

Analysis of the Profitability of the Supply Chain of the Busy Traffics by the Ports: Case of the Conventional Transport of the Port of Agadir

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Abstract

The maritime transport represents a crucial mode of transport for the displacement of the goods of a continent to another and a country to another. Morocco remains a country which has a strong potential to develop its national economy following the example of this relevant mode of transport.

After the independence of Morocco, the operations of harbor handling are subjected to a system of monopoly, but for vis-à-vis the turbulence of the worldwide market and to fierce competition, Morocco launched a strategy of the harbor reform to liberalize the field of the harbor exploitation. This reform also relates to the regional economy, and puts the Port of Agadir in particular at competition. The objective of this article is to analyze the profitability of the supply chain of the traffics passing by the ports, by analyzing the case of the Port of Agadir.

Keywords: *Maritime transport, Supply Chain, Profitability, Port of Agadir.*

1. Introduction

Nowadays the maritime transport constitutes the principal mode of transport used to move goods of a port to another. Nearly 90% of the world goods forward by the sea. The displacement of the goods, object of transport, is not possible that if it is presented, charged with the wearing of loading and is discharged with the port of disembarkation.

These operations are entrusted to specialized operators: companies of handling, a specialization become necessary with the aim of satisfy the maritime customers and the requirements with competition.

Indeed, Morocco does not remain about it less in this revolution of this industry when it is understood that the maritime transport is the strong link of the development of the economy of the

States and in particular that of the underdeveloped coastal States.

The operations of harbor handling are subjected to a system of monopoly after the political independence of Morocco. Whereas the international economic context is characterized these last years by a competition baited between the nations, the preeminence of the role of the actors deprived in the management of the worldwide economy and the increasing liberalization of the rules as regards the international trade became a major stake. In this logic, a trend which was observed and which relates to the adoption of a policy of liberalization of the harbor sector to the private investors because from now on the policy is to seek to answer waiting of the ship-owners and the importers as regards flexibility, reactivity and communication.

To increase the effectiveness and the performance of the harbor system and for a better competitiveness of the national economy, Morocco launched a strategy of the harbor reform, the installation of the latter marked a decisive turn in the life of the Moroccan ports. Indeed, this new organizational diagram of the national harbor sector, introduced major changes into the management system and of exploitation of the ports.

In order to answer the challenges of the regional economy and with the installation of the new harbor reform, competition starts to be introduced on the level of the port of Agadir.

The arrival of a second owner who should be indicated with dimensions of Marsa Maroc¹ will pose a threat with regard to its activity, from where need for choosing a selectivity of the traffic for a

¹ Marsa Maroc (in the past SODEP, Office of Exploitations of the Ports) is a Moroccan company specialized in the exploitation of terminals and harbor quays, created in 2006.

better situation which allows the decision-making aid. What leads us to wonder how one can select the most profitable traffic to create an added-value and to cope with competition?

To answer it and in order to reach the set objectives we suppose the following assumptions:

Hypothèse1: the whole of the products which forward by the conventional one are convenient

Hypothèse2: the durability of the traffic of citrus fruits

Hypothèse3: the treatment appropriateness of certain products is due to the strategic position of the customer concerned.

Accordingly, our research was directed towards the analysis of the profitability of the supply chain of the traffics passing by the ports.

- For Marsa Maroc : it could find there an overall picture on the profitability of the supply chain of conventional and to deduce some from the axes from improvement;

- For the exporters of the area: To choose the traffic suitable at end to penetrate of new markets and to cope with fierce competition with the international level

2. Logistics towards the supply chain: notion of the supply chain of the maritime transport

2.1 Definition of logistics and the supply chain

The definite logistics like the whole of the actions of planning, implementation and control of flow of raw materials, incur, the finished articles and corresponding information, since the origin up to the point of consumption, with an aim of satisfying the customer requirements. Logistics touches all the fields of the company: the coordination of supply and demand, control of the storage and transfer operations, production and supply, distribution, the service after sales and the support of the articles.²

A supply chain³ as a network of installations which provides the functions of supply out of raw materials or finished semi articles, the transport of raw materials, the raw material transformation into components, semi articles finished then in finished articles and finally the s

torage and the distribution of the articles finished towards the customers. The installation term can correspond to a storage unit, a production unit, a factory, a supplier, a distribution center, a warehouse or a customer. The most elementary supply chain consists of only one installation ensuring as well the production as storage and the distribution.

