Innovation logistique et participation au commerce international : Quelles perspectives pour la région de Dakhla Oued Eddahab ?

Logistic innovation and participation in international trade: what are the prospects for the Dakhla Oued Eddahab region?

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Résumé

Les pays en voie d'industrialisation comme le Maroc cherchent à éviter la spécialisation sur les seules grandes différences et la dépendance aux exportations de matières premières ou de produits de base. Pour accroître le pouvoir d'achat des exportations, il est nécessaire de faire évoluer sa spécialisation logistique, notamment dans l'industrie, pour produire des marchandises à plus forte valeur ajoutée, faisant ainsi entrer le pays dans le jeu des échanges industriels de petites différences. La région de Dakhla Oued Eddahab dispose d'une position géostratégique en matière des relations commerciales entre l'Europe et l'Afrique mais aussi l'Amérique. Cette position est favorable à sa spécialisation industrielle et donc à sa participation renforcée de la région dans le commerce mondial. Comment une région en intégrant l'innovation logistique peut améliorer sa participation aux échanges commerciaux ?
A travers une étude documentaire et une observation des données statistiques et cartographique de la région, notre travail est de proposer quelques perspectives d'innovation logistique pour la région de Dakhla Oued Eddahab pour sa participation au commerce international.

Mots clés : Innovation logistique ; Commerce International ; Région Dakhla Oued Eddahab ; Maroc.

Abstract

Industrializing countries like Morocco seek to avoid specialization on the sole basis of major differences and dependence on exports of raw materials or basic products. To increase the purchasing power of exports, it is necessary to develop its logistics specialization, especially in industry, to produce goods with higher added value, thus bringing the country into the game of industrial exchanges of small differences. The Dakhla Oued Eddahab region has a geostrategic position in terms of trade relations between Europe and Africa, but also America. This position is favorable to its industrial specialization and therefore to its enhanced participation of the region in world trade. How can a region by integrating logistics innovation improve its participation in trade? Through a documentary study and an observation of the statistical and cartographic data of the region, our paper is to propose some perspectives of logistics innovation for the region of Dakhla Oued Eddahab for its participation in international trade.

Keywords : Logistics innovation; International trade; Dakhla Oued Eddahab Region; Morocco.

Introduction

Without innovation, trade would be less productive and uncompetitive. New technologies are moving more freely around the globe and benefiting more businesses and people through trade. The link between logistics innovation and trade works both ways. Innovation gives the innovator a technological advantage. Innovation can also be stimulated by a company's efforts to gain an advantage over its competitors. Through international trade and cross-border investment, this specialization can take place on a larger scale.

Industializing countries such as Morocco therefore seek to avoid specialization solely on the basis of major differences ans dependence on commodity or commodity exports. In order to increase the purchasing power of exports, it is necessary to shift its specialization in logistics, particularly in industry, to produce goods with higher added value, thus bringing the country into the game of industrial trade of small differences. The region of Dakhla Oued Eddahab has a geostrategic position in trade relations between Europe and Africa and countries of the American continent. This position is favorable to its industrial specialization and thus its enhanced participation in international trade.

The question of our problem is how can a region by integrating logistics innovation improve its participation in trade? Our job is to give some prospects of logistic innovation for the Dakhla Oued Eddahab region for its participation in international trade.

First, we will give some theoretical explanations on participation in international trade through logistical innovation. Next, we develop our analytical framework for the Dakhla Oued Eddahab region. Next, we will present different perspectives of logistics innovation contributing to international trade.

1. Literature Review

The link between trade and innovation is present and the two economic actions are mutually reinforcing. Without innovation, trade would become less productive and competitive. New technologies are moving more freely around the globe and benefiting more businesses and people through trade. This process increases the size of the market, both for innovators and for those who acquire and use their innovations, and then it stimulates competition and innovation itself.

