Analysis of freight transport and logistic sector in Morocco

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Abstract— The objective of this work is to analyze, determine the mode of organization and operation of the freight transport and logistic sector in Morocco.
We have developed this problem by approaching, in a first place, the importance and the role of the freight transport and logistic sector in Morocco.
In a second place, we gave an overview on the context of the sector by approaching its evolution, identifying its infrastructures and discerning its actors.
In a last place and in order to deepen the analysis, we used Michael Porter's classic "five forces" scheme that we have applied to three main components of the sector, namely road transport, transportation maritime and logistics.

Index Terms— Analysis, transport, Freight, logistic, Morocco

1 Introduction

The Freight Transport and Logistic Sector (FTLS) in Morocco occupies a preponderant place in the Moroccan economy (its size is estimated at 33.8 billion dirhams in 2011 or 5.8% of the total value added and 10, 3% of tertiary activities in 2011) [1]. It is therefore a support sector contributing to national growth, as evidenced by the positive correlation between the evolution of overall economic activity and the growth of the sector.

In order to determine the mode of organization and operation of the sector, schematically, to know why the sector is such as it is (at the level of its structures, the behavior of its companies, its results ...), to explain its specificities compared to other sectors of the economy, we conducted an in-depth literature review. The relevant information previously gathered by the literature has been processed from reading grids derived using economic theory.

Thus, we approached the subject by evoking, in a first place, the importance and the role of the freight transport and logistic sector. Indeed, this sector is undeniably necessary for the smooth running of the productive fabric by its presence in all the value chain links, from upstream to downstream. Without forgetting that it participates in the employment creation and in the opening up of the remote areas of the country.
Ina a second place, we have defined the context of the sector by examining changes he experienced, identifying infrastructure and discerning its actors.

In a last and with the intention to refine the analysis, we were inspired by the classic pattern says "five forces" Michael Porter, that we have applied to the three main components of the sector namely road transport, maritime transport and the logistics sector.logistique.

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2 Importance and Role of the Freight Transport and Logistic Sector

The FTLS in Morocco is a promising sector for the national economy with 100,000 direct jobs and a contribution of 5% of GDP for the entire supply chain including 3% for the loading and transport (kammas, 2015) [2].

The importance of the sector is also measured by its direct impact on the competitiveness of the economic fabric both in terms of exports and imports. Similarly, it goes without saying that logistics competitiveness is an important lever in improving the competitiveness of Morocco's global businesses, in terms of the National Pact for Industrial Emergence, in improving the competitiveness of exporting agricultural sectors of the Green Morocco Plan or in the competitiveness of Moroccan products on the national territory (local distribution, preservation of purchasing power, safety, hygiene especially for fresh products, transparency on prices ...).

It should also be noted that the transport sector alone accounts for 3.9% of total value added and 7.1% of tertiary sector activities in 2013 at constant prices [3]. Its value added increased from 19.6 billion dirhams (+/- 1.71 billion euros) in 2000 to 33.8 billion dirhams (+/- 2.94 billion euros) in 2011, an increase of average annual growth of 5% (Van Wulpen, 2014). In terms of jobs created, transport (including warehousing and communications) employed nearly 500,000 people in 2013, which represents 5% of the employed labor force, of which 6.6% in the urban environment is constant [3]. In addition, transport, and in particular that of goods, is undeniably necessary for the proper functioning of the productive fabric by its presence in all links of the value chain, from upstream to downstream [2]. It is therefore a support sector contributing to national growth, as evidenced by the positive correlation between the evolution of overall economic activity and the growth of the sector. Similarly, the role of the transport sector is crucial in the integration of the national economy into the world economy and in the opening up of remote areas of the

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national territory to curb monopolistic pressures and interregional inequalities.

3 Background of Freight Transport and Logistic Sector in Morocco

3.1 Evolution of the Freight Transport and Logistic Sector in Morocco

The evolution affected logistic services whose turnover has increased significantly due to the emergence of an efficient logistics operator’s network after the installation of a large number of specialized international companies in the Moroccan market and the significant development that Moroccan companies have experienced in this sector, which have begun to position themselves internationally, particularly on the African market. In terms of developing logistics real estate, Morocco, which in 2010 had only a few dozen hectares of modern logistical platforms, totaled 550 hectares in 2016 [4].

