

Linking Dry port with Intermodal Transport: Opportunities and Challenges

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Abstract

Most Ports are not as effective as they should be and are becoming barriers to foreign trade. Most of them have not been able to meet the demands of modern trade. Another type of problems that have a negative effect on the port performance such as, lack of capacity of the stations that leads to decrease service of cargo areas of ports, increases the duration of customs clearance procedures. The concept of dry ports come because of increased competitiveness and growth in the volume and the global trade movement, which led to an increase in the demand for transport services. So, the aim of this research to verify opportunities and challenges that are facing the connectivity between dry port and intermodal transport through conducting semi structured interviews. This research will have an original contribution through highlighting the importance of the linkage between dry port and intermodal transport and its impact on the port in terms of opportunities and barriers.

Key words: Dry ports, Intermodal transport, Seaports, SWOT Analysis.

Introduction

Ports are frequently unable to handle and manage these product movements, and the traffic of heavy-duty vehicles around the seaport can cause relevant congestion and environmental problems. In addition to that shipping companies faces many difficulties in procedures due to delays, including damage to the goods. These of logistics systems can play in reducing these problems (Chandrakant, 2011). However, logistics concepts, in their role of decreasing obstacles in ports, have not been extensively researched until recently (Chandrakant, 2011) One of these concepts is a concept of dry port that, apart from reducing those problems (Roso, 2013), it has the potential to create numerous benefits for the actors of transport systems. In the past decades, dry ports have been adopted in both developed and developing countries to promote inland logistics or advance port-inland connectivity. Moreover, the emergence of the concept of 'dry ports' helped provide an integrated approach to solve the problems of regulating cargo flows (Roso, 2013) as the dry port is an intermodal inland terminal that has a direct rail connection to A sea port, where customers can leave or collect their goods in multi-modal loading units, as if they were directly from the sea port and have

value-added services such as warehousing, consolidation, warehousing, tracking, tracing and maintenance Containers and customs clearance in dry ports (Varese et al., 2020)

This paper has been prorated in a total of five sections. Section 1 introductory phase which gave an overview of the research. Section 2 the literature review which shed the lights on verifying the relationship between dry ports and intermodal transport. Section 3 semi-structured interviews analysis and this section will be finalized through SWOT analysis, Section 4 Discussion and findings, Finally, Section 5 concluded with the further research.

Literature review

The first studies regarding indoor terminals date back to the early 1980s... The term "dry port" was initially used to describe the solution to the problem of increasing congestion at port gates, by redistributing the flows of goods arriving by sea. The United Nations Conference on Trade and Development - UNCTAD - proposes the following definition of dry ports: "An inland terminal to which shippers issue their bill of lading for import goods with full responsibility for the cost and conditions from which the shippers issue their bill of lading (Varese et al., 2020)

A dry port becomes part of a competitive transportation system that has numerous stakeholders with different strategies and interests. As far as the port and terminal management is concerned, enhancing operational flexibility should be given more attention to face the increasing demand. On the other hand, the levels of inefficiency resulting from the capacity problem. As regards governments, some measures should be put in place to help port operators. However, logistics concepts, in their role of decreasing obstacles in ports, have not been extensively researched until recently (Jørsfeldt, L.M., Hvolby, H., & Nguyen, 2016).

The growth stage of dry port development, referred to as "development outside and-inside," requires a joint effort towards dry port development by different actors engaged in hinterland transportation(Shafran, 2014)dry ports are elements of a hinterland transportation system, and their development depends on the state of other infrastructure. (Khaslavskaya & Roso, 2020)The most widely used definition of a dry port is the one suggested (Khaslavskaya & Roso, 2019)

"A dry port is an inland intermodal terminal directly connected to seaport with high capacity transport means, where customers can leave/pick up their standardized units as if directly to a seaport." However, as noted by the author, "no two dry ports are the same." Dry ports exist in very different forms and arrangements under different terms around the world, and they differ in location, functionality, maturity level, ownership, and initiation processes. (Khaslavskaya & Roso, 2020)

Dry port and intermodal transport could be a potential alternative to seaport congestion in addition to improving port service that is currently focused on rail. It is generally believed that multimodal transport is applicable in markets with higher flows or long distances; Due to the costs of congestion, increasing environmental restrictions, and the competitiveness of seaports. (Roso, 2013) seaport with a strong link between on-dock and off-dock terminals. They act as extensions of seaports with the purpose of dealing with problems at seaport terminals, such as land shortage, congestion or local environmental issues. A mid-range dry port or Trans loading terminal is set in the middle point between a seaport and its end market

and works as a consolidation point for different rail services. Such terminals are mostly found at country or state borders, as identified by Beresford et al. (2012).

