dammam and Riyadh. This partnership is expected to contribute to increasing the accuracy of delivery times which in turn helps customers plan their operations better.

The statement No. (20) (the agreement contributed to improving coordination processes between the various parties concerned) coming in the first rank, with a (very high) response score, can be explained by the fact that the agreement shall clearly define the roles and responsibilities of each party concerned, whether government agencies or private companies, which will reduce confusion and increases efficiency because the clear definition of roles helps avoid overlap between the various parties, which contributes to accelerating the decision-making and implementation process.

The agreement also encourages building strong cooperative relationships between the railway station, Madlouk Company, and other relevant government agencies, which contributes to facilitating the exchange of information and expertise and establishes a culture of cooperation and joint work between the parties concerned, which increases the flexibility of the logistics system and its ability to adapt to changes.

The statement No. (15) (the agreement contributed to maintaining positive customer relations) coming last in order, with a (high) response score, can be explained by the partnership's contribution to increasing the reliability of logistics services, as customers can rely on their goods arriving on time and safely, also, customers can track their shipments more easily and accurately through the advanced systems provided by the two companies.

The two companies can also meet the diverse needs of customers by providing a wide range of customized logistics services. This partnership also contributes to reducing logistics transportation costs, which is positively reflected in customers by reducing their operating costs

#### 4-5 Fourth: Presentation, discussion and interpretation of the results of the fourth question

"What are the future expectations for concluding an agreement between the Saudi Railway Station and Madlouk Company to increase the activity of logistics operations between Dammam and Riyadh?"

To answer this question, frequencies, and percentages were calculated, along with the means and standard deviations for the dimensions of the fourth axis: Future expectations, these statements were then ranked in descending order according to the mean for each dimension, as shown in the following table:

Table (4-4): Means and Standard Deviations of the Responses of the Sample Members for the third Axis: Future expectations

No.	Statement		Response degree					Mean	Standard deviation	Ranks	Response degree
			Strongly agree	agree	Neutral	Agree	Strongly agree				
22	I have positive expectations for improving logistics activity between Dammam and Riyadh in the coming years.	F	52	7	17	14	7	3.86	1.392	3	High
		%	53.6	7.2	17.5	14.4	7.2				
23	I believe that the agreement will continue to provide sustainable benefits in the long term	F	41	19	16	6	15	3.67	1.463	4	High
		%	42.3	19.6	16.5	6.2	15.5				
24	I am confident that the agreement will be able to improve logistics services in the future.	F	57	4	16	12	8	3.93	1.416	2	High
		%	58.8	4.1	16.5	12.4	8.2				
25	I expect that the agreement will contribute to stimulating economic growth in the region	F	42	12	13	15	15	3.53	1.542	5	High
		%	43.3	12.4	13.4	15.5	15.5				
26	I believe that the agreement will enhance innovation and the use of technology in logistics operations.	F	63	7	8	7	12	4.05	1.468	1	High
		%	64.9	7.2	8.2	7.2	12.4				

No.	Statement	Response degree					Mean	Standard deviation	Ranks	Response degree	
		F	Strongly agree	agree	Neutral	Agree					Strongly agree
27	I believe that the agreement will contribute to improving the Kingdom's ability to compete in the global market.	F	40	14	11	15	17	3.46	1.568	6	High
		%	41.2	14.4	11.3	15.5	17.5				
Overall mean							3.75	1.020	High		

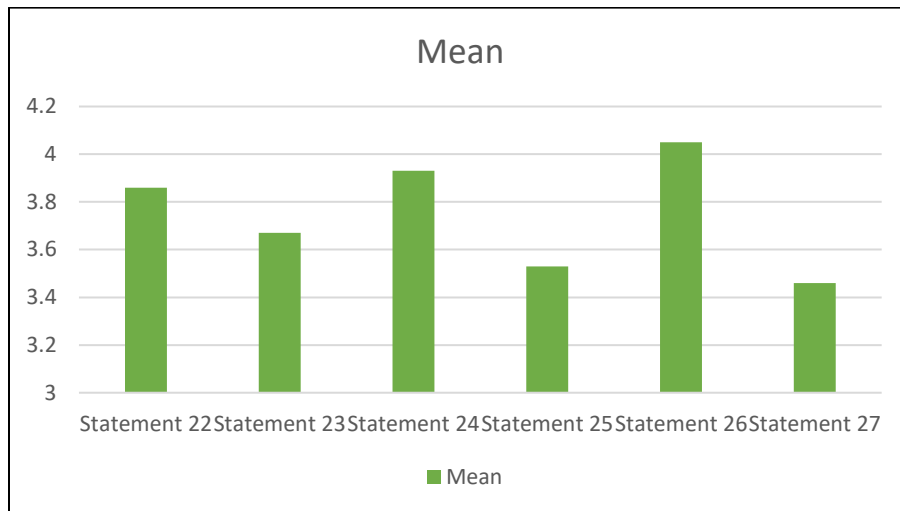
The previous table indicated that the overall mean for the Fourth dimension, " Future expectations " obtained a mean of (3.75), and a standard deviation of (1.020) and a (high) response degree.

