Research

Conceptual Framework of Integrative Logistics in Supply Chain Management for Maritime Port Logistics Chain

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Abstract: Integrative logistics in SCM is and will continue to be a crucial and topical issue to come in Maritime Port Logistics in China. Because of the mass customization, globalization and e-commerce trends, worldwide logistics management has got more importance in business operations. In this perspective, the costing of transportation has become more important in accounting than cost of sold goods. Furthermore, Integrative Logistics in SCM remains relevant as new policies by administrations often generate new feelings, sentiments, needs and expectations in Maritime Port Logistics Chain which makes it imperative to further explore and investigate the research. The aim of this paper is to show, what is the Maritime port logistics chain and how integration works in supply chain for Maritime port logistics chain. To detect the major functions that influence the logistics performance of the port system, the authority of port has a magnificent role, communicating with the stakeholders involved in international trade logistics, such as exporters, importers, logistics operators, customs agents, inland carriers, and shipping lines.

Keywords: Integrative Logistics, Supply Chain Management, Port Logistics Chain, Transport Management, Ultimate Transportation Facilities

Introduction:
This paper will illustrate the integration of Supply Chain Management and Maritime Port Logistics Chain. Supply Chain Management is an integration of suppliers, manufacturers wholesalers, customers for controlling the materials and information flow from one place to other place in an effective way [1]. In addition, Maritime Port Logistics Chain is the management that promotes the efficient collaboration and coordination of public and private stakeholders so that it can control, plan and implement the flow of maritime and ground transport and information from origin to the point of destination efficiently [2]. Interestingly, nowadays, the potential of SCM concept is being seriously explored by the ports. Effective SCM is an essential strategy for enterprise success in global and e-markets to get products to market faster and at a minimal total cost [3-5].

**Literature Review:**

Tongzon et al. [6] measured the level of its supply chain orientation and analyzed by considering the port of Incheon (South Korea) as a case study in which he showed how much the port sector is supply chain oriented by means of an empirical study. The research figured out the perspectives for the port terminal operator as well as the shipping line calling at the port. A study of the major clashes between both aspects is showed as well as an analysis of the influences on the operations of the port terminal. One major finding of their research is the obstacles of obtaining collaboration in the supply chain due to data sharing and the lack of coherence and belief among the different public and private stakeholders. Another result of their study is that they should emphasize more on creating extra value-added services as well as they should develop the port’s access to the hinterland in order to extend the effectiveness of the port to its users.

Ascencio et al., [7] researched a study among the stakeholders of the port supply chain of the Port of San Antonio to assess the degree of cohesion as well as the levels of gratification with respect to the received service level. It was noticed that those who maintained lower frequencies of interaction gained lower service levels than those stakeholders with a high frequency of interaction with each other and manifested greater satisfaction. The port terminal, the empty container depots, and warehouses provided low scales of faith and trust with respect to the services, as well as low satisfaction levels with respect to the price-quality ratio. Moreover, the main obstacles, opportunity zones, and probable concerns to the port system were detected through some group sessions with representative stakeholders of the PLC. The major facts were connected to the necessity for a worldwide existence which spreads the collaboration among the different stakeholders (governance).
Almoratair and Lumsde illustrated a comprehensive theoretical analysis and conceptual foundation of the port logistics platform as it links to SCM ideas using a systems theory approach. Three main ways that structure the port logistics platform are indicated: the port logistics method, the multimodal transport method, and the information and communications system, which are closely interconnected [8].

**Framework:**

![Port Logistics Governance](Port Logistics Governance) — ![Logistics Management](Logistics Management) — ![Port Logistics Governance](Port Logistics Management)

- ![Traceability Management](Traceability Management) — ![Demand Management](Demand Management) — ![Order Management](Order Management)

- ![Vehicle Distribution](Vehicle Distribution) — ![Integrated Logistics for Maritime Port Logistics](Integrated Logistics for Maritime Port Logistics)

**Methodology:**
This study focuses on secondary data such as article, online journal, dissertation paper and online book. We summarize and extract data on “Supply Chain Management” and “Port Logistics Chain” in the ABI/Inform and Google scholar databases. Using a keyword search is one method to bring objectivity to the article gathering process for literature reviews [9]. This paper is written by using secondary data. Total 31 articles were recognized by using this method. The number of articles returned across journals for each of the academic databases is shown in references. In this paper, total 3 themes are emerged: Integrative SCM, Port logistics and global supply chain competitions.