Several indicators and rankings attributed to Morocco at international level reflect the evolution of this sector. Thus Morocco was ranked 86th in 2016 on the basis of the World Bank's Logistics Performance Index (LPI), instead of 94th in 2007. It was also ranked 21th according to the logistics index of the World Bank. Agility Emerging Markets Logistics Index in 2017, with an increase of one place compared to the previous year.

It should also be remembered that according to the "Global Competitivness 2015" report, published by the World Economic Forum, Morocco ranks 1st in North Africa in terms of infrastructure. Morocco is also 3rd in Africa and 6th in the Arab world. It is therefore necessary to emphasize the dynamism of the national railway network, which is currently the most extensive network in the Maghreb and most modern in Africa. The operational performance recorded by the port has allowed it to be ranked 50th globally in 2017 (Lloyd's list, 2017), instead of 75th in 2009, and to be in 2nd place in Africa, and at the same time, to hoist the Morocco ranked 17th in the global maritime connectivity rankings established by UNCTAD in 2017.

3.2 Infrastructure of the Freight Transport and Logistic Sector in Morocco

An important element for the smooth running of logistics chains: the quality of the network for the freight transport. Three modes of transport are favored in the logistics sector: road transport, rail transport, and maritime transport [5].

3.2.1 Road Network

Road transport has a network of 57,334 km of roads in 2014, of which more than 41,102 km are covered roads. The motorway network has 1511 km of motorways in operation [6]. Internally, road freight transport is dominant (around 75% of total non-phosphate goods flows). Trucks remain the primary means of transporting goods by road. This fleet consists of 20,000 carriers, owning 73,275 trucks, 53% for the account of others and 47% for their own account.

3.2.2 Railway Network

The Moroccan railway network comprises 2,109 km, of which 1,284 km are electrified, and 633 km double track. In 2014, freight transport amounted to 35.9 million tonnes (compared with 29.8 million tonnes in 2002), of which about three-quarters was for phosphate transport [6]. An investment of 33 billion dirhams should enable ONCF to build a high-speed train line between Casablanca and Tangier, and modernize and develop its network to increase its transport capacity: according to the project, the rail network should ensure the transport of 18 million tonnes of merchandise (excluding phosphate) in 2015. The transport of goods (other than phosphate) and phosphate represent respectively 15% and 51% of ONCF's revenues. Freight revenues from 1.4 billion dirhams to 2.9 billion [7].

3.2.3 Maritime Transport

With 3500 km of coastline and 30 ports, maritime transport is of paramount importance for Morocco's economy - about 95% of foreign trade goes by sea [8]. Almost all Moroccan maritime traffic is made up of international trade activities, the rest being domestic cabotage traffic (mainly petroleum products). In 2014, the Moroccan-flag fleet consisted of 15 units. At the end of 2012, the tonnage transported by Moroccan armaments decreased by 72.2%, from 4,863,430 tons in 2011 to 2,823,449 tons in 2012. The activity of Moroccan armaments allowed a participation rate in the transport of our foreign trade of 3.68% in 2012 against 6.6% in 2011. This situation can be explained by several factors, including the lack of adequate size for most Moroccan operators, as well as the technical condition of the fleet, which generates high operating costs, and the rise in oil prices.

In 2012, Moroccan ports processed 92.4 Mt (including cabotage), of which 15.5 Mt was transhipment traffic handled at TangerMed. The main categories of products handled by Moroccan ports are solid bulk (52%), followed by liquid bulk (29%) and containers (12%), which are nevertheless the main category in terms of value [1].

3.2.3 Logistics Infrastructure

L The developed logistics area grew strongly between 2010 and 2015, thanks in particular to the impetus of the public developers. In fact, Morocco, which in 2010 had only a few dozen hectares of modern logistical areas, has 550 ha in 2015 in Casablanca, Tangiers and in several regions hosting the Integrated Industrial Platforms (IIP). This development is mainly due to the efforts of the public actors who have strongly contributed to the development of logistics land, through the investments made by MedZ (logistics platforms backed by agro-poles and PII), the SNTL (Zenata), the ONCF (Casa-Mita) and TMPA (Medhub). The logistics land developed by public stakeholders over the period 2010-2015 represents 87% of the total area developed over the same period. With regard to the constructed logistic area, the supply of ready-to-use modern logistic real estate (class A or B warehouses) for example in the Casablanca region has tripled over the period 2010-2015 to reach nearly 700,000 m2 against 200,000 m2. In contrast to developed areas, the contribution of private operators was more significant in the construction of logistics buildings with a share of 74% [9].

