“The use of integrated supply chain management model for promoting competitiveness in the fast moving consumer goods (FMCG) manufacturing industry in Nigeria”

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Abstract

The importance of integrated supply chain management cannot be overemphasized in any business due to the emergence of inter and intra firm trade, literature has confirmed that the success of any business in all parts of the world depends on the effectiveness of their supply chain management. The focus of this paper is to present an exploratory study on the use of integrated supply chain management model for promoting competitiveness in the fast moving consumer goods (FMCG) manufacturing industry in Nigeria and explore critical factors affecting implementation and use. Primary data are collected from 80 selected respondents in FMCG manufacturing industry based in Lagos Nigeria. Quantitative method of data collection is used. SPSS 22.0 is used to analyze data. Findings of the research indicate the significance of .000* with .879* Cronbach's Alpha reliability. It also reveales that most of the tested variables are very significant. The study will benefit FMCG manufacturing industry in Nigeria and affiliated stakeholders as well as international communities by providing them with recent model. The findings are limited by the study's exploratory, quantitative nature and small sample, therefore, generalization of the results should be done with care and further research, with a large sample encouraged.

Keywords: competitiveness, fast moving consumer goods, integrated model, manufacturing industry, Nigeria.
JEL Classification: M21.

Introduction

Over the years, much research has been conducted in the area of integrated supply chain management (SCM), as a result of its importance and critical significance to the success of businesses, in all parts of the world. Therefore, the aspects of an integrated SCM model in the manufacturing industry are considerable and relevant, in enhancing competitiveness.

In order for organizations to remain competitive, their SCM must be integrated in such a way that information, supplier and funds flow from the supplier's provider to the consumer point of sale, seamlessly. In modern day business, individual enterprises no longer compete with themselves, but rather as a series of chains (Lambert, 2008; Fantazy, Kumer & Kumer, 2010). In view of this, the supply chain is considered to be very important to an organization's effectiveness since it involves the coordination of all processes that will assist in gaining competitive advantage over rival companies (Pamela & Pietro, 2011). It has been confirmed that the higher the supply chain integration, the higher the performance of an organization (Ou, Liu, Hung & Yen, 2010; Wiengarten, Humpherys, Guangming, Fynes & Mckittrick, 2010). This study therefore stems from the growing significance, in examining the factors that will contribute to the implementation and use of integrated SCM, to enhance competitiveness in the fast moving consumer goods (FMCG) manufacturing industry.

1. Problem statement

More recently, there has been an emergent view that SCM models need to be developed that will assist organizations in achieving consumer focus, in the perspective of supply chain effectiveness. Zokie & Hines (2007) show that much has been achieved in developed countries. However, recent research demonstrates surprisingly little success on the part of the FMCG manufacturing industry in the LIC, including Nigeria (Radhika, 2004; World Bank, 2009; Rangan & Rajan, 2007; Sun & Zhang, 2009). The problem could be due to lack of use/implementation of integrated supply model in these industries and require more attention by FMCG industry stakeholders. Therefore, the intention of this study is to propose a new integrated model for promoting competitiveness in the FMCG manufacturing industry in Nigeria, adopted from an existing model.

2. Aim and objectives

2.1. Aim. This study seeks to explore and evaluate critical factors affecting implementation and use of an integrated SCM model in the FMCG manufacturing industry in Nigeria; and then propose a new integrated model which can be applied in promoting competitiveness in the manufacturing FMCG manufacturing industry.

2.2. Objectives:

- To ascertain factors that will contribute to the implementation of an integrated SCM model for

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promoting competitiveness in the FMCG manufacturing industry in Nigeria.

- To evaluate the use and application of integrated SCM model processes in the FMCG manufacturing industry.
- To identify problems confronting the operational application of an integrated SCM model in the FMCG manufacturing industry.
- Propose an integrated supply chain competitive model to improve the effectiveness of the FMCG manufacturing industry in Nigeria.