Innovation is the introduction for the first time of a new element (process, feature, action or product) into an environment: company or market. When looking at innovation and foreign trade, four main types of innovation should be considered (according to the OECD Olso Manual and the European Commission): Product innovation consisting of the introduction of a new or significantly improved good or service in terms of its characteristics or intended use; A process innovation that involves implementing a new or substantially improved production or distribution method on an activity; A marketing innovation which consists of the implementation of a new marketing method involving significant changes in the design or packaging, placement, promotion or pricing of a product; An organizational innovation that involves implementing a new organizational method in the firm's practices, workplace organization or external relations. In the company's external relations, new organizational methods could include outsourcing or subcontracting for the first time, or include production,

procurement, distribution, recruitment and ancillary services. Whatever their forms, innovation and diffusion of innovative products and processes are “driven” by technology and “driven” by the market. The emergence of new technologies and knowledge leads to innovation, while the investments of demand-driven enterprises lead to innovation and its diffusion. In the traditional vision of innovative enterprises, innovation is conceived in the form of a linear process that begins with research, design and development, continues with manufacturing and ends with commercialization and distribution. In fact, feedback loops are numerous, and innovation is increasingly networked.

The question is how does logistics innovation affect trade? The link between logistics innovation and trade works both ways. Innovation gives the innovator a technological advantage. With the “Factor endowments” of capital, natural resources and available labor, technological advantage leads to comparative advantage, which is itself the engine of trade. “Technology gaps” are thus one of the determinants of trade and investment. Developed countries tend to export more hig-tech goods than developing countries. Innovative and highly productive companies export, invest abroad or license their technologies to take advantage of their innovations. Open markets are inherently favorable to innovative firms in that they are larger and allow them to make more of their innovations. In addition, most companies today use research carried out in universities or other companies through licensing agreements, often with foreign partners. Through competition, trade can also provide incentives to increase R&D. Exports also allow firms to cover the costs of R&D, which would not always be possible if production were restricted to the smaller domestic market. Similarly, trade and investment play a fundamental role in integrating innovative inputs into product manufacturing, whether in the form of new components or new machines. Innovation can also be stimulated by a company’s efforts to gain an advantage over its competitors. Through international trade and cross-border investment, this specialization can take place on a larger scale. Businesses in small economies may also have access to what they would not find nationally: larger markets and greater sources of investment to enable them to achieve the "economies of scale” needed to compete globally. Trade can therefore affect innovation in three ways: technology transfer, competition and economies of scale.

Logistics innovation aims to increase productivity and competitiveness at both the enterprise and supply chain levels: and consequently, intra-branch trade at global level. It is likely that intra-industry trade in this context distinguishes between the logistical costs of production and those of domestic and international trade (Daudin, 2003). The impact of global sourcing on logistics networks is clear. Businesses benefit from lower purchase and production thanks to low-cost labor. On the other hand, these companies are seeing their procurement times lengthen and their logistical activities, including transport activities, become more complicated (Véronneau et al., 2008).

In developing countries, for example, the main source of process innovation often comes from capital goods-machinery, tools, equipment, etc. Necessary for the manufacture of other goods. Information and communications technologies (ICTs) have been the most important driver of recent marketing and organizational innovations, and trade in ICT products has been crucial for innovation in these areas. Integration into global production networks created with foreign partners-sometimes called “task exchange”-represents an organizational innovation that has improved the efficiency of manufacturing processes. One of its effects is to allow different partners to focus on what they know best, to try to do it better. Changes in business models and the use of innovative practices and technologies also lead to changes in existing supply chain

structures and relationships. In addition to the "digitization" of relationships, the value of rational competence (Wieland & Wallenburg 2013) is taken into account in logistic relationships.