3.3 Actprs of the Freight Transport and Logistic Sector in Morocco

The transport and logistics sector is characterized by a diversity of actors. These actors belong to the public and private domains (see TABLE 1) [10].

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4 Data, Concepts and Theoretical Sequence for the Analysis of the FTLS in Morocco

After a first description of the freight transport and logistics sector context in Morocco, an overview of its stakes can only provide a better understanding of the sector. To make image, the secret of successful identification and problem analysis is a lot of quality fuel and a powerful and reliable engine. Fuel being the data while the engine is only the theoretical concepts and sequences. Indeed, without concepts and theoretical linkages, the data remain silent. Likewise, without data, theoretical concepts and sequences run empty or lead to erroneous conclusions [11].

4.1 Source Data for the Analysis of FTLS

The data necessary for the identification and analysis of the issues are presented according to two cleavages including statistical information and literary information.

The first division deals with various aspects and comes from very different sources. Sector statistics represent the most important data used. These statistics are always the result of an individual data aggregation procedure (on companies, products, consumers ...). While the second division includes the gray literature which in turn splits into two categories: studies and the press. Studies can be acquired from certain specialized firms (or be the product of scientific research). These studies dispense with having to carry out a study by oneself if they are sufficiently "fresh", adapted to the problem pursued, and that their quality is judged satisfactory. Otherwise, they can be used as raw material, which saves time in the collection of primary sources, the constitution of the prior knowledge of the sector.... A number of organizations, such as the Office of the High Commissioner for Planning, professional unions and ministries, publish, more or less regularly, sectoral studies which, although they rarely show the degree of depth of studies of specialized firms, constitute sources not to neglect. As far as the press is concerned, with some exceptions, it is a provider of raw information. It is necessary to differentiate the general press from the professional press. Admittedly, the first type makes it possible to follow the news of the sector and to collect information on the strategies, the reforms, the results.... However it very often partial, since it is biased (in terms of

TABLE 1
ACTORS OF THE FREIGHT TRANSPORT AND LOGISTICS SECTOR IN MOROCCO

Road	• **The transport operator, which is the public transport companies. According to the Moroccan Ministry of Equipment and Transport (MET), there are about 25,000 companies of this type. Nearly 90% of them own only 1 or 2 trucks. The main transport operator is the National Society of Transport and Logistics (SNTL).** • **Companies with their own means of transport. According to the MET, these companies have a fleet of more than 30,000 vehicles made up of 45% light vehicles with a tonnage of less than or equal to 8 tones.**
Maritime	• More than 300 maritime and port operators, including 9 ship-owners, 75 ship consignees, 3 assistance companies, salvage and towing companies, and 4 classification societies. • 200 companies in the port sector (lorry workers, shipping agents / consignees, customs agents), concentrated in Casablanca and Tangier. • 110 freight forwarders. The majority of these companies (90%) are foreign. Local companies intervene only in the organization of transport, while the others also offer logistical services.
Logistics	• Major international groups such as DHL, EXEL, GEODIS, SCHENKER, MEARSK LOGISTICS, DASHER, ID-LOGISTICS are present. • Only a few Moroccan operators offer a certain number of 3PL logistic services, namely: EXPRESS WAY, MAROTRANS, SDTM and SNTL. The latter is the largest logistics provider governed by the public authority but has used MAERSK LOGISTICS to manage its first logistics platform of ZENATA in Casablanca (El Khayat, 2012).
Customers	• Companies oriented towards foreign trade • Industries oriented towards the local market • Agriculture • The local building materials sector. • Modern commercial distribution installed in Morocco.
Suppliers	• Infrastructure provider which is the Ministry of Equipment and Transport (MET). • Institutions of professional training such as the Department of Vocational Training of the Employment and Vocational Training Ministry, the Office of Vocational Training and Promotion of Labor (OFPPT), the Moroccan Association of Training in the road transport trades (AFMTR), etc.
Support Sectors	• Transport authorities. Within the MET, the main organizations whose activities are related to the logistics sector are: The Roads Directorate (DR); Morocco National Motorway Company (ADM); The Ports and Maritime Public Domain Directorate; The direction of the Merchant Navy; Marsa Morocco; The National Ports Agency (ANP). Not to mention the ministerial departments such as the Ministry of Economy and Finance; the Ministry of Industry, Trade and New Technologies; the Ministry of Agriculture and Maritime Fisheries. • Customs authorities and other border control services • Infrastructure managers (example of the management of the public domain port Marsa Morocco and Somaport) • Banks and the financial sector
Other agents	• Professional bodies such as the Federation of Transport / CGEM, the Moroccan Association for Logistics (AMLOG), the Moroccan Association of International Road Transport (AMTRI), the Association of Maritime Shipping Agents and Stevedores of Morocco (ASSAMAT)), UMT, union representing all professional Dockers. • Technology centers such as the General Confederation of Enterprises of Morocco (CGEM), the Moroccan Association of Exporters (ASMEX). • Moroccan Agency for Logistics Development (AMDL) • Moroccan Observatory of Logistics Competitiveness (OMCL)