3. Literature review

3.1. Definition of supply chain management. An attempt has been made to define SCM, as described by different authors in the past. SCM involves many partners (manufacturers, processors, importers, exporters and retailers) working together to achieve a common purpose (Chan, He & Wang, 2011). It is also the combination of activities, which includes mainly manufacturing, materials, information and financial flow (Chavez, Fynes, Ginenez & Wlengarten, 2012).

The supply chain is comprised of different organizations or partners who, directly or indirectly, partake in the fulfilment of a customer's request. This is, however, not made up of manufacturers and suppliers alone, but involves retailers, warehouses, transporters, and the customers. Part of the supply chain processes in a manufacturing organization could also include receiving and completing of customer requests, in addition to new product development, marketing, operations, distribution, finance, as well as customer service (Chopra & Meindl, 2010).

4. The concept of integrated suppy chain management in the FMCG industry

Integration is the coming together of two or more organizations to carry out activities jointly in the supply chain (Forslund & Jonsson, 2009). Effective supply chain integration will assist organizations to achieve enhanced operational performance (Wong, Bono-Itt & Wong, 2011). The need for organizations to come together through integration, is propelled by global competition and demand for effective customer service, as organizations do not run separately or in isolation, but rather in a coordinated and collaborated manner, to enhance performance or as a network, referred to as a supply chain (Lambert, 2008; Fantazy, Kumar & Kumar, 2010).

4.1. Internal integration. This involves the process of interaction between the functional units through collaboration, coordination and cooperation, to achieve strong relationships within an organization (Stock, Gresis & Kasarda, 1988; Flynn, Hou & Zhao, 2010; Zhao, Baofeng, Willem & Jeff Hoi, 2011). The coming together of specialists, or 'subject matter experts', who share useful information and concurrently make products, processes and manufacturing decisions as a team, is also part of the process (Koufteros, Vonderembse & Jayaram, 2005).

4.2. External integration. Organizations work with their customers and suppliers to obtain the information and necessary resources that may be used to achieve competitive advantage. Gimenez & Ventura (2005) and Stein (1998) iterate that, in their opinion, external integration is a continuation of internal integration. With external integration classified into two areas of emphasis namely, Customer and Supply integration, by Frolich & Westbrook (2001), Zhao, Baofeng, Willem & Jeff-Hoi (2011) further explain that external integration is the interaction between an organization and its suppliers, to bring about an adequate flow of supplies.

4.3. Performance. According to Rosenzweig, Roth & Dean (2003), integration is confirmed to directly relate to business performance. This also holds true for internal cooperation, which has a direct effect on an organization's performance (Stock, Greis & Kasarda, 1998; Gimenez & Ventura, 2005), while other authors use three variables to access the effect of integration on performance (Zhao, Baofeng, Willem & Jeff Hoi, 2011). The effect of the three variables of supply chain integration; (supplier, customer and internal integration) on operational and business performance, is confirmed by Flynn, Huo & Zhao (2010), who maintain that internal integration relates directly to business and operational performance, while customer integration relates directly to operational performance.

5. Importance of integrated supply chain management

SCM is a very important concept for the success of business in all parts of the world, with integration said to assist in reducing cost (Flynn, Huo & Zhao, 2010) and improving efficiency (Danese & Romano, 2011). While it is viewed that competitive advantage can be achieved by an organization through integration of the various functional units, this may unfortunately not be the case in today's competitive environment, due to global competition. Customer service can, however, be improved by integrated SCM (Boyaci & Gallego, 2004) and indirectly lead to cost reduction (Vickery, Jayaram, Dronge & Calantone, 2003). This is made possible through the implementation of information technology, thereby enabling visibility of information among partners and allowing for adequate information sharing that will improve supply chain operations (Lee, 2000; Lee, So & Tang, 2000).

6. Characteristics of integrated supply chain model

The USAID Project Deliver (2011) reveals that supply chain integration focuses on how to improve efficiency and reduce or eliminate redundancy along the value chain, so as to improve product availability to the customers. The project also considers a total approach that takes active elements in a system into consideration, along with how the various characteristics are interrelated. In addition, the project findings show that an integrated supply chain needs to ensure that the overall supply chain performs better, by making certain all the attributes that serve as input to an efficient supply chain, are not characterized by just a guarantee that products are available to the customers. Instead it should be characterized by: agility, clearly defined roles and responsibilities, streamlined processes, visibility of information, trust, collaboration and the alignment of objectives.