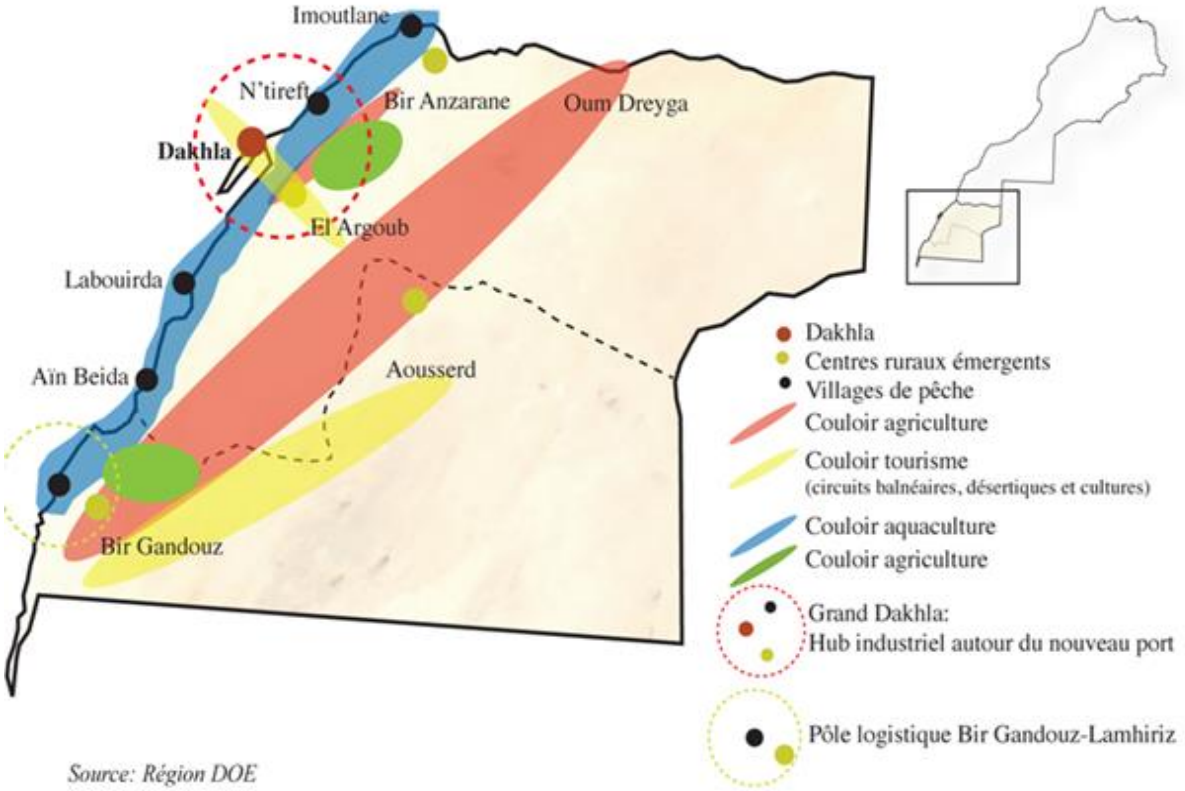
The gravity model best empirically explains international trade, thus favoring "geographic" variables, including distance between trading partners (Deardoff, 1984; Leaner & Levinsohn 1995; Harrigan 2003). Economic measurement of distance requires an assessment of transportation costs (Head & Mayer, 2002). By definition, international trade is between economic agents in different geographic locations. The need to establish contacts and conduct exchanges between these different places creates, on the one hand, specific costs (transport costs, communication costs, customs duties) and exacerbates, on the other hand, the costs associated with all commercial operations (negotiation costs, administrative costs, monitoring costs, etc.). In order to counter these costs, the development of logistics through innovation becomes important. Innovative activities in the logistics sector are in line with OECD definition. The industrial and logistics services are leaders in integrating the four innovation categories into logistics practices.

2. Study Framework

2.1 Presentation of the Dakhla Oued Eddahab Region

The logistics sector represents a lever for economic and social development for Morocco. Logistical transport and freight activities contribute to 5,1% of Moroccan GDP and employ more than 425000 people throughout the territory (Industrie du Maroc Magazine #46, 2019). The frame work of our study focuses on the Dakhla Oued Eddahab Region. The region has a wide range of important economic opportunities in the industrial and service sector. There are currently companies already established in the region. There are nearly 150 industrial units in the region spread over several sectors (according to figures from the Provincial Delegation of Industry and Trade-Dakhla, Report 2018). The economic dynamics of the region affect all economic activities and contribute to the growth of national GDP over the period of 2016 to almost 7,5% or nearly 11 billion dirhams. The GDP per capita represented a performance of 76013 DH while the national average per capita was only 29390 DH in 2016. Thus ahead of the regions of Casablanca-Settat; Rabat-Salé; Laayoune-Saguia al hamra. The figure 1 show that the region is developing in terms of the economic activity required for international trade.