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coverage) in favor of large companies and large sectors. Hence the need for the professional press, which is more targeted, is essential for the documentary coverage of "small" sectors and SMEs.

The use of statistics requires knowledge of the accounting reality that hides behind the economic indicators and a set of reference to highlight the specificities of the sector. Due to the unavailability of data, it became necessary to look at the gray literature which was the subject of an attentive tabulation, which allowed to collect a very "pointillist" set of information on companies, on products, technology, markets, the regulatory environment, the "culture" of the sector...

4.2 Method Choice for the Analysis of the FTLS in Morocco

The systemic dimension of the functioning of a sector makes its study difficult. The interaction between the different aspects of his organization is opposed to the linear approach that governs the realization of the study. Faced with this complexity, the adoption of a rigorous method constitutes an important safeguard, source of deepening of the analysis and productivity in its realization.

Several approaches are suitable for accomplishing this task. The most "archaic" is built around a plan of the type supply / demand or even market / companies. While the first segment offers information such as the size of the market, its segmentation, the nature of the products ..., the second one devotes lengthy developments to analyzing the results of the sector and leading companies. It should be noted that the two parts are so general that they maintain few direct relationships which further complicates the task of the analyst who must ensure an acceptable quality of the result of the study. A second approach is based on the SCP paradigm and leads to a five-block plan, each of has a well-defined analytical content, including basic conditions, structure, behavior, performance, and government policy. The articulation of these blocks represents the sequence of the analysis since the output of each part corresponds to the input of the next. By way of illustration, the analysis of the basic conditions in the first part should help to understand structures, behaviors, and performances. Similarly, the study of structures must lead to a number of expectations regarding behavior and performance ... (Moati, 1995). Thanks to this join, each information finds its place more easily which makes it possible to increase the productivity of the analyst. Despite its qualities, the SCP method has been the subject of several criticisms. These criticisms have been made of the fact that the paradigm leaves too many important aspects of the organization of sectors in the context of exogenous parameters, that it tends to isolate sectors from the rest of the economy and that it ignores the the role played by the strategic behavior of firms as determinants of competition in a market. The third and last step that we present is considered to be the inheritor of the structuralist tradition. Developed by the professor of strategy Michael E. Porter in the late 1970s, the 5-forces model analyzes the context of the market in which the business operates, identifies the key success factors that will enable the organization to to gain a competitive advantage in its field, and to measure the attractiveness of a sector of activity. The plan followed by the method has a double interest. Thus, it does not just treat the sector in the strict sense, but attaches considerable importance to the modalities of its insertion into the productive system. Its therefore encourages the analyst not to overlook any aspect of the meso-economic dimension of the sector. Similarly, the content of each of the parts is based on the achievements of a considerable theoretical and empirical literature, making it reliable and powerful analysis tools [11].

Our choice was based on the Porter method because it meets the needs of a "standard" sector study, which aims to present and understand the mechanisms of functioning of a sector and the logic of its evolution dynamics.

4.3 Components of the Porter Method

As the name suggests, the method consists of 5 elements / forces:

Competitive pressure or not. Competition is more or less intense depending on the number of companies in the sector, the size of the company (the larger the company, the less competitive it is), the market conditions and the type of product / service offered.proposé.

New entrants threat or not. The arrival of potential entrants in a market may be hampered by the existence of barriers to entry. This threat is particularly strong when the investment required to enter the market are low and quickly rentabilisables there are few standards or regulations, no cultural barrier exists and distributions channels are willing to easily accommodate new actors.

Substitute products threat or no which can lead in short terms to a decline in market share and in the medium and long term to a sweeping market.