2.2 Challenges of the supply chain Prices/costs

The permanent pressure on the prices obliges the producers to improve their productivity regularly and to re-examine their industrial engineering. This trend led them to act on all the costs, which they are direct with the factory (labour, machines...), indirect or overhead of the se at.

The quality of the products the quality is not really any more an objective insofar as it presents a prerequisite to be able to be itself competitive. The measuring unit used reflects well the progress made in this field: for hundred, the level equality passed to “For thousand” then more recently to the P.P.M. (defective units per million). The question does not arise any more in the form of the level of quality to reach but rather cost to reach that point.

Forsakes defines as time passing between the request of the customer and the reception of the ordered product.

Flexibility or capacity to be reacted to variations of the request.

The level of service acts of the probability of satisfying the request in a given time. Per hour when technology allows all or almost, the least risk (delay, error, breakdown, bankruptcy of the supplier) becomes inadmissible.

Potential of progressed takes again subjective and objective elements, allowing juggleries possibilities for improvement of the performance of the company: social climate, median age of staff, seniority, organization into ateliers technologic, communication in the company, existence of the work of groups.

2.3 Design of the harbor supply chain Logistic integration

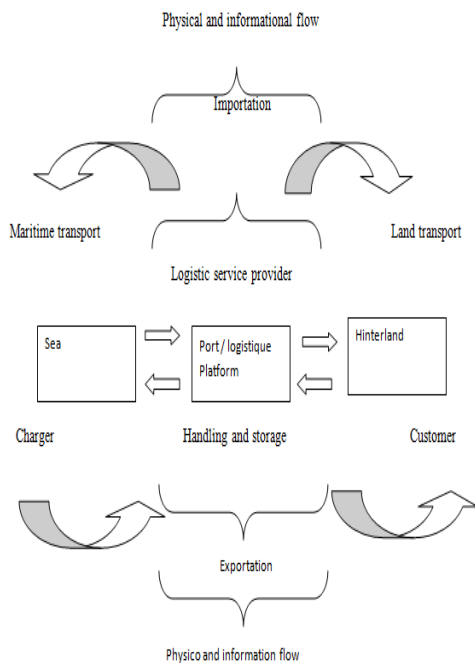
Consist in making sure of the commitments of the partners, along a chain of value, not by having their authorized

² La conception d’une chaîne logistique une approche globale d’aide à la décision. Mohammad Reda AKBARI JOKA, le 7 décembre 2001.

³ Lee et Billington, 1992.

capital, but by controlling their working capital. It is not a question of adapting the fixed assets, but of controlling flows. The installation of a logistic network (EDI, warehouses computerized, etc) makes it possible to control the account result (claims, stocks,... etc) of the partners and not their assessment what is at the same time less expensive and less risky.

The design and the introduction of a harbor supply chain is based on the integration of all the speakers and the operators of the chain (companies maritime, transit, warehouseman and owner of the port, harbor community... etc).



In order to develop the logistics platforms, the ports must simultaneously work in several directions, by taking account of the competing environment in which they evolve. Several conditions must be joined together:

- the effective management of the physical and informational flow of the harbor supply chain;
- the budgetary effort in order to profit from the multiplier effect of the harbor investment that also applies to all the actors of the supply chain who must coordinate their development strategies;
- the integration increased in the ground networks.

The development of the effects of mass which is the dominant logic of the harbor sector.

- Conditions of handling by the constitution of integrated operators. (Integration of the compatible means and the procedures).
- Reliability by work and its professionalism.
- The reflection on the cost by work for the logistic activities.
- The easing of the customs practices and plant health controls and veterinary controls in adequacy with the reform project of the harbor sector.

3. Conventional transport

We can define the **conventional transport** as being made up by the goods which are transported neither in bulk, neither out of containers, nor in live loads (ro-ro). One can also define the conventional one as being the whole of the goods transported in naked or with light packing, without particular conditioning other than specific packing.