Figure N°1 : Monograph of the Dakhla Oued Eddahab Region

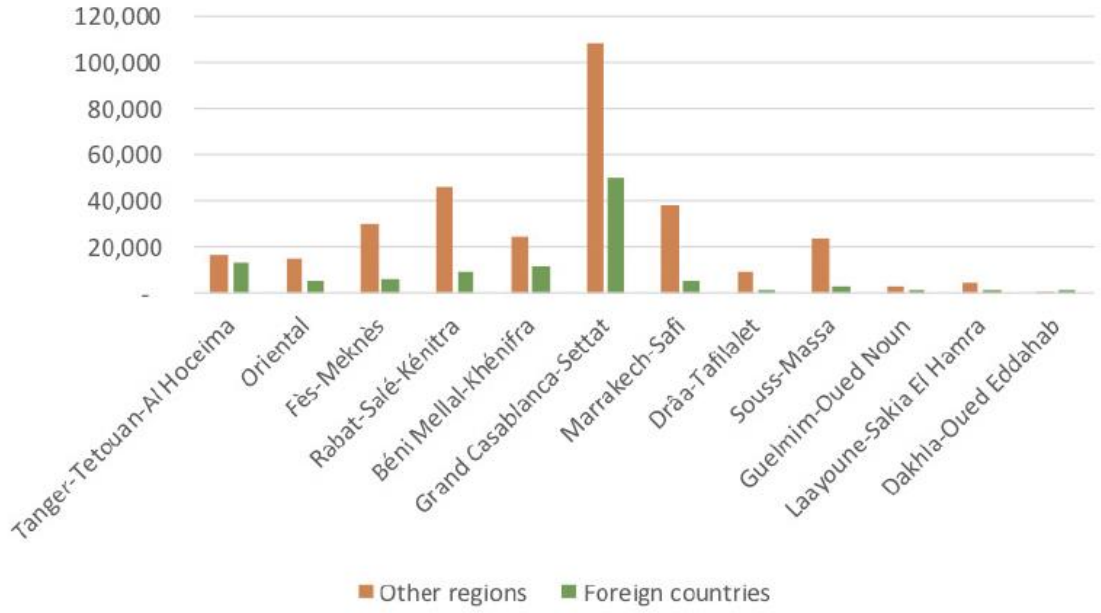


Source : DOE region

The territory of Dakhla Oued-Eddahab is structured around structural corridors and poles (Figure 1). It must be recognized that one of the key elements of our framework is the importance that the region can understand in terms of investing in projects that enhance participation in international trade for companies operating in the region. The State plays an important role, through the signing of agreements, in upgrading and supporting industrial operators to cross other potential markets. According to the Dakhla Provincial Trade and Industry Delegation, the actions of the conventional program consisted of an upgrade through internal audits of 132 companies and the development of 85 export development contracts. In addition, the specific program provides support to 6 trade associations of exporters and 63 companies to initiate exploration of external markets. A total budget estimated at 275,67 million dirhams with 155,66 million dirhams coming from the State and other part coming from contributions from the council of the region.

Trade in value added is defined as value added incorporated in imported and exported goods and services. According to the work of Haddad et al., (2017), it is possible to trace the participation of a region in the domestic supply chain.

Figure N°2 Regional value added in interregional sales and international exports (Million DH, year 2013).



