

Efficiency of the Integrated Supply Chain Management on the Stock Management in Rwanda. A Case of Dubai World Port Ltd

¹Jonah KWIKIRIZA, ^{2*}Dr. GAMARIEL MBONIMANA

¹Student at University of Kigali, ²Senior Lecturer, University of Kigali

Abstract: - *The need for ensuring effective stock management is now than ever a concern for many organizations given the high level of competition. In addition, holding too much or too little stock has its associated costs. Therefore there was need for efficient stock management in which integrated supply chain play apart. This research sought to investigate the effect of integrated supply chain management on the stock management, taking a case of Dubai Port World. This was guided by four specific objectives, namely, to establish the relationship between upstream chain integration and stock management levels in Dubai Port World; to investigate the relationship between inbound chain integration and stock management levels in Dubai Port World.*

Background

Supply chain has in recent years gained attention from the academician and from practitioners as well as from different regulators. This has led to a dynamic structure within the supply chain that has even been augmented by the developments caused by the technological development and globalization. Companies have begun to use different technologies to facilitate supply chain management and at the same time make them more efficient and secure. This is with an attempt to ensure that the companies gain competitive advantage and maintain a reasonable market share in the competitive environment. As a matter of fact, today more than ever, this search for competitive edge has introduced the concept of integrative supply chain management (Pagano & Liotine, 2019).

According to Brian et al (2014), supply chain refers to an association that exists between customers and suppliers each working for their individual interest. On the other hand, integrative supply chain management is a system in which both the supplier and customer collaborate to optimize their collective gain. In this case, the supply chain management integrates key business processes from end user through original suppliers, manufacturer, trading, and third-party logistics partners in a supply chain. Integration is a critical success factor in a dynamic market environment and is prerequisite for

enhancing value in the system and for effective performance of the supply chain by sharing and utilization of resources, assets, facilities.

However, despite these benefits of combined supply chain management, many firms in Rwanda face shortage of supply which results from a failure within the supply chain. This problem in turn increases the costs of stock handling and therefore the pricing of the services and goods. According to the Ministry of Trade and Industry (2017) report on made in Rwanda policy, most of the firms in Rwanda face competitive issues because of several supply related constraints. Due to this and other challenges faced by firms in Rwanda, the cost of trade increases sales prices by an average of 20%. In addition, high trade logistics, especially in land locked countries, of which Rwanda is one of them, tend to increase the burden and costs of stock handling, storage and consequently the costs of production. One of the key solutions to these challenges that was pointed out by MINICOM (2017) report on made in Rwanda is having a value chain that links both the downstream and the upstream supply of materials.

Statement of the Problem

Supply chain management has in the recent years increased its recognition among the scholars and practitioners as a key drivers of the overall operational and financial performance. It has also

become more and more an emerging subject within the operations management research. The adoption of combined supply chain management would help organization in their stock management ensuring sufficient supply of the needed inventories, their storage, handling and their issuing to different destinations. However, despite these benefits of combined supply chain management, many firms in Rwanda face shortage of supply which results from a failure within the supply chain. This problem in turn increases the costs of stock handling and therefore the pricing of services and goods. According to the Ministry of Trade and Industry (2017) report on made in Rwanda policy, most of the firms in Rwanda face competitive issues because of several supply related constraints. Due to this and other challenges faced by firms in Rwanda, the cost of trade increases sales prices by an average of 20%. Further, supply side capacity issues have been cited as having negative effects on the ability of the companies in Rwanda to manage inventories sufficiently, to respond swiftly to the market signals and to compete globally. In addition, high trade logistics, especially in land locked countries, of which Rwanda is one of them, tend to increase the burden and costs of stock handling, storage and consequently the costs of production. One of the key solutions to these challenges that was pointed out by MINICOM (2017) report on made in Rwanda is having a value chain that links both the downstream and the upstream supply of materials. It is with this background that this research investigated the effect of integrated supply chain management on the stock management in Rwanda, taking a case study of DP World.