The conventional one always is the object of a top-load. The sectors of transport into conventional are apprehended by their specificities:

- An incredible nomenclature of products constitutes the conventional sectors.
 - The goods and its conditioning are in the middle of the organization of transport.
 - The technical control in handling, the storage and the transport of certain products represent key factors of differentiation.
- Typology of the decisive independent factors in the choice of an organization of goods transport known as conventional:

3.1 Ship

- Evolution of the freight charges
- Availability & Frequency of the services
- Time of transit & transshipment
- Availability of the capacities of importation
- Nautical access and reception of the units
- Congestion and full-times of rotation of units

3.2 Terminal/Port

- Costs of handling

- Availability & reliability of the equipment
- Density of the dedicated storage sections (covered)
- Capacities external of storage
- Security of the perimeters

3.3 Goods

- Characteristics of the products (Weight/Volumes/Density)
- Economic value & logistic Value
- Methods of storage & conditioning
- Brittleness/integrity of the products
- Distance enters the production zone & the maritime cargo loading areas

3.4 Logistics

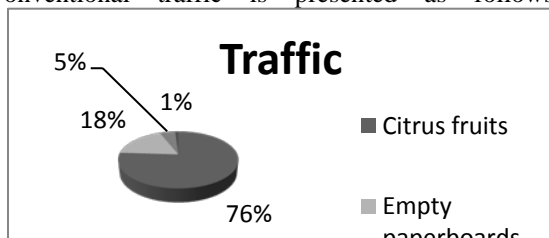
- Organization of the sectors (weight of the actors, cuts batches, seasonal variation, etc)
- Degree of exposure to the speculation (role of the international trading)
- Specialization of equipment (T°, moisture, security, etc)
- Modal splits of transport
- Typology of the logistic services to the products

4.

The diagnosis of the current structure of the conventional traffic

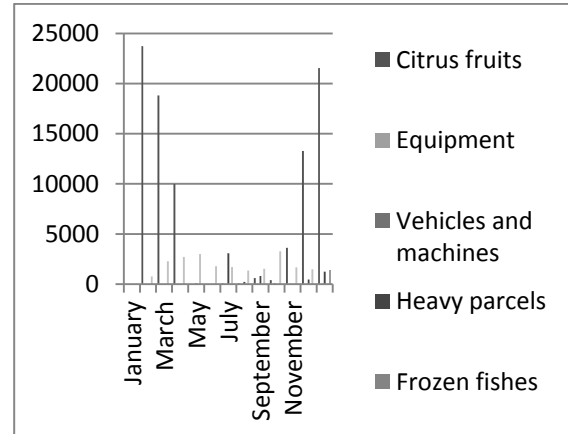
4.1 In export

To the level of export, the current structure of the conventional traffic is presented as follows:



We notice that the structure of conventional traffic to export annual in 2014, is dominated by citrus fruits with percentage of 76%, followed by the empty paperboard with a percentage of 18%, on the other hand equipment, vehicles and machines, fishes frozen occupies a weak place in the profitability of this traffic.

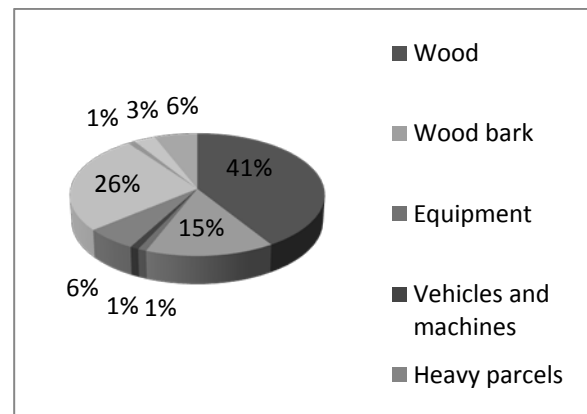
We can explain this predominance by the importance of the sector fruit and vegetables in the area of Souss Massa Draa, as being one of the pillars of the area.



From monthly point of view, the citrus fruits take part in the profitability of this traffic during the peak season, since the month October until April.

4.2 In import

To the level of the importation, we have the current structure of the conventional traffic in the following way:



We observe that the structure of the conventional traffic is made up of several families of products, but wood constitutes the first product to be imported by this kind of traffic with a percentage of 41%.

5.