Dry ports can also be inserted along long-distance transport corridors, such as in the context of the Belt and Road initiative (Wei, Sheng, and Lee 2017). Distant dry ports or load centers are situated in the proximity of the end markets, such as consumption areas or export-based industrial zones to consolidate or deconsolidate cargo from/ to such market. (Ambrosino et al., 2021)

Research Methodology

The aim of this paper to identify the main opportunities and obstacles that faces the linkage between dry ports and intermodal transport. This objective will be done through

Conducting semi structured interviews. The target participants in the interviews are 10 participants, preselected from some officials in the Ministry of Transport and some officials at railway stations, academics working in this field, officials from the Roads Authority and Ports Authority, and some officials in dry ports. The interviewees are asked about their points of view concerning the following aspects.

- Importance of Dry ports in terms of their weaknesses and strengthens points.
- Barriers of facing applying the connectivity between dry ports and intermodal transport.
- Opportunities behind having dry ports connected with intermodal transport.

Then, transpose SWOT analysis based on the output of the interviews analysis.

Data collected from interviews was analyzed by applying the thematic analysis using NVIVO software package. The findings of the study are presented in this research with the purpose of introducing a qualitative analysis of Factors that affect having dry port connected with intermodal transport opportunities and barriers.

Discussion & Results

Fig.1. Theme of Dry Ports Importance



This section will analyze the interview questions in terms of opportunities, barriers, strengths, and weaknesses points, and it will be concluded with SWOT analysis.

The interviews were conducted with people working in fields related to dry ports and intermodal transport.

Firstly, from the interviews, the theme of dry ports importance is generated, and from it several codes are generated, represented in the following: international trade, prices, and cost, facilitates transportation, weakness, and strength and customs clearance. These codes are illustrated in Figure 1, where the codes are presented for the theme of dry ports importance.

A. International Trade

International trade was the first code that appeared in the theme of dry ports importance, as it was one of the actors on which the interviews that had an impact on this theme. This appeared in several evidence that appeared in the statements of the participants in the interviews. The interviews considered that international trade are a code and an important and influential element in the study, which affects the efficiency and direction of dry ports.

The evidence emerged in interviews with some officials at the Ministry of Transport stations and some officials at railways, after academics working in this field, officials from the Roads Authority and Ports Authority, and some officials at dry ports. Generate some directories that expressed the international trade code. Evidence appeared in the first interview, and this evidence were as follows: “To the lack of an international information network”. Moreover, some evidence appeared in the eighth interview.

This evidence was as follows: “Dry or land ports are one of international trade activities and the movement of International trade goods from exports and imports”, “Dry Ports also play an important role in serving the national Economy through handling containers and supporting international trade, and within the framework of the state’s general policy to encourage travel movement, develop the Volume of intra-Arab trade” and “Lifting the burden on seaports, reducing the accumulation of goods and Activating the activity of containers in them at the regional and international levels”.

B. Prices and Cost

Prices and cost were the second code that appeared in the theme of dry ports importance, as it was one of the actors on which the interviews that had an impact on this theme. This appeared in several evidence that appeared in the statements of the participants in the interviews. The interviews considered that prices and cost are a code and an important and influential element in the study of the objectives of the study, which affects the efficiency and direction of dry ports.

The evidence emerged in interviews with some officials at the Ministry of Transport stations and some officials at railways, after academics working in this field, officials from the Roads Authority and Ports Authority, and some officials at dry ports. Generate some directories that expressed the prices and cost code. Evidence appeared in the second and third interviews, and these evidences were as follows: “The price of storage in the dry port is lower”, “Is it transported on the dry port due to price competition? because of the price of the dry port is cheaper”, “The cost is expensive since the smallest dry port is Damietta dry Port, which is 15

acres and costs \$20 million” and “Service and pricing, which are some of the most significant elements that attract customers, including quality and speed in providing services”.

