

Supply Chain Management: A Competitive Advantage Evaluation

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ABSTRACT--- *It is the right time to understand the draw backs of the current natural resources supply management, plan and implement some radical changes as the current oil supply chain business model is no longer sustainable and is set to collapse in the near future unless some drastic changes are made overall. The researcher seek to suggest a supply chain management model for the oil industry considering the changing needs and demands of the industry, the ideal and effective practices that are prevailing successfully in other supply chain management focused industries. The global oil industry is highly exposed to various risks. For an efficient supply chain management efficient supply chain risk management measures should be applied. Contingency plans should be developed and aligned in advance. The supply chain operation should be made agile so that they can cater the potential risk associated with the business. A centralized supply chain is applied and recommended for OGDC, it is essential to maintain a cooperative and interactive culture with partners and to have the most advanced technology applications. Oil industry will need to be flexible towards the application of new technological innovations and to adapt to these modifications in the most rapid way possible.*

1. INTRODUCTION

Within the current economic climate many industries will need to overcome their financial barriers in order to function effectively, generate revenue and be successful. In this reference the oil industry is faced with multiple ever changing challenges