Analysis of the processes within the supply chain of the conventional traffic

5.1 Analysis of the process of the importation

The supply chain of the conventional traffic to the importation is composed of two types of process, normal removal and direct removal.

- **The normal removal:**

It is a process where the goods forward by the stock rooms of the port:

- The store:
- Ground full:
- Cold store:

Before the unloading of the goods to the port, the trustee (shipping agent) must present expresses it with the storekeeper.

The storekeeper assigns the suitable stock room to the aforementioned goods according to nature and the brand.

After removal total or partial of the goods, the customer or his forwarding agent must present to the storekeeper the following formalities:

- Bill of lading (B/L, contains the good to be delivered signed by the shipping agent)
- DUM: single declaration of the goods
- The Good with Removed

The storekeeper established on system AS400 the Visa of Bill of lading, contains the number of parcels, the weight and the nature of goods. After the customer or his forwarding agent presents the B/L, the Visa and the DUM with the service

Once the stevedoring invoiced the storekeeper authorizes with the customer the removal of the goods by these proper means of handling and transport and for its own account.

- Direct removal

Before the unloading of the goods, the customer or his forwarding agent must present to the storekeeper the B/L, the DUM, after it established the Exit visa.

The customer invoices the stevedoring in advance. Once charged stevedoring, the storekeeper authorizes removal of the aforesaid goods. For each removal the storekeeper established a good of exit which will be aimed by the customs officer in charge of liquidation of the DUM into object. The Good of exit aimed by the customs officer will be presented to the customs officer to the exit of port.

5.2 Analysis of the Process of export

Before the entry of the goods instead of storage of the port (store, is in hiding full, cold store), the customer or his forwarding agent must present to the storekeeper the following formalities:

Order of setting with quay: granted by the handling department head

Bulletin of reception: signed by the storekeeper Once granted by the department head handling (the entry), the storekeeper affects the suitable stock room.

The customer starts to discharge the goods instead of storage indicated according to nature and the brand from the goods.

Before the loading of the goods on the ship, the customer or his representative (transit) must present to the service handling the following documents:

- the DUM

-BAE: With embarked good on behalf of the customs inspector, contains the name of customer, the ship envisaged, shipping agent, wearing of destination and the date envisaged of loading. The storekeeper concerned creates N° de Bulletin of Reception (Br) for each DUM on system AS400. Into Br N° one introduces; the brand, the nature of the goods, codes goods (according to the book of rate), date of reception (1st parcel deposited), many parcels, the weight (increase if it is necessary according to the book of rate). The customer presents the DUM with Br N° toward the service invoicing. Once the invoiced stevedoring, the customer presents the invoice and the DUM at the storekeeper who grants the loading of the goods on the ship.

6. Analysis SWOT of conventional logistics

After having carried out an analysis SWOT of conventional logistics we thus present the strong points and the weak points of this kind of traffic:

6.1 Forces and weaknesses

Forces	Weaknesses
- Better regional knowledge of the ma	- The treatment of this kind of traffic involves enormously high loads

<p>Market</p> <p>- Possibility of being competitive in costs of labour with the other companies</p> <p>- The durability of citrus fruits</p> <p>- Training programs</p> <p>- The diversification of the services</p> <p>- A versatility team</p>	<p>The time of treatment of the services augment with the blocking of information system</p> <p>The high number of the speakers in the supply chain</p> <p>Lack of coordination between the speakers</p> <p>A no regular planning concerning the assignment of the machines</p> <p>The accosting of the ships in a station far from the cold store for the treatment of citrus fruits decreases the output of the tractors which transfer the products towards under hoist</p> <p>A bad management of the handling agents in each data processing run.</p> <p>Equipment not modernized and which does not answer especially the market evolutions Bad exploitation with storage space within the store</p>
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<p>- Trade with the North and the West of Africa</p> <p>- Harbor expansions envisaged</p> <p>- Incorporation in the process of globalization pushed by the reforms</p> <p>- Logistic development of the country and the transport infrastructures</p> <p>- Reorganization of the administration and the legislation related to the maritime transport</p> <p>Update of the maritime regulation</p>	<p>ling</p> <p>- Economic situation and financial of the companies of the sector</p> <p>- Maintenance of the force of negotiation of the foreign business partners to continue to be clients of the logistic operations (FOB with the EXP and CIF with the IM P)</p> <p>- Limitation to carry out certain lines with stopovers in the EU (imperfections of the agreements with the EU)</p>
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We deduce that the citrus fruits constitute the principal product which forwards by the conventional one, but the analysis of the supply chain shows that the citrus fruits and early products are not profitable into conventional