Objectives of Study

The objectives that guide this research were divided into two, namely, the general objective and the specific objectives.

General Objective

The general objective for this research was to investigate the effect of integrated supply chain management on the stock management in Rwanda, taking a case study of DP World. **Specific Objectives**

- I. To establish the relationship between upstream chain integration and stock management in DP World.
- II. To assess the relationship between inbound chain integration and stock management in DP World.
- III. To assess the relationship between downstream chain integration and stock management in DP World.
- IV. To assess the relationship between integrated supply chain management and stock management in DP World.

Research Questions

- I. What is the relationship between upstream chain integration and stock management in DP World.?
- II. Is there a relationship between inbound chain integration and stock management in DP World?
- III. What is the relationship between downstream chain integration and stock management in DP World.?
- IV. What is the relationship between integrated supply chain management and stock management in DP World.?

LITERATURE REVIEW

Theoretical Review

- **Concept of integrated supply chain**

All the parties involved in the supply chain, that is the upstream parties, the midstream parties and the downstream parties need to engage in a collaborative method to ensure effective integration of their processes. With this there is improved information sharing and the combination of the partners in the supply chain work to benefit all the parties

Upstream Chain Integration

According to Ayers and Odegaard (2017), the upstream integration is very crucial in a supply chain because it enhances the connection between the firm and its suppliers. In effect, this works to ensure that there is constant flow of inputs for the use by the firm

Inbound Chain Integration

In the supply chain management the in-house management within an organization is of paramount importance. This in-house supply chain stage refers to the internal processes and operations within an organization

Inbound chain integration or logistics involves coordination of the various activities within an organization.

Downstream Chain Integration

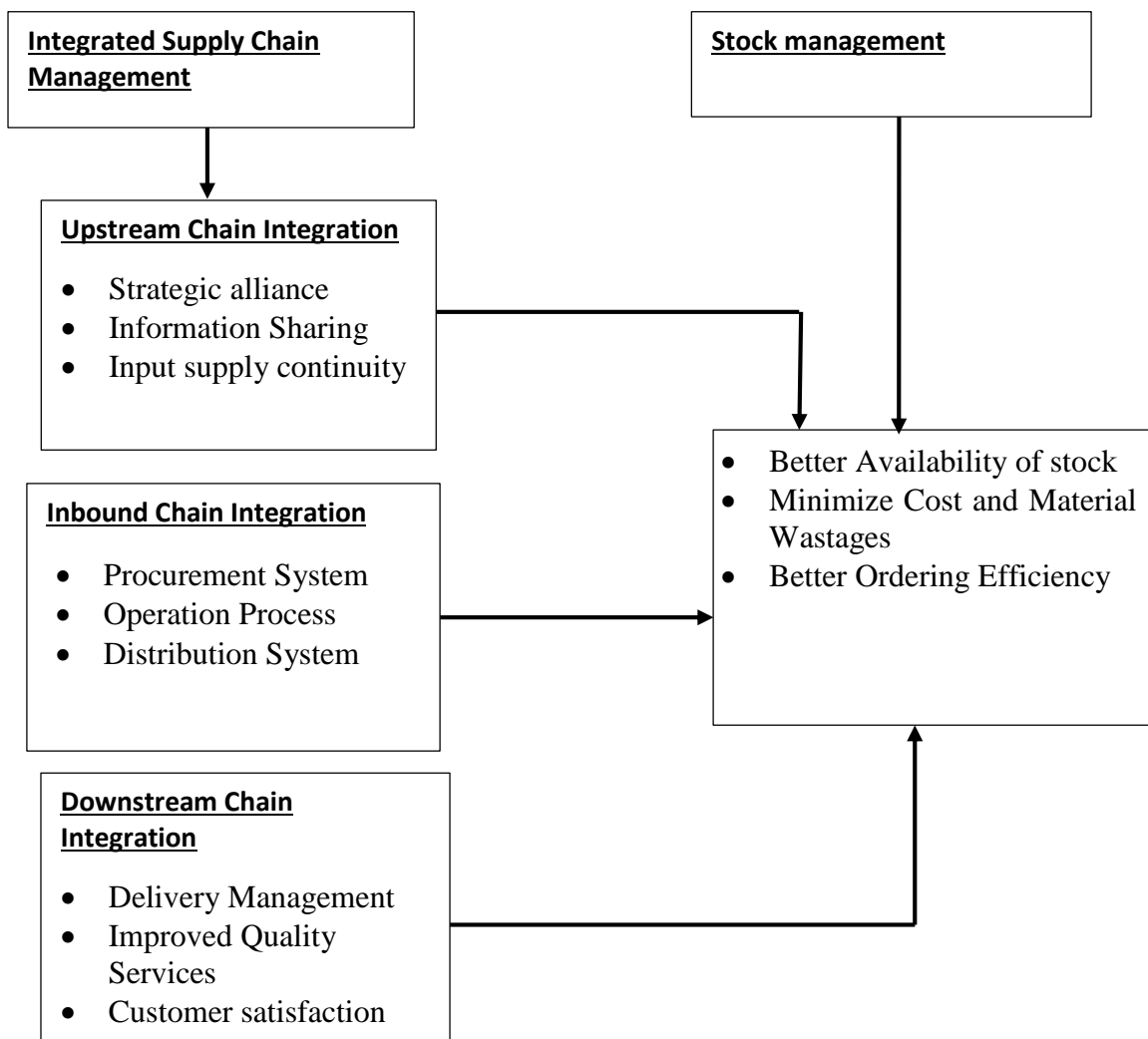
The downstream supply chain management involves various activities aimed at reaching out the stock to the consumers. It comprises all the activities of moving the stock from the warehouse to the distribution centers and eventually to the intended users