7. Problems confronting integrated supply chain management in the FMCG manufacturing industry

The nature of SCM in the FMCG manufacturing industry lends itself to several challenges and issues that must be overcome in order to successfully implement such a strategy.

Among the issues discussed in current literature are: trust (Grossman, 2004; Adewole, 2005; Simatupang & Sridharan, 2005; Henke & Zhang, 2010); technical know-how and technological capabilities (Adewole, 2005; Thomas & Barton, 2007); lack of investment in information technology (Adewole, 2005); inadequate or lack of information sharing, poor supply chain strategy (Qi, Zhao & Sheu, 2011); sustainability issues (Blattel-Mink & Kastenhozl, 2005; Burritt & Tingey-Holyoak, 2012); conflicting interests between channel partners (Simatupang & Sridharan, 2005); quality management issues, (Mahour, 2013); inadequate training/skills set (Cottrill, 2010; Christopher, 2012; and Sweeny, 2013); as well as procurement problems, due to the risk of relying on a single supplier (Christophe & Lee, 2004; Stecke & Kumar, 2009; Colicchia, Dallari & Melacini, 2010; Zsidisin & Wange, 2010; Christopher & Holweg, 2011).

7.1. Competitive advantage in the FMCG manufacturing industry. Due to globalization, FMCG manufacturing industries have realized that competitiveness involves continuous collaboration between different partners, with companies that do not practice integration set to fail and therefore unable to compete with rival organizations (Lee, 2000; Kannan & Tan, 2010). The level of company integration with their suppliers will determine their competitiveness (Christopher, 2011). A collaborative advantage is important, given the fact that organizations form part of a larger network or relationship that, to a large extent, determines the scope of activities and competitive advantage. The source of competitive advantage of an organization could be hinged on the effort of the network of organizations, instead of focusing on inherent resources or a single organization (Ritala & Ellonen, 2010).

8. Supply chain modelling in FMCG manufacturing industry

The supply chain problem can be solved by different modelling processes, where an integrated supply chain combines different processes into a single optimized system, while it is also a process, where information is shared among all concerned units. Should these units not be willing to share information, developing an integrated model becomes difficult (Anu, 2014). The importance of an integrated supply chain has no doubt assisted organizations to come up with suitable ways that guarantee skilled management of its changing nature, obstacles, and coverage. This is in line with the suggestion by Ozbayrak, Papadopoulou & Akgun (2007), who highlight that the EERP perception has significantly improved the quantity of information flow; gaining proper right to use information may not necessarily assist in understanding the system, or anticipate the future. Additionally, changing any of the parameters may spread all through the chain.

9. Research methodology

Survey was conducted to collect primary data from 80 selected respondents at Unilever Nigeria FMCG manufacturing industry based in Lagos Nigeria. Stratified random sampling was used for respondent selection, using departments as the stratification factor and thereafter selecting respondents randomly, based on the information obtained from the various departments involved. In formulating the questionnaire for this research, the research objectives and relevant literature were reviewed, which served as a source of input and guide to achieve this. Quantitative research method was used for the design of the questionnaire, close-ended survey/questionnaire method was adopted and the questions were designed in Likert scale form, which presents a series of attitudes towards a variable or object, with numerical values assigned ranging from strongly disagree to strongly agree. In this study, questionnaires were personally administered, to provide clarification to issues on the spot to respondents, where necessary. The final sample is shown below based on the various departments.

10. Research findings

A survey was conducted on 80 selected respondents at Unilever Nigeria. The results of the findings are shown below:

10.1. Factors identified – negative. *10.1.1. Staff training*. The result shows that 58.67% of the participants agree/strongly agree that staff are encouraged to produce more through effective training schemes based on Integrated supply chain management with 34.1% being neutral while 7.3% disagree. This could be that staff is not adequately trained in relevant areas that will enable them to support the implementation of an integrated SCM model. The results confirmed that customers are engaged early in the process of new product development, although there are some concerns that this may not be totally true.