Moreover, some evidence appeared in the fourth, seventh and ninth interview. This evidence was as follows: “Allowing larger storage durations and pricing advantages to encourage storage in dry ports”, “Containers to this port

Cause a high” and “The cost per square meter in the dry port is 10% of the cost in the seaport, so the best opportunity will be in the dry port, in addition to the decrease in cost and the increase in the allowing period”.

C. Facilitates Transportation

Facilitates transportation were the third code that appeared in the theme of dry ports importance, as it was one of the actors on which the interviews that had an impact on this theme. This appeared in several evidence that appeared in the statements of the participants in the interviews. The interviews considered that facilitates transportation are a code and an important and influential element in the study of the objectives of the study, which affects the efficiency and direction of dry ports.

The evidence emerged in interviews with some officials at the Ministry of Transport stations and some officials at railways, after academics working in this field, officials from the Roads Authority and Ports Authority, and some officials at dry ports. Generate some directories that expressed the facilitates transportation code. Evidence appeared in the third interview, and this evidence were as follows: “It facilitates trade interchange between industrial regions by connecting them to seaports, while also facilitating the flow of trade in the processes (export and import goods) between the stakeholders of the shipment”.

Moreover, some evidence appeared in the fourth, fifth and eighth interview. This evidence was as follows: “It facilitates trade interchange between industrial regions by connecting them to seaports, while also facilitating the flow of cargo movement”, “It is facilitating the flow of goods from seaports. And to end transit procedures”, “So, the 6th of October port facilitates the transit movement and the completion of customs procedures” and “Facilitate transportation procedures for vehicles and encourage land transit trade”.

D. Weakness

Weakness was the fourth code that appeared in the theme of dry ports importance, as it was one of the actors on which the interviews that had an impact on this theme. This appeared in a number of evidence that appeared in the statements of the participants in the interviews. The interviews considered that weakness are a code and an important and influential element in the study of the objectives of the study, which affects the efficiency and direction of dry ports in Egypt.

The evidence emerged in interviews with some officials at the Ministry of Transport stations and some officials at railways, after academics working in this field, officials from the Roads Authority and Ports Authority, and some officials at dry ports. Generate some directories that expressed the weakness code. Evidence appeared in the first interview, and these evidences were as follows: “Dry ports are of great importance, but in the case of the deterioration of the infrastructure of roads, bridges and railways, they will be weak points and require development”. Moreover, some evidence appeared in the tenth interview. This evidence was as follows: “The weaknesses are represented in the problem of connecting the dry port to the railway”.

E. Strength

Strength was the fifth code that appeared in the theme of dry ports importance, as it was one of the actors on which the interviews that had an impact on this theme. This appeared in a number of evidence that appeared in the statements of the participants in the interviews. The interviews considered that strength are a code and an important and influential element in the study of the objectives of the study, which affects the efficiency and direction of dry ports in Egypt.

The evidence emerged in interviews with some officials at the Ministry of Transport stations and some officials at railways, after academics working in this field, officials from the Roads Authority and Ports Authority, and some officials at dry ports. Generate some directories that expressed the strength code. Evidence appeared in the second interview, and these evidences were as follows: “Before applying the (ACI system), the dry ports had a high competitiveness because the procedures for release, storage, and exchange in the dry ports are better than those in the seaports” and “The time to keep the container in the yard in the dry port is better, as the container can be stored in the dry port and released about two or 3 times”.

Moreover, some evidence appeared in the sixth and seventh interview. This evidence was as follows: “As the goods are automatically exited on X-RAY, the goods of the dry port are remote from the container yards and waiting areas, which helps reduce bottlenecks outside the port gates”, “The strength of the dry port is that when the pressure on the seaports decreases”, “The border areas will have to handle more” and “To its proximity to the industrial areas”.

F. Customs Clearance

Customs clearance was the sixth code that appeared in the theme of dry ports importance, as it was one of the actors on which the interviews that had an impact on this theme. This appeared in a number of evidence that appeared in the statements of the participants in the interviews. The interviews considered that customs clearance are a code and an important and influential element in the study of the objectives of the study, which affects the efficiency and direction of dry ports in Egypt.