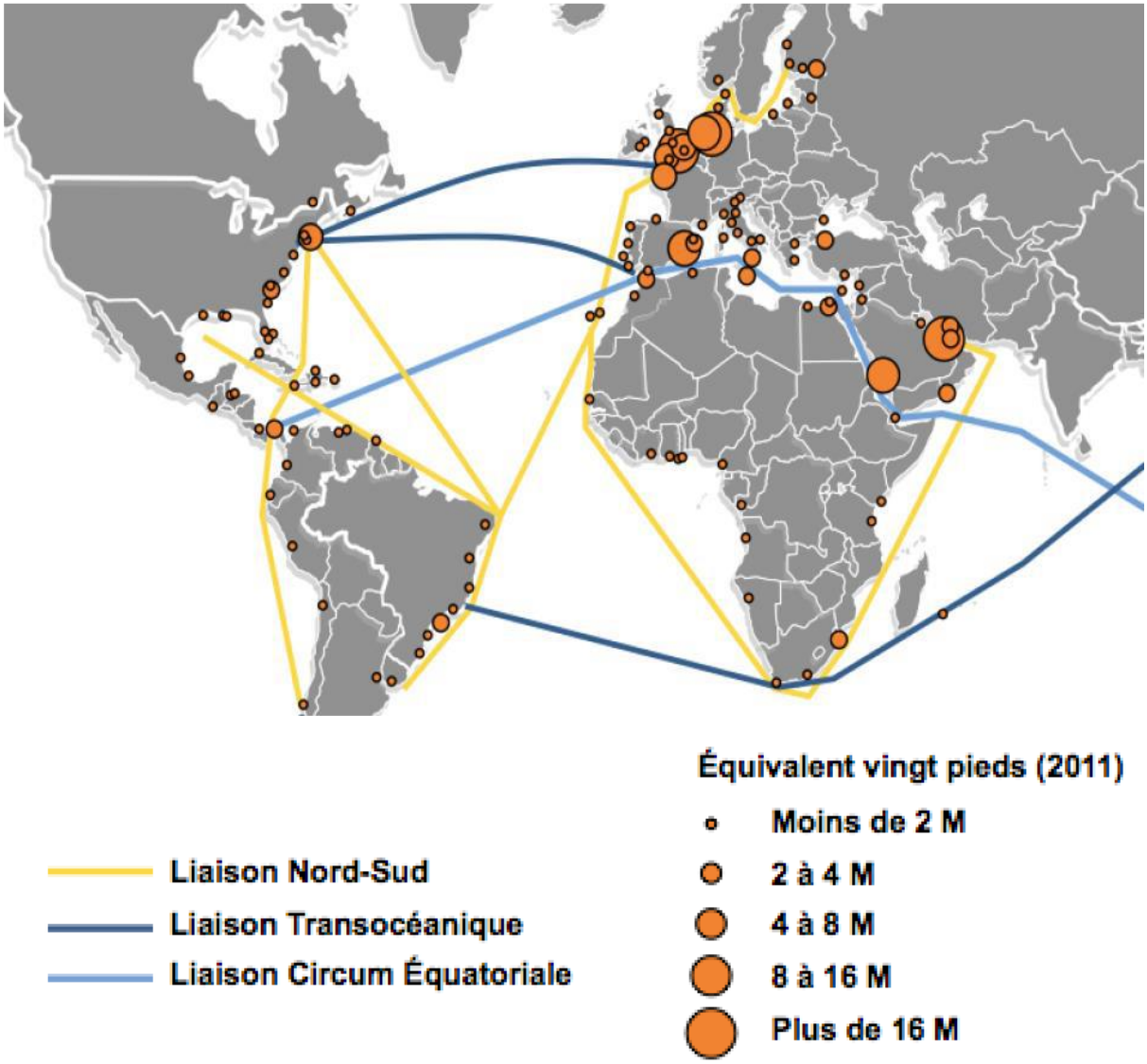
Source : Haddad et al. (2017)

Figure 2, calculates how much of GDP in each of Morocco's 12 regions can be allocated to export-related production in general (sales to international markets). In Figure 2, regional value added in exports provides a measure of the degree of trade dependence. With the exception of Dakhla Oued Eddahab, sales in other parts of the country represent more value added than sales abroad. This situation shows that the region needs territorial and industrial development actions to participate in international trade, in particular, in logistics innovation and the development of logistics platforms. However, the relative importance of international exports varies by region. According to the results of Haddad et al., (2017), the ratio of value added generated by interregional sales to value added generated by international exports varies from 0,36 (Dakhla Oued Eddahab) and from 1,30 (Tangier-Tetouan-El Hoceima) to 7,74 (Draa-Tafilalet), 7,78 (Marrakech-Safi) and 8,09 (Souss-Massa).

2.2 West Africa Free Zone Model

The West Africa Free Zone Model is an international trade zone whose objective is to offer new horizons of logistics competitiveness to operators. The ai mis to establish a platform that contributes to the transshipment of goods and the mass flow of goods to the continent by offering world class logistics services and a large storage capacity thanks to an extended yard. It is about complementarity with existing platforms in Africa. With this model, the strategic positionning of region is favored on the main lines of maritime trade to the countries of west africa, china and europe. Logistic innovation will encourage the development of the area in terms of trade through the flexibility and responsiveness of the logistics flows of the area.