Integrated Supply Chain Process

CONCEPTUAL FRAMEWORK

Independent Variable:

Dependent Variable:



Source: Adopted from Brian *et al.* (2014)

Research based on supply chain process views collaboration as a joint effort to redesign supply chain operations that result in better customer service and lower costs (Kannan & Tan, 2010). For instance, Croxton et al. (2001) propose eight key supply chain processes including customer relationship management, supplier relationship management, manufacturing flow management, demand management, and order fulfillment, new product development and commercialization, and returns management.

Stock Management

The stock management performance serve to show how well the organization is running its upstream chain, inbound chain and downstream chain in regard to stock flow

Research Gap Identification

Various empirical studies investigated showed different variables of study as well as different results. For instance study by Yunus and Tadisina (2016) concentrated on the drivers of supply chain integration and organizational culture; Baihaqi and Sohal (2013) concentrated on information sharing in supply chains on organizational performance. Further Bimha, Hoque and Munapo (2020) investigated the impact of supply chain management practices on industrial competitiveness. All these research revealed different interest for different researchers in different parts of the world. However, not much literature was found to concentrate on the three aspects of integration namely, upstream integration, inbound integration and downstream integration. Uwamahoro (2018) on her part focused on these three and is the most empirical research to the current one in terms of variables investigated. However, she concentrated on different indicators under the variables. In addition, the current research offer more empirical evidence as it divert from previous studies by focusing on how ISCM lead to efficient stock management. Zenebe (2018) in his research concentrated only on the downstream supply chain integration for brewery industry in Ethiopia. Hence, this research identified a research gap in this area which it attempts to fill through the empirical research.

Research Methodology

Research Design

The study made use of both descriptive and correlation research design. A descriptive research design is where events are recorded, and compared /contrasted. Descriptive method aided the researcher to present data using tables, graphs and descriptive statistics to provide a clue about the study. The researcher used the correlation research design to measure the relationship between the variables of study.

Target Population

Population refers to the total elements involved in the research. Therefore, the target population for this

research was made up of employees in DP World. Who are 117 in total?