The evidence emerged in interviews with some officials at the Ministry of Transport stations and some officials at railways, after academics working in this field, officials from the Roads Authority and Ports Authority, and some officials at dry ports. Generate some directories that expressed the customs clearance code. Evidence appeared in the sixth interview, and this evidence were as follows: “The ACI system for shipments, logistic centers were established inside the seaports became responsible for customs clearance. This system will help in a boom and a complete transformation of customs procedures”.

Moreover, some evidence appeared in the seventh and tenth interview. This evidence was as follows: “Due to the ease of customs clearance procedures and speed, then the goods are transported to the sea port”, “The speedy completion of customs procedures and reduces the pressure on the seaports”, “Because of the delayed customs processes, a decrease in the performance index is expected following the implementation of the ACI system” and “Reducing overcrowding inside the ports, withdrawing goods, and completing customs clearance operations, it reduces the idea of empty trips, because the truck that arrived at the dry port with raw materials to make added value and re-export without paying any customs taxes because it is a customs-exclusive manufacturing area”.

Secondly, theme of having dry port connected with multimodal transport opportunities and barriers, and from it several codes are generated, represented in the following:

transportation infrastructures, competitive advantage, reduce overcrowding, reducing cargo, lower cost, logistical performance, lack of infrastructure and legal obstacles. These codes are illustrated in Figure 2, where the codes are presented for the theme of having dry port connected with multimodal transport opportunities and barriers.

Transportation Infrastructures

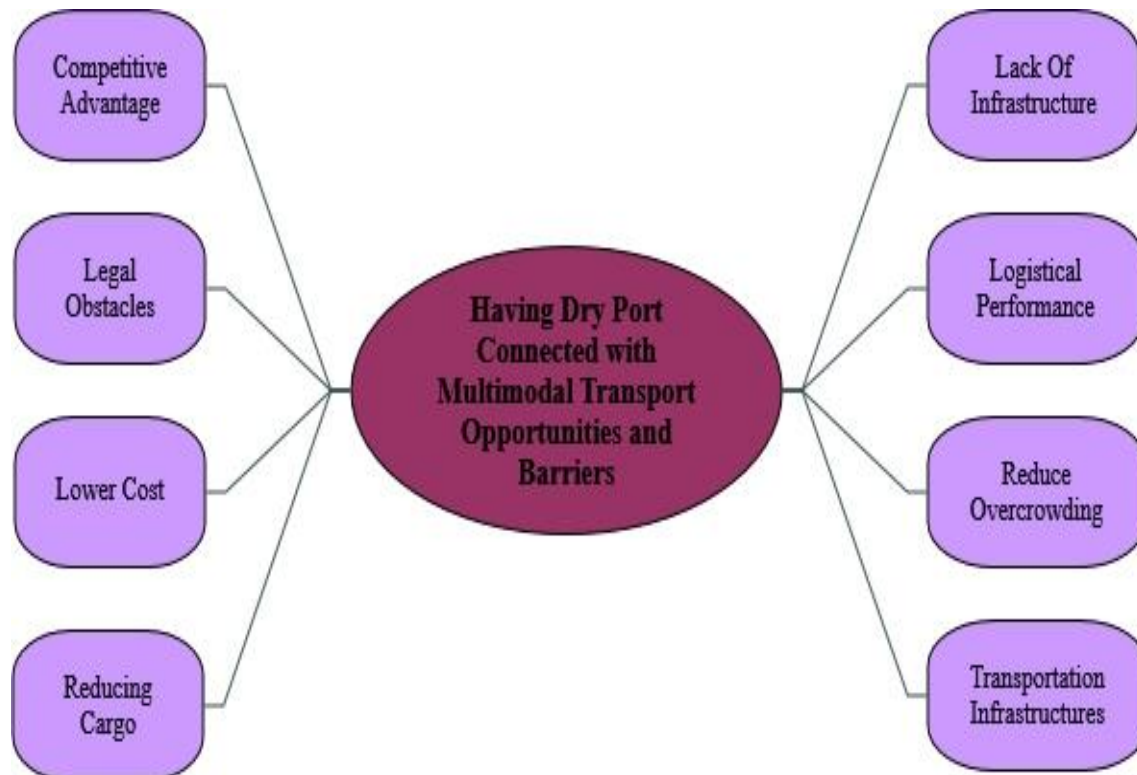


Fig.2. Theme of Having Dry Port Connected with Multimodal Transport Opportunities and Barriers