Negotiating power of suppliers of suppliers of suppliers of suppliers of suppliers of suppliers or not. They can exercise their domination for several reasons namely the monopoly of supply, the technical, commercial, financial and legal domination.

Client power or not. The bigger the clients are or the smaller the number of customers is, the more power they have. In small numbers, customers may be more demanding in terms of price, quality, pay and service.

5. Analysis Results of the FTLS in Morroco

To analyze the transport sector of goods and logistics and view its characteristics, we selected four forces of Porter method ie customers, suppliers, potential entrants and competitors, we applied three main components of sector including road transport, maritime transport and logistics sector. We have not analyzed the rail transport because it is monopolized by the state via the National Office of Railways (ONCF). Similarly for the air transport of goods whose share is extremely limited since it accounts for about 0.1% of Moroccan trade (measured in tonnes traded) [12].

5.1 Road Transport

From the analysis (see Fig.1), we have deduced that the road transport sector has a high growth potential thanks to the reforms it has experienced, the maturity of sectoral strategies, as well as the strengthening of trade with the European Union or with the Maghreb and the countries of sub-Saharan Africa. Concerning competition, the Moroccan TIR is relatively behind compared to its direct competitors on the European market. Just as internal road transport suffers from strong competition from the informal sector. With regard to the transport providers, the national operators achieve barely 20 to 23% of the TIR (end-to-end). The rest is monopolized by Spanish companies, and to a lesser extent French. While the first clients of the sector are foreigners or subsidiaries of foreign groups for the transport of industrial goods and Moroccan agricultural companies that export citrus fruit to Europe.

• RoRo Pax (Detroit): This growing market for truck traffic is operated by a very large number of shipping companies compared to the existing traffic volume; there is a situation of overcapacity. In this market, Moroccan operators are in a good position.

• RoRo Pax: The market has good growth prospects. It is operated mainly by Italian companies specialized in this type of traffic. In this segment, there is only one line operated by a Moroccan company.

• Solid Bulk: This is a market that is controlled by a few shippers and with significant growth prospects, for which there is a high supply of shipping companies.