10.1.2. Stakeholder's collaboration. The result shows that 63.4% of the subjects agree that information sharing among all stakeholders will drive collaborative supply chain; followed by 19.51% strongly agree; 9.8% are neutral; 4.9% disagree while; 2.4% strongly disagree. There is indication that no proper stakeholders' needs alignment, which could be due to collaboration issues, lack of training and experience.

10.1.3. Forecasting. The result shows that 50.0% of the subjects agree that forecasting issues are minimal in the organization, 2.5% strongly agree, 40.0% are neutral, 7.5% disagree while 0.0% strongly disagree. Result shows that there could be forecasting problem, and this could impact on customer demand and the production process.

10.1.4. Operational issues and constraints. From figure above, the result shows that a large number of the respondents (36.6%) are neutral that there are operational issues within the organization, 34.1% of the subject agree, 9.8% strongly agree, 14.6% disagree, while 4.9% strongly disagree. It was additionally revealed by the results that operational issues are imminent and impact on supply chain integration, because a substantial number of respondents attested to this.

10.2. Factors identified – positive. *10.2.1. ICT implementation and use*. The result shows that 51.2% of the subjects agree that early involvement of key stakeholders will help in new product development. Followed by 24.4% who are neutral; 19.5% strongly agree; 4.9% disagree, while 0% strongly disagree. Respondents indicated that ICT has been implemented and has always been used to support the supply chain decision-making process.

10.2.2. Business process. The result shows that 90.2% of the subject agree/strongly agree that good quality management practices are in place to support business processes in the organization to help achieve competitive advantage, 4.9% are neutral while 4.9% disagree while 0.0% strongly disagree. Results from the study revealed that early warning signs that could impact on production and performance are detected on time because of good business process management practice in the company.

10.2.3. Quality management process. The result shows that 82.9% of the subject agree/strongly agree, that there is good cultural and organizational effectiveness in place to support integrated supply chain management in the company, 12.2% are neutral while 4.9% disagree while 0.0% strongly disagree. This study further showed that product recall and waste reduction within the system are minimal, as a result of a good quality management practice culture at Unilever.

10.2.4. Effectiveness of production processes. The result shows that 80.5% of the subject agree/strongly agree, that managers have effective communication skills and are able to carry along relevant stakeholders during change initiatives that will enhance supply chain integration in the organization, 7.3% are neutral, 9.8% disagree, while 2.4% strongly disagree.

10.2.5. Procurement and sourcing process. The result shows that 51.2% of the subject agree, that the procurement process is flexible and will reduce the risk of relying on single supplier of products and thereby improve competitiveness, 4.9% strongly agree, 29.3% are neutral, 12.2% disagree, while 2.4% strongly disagree.

10.2.6. Stakeholder's needs alignment. The result shows, that 39.0% of the subject agree that stakeholder's alignment is done jointly by all stakeholders, 7.3% strongly agree, 34.1% are neutral, 19.5% disagree, while 0.0% strongly disagree. The result shows that although there is proper collaboration among the various stakeholders at Unilever, and this will help the organizations' supply chain to be efficient and competitive, but due care must be taken to improve this because substantial number of the respondents are neutral about the current structure.

11. Limitations

The sample size that was used was very small; therefore, variables identified cannot be generalized to be representative of all Nigerian manufacturing companies. Because the study is exploratory, quantitative in nature and makes use of a small sample, generalization of the results should be done with care and further research, with a large sample, is encouraged. This study focused on integrated supply chain management model in the FMCG manufacturing industry, therefore, findings are limited to this aspect alone and did not consider

other manufacturing industries, it is anticipated that generalization should be done with care and further research in this area is recommended.

12. Implications

The implication for this study includes implication for supply chain management theory and supply chain management practice.