Transportation infrastructures was the first code that appeared in the theme of having dry port connected with multimodal transport opportunities and barriers, as it was one of the actors on which the interviews that had an impact on this theme. This appeared in a number of evidence that appeared in the statements of the participants in the interviews. The interviews considered that transportation infrastructures are a code and an important and influential element in the study of the objectives of the study, which affects the efficiency and direction of dry ports in Egypt.

The evidence emerged in interviews with some officials at the Ministry of Transport stations and some officials at railways, after academics working in this field, officials from the Roads Authority and Ports Authority, and some officials at dry ports. Generate some directories that expressed the transportation infrastructures code. Evidence appeared in the first, second and fourth interviews, and these evidences were as follows: “The continuous development of transportation infrastructures such as land transport (cargo transportation), railways, and river transport”, “Develop the infrastructure of railways and roads to facilitate the cargo movement from seaports to the dry ports through different modes of transport”, “Infrastructure such as roads, bridges, railways, and connecting them to dry ports to facilitate cargo movement”, “Its connection to river transport or railway transport and to be near an industrial area and an agricultural or industrial production area because it is a commercial hub for the flow of goods”, “The continuous development of transportation infrastructures” and

“Service and pricing, and speed in providing services. Infrastructure such as roads, bridges, railways, and connecting them to dry ports to facilitate cargo movement”.

Moreover, some evidence appeared in the sixth, seventh, eighth and tenth interviews. This evidence was as follows: “It has established a legal environment that governs the operation of dry ports and multimodal transport”, “Multimodal transportation plays a role in the development of dry ports. Currently, rail transport accounts for 90% of all dry port activities”, “a railway was built from Al-Manashi Station in Giza to the 6th of October Dry Port transporting containers from and the 6th of October Dry Port, thus providing the infrastructure and rail transport to save the cost of trucking”, “Supporting the Egyptian national economy by increasing the revenues generated from transporting and trading goods”, “Infrastructure and transportation readiness to accommodate the quantities of goods flowing from sea ports to dry ports”, “It was to ensure the infrastructure of railways and land transport” and “The infrastructure qualified for this connection, there must be Legal legislation and a link with an international operator”.

G. Competitive Advantage

Competitive advantage was the second code that appeared in the theme of having dry port connected with multimodal transport opportunities and barriers, as it was one of the actors on which the interviews that had an impact on this theme. This appeared in a number of evidence that appeared in the statements of the participants in the interviews. The interviews considered that competitive advantage are a code and an important and influential element in the study of the objectives of the study, which affects the efficiency and direction of dry ports in Egypt.

The evidence emerged in interviews with some officials at the Ministry of Transport stations and some officials at railways, after academics working in this field, officials from the Roads Authority and Ports Authority, and some officials at dry ports. Generate some directories that expressed the competitive advantage code. Evidence appeared in the second and fourth interviews, and these evidences were as follows: “The fact that customs warehouses are the largest competitor to the dry port”, “The competitive advantage of the 6th of October Dry Port is the work of the railway link”, “This link is a competitive advantage for this port, in addition to the fact that customs warehouses are more competitive because they were established 15 years ago” and “Competition between dry ports and seaports”.

Moreover, some evidence appeared in the sixth, seventh and eighth interviews. This evidence was as follows: “Competition between dry ports, seaports, and container handling companies is one of the obstacles that affect Egypt's dry ports, leading to an increased crisis for the dry ports”, “Competition between dry ports and seaports”, “The competitiveness of the dry port in terms of cost and its connection to the railway, which gives a competitive advantage to the customer and it is preferable to deal with the dry port”, “Expedite the operations that take place inside the dry port to show a competitive advantage over other sea ports or warehouses”, “Keeping abreast of global trends to facilitate cross-border trade and achieve competitive advantages for investment in Egypt by improving the rates of time taken to complete customs release and export procedures” and “The competition between dry ports, seaports, and container handling companies is one of the obstacles that affect Egypt's dry ports, leading to an increased crisis for the dry ports”.