Figure N°3. Location of the area and commercial port link



Source : https://frenchhealthcare-association.fr/wp-content/uploads/2019/07/Extrait-du-PDR-DOE-CFCIM.pdf

The region of Dakhla Oued Eddahab has a geostrategic position in trade relations between Europe and Africa and countries of the American continent (Figure 3). This position supports the region's enhanced participation in global trade. Indeed, its geographical position shows an entry and exit point for goods from the North to the South.

2.3 Dakhla Aerocity Model (Aerotropolis)

Dakhla's aerocity aims to develop an innovative urbanity integrated with the airport platform, including commercial, tourist and sanitary functionalities. An integrated and planned

development strategy aimed at strengthening Transport and optimal mobility between the airport and the surrounding clusters thus benefiting businesses operating in the region and Urban Planning in terms of residential, sustainable development and social inclusion.

3. Opportunities for Logistics Innovation for the Region

In terms of the Dakhla Oued Eddahab region's participation in international trade, logistical innovation for companies and infrastructure becomes essential, and above all, in a situation of recent major disruption (Covid19, blockade of borders between countries, disruption of markets, impact of wars,…). We offer different logistic innovation perspectives that can be adapted for the region[1].

a. Ecologistics in business activities : the logistics of businesses and the freight forwarding framework will need to integrate environmental issues : carbon impact at all levels, responsible purchasing, green logistics, reverse logistic companies are forced to take into account the environmental and social problems present in their supply chain (Ageron & Spalanzani, 2010). This includes consideration for the region's logistics infrastructure

b. Physical logistics is closely linked to digital : the neologism "phygital" illustrates this new paradigm. Traditionally associated with physical flow managers. Logistics generate information flows, which require data of increasing quality and quantity. Commonly referred to as 4.0 logistics, it represents a complete and complete digitization of processes. The aim is to integrate hyper-connectivity, omnichannel strategy and accurate forecasting of events into the strategy of economic actors in the region. Technological progress will play a role in logistical innovation, particularly with big data and the internet of things.

c. The adoption and strengthening of partial or full digitalization of logistics services through partnerships with e-trade operators.

d. The importance of relocating production to simplify the supply chain

e. Enhancing trade though e-logistics and e-trade services: the growth of e-trade is accelerating logistics. The "last mile", where the question of the final delivery of a good, becomes a key economic issue for the region. Supply chain management is undergoing a transformation brought about by the global diffusion of digital communications, and electronic commerce in particular (Murillo, 2001). The installation of connection network points and the presence of IT service providers and data centers is becoming a requirement for the development of the region.

f. A reinforcement of issues relates to the geographical territories for companies by the involvement of logistic and territorial marketing : the ai mis to make the region more attractive through the region's logistical assets and potential. From a macroeconomic perspective, the tensions between China and United States over international trade in recent years have raised logistical questions ("China's new silk roads"). At a level closer

[1] The list is not exhaustive

to companies, decisions on plant locations, distribution centers or transport infrastructure also depend on exchanges with local stakeholders (political, associative, etc). For example, several countries are known to have a warehouse deficit, which could represent a real development challenge in terms of economic activity and employment for some companies, but also for local authorities.

g. The intervention of the 4PL (Forth party logistics): this type of service provider has recently emerged, with the emergence of e-trade and the complexity of supply chains, these service providers carry out in particular a coordination activity between the shipper (1PL), the final customer (2PL) and the logistics service provider (3PL). Providers (4PL) can be either 3PL suppliers diversifying their offer, or consulting firms in management or specialized in supply chain management or SSII (IT service and engineering company).

h. Improvement of the PORNET portal in terms of new logistics modalities: the single window for foreign trade is a national or regional facility built mainly around and IT platform, initiated by an ad hoc authority to facilitate the completion of import, export and transit formalities by offering a single point of submission of standardized information and documents to fulfill all official requirements and facilitate logistics. The three main single window models are the single window for customs clearance, the single window for logistics coordination and the single window for business to business transactions.