The first ranking statement was number (26)" I believe that the agreement will enhance innovation and the use of technology in logistics operations" with a mean of (4.05) and a standard deviation of (1.468), indicating a very high response degree.

followed ranking second with statement No. 24 " I am confident that the agreement will be able to improve logistics services in the future" with a mean of (3.93) and a standard deviation of (1.416), indicating a (high) response degree.

Meanwhile, statement 27 " I believe that the agreement will contribute to improving the Kingdom's ability to compete in the global market" ranked last with a mean of (3.46) and a standard deviation of (1.568), indicating a (high) response degree.

The standard deviation of the fourth axis ranged between (1.568-1.392) which are high values that indicate the variance in the opinions of the study sample members towards these statements.



The fourth axis: Future expectations, obtaining a (high) response degree can be explained by the fact that the agreement will improve the efficiency of logistics operations, which makes the business environment more attractive to investors, which encourages the establishment of new projects in the region, because increasing investments can contribute to diversifying the economy and making it less dependent on oil, and investing in railway infrastructure leads to the development of the logistics sector in general, which provides new growth opportunities, and this partnership can contribute to training national cadres in the field of logistics, which raises the level of competencies in this sector. The statement No. (26) (I believe that the agreement will enhance innovation and the use of technology in logistics operations) coming in the first place, with a (high) response score, can be explained by the fact that the agreement can lead to investment in technological techniques such as robotics and automated warehouse management systems to improve the efficiency of operations and reduce human errors, as big data analysis techniques can be used to improve planning and forecasting, and allocate logistics services to better meet customer needs, and both companies can develop integrated digital platforms

to facilitate supply chain management, shipments tracking, and exchange data with customers and partners.

The statement No. (27) (I believe that the agreement will contribute to improving the Kingdom's ability to compete in the global market) coming in the last order, with a response score of (high), can be explained by the agreement's contribution to better linking the Kingdom to global markets, making it an integral part of the global economy, as the Kingdom can better adapt to global changes in the field of trade and logistics transportation. In addition, investments in infrastructure, such as railways, are considered an indicator of the Kingdom's commitment to achieving sustainable development, as these projects contribute to strengthening the Kingdom's position as a regional economic power.

#### **4-6 Fifth: Presentation, discussion and interpretation of the results of the first hypothesis**

“There is no statistically significant effect at the significance level ( $0.05 \geq \alpha$ ) of the agreement on logistics operations.”

To verify the validity of this hypothesis, a one-sample (T) test was used, and the following table illustrates this

Table (4-5) The agreement effect on logistics operations

Variable	Mean	Hypothetical mean	T Value	Freedom degree	Indication
The first axis "the agreement effect on logistics operations"	3.83	3	12.446	96	.000

The above table shows that There is a statistically significant effect at the significance level (0.05) between the average scores of the study sample members regarding the impact of the agreement on logistics operations.

This can be interpreted as the agreement may lead to expanding the scope of logistics services provided to include new sectors or wider geographical areas, and the



partnership is expected to contribute to improving the quality of logistics services provided, through the application of global best practices.

#### 4-7 Sixth: Presentation, discussion and interpretation of the results of the second hypothesis, which states:

“There is no statistically significant effect at the significance level ( $0.05 \geq \alpha$ ) of the agreement conclusion between the Saudi railway station and Madlouk company on customer satisfaction”.

Table (4-6) The agreement conclusion between the Saudi railway station and Madlouk company on customer satisfaction effect”

Variable	Mean	Hypothetical mean	T Value	Freedom degree	Indication
The third axis "the customers and partners satisfaction"	3.94	3	13.062	96	.000

The above table shows that there is a statistically significant effect at the significance level (0.05) between the average scores of the study sample members regarding the agreement conclusion between Saudi railway station and Madlouk company on customer satisfaction effect on customers satisfaction.

This can be interpreted as the agreement contributing to the development of services provided to passengers and may lead to a reduction in operating costs, which may positively reflect on ticket prices and increase the service attractiveness and may contribute to increasing the efficiency of operational processes, leading to improved reliability and regularity of schedules.

## Chapter Five: Summary of the Study Results, Recommendations and Suggestions

This chapter provides a summary of what was presented in the previous chapters, and the results reached, followed by several recommendations and suggestions on the study results.

### 5-1 Summary of the Results

**First:** Summary of the results of the first question, stating "To what extent does the agreement between the Saudi Railway Station and MEDLOG Company affect the activity of logistics operations between Dammam and Riyadh?"