12.1. Implication for supply chain management theory. For FMCG manufacturing industry to achieve proper supply chain management integration model and strategy that will enable effective customer service and competitive advantage, staff and relevant stakeholders need to have a clear understanding of relevant theories that will assist them to solve critical problems encountered by them in their supply chain integration process. New concept in supply chain integration model and strategies for FMCG industries to be proposed and implemented. The new concept and theories of supply chain management integration model should be emphasising the important components for supply chain management integration business practices in the FMCG manufacturing industries. This means that FMCG industry stakeholders (staff and partners) need to understand and implement supply chain integration model.

12.2. Implication for supply chain management practice. Practically the result of this study indicates that due to lack of inadequate or relevant training staff and partners are not able to support the supply chain processes effectively, this is evident in the stakeholders needs alignment, forecasting, operations, and lack of clearly defined reporting lines which will have negative impact on customer service delivery and ultimately the entire supply chain management integration processes. When reporting lines are not clearly defined or not published for everyone to understand the structure/escalation procedures, staff and partners will not be able to direct their questions/ queries to the concerned staff on time, as a result time to deliver a process will be impacted and ultimately affect management decision process, as regards issues that arise during the course of work. Lack of proper understanding of the effect of not engaging customers early in product development, this could be overcome by training and proper awareness within the organization highlighting the importance of customers contribution to the outcome of a particular product and as such engage them early to air their view which could help in strategy formulation. The practical implication of this study will benefit the FMCG manufacturing industry and the relevant stakeholders by introducing an approach other than the traditional supply chain theory, because of its inadequacy in bringing change and improvement to the supply chain management performance.

Conclusions

It has been noted that integrated supply chain management plays a pivotal role in achieving competitiveness and sustainability of any business globally. This study indicates that even though understanding the factors that will contribute to the implementation of SCM is not a problem at Unilever. However, it is evident that managers/staff still lack adequate training relevant to their roles and change management that will enhance integrated supply chain. The majority of the respondents indicated that most of the managers/staff of Unilever understand the use and application of quality management tools that will assist in waste reduction and product recalls, However change management seems to be a problem, and needs to be improved upon through internal and external communication/collaboration with partners to enable seamless change. Forecasting should be done collectively to avoid issues arising due to non-understanding of forecasting processes or inadequate collaboration among stakeholders to foster accurate forecast. Also stakeholders' needs must be properly aligned to avoid a situation Unilever concentrates more on internal stakeholders, than the external stakeholders thereby focusing on her priority above their partners.

Recommendations

The importance of supply chain management integration model cannot be overemphasized because of its importance to the success of business in all parts of the world and that for organizations to remain competitive, their SCM must be integrated in such a way that information, supplier and funds flow from the supplier's provider to the consumer point of sale, seamlessly. This study recommends that Unilever should appoint a senior management staff member, who will direct and monitor change initiatives, so that effective communication takes place and changes are communicated to staff and partners before, during and after initiatives are introduced. It must also be ensured that staff/managers have skills in communication and cross functionto lead major change initiative within the organization. Findings further confirmed that sourcing and procurement issues are imminent at Unilever, and this study thus recommends that sourcing must be carried out with care. Proper contracts must, in addition, be put in place on a long-term basis, so that trust can be built among partners to avoid the issue of one partner working on a selfish idea, that will not be of benefit to everyone, while ensuring flexibility to avoid unnecessary risk of downtime in the organization, since the risk of relying on a single supplier could be enormous. This study further recommends that managers should be trained in

analytical and human/behavioral business skills to enable proper supply chain integration in a changing business environment, such as Unilever.

Recommendations for future research

The primary aim of this study is to come up with a basis on how supply chain management integrated model can assist FMCG manufacturing industry in Nigeria to be effective and remain competitive in their business, and suggest basis for knowledge and professionalism within the industry. Therefore, as a result of the findings for this research, the following is recommended for future research: Qualitative research should be conducted on supply chain integrated management model in FMCG industry in Nigeria using large sample. Mixed method of conducting research using combination of Qualitative and Quantitative approach should be conducted. A qualitative method of research needs to be carried out to investigate or probe into the level of responsiveness of strategy to external environment of the company or whether the strategy used in their supply chain integration involves gaining sustainable competitive advantage over competition.

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