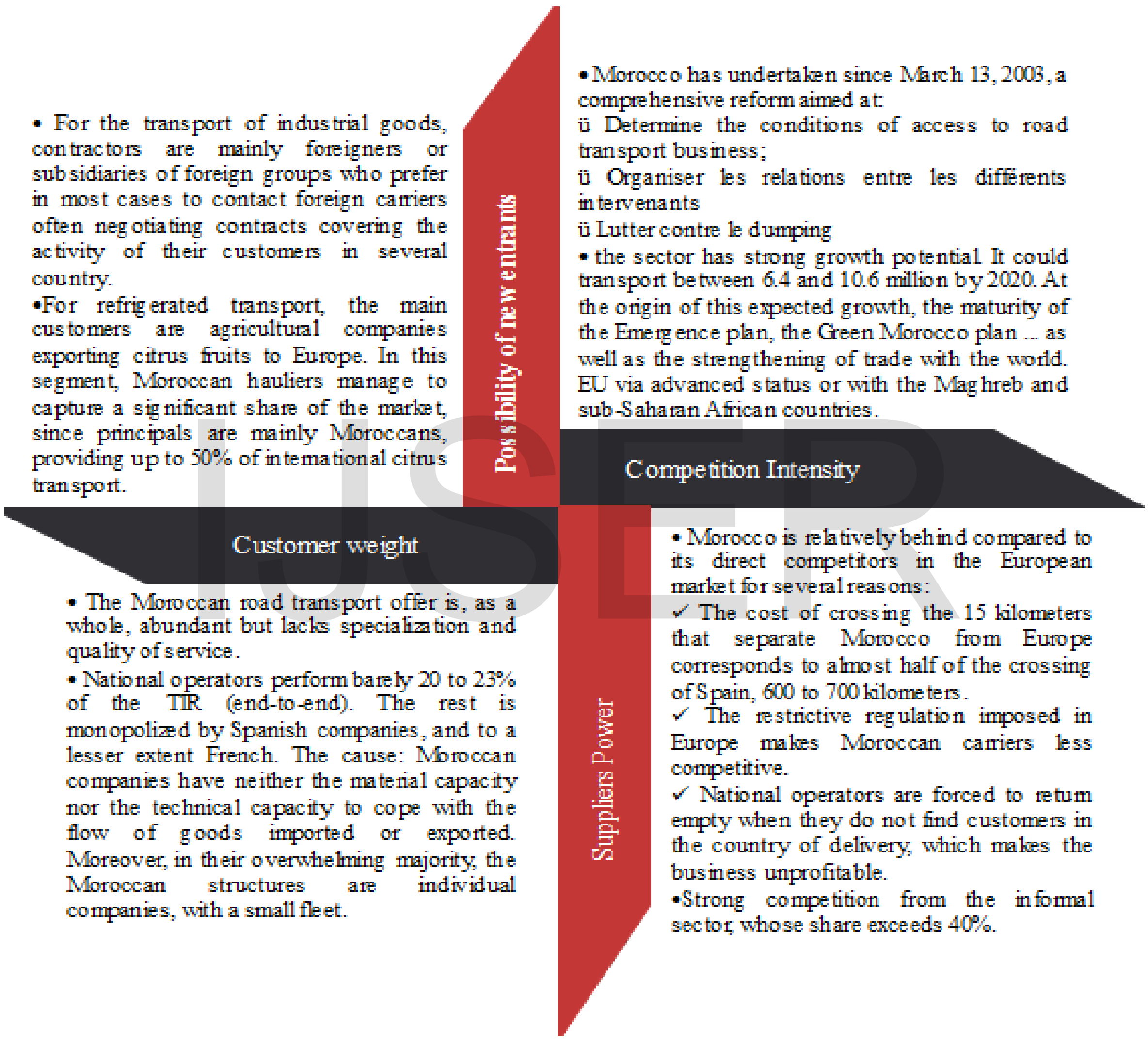

Fig. 1. Analysis of the road freight transport sector in Morocco.

5.2 Maritime Transport

From the analysis (see Fig.2), we have seen that the maritime freight sector, represented by its branches, is characterized by:

• Containers: This is a market with good growth forecasts, in which there is a considerable number of loaders but a small number of shipping companies (mega-carriers). In this market, there is no Moroccan company operating traffic, on the other hand there are ships with Moroccan flag.

• Bulk liquids: This is a market controlled by a very small number of shippers that do not generally dominate the supply chain but with a high volume of shipping companies. There are Moroccan companies in this market which specialize in cabotage traffic, and which often charter vessels for import.

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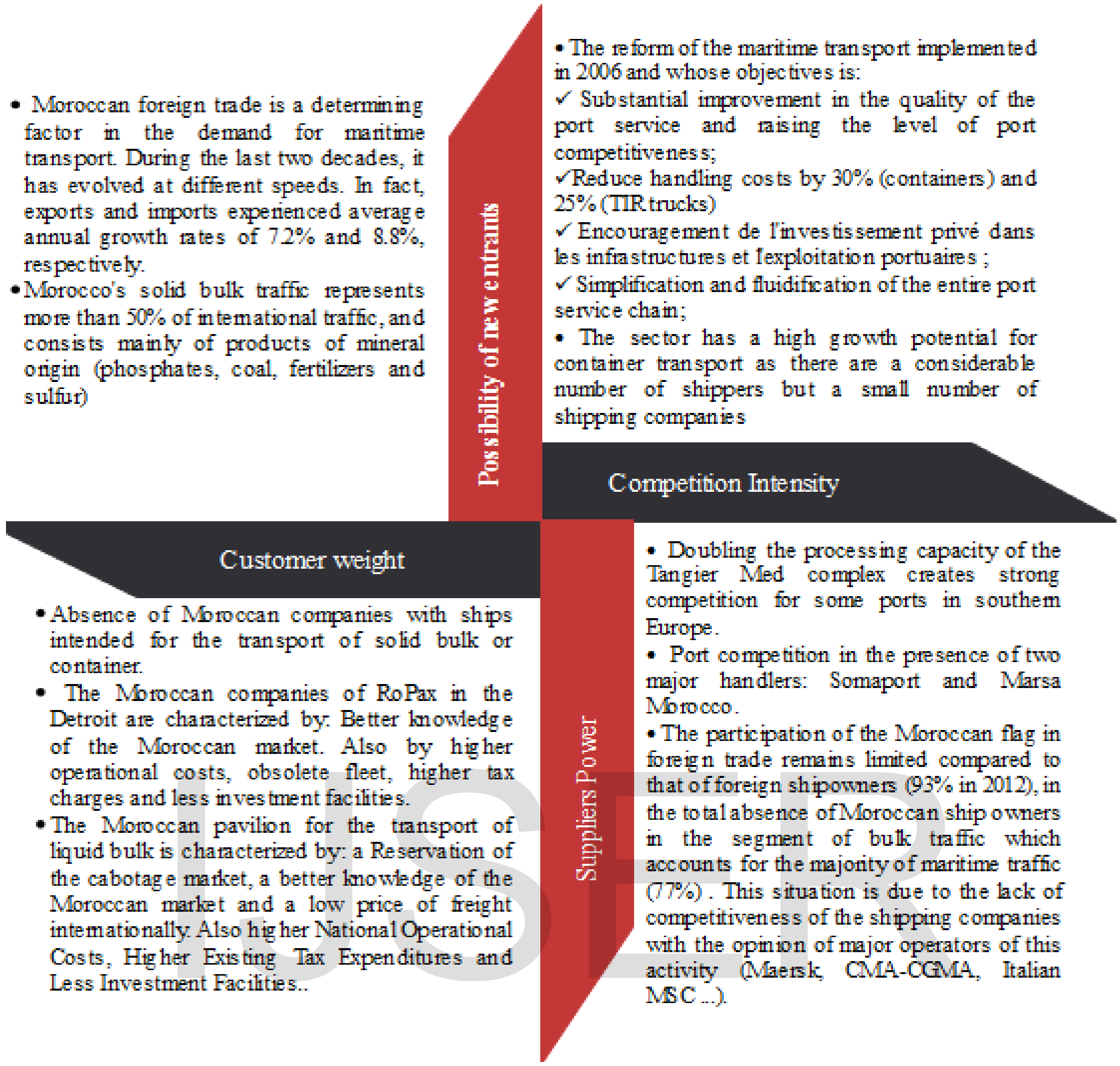