7. Orientation towards containerization: Action plan

7.1 The integrated supply chain containerized towards the same chain into conventional

If one seeks to compare the key factors of the decision between a containerized integrated supply chain to the same chain into conventional, the difference holds in the distribution of the sum of the added-values distributed on each most influential link.

In other words, the total costs from the production zone until the setting on the ship (in the direction export) are evaluated according to the contributions/forced each solution of transport and logistics. This sum of the costs implies several recipients of which most important remain:

- Ship-owners
- the warehouseman who exploits the terminal
- Port administration
- Logistic integrators
- Producers and traders

6.2 Opportunities and Threats

We thus present the appropriateness's and the threats this kind of traffic:

Opportunities	Threats
- Harbor extensions planned	- Harbor lack of competition
- National strategy of development of logistic competitiveness	- Reduced size of the companies
- Appropriateness of the realization of traffics of periodic importation of way	- Increase in the energy bill
- Existing free-trade agreements	- Competition with the TIR
	- Low level of fil

7.2 deciding factors of competition and complementarities of conventional and containerized logistics

- Naval capacity in the middle of the strategic process of transfer of conventional to the container

- Containerized developments: The naval, economic and financial powers of the ship-owners of regular lines are without common measurement with those of the specialists in conventional or Ro. Ro.

- The modernization of the harbor terminals: containerized specialization, the trend of the moment confirms that the harbor investments and the projects of modernization of the infrastructures concentrate on the container, to the detriment of the conventional one.

7.3 Example illustrating the importance of the orientation towards containerization: case of the sector fruit and vegetables in Morocco

The logistics of the fruit and vegetables represents specific constraints:

- permissibility and seasonal variation of the products,

- the geographical distance enters the coalfields and the basins of consumption,
 - the maintenance of the chain of cold, etc
 Moreover, the majority of the sectors of fruit and vegetables are controlled by the downstream because of the great power to negotiate of large distribution, the latter also imposes are model logistics which is characterized by the globalization of the supplies, management with tended flows, the frequency and the fractionation of the deliveries, etc
 The whole of these constraints requires a specific organization of the logistics of the fruit and vegetables requiring a good visibility on the unit of the sector as well as a reactive logistics.

- The container accounts for 32% of the traffic
- The truck accounts for 47%
- The conventional one accounts for 22%

The use of the container is practical insofar as data-processing management makes it possible to follow its route of the origin until the final

destination

The introduction to the use of the container of 45 feet: it is same volume as the payload of a truck, on the level of the costs, it represents a saving in 20% compared to the truck

Containerization falls under a logic of standardization of maritime and harbor spaces, through the standardization of the logistic procedures.

The transport costs by container are less expensive of 30% than the transport costs lorry driver with the same time of routing (approximately 3 days).
 Example: The cost of transport of a tomato pallet is approximately 109 Euros by terrestrial way against 70 Euros per sea route.

As regards quality of service, the container transport has the following advantages: an optimal control of the chain of cold, multimode equipment and a more respectful mode of transport of the environment, etc.

The introduction of containerization into the sector fruit and vegetables had positive repercussions, at the same time economic with the reduction in the costs of transport of 30%, and environmental with the use of a mode of transport less pollutant. The maritime transport by container is the mode of transport less the pollutant, especially when it falls under an effective multimode logistic solution: a maritime combination/rail for example.

The development of containerization in the Moroccan sector of fruit and vegetables has a positive environmental impact, but beyond of a cleaner mode of transport, it is the whole of the supply chain which is touched, thus efforts must be undertaken by the whole of the actors of the supply chain as regards energy consumption, mutualisation of flows and the logistic infrastructures, of materials of packing, etc.

The development of a durable logistics of exports of fruit and vegetables could fall under a strategy of differentiation on behalf of the Moroccan exporters and could generate positive impacts on their international competitiveness.

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