Sample Size

The immediate purposes of sampling is to increase the ability of generating the outcome of the population and ensure that the sample includes all units of interest to the study. However, since the population size in this study was relatively small, the study made use of the entire population as the sample.

Sampling Technique

The method that was used to select the sample in this study is universal sampling. This involves using the entire population for the study, instead of selecting a sample. This was chosen because the target population was relatively small and manageable for the study.

Data collection instruments

Primary data was collected using questionnaire as well as use of interview. The questionnaire was a structured in design, to include closed-ended questions. The questionnaire made use of Likert Scale to measure the variables of study.

As this study was concerned, the questionnaire were distributed by the researcher to the respondent. This was mainly self-administered where the researcher gave the respondents the questionnaires and collect the responses the following day. Where appropriate, the researcher waited for the responses the same day. Where necessary, the researcher translated the questionnaire to facilitate those who were not familiar with some English concepts. This process took a period of four weeks.

Data Analysis

The completed questionnaires were checked for consistency, completeness and accuracy prior to consideration for analysis. Data obtained were analysed using quantitative data analysis techniques, Statistical Package for the Social Sciences (SPSS) version 21 was used in the study data analysis and presentations. Descriptive statistics were centred on frequency tables and charts were used to present demographic characteristics and for the responses.

Further, multiple regression analysis was conducted to establish the relationship between the study variables.

Summary of the findings

The research findings revealed that integrated supply chain management plays a key role in stock management. This was specifically indicated by the results from objective one where most of the respondents were of the view that upstream chain integration helps in creating a harmony between the company and the suppliers. This make it easy for the company to easily communicate with the supplier in case of stock shortages as well as ensuring that stock is adequately and regular replenished as need arise. These results were in line with earlier findings from other authors like Flynn, et al. (2010) and Yunus and Tadisina (2016).

The second objective also helped understand the effect of supply chain integration by specifically looking at the inbound chain integration. Accordingly, majority of the respondents were in agreement that inbound logistics are important in stock management since they help in managing handling stock from receipt to distribution to various departments. As such, having an integrated supply chain that incorporates the inbound chain leads to better and efficient stock management. These results compare positively with what Brian *et al.* (2014) and Peppard and Ward, (2016) in their research emphasising the need for inbound stock handling.

The third objective specifically looked at the downstream integration which according to the results play a key role in the overall supply chain by linking the company with its customers. As such, it is important in ensuring that stock reach the final destination in a better added value and condition. Further analysis also investigated the relationship among the variables using correlation and regression analysis. The result showed that all the indicator variables of the independent variable were positive and significantly related to stock management which concurred with Flynn, et al. (2010) and Fredendall and Hill (2016).

Conclusion

The research investigated in detail the various aspects of supply integration including upstream, inbound and downstream. These three pointed out the main players within a supply chain which include the company itself, its suppliers and its customers. The research argued that such holistic integration would enhance information from among the three parties in the supply chain and consequently influence the stock flow and management in the supply chain. This research was therefore related to the procurement field as it attempted to show that procurement within a supply chain can be more effected where there is coordination and integration in the supply chain.

The findings pointed out that efficient stock management is achieved especially when the company is able to liaise with its suppliers and with its customers. In addition, the procurement and operation departments should work hand in hand with other department to ensure that inbound logistics of stock handling are efficient enough.

Recommendation

The researcher, based on the findings of this research was able to make some recommendations to interested parties. First, the researcher recommends that stock management should be carried out by a separate officer or department that should be in collaboration with the procurement and the operation department. Since the research findings showed that there is high positive correlation between upstream integration and stock management, the researcher recommends that logistic companies as well as companies handling large quantities of stock should ensure constant and regular communication with suppliers. Moreover, information sharing in the supply chain attributed to the positive effect in the supply chain. The researcher also recommends that the management should also engage effectively the downstream to ensure that there is adequate customer outreach. This would in turn ensure that the stock flow from the company to its customers is efficiently management.

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