**Overview of Integrative SCM in Maritime Port logistics:**
Because of globalization, some companies, who are participating in global supply chains, got introduction with various extra concerns. Amongst those, main concerns are exchange rates, interest rates, duties, taxes and customs regulations. This type of condition is being changed simultaneously and so is the freight market’s hesitancy [10]. Due to these issues, the pressure on port operations have increased, as well as some structural changes happened in logistics and new patterns of distribution came in. Broadly, a supply chain involves with two or more legally separated companies connected by material, information, and financial flows. These
companies may be organizations producing parts, components and end products, it can be logistic service providers even the customer. SCM identifies the technical way of adjustment between trading partners. The more the scale of combination across the supply chain the better a company can show their competitiveness [11,12]. It may become risky if there are shortage of integration between suppliers and customers in terms of their business processes [13]. Presently the rivalry in the worldwide market does not happen between firms but between supply chains. Elasticity has become one of the most significant conditions for production methods in which the product/service is often prolonged with contribution of various firms [14]. Overcoming organizational obstacles, leveling strategies, and accelerating flows along the supply chain are typical issues in SCM [15]. So to achieve supply chain collaboration will be the following step [16]. Simatupang and Sridharan [17] offer as a definition: “A Integrative supply chain simply means that two or more independent companies work jointly to plan and execute supply chain operations with greater success than when acting in isolation”. When several legally separated firms in a supply chain wants to execute a common action plan, they collaborate to increase the competitiveness of the supply chain as a whole [15]. Generally scholars accept that a firm connection exists between supply chain structure and competitiveness [17-19] and the adaptability of the structure of the supply chain quickly according to global market needs has been identified as one of the major predominance of this type of organization [15]. This is the most helpful ability for an unstable condition like the one associated with seaport clusters [10]. It is verified that Supply chain performance assessment is a key element on the present world and strategic approaches are mandatory to realize the interactions of the various stages of the logistics chain [22]. Three main characteristics of port logistics chain are-

A: there is a huge number of public and private stakeholders exist that interact in transport operations,
B: the logistics of global trade cargo creates important coordination concerns among the port terminals and their main users,
C: it requires a vast number of transactions and documentation processes, most of them based on paper documents.

These three characteristics firmly influence the logistics efficiency of the transport industry, the exporter, and the importer, originating overflow at the access point to the terminal as well as long waiting times at the different junctions of the international trade logistics chain.
Generally, ports work as an interface between ships and shore by providing Harbor and a berthing space, transitory storage, and infrastructure for cargo operations and intercourse within the port [22, 23]. However, the development of supply chains prompts market players such as maritime shipping lines, stevedoring companies, inland transport operators (freight forwarders and rail and trucking companies), and shipping and customs officers to reconsider their contribution in the logistics process and dares great challenges to the role of ports as functional junctions in logistics methods [24] and to obtain a more effective role in supply chains with extra integration levels, which goes beyond their traditional transshipment role [25].

Generally, inland transport firms and maritime shipping lines want to be consisted of different companies who may try to build long-term business relationships. They extended some strategies such as joint ventures and network integration through coordination among players to share logistics information, techniques, and resources so that they get more negotiating power over suppliers [24].

Thinking of people towards supply chain orientation and logistics integration in the port and maritime industry is well written in latest literature [26-30]. There is a latest trend among port system shippers, third party logistics providers and port authorities need to restructure a more competitive port network system. So in order to meet the changing needs of their users and customers, ports should be oriented towards supply chains [31].

So, SCM can be defined as “a set of directions that effectively collaborate suppliers, manufacturers, wholesalers and customers for planning, implementing and controlling of the materials and information flows from the point of origin to the point of destination, so that goods are produced and distributed at the exact quantities, to the exact locations, and at the exact time, in order to reduce system wide costs while satisfying service level necessities” [31].

Originality:
It is indicated by this paper about the literature gaps of Integrative logistics in SCM and it analyses the most suitable existing studies that can be helpful for the strategists, authorities for ports. This paper also will generate new options for the future researchers.

Findings:
In the research proposed herein, according to the principles of SCM an integrated case is presented to develop inter-enterprise processes for a port logistics chain, with the goal to utilize the Integrative functions in the concept of global trade and transport interactions. A port logistics platform is a collaboration of companies that increase the operational
effectiveness of each company involved and work in an environment of close integration to strategically position and by this way they achieve competitive benefits in the whole supply chain. According to these theories, this research generates a framework for logistics management and development of the inter-enterprise processes that encircle common areas and resources that should be operated by several actors.

**Conclusion:**

Thus, definition of SCM for a PLC can come as follows: “The Administration of a Port Logistics Chain enhances the effective collaboration and coordination of public and private stakeholders for planning, implementing and controlling the flow of maritime and ground transport, cargo and information flow from the point of origin to the point of destination (hinterland, foreland) in an effective way, in order to reduce system wide costs while satisfying service level necessities of importers and exporters (promptness and predictability)”.

**References:**