i. Promoting community logistics: it is a question of structuring, with farmers, local logistics circuits adapted to the needs of the supply of collective catering. The aim is to develop and evaluate alternative logistics options upstream or downstream in order to ensure adequate capacity and meet market demand: proximity supply and proximity distribution. The ai is to provide information on best logistical practices for collective supply of agricultural products, based on the ability of a group of producers to supply a sufficiently wide range of products to address catering.

j. Cross-functional and inter-company logistics orchestration and integration: these are the logistical actions recommended to businesses during the turbulent recovery period that will be critical to long-term success. Digital technology is an essential part of this orchestration. New supply chain technologies promise to significantly improve the visibility of the entire supply chain and make companies more resilient to such shocks. The linear supply chain model is moving towards a digital supply network, where functional partitions are eliminated and companies are connected to their entire supply network, enabling full visibility, collaboration, flexibility and cost optimization.

k. Preparing for the “new global normality” of global supply chain: the Covid19 crisis is expected to accelerate fundamental and structural changes in the supply chain that were inevitable. For large multinational enterprises and their suppliers, the implementation of an early restructuring plan to adapt to health crisis situations becomes the norm and essential to prepare for readjustments of plant opening and closures, whether it is the main enterprise or its partner enterprises.

l. The development of logistics monitoring: and therefore monitoring signals on the evolution of the pandemic and the evolution of logistics flows for a better adjustment

and a rebound in economic competitiveness. Indicators should be used to provide the clearest picture of the timing of the rebound and the most likely progress towards a normal economic and competitive environment.

m. Develop resilience strategies: China as an example is considered a global factory, the disruptions from the pandemic to the supply chain worldwide began in this country before spreading throughout the globe (Deloitte, 2020). The severe knock-on effects of this challenge require different strategies and actions, including as a perspective resilience strategies of a strong supply chain (Chen, et al., 2019; Ivanov & Sokolov, 2019; Pournader , et al., 2020). Resilience is the ability of an ecosystem to return to steady state after a disturbance. This strategy aims to improve the resilience of companies and firms to uncertainties. They calculate the increasingly accurate predictable magnitudes of hazard, and then persuade officials to build defense equipment to protect the economic and social ecosystem.

Building on a territorial innovation to succeed in process of territorial logistics governance, the main objective of which is to promote the development of logistics in the region. The Territorial governance of logistics is a new paradigm for the logistic development of the region. According to Masson (2017), a triple territorial challenge is associated with the spatial configuration of logistic settlements in particular:

- Land Issues: it is a need for space, which creates a land pressure, a crowding out effect, a conflict with residential town planning, risk of spatial mixing and logistical loosening.

- Environmental issues: as regards the multiplications of transport (road) flows, negative externalities including CO2 emissions, modal shift conditions and landscape quality.

- Socio-economic issues: in particular, job opportunities and tax revenues for local regional authorities, the problem of the social acceptability of logistical building projects, the problem of accessibility to job sites and the sustainability of jobs for the territory.

Overall, the region's logistical development raises issues of social acceptability, spatial planning and sustainable development. These territorial development challenges the require an efficient management process for an effective regulation of the production of logistic spaces, in particular territorial governance. It is therefore necessary to concentrate all efforts on the implementation of the mechanisms of territorial governance of logistics, the crucial objective of which is to ensure the logistical development of the Dakhla Oued Eddahab region.

Conclusion

It must be recognized that the recent development of international trade depends less on the evolution of trade policies strictly sensu than on the logistical progress that will be made to reduce the overall costs that physical and human geography imposes on international trade (Daudin, 2003). The region of Dakhla Oued Eddahab has a geostrategic position in trade relations between Europe and Africa and the countries of the American continent. This proximity to continental markets is conductive to the region's increased participation in world trade. Logistics innovation aims to increase productivity and competitiveness at both the enterprise and supply chain levels: and consequently, intra-branch trade at global level.