It was found that the general average of the first axis: the impact of the agreement on logistics operations, came with a mean of (3.83). a standard deviation of (.656) and a response degree of (high).

**Second:** Summary of the results of the second question stating, "What are the challenges and problems facing the agreement between the Saudi Railway Station and MEDLOG Company to increase the activity of logistics operations between Dammam and Riyadh?"

It was found that the general average of the second axis: challenges and problems, came with a mean of (3.63). a standard deviation of (.908) and a response degree of (high).

**Third:** Summary of the results of the third question, which states "To what extent are customers and partners satisfied with the agreement between the Saudi Railway Station and MEDLOG Company to increase the activity of logistics operations between Dammam and Riyadh?"

It was found that the general average of the third axis: customer and partner satisfaction, came with a mean of (3.94), standard deviation of (.707), and a response degree (high).

**Fourth:** Summary of the results of the fourth question, which states "What are the future expectations for the agreement between the Saudi Railway Station and MEDLOG Company to increase the activity of logistics operations between Dammam and Riyadh?"

It was found that the general average of the fourth axis: future expectations, came with a mean of (3.75), a standard deviation of (1.020), and a response degree (high).

**Fifth:** Presentation, discussion and interpretation of the results of the first hypothesis, which states "There is no statistically significant effect at the significance level ( $0.05 \geq \alpha$ ) for the agreement on logistics operations"

There is a statistically significant effect at the significance level (0.05) between the average scores of the study sample members on the impact of the agreement on logistics operations.

**Sixth:** Presentation, discussion and interpretation of the results of the second hypothesis, which states: "There is no statistically significant effect at the significance level ( $0.05 \geq \alpha$ ) of the agreement between the Saudi Railway Station and MEDLOG Company on customer satisfaction"

There is a statistically significant effect at the significance level (0.05) between the average scores of the study sample members on the impact of the agreement between the Saudi Railway Station and MEDLOG Company on customer satisfaction.

## 5-2 Conclusions

The agreement between the Saudi Railway Station and MEDLOG Company increased the quality of logistics operations activity between Dammam and Riyadh

by increasing the volume of shipments transported between the two cities, reducing costs, improving delivery time, and raising the efficiency of operations in general.

It has also led to a significant improvement in the quality of logistics services provided, as integrated and specialized services were provided that better meet the needs of customers, and contributed to the development of the logistics infrastructure in the region, which led to an increase in transportation capacity and facilitating the movement of goods, as well as enhancing coordination and integration between the various parties concerned with logistics operations, which led to improving supply chain management, as modern technology was used in managing logistics operations, which contributed to improving decision-making and facilitating operations.

The agreement also gave great importance to customer satisfaction, as customized services were provided shipping procedures were simplified, and environmental and economic factors were taken into account, which contributed to achieving sustainable development.

In addition, there are positive expectations that this agreement will continue to accomplish more achievements in the field of logistics and enhance the position of the Kingdom of Saudi Arabia as a regional logistics center, So, we can say that the partnership agreement between the Saudi Railway Station and MEDLOG Company has achieved great success in improving and developing logistics operations between Dammam and Riyadh. Which contributes to strengthening the national economy and meeting the growing market needs.

### **5-3 Study recommendations:**

- Both companies should integrate the logistics chain management systems to ensure a smooth flow of information and data, which helps in tracking shipments and improving delivery time.

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- Invest in developing railway infrastructure, including loading and unloading stations, to increase capacity and reduce downtime.
  - Adopt the latest technologies in the field of logistics, such as the Internet of Things, big data analytics, and global positioning systems, to improve inventory management and shipment tracking.
  - Provide intensive training programs for logistics workers to raise their efficiency and familiarize them with the latest global practices.
  - Provide a wide range of additional logistics services, such as packaging and insurance to meet the diverse needs of customers.
  - Build strong relationships with customers and partners through continuous communication and providing them with the necessary support.
  - Customize logistics services to meet the needs of each customer individually, which increases customer loyalty.
  - Conduct regular studies to measure the level of customer and partner satisfaction with the services provided and take the necessary measures to improve them.
  - Consider expanding the scope of services to include other cities in the Kingdom, to increase market share and enhance profitability.
  - Provide new logistics services, such as land and air transportation to meet the evolving needs of customers.
  - Adopt sustainable practices in the field of logistics, such as using alternative fuels and reducing carbon emissions, to contribute to protecting the environment.
  - Conclude strategic partnerships with other companies in various sectors, such as industry and trade to enhance supply chains.

#### 5-4 Study proposals: Conduct future studies on:

- The role of the government in facilitating partnerships between the public and private sectors in the logistics sector.
- The impact of logistics partnerships on the efficiency of intercity transportation.

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