H. Reduce Overcrowding

Reduce overcrowding was the third code that appeared in the theme of having dry port connected with multimodal transport opportunities and barriers, as it was one of the actors on

which the interviews that had an impact on this theme. This appeared in a number of evidence that appeared in the statements of the participants in the interviews. The interviews considered that reduce overcrowding are a code and an important and influential element in the study of the objectives of the study, which affects the efficiency and direction of dry ports in Egypt.

The evidence emerged in interviews with some officials at the Ministry of Transport stations and some officials at railways, after academics working in this field, officials from the Roads Authority and Ports Authority, and some officials at dry ports. Generate some directories that expressed the reduce overcrowding code. Evidence appeared in the second and third interviews, and these evidences were as follows: “The 6th October dry port aims to reduce overcrowding and obtain a market share of customs warehouses” and “The main opportunity from establishing dry port is reducing overcrowding in seaports and allowing for an increase in ship operations at the seaport, as well as accelerating commodities distribution from the seaport to the dry port and decreasing the duration of (import and export containers) in seaports”.

Moreover, some evidence appeared in the seventh, eighth, ninth and tenth interviews. This evidence was as follows: “As more dry ports spread throughout the republic and linked to a railway transport network, the more relief in the seaports is in addition to speed, in addition to the speedy completion of customs procedures and reduces the pressure on the seaports”, “Reducing the pressure on seaports, preventing the accumulation of goods and containers in them, and maximizing the use of port expansions to revive international trade and transit”, “Getting rid of the problem of overcrowding in seaports, linking seaports with neighboring cities, facilitating the process of multimodal transport” and “Reducing overcrowding inside the port, in addition to increasing the withdrawal rates of goods from sea ports”.

I. Reducing Cargo

Reducing cargo was the fourth code that appeared in the theme of having dry port connected with multimodal transport opportunities and barriers, as it was one of the actors on which the interviews that had an impact on this theme. This appeared in a number of evidence that appeared in the statements of the participants in the interviews. The interviews considered that reducing cargo are a code and an important and influential element in the study of the objectives of the study, which affects the efficiency and direction of dry ports in Egypt.

The evidence emerged in interviews with some officials at the Ministry of Transport stations and some officials at railways, after academics working in this field, officials from the Roads Authority and Ports Authority, and some officials at dry ports. Generate some directories that expressed the reducing cargo code. Evidence appeared in the fourth interview, and these evidences were as follows: “There are many opportunities of connecting seaport with dry port, such as increasing the rates of cargo in seaports”. Moreover, some evidence appeared in the fifth interview. This evidence was as follows: “Reducing cargo bottlenecks inside and outside seaports, in addition to speeding up customs release of shipments, ending procedures and facilitating the indirect transit process”.

J. Lower Cost

Lower cost was the fifth code that appeared in the theme of having dry port connected with multimodal transport opportunities and barriers, as it was one of the actors on which the interviews that had an impact on this theme. This appeared in a number of evidence that appeared in the statements of the participants in the interviews. The interviews considered that lower cost are a code and an important and influential element in the study of the objectives of the study, which affects the efficiency and direction of dry ports in Egypt.

The evidence emerged in interviews with some officials at the Ministry of Transport stations and some officials at railways, after academics working in this field, officials from the Roads Authority and Ports Authority, and some officials at dry ports. Generate some directories that expressed the lower cost code. Evidence appeared in the fifth interview, and these evidences were as follows: “The fact that the cost in land ports is lower and storage areas are larger than in seaports, as seaports aim to trade from and to ships”. Moreover, some evidence appeared in the ninth interview. This evidence was as follows: “Reducing the net operating costs of multimodal transport, which leads to an increase in trade” and “Shipping goods by rail or trucks over long distances is cheaper than any other means of land transport, and the seaports”.

K. Logistical Performance

Logistical performance was the sixth code that appeared in the theme of having dry port connected with multimodal transport opportunities and barriers, as it was one of the actors on which the interviews that had an impact on this theme. This appeared in a number of evidence that appeared in the statements of the participants in the interviews. The interviews considered that logistical performance are a code and an important and influential element in the study of the objectives of the study, which affects the efficiency and direction of dry ports in Egypt.