From this perspective, the territorial governance of logistics is essential to achieve this objective. In addition, adopting a territorial governance of logistics makes the local establishment of infrastructures dedicated to logistics acceptable and helps to put in place crucial content strategies linked to the various logistics operations, in particular transport, warehousing, storage, etc. handling, distribution… the territorial governance of logistics is a factor that plays a key role in the attractiveness and proximity of the mobile and sustainable territory, based on the relational potentials of the region. Finally, it is therefore necessary to concentrate all efforts on the implementation of territorial governance mechanisms for logistics, the crucial objective of which is to ensure the logistics development of the Dakhla Oued Eddahab region.

REFERENCES

Ageron, B. & Spalanzani, A., (2010), « Perceptions et réalités du développement durable dans les entreprises françaises. Le point de vue de l'acheteur », Revue française de gestion, 2010/6 n° 205, p. 157-171

Chen, H. Y., Das, A., & Ivanov, D. (2019). Building resilience and managing post-disruption supply chain recovery: Lessons from the information and communication technology industry. *International Journal of Information Management, 49,* 330–342.
https ://doi.org/10.1016/j.ijinf omgt.2019.06.002. Date : December, 2019

Daudin G., (2003) « La logistique de la mondialisation », *Revue de l'OFCE,* 2003/4 (nº 87), p. 409-435.

Deardorff A. V. (1984) : « Testing Trade Theories and Predicting Trade Flows », in R. Jones et P. Kenen (Eds.), *Handbook of International Economics*, p. 467-517, North-Holland.

Deloitte. (2020). *COVID-19: Managing supply chain risk and disruption*. Retrieved March 30, 2020. https ://www2.deloi tte.com/globa l/en/pages /risk/artic les/covid -19-manag ing-suppl y-chain -risk-anddisruption .html. date : March 30, 2020

Haddad, E. A., & El-Hattab, F. Ait-Ali, A. (2017). A Practitioner's Guide for Building the Interregional Input- Output System for Morocco, 2013, OCP Policy Center in Eduardo Amaral Haddad, (2017) Linkages and Interdependence in Moroccan Regions, October 2017 , PB-17 / 37 Policy Brief.

Harrigan J., (1993) : « OECD imports and trade barriers in 1983 ». *Journal of International Economics*, Vol. 35, p. 9-111

Head K, & Mayer T (2002), Effet frontière, intégration économique et "Forteresse Europe", Économie & prévision 2002/1-2 (n° 152-153), pages 71 à 92

Ivanov, D., & Sokolov, B. (2019). Simultaneous structural–operational control of supply chain dynamics and resilience. *Annals of Operations Research, 283*(1–2), 1191–1210.

Leamer E. E. & J. Levinsohn, (1995) : « International Trade Theory : The Evidence », in G. M. Grossman et K. Rogoff (Eds.), *Handbook of International Economics*, Elsevier.

Masson S. (2017), La gouvernance territoriale de la production des espaces logistiques: enjeux, rôle des innovations territoriales et limites–Réflexions à partir de l'exemple français. Canadian Journal of Regional Science/Revue canadienne de Sciences régionales, 2017.

Monographie de la région Eddakhla Oued-Eddahab, 2018, Rapport Direction Régionale du Haut-Commissariat au Plan-Dakhla-Maroc.
https://www.hcp.ma/region-eddakhla/attachment/1410090/

Murillo, L. (2001), "Supply chain management and the international dissemination of e-commerce", *Industrial Management & Data Systems*, Vol. 101 No. 7, pp. 370-377.

Plan de développement régional : Opportunités d'investissement dans la région Dakhla Oued-Eddahab.https://frenchhealthcare-association.fr/wp-content/uploads/2019/07/Extrait-du-PDR-DOE-CFCIM.pdf date: 07, 2019

Pournader, M., Kach, A., & Talluri, S. (2020). A review of the existing and emerging topics in supply chainrisk management literature. *Decision Sciences*.
https ://doi.org/10.1111/deci.12470 date : May 26, 2020

Véronneau, S., Pasin, F., & Roy, J., (2008), « L'information dans la chaîne logistique », Revue française de gestion, 2008/6 n° 186, p. 149-161

Wieland, A., & Wallenburg, C.M., (2013). The influence of relational competencies on supply chain resilience: à relational view, International Journal of Physical Distribution & Logistics Management, 43(4), 300-320, https://doi.org/10.1108/IJPDLM-08-2012-0243 date : May 17, 2013.