Fig. 1. Analysis of the maritime fright transport sector in Morocco.

5.3 Logistic Sector

From the analysis (see Fig.3), we noticed that at the level of the logistics sector, there are no significant obstacles to potential entrants but the lack of controls leads to low level competition that does not promote competitiveness. Similarly, competition with other logistics areas is limited by the weight of traditional internal logistics and weak regional integration. Also and because of the size of the internal market - the pressure of the customers, considered globally, unfavorable to the rise of the level of the benefits and the creation of better conditions of profitability of the operators. Finally the contribution of suppliers for the increase of the entrepreneurial profitability and the modernization of the logistic sector is weak.

6. Summary and Recommendations

Based on the analysis conducted and the results obtained, we were able to establish observations concerning the freight transport and logistic sector in relation to the four selected forces, which we have formulated as follows:

Customer weight: Due to the size of the internal market, customer pressure, viewed globally, is not conducive to raising the level of benefits or creating better profitability for operators.

Suppliers Power: The contribution of suppliers to increase the entrepreneurial profitability and modernization of the logistics sector is low.

New entrants Opportunity: There are no significant obstacles but the lack of controls leads to low level competition which does not promote competitiveness.

Competition Intensity: competition with other logistics zones is a stimulating factor for the Moroccan logistics modernization, although it is limited by the weight of traditional internal logistics and weak regional integration. This last aspect would make it possible to increase the internationalization of many Moroccan companies whose entry on the European market, much more demanding in terms of services, is seen as difficult at the moment.

Given these findings, we can rephrase the following recommendations:

Improved public /private relations. Thus, operators of the

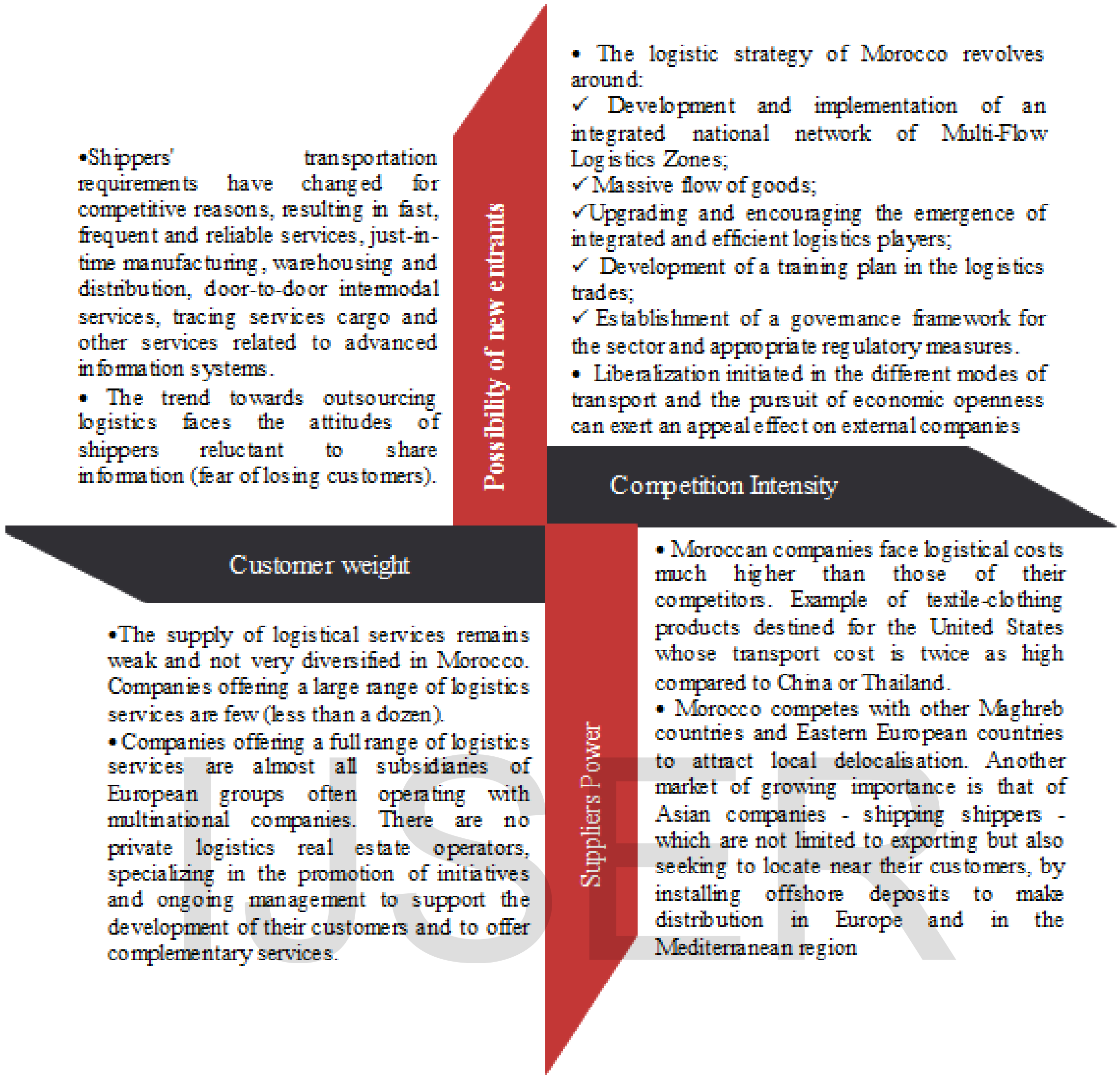

Fig. 1. Analysis of the logistic sector in Morocco.

sector must be consulted and involved in planning, monitoring and control establish permanent public / private cooperation bodies and jointly define a strategy for private sector development.

Planning for the change of critical sectors by studying the restructuring of the road transport sector, Analyzing the experiences of emergence of national logistics operators in other countries and defining a basic scenario of port efficiency..

Consolidation of the improvement made to the environment of the sector. To respond to this request, particular importance must be given to the conditions of access for private companies to logistical platforms, to provide specific training for the transport sector, to demand rigorous compliance with the conditions for access to the different trades and the market. and define the status of professions..

Creating areas of cooperation and entrepreneurial dynamism by disseminating the principles and experiences of logistics clusters and by studying how to apply the cluster methodology to the national reality of the logistics sector.

7. Conclusion

The freight and logistics sector is of major importance in the economic dynamic. Its importance stems from its contribution to the functioning of product and production factor markets, on one hand, and its contribution in terms of improving macroeconomic variables in other hand [13].

The analysis of the sector highlights a twofold need: on the one hand, to extend and qualify the logistics market by promoting outsourcing, and on the other hand, to favor its structuring, particularly in the road transport sector. Also, the analysis shows that the profitability of the activities of the companies is compromised and that the internal pressures exerted by the actors of the cluster with a view to the modernization of the sector are not generalized and are not enough, hence the need for a vigorous public initiative.

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