The evidence emerged in interviews with some officials at the Ministry of Transport stations and some officials at railways, after academics working in this field, officials from the Roads Authority and Ports Authority, and some officials at dry ports. Generate some directories that expressed the logistical performance code. Evidence appeared in the seventh interview, and these evidences were as follows: “The more evaluating the country's logistical performance, as Egypt is annually decreasing in the logistical performance index. Because of the delayed customs processes, a decrease in the performance index is expected following the implementation of the ACI system” and “The more evaluating the country's logistical performance, as Egypt is annually decreasing in the logistical performance index”.

Moreover, some evidence appeared in the eighth, ninth and tenth interview. This evidence was as follows: “Improving the level of logistics services provided, which contributes to increasing the movement of exports and imports”, “These ports have become a logistical center for activities that add value to the port, such as service activities to end all administrative matters such as shipping agencies, banks, insurance companies, customs, information and communication centers, in addition to a network of river, land and railway roads” and “Since the multimodal transport agreement has not entered into force, in addition to the fact that the agreement did not reach the minimum level of approvals to be applied in Egypt, the multimodal bill of lading is not recognized and there is no multimodal transport operator, and in the case of problems, there is no legislative system for this agreement”.

L. Lack of Infrastructure

Lack of infrastructure was the seventh code that appeared in the theme of having dry port connected with multimodal transport opportunities and barriers, as it was one of the actors on which the interviews that had an impact on this theme. This appeared in a number of evidence that appeared in the statements of the participants in the interviews. The interviews

considered that lack of infrastructure are a code and an important and influential element in the study of the objectives of the study, which affects the efficiency and direction of dry ports in Egypt.

The evidence emerged in interviews with some officials at the Ministry of Transport stations and some officials at railways, after academics working in this field, officials from the Roads Authority and Ports Authority, and some officials at dry ports. Generate some directories that expressed the lack of infrastructure code. Evidence appeared in the first and second interviews, and these evidences were as follows: “Lack of infrastructure such as roads, bridges, railways, and not connecting them with dry ports, besides unavailability of electronic connectivity”, “The location of the land ports is on the trade hubs located in Egypt and that they are linked to the railways before the roads”, “Currently a railway is being established and two proposals for an external participation to operate the lines, as the movement of goods trade will start from the exit of goods from the sea port to the dry port” and “The requirements of any dry port and the presence of a handling station from the railway to the yard, in addition to the bill of lading in which all means of transport that handled goods are mentioned”.

Moreover, some evidence appeared in the fourth, fifth, ninth and tenth interview. This evidence was as follows: “Lack of infrastructure such as roads, bridges, and railways”, “There was no correct concept of the land and dry ports, besides, there was no obstacle facing the land ports, as they were planned to be established and linked to the railways”, “The main barriers of any dry port the presence of a handling station from the railway to the yard, in addition to the bill of lading in which all means of transport that handled goods are mentioned” and “Infrastructure that links seaports and dry ports, as well as efficient roadways and trains, as well as a regulatory system that controls activities”

M. Legal Obstacles

Legal obstacles were the eighth code that appeared in the theme of having dry port connected with multimodal transport opportunities and barriers, as it was one of the actors on which the interviews that had an impact on this theme. This appeared in a number of evidence that appeared in the statements of the participants in the interviews. The interviews considered that legal obstacles are a code and an important and influential element in the study of the objectives of the study, which affects the efficiency and direction of dry ports in Egypt.

The evidence emerged in interviews with some officials at the Ministry of Transport stations and some officials at railways, after academics working in this field, officials from the Roads Authority and Ports Authority, and some officials at dry ports. Generate some directories that expressed the legal obstacles code. Evidence appeared in the third and fourth interviews, and these evidences were as follows: “Legal obstacles due to Egypt's non-implementation of the agreement” and “The necessity of activating a legal system related to dry ports within a specific legislative framework”. Moreover, some evidence appeared in the fourth, fifth, ninth and tenth interview. This evidence was as follows: “The necessity of activating a legal system related to dry ports within a specific legislative framework”.

The following table1. (SWOT ANALYSIS) will summarize the output of the interview analysis. Based on which opportunities, obstacles, strengths, and weakness that have an impact on the linkage between dry ports and intermodal.

Table.1. *SWOT Analysis of linking Dry ports and Intermodal*

Strengths	Weaknesses
Services provided	Infrastructure of roads and railways
Facilitating the indirect transit process	Legislative framework related to dry ports
Lower Cost in dry ports	Lack of experience
Larger Storage areas than in seaports.	Lack of an international information network.
Reducing empty trips	
Opportunities	Threats
Reducing overcrowding inside the port	Infrastructure and transportation readiness
Increasing the withdrawal rates of goods from seaports	Lack of connection of railways to all ports.
Speeding up customs procedures release of shipments	competition between dry ports, seaports, and container handling companies
	Procedures require a large financial guarantee.

Conclusion

This paper aims to give an overview about the main opportunities and challenges faces the connectivity between dry ports and intermodal transport.

Data gathered through conducting some interviews with some responsible persons. This data collected from interviews was analyzed by applying the thematic analysis through NVIVO software package

. Firstly, the theme of “dry port importance” was the first theme and from it several codes are generated, represented in the following: international trade, prices and cost, facilitates transportation, weakness, and strength and customs clearance.

Secondly, the theme “Having dry port connected with multimodal transport opportunities and barriers” from it several codes are generated, represented in the following: transportation infrastructures, competitive advantage, reduce overcrowding, reducing cargo, lower cost, logistical performance, lack of infrastructure and legal obstacles.

And concluding through SWOT analysis to summarizes the four main strategic factors (SWOT) highlighting the opportunities and barriers of having dry ports connected with intermodal transport. And the main findings extracted from this paper: the dry port reducing the pressure on seaports, preventing the accumulation of goods and containers, completing customs clearance operations, it reduces the idea of empty trips, because the truck that arrived at the dry port with raw materials to make added value and re-export without paying any customs, and necessity of activating a legal system related to dry ports within a specific legislative framework.

Further Research

This research is essential as it explains the potential of the concept of dry ports and intermodal transport to highlight the opportunities and obstacles of having dry ports connected with intermodal transport

Moreover, other researchers could use the output of this paper by applying case study on other ports or other countries. The four main strategic factors (SWOT Analysis) of the dry ports and intermodal transport were illustrated, and it is concluded that the dry ports could avoid some of its weaknesses by enhancing the strength points and grabbing some of the opportunities.

References

- Carbonia,A, Orsini.F. (2020). Dry ports and related environmental benefits: a case study in Italy. sciencedirect.
- Jeevan,J,Chen,S,Cahoon.S. (2018). The impact of dry port operations on container seaports competitiveness. The flagship journal of international shipping and port research.
- Kaushik.V and Christine A. Walsh. (2019, September 6). Pragmatism as a Research Paradigm and Its Implications for Social Work Research.
- Khaslavskaya.A * and Roso.V. (2019, March 12). Outcome-Driven Supply Chain Perspective on Dry Ports.
development of dry ports in Asia: An environmental perspective.
- Haralambides, H. E. (2019, January 7). Gigantism in container shipping, ports and global logistics: a time lapse into the future.
- Lam NGUYENa.Theo NOTTEBOOM. (2016). A Multi-Criteria Approach to Dry Port Location in Developing Economies with Application to Vietnam. The Asian Journal of Shipping and Logistics.
- Paul.J,Notteboom.T. (2012, December). Dry ports in European and North American intermodal rail systems: Two of a kind? Research in Transportation Business & Management, pp. 4-15.
- Braun, V. and Clarke, V., 2019. Reflecting on reflexive thematic analysis. Qualitative Research in Sport, Exercise and Health, 11(4), pp.589-597.
- Neuendorf, K.A., 2018. Content analysis and thematic analysis. In Advanced research methods for applied psychology (pp. 211-223). Routledge.
- Robert, G. and Zadra, A., 2014. Thematic and content analysis of idiopathic nightmares and bad dreams. Sleep, 37(2), pp.409-417.
- Wang, Y., Monios, J., & Zhang, M. (2020). Comparing onsite and offsite rail access for dry port developments – A benchmark study in China. Research in Transportation Business and Management, 35(March), 100471. <https://doi.org/10.1016/j.rtbm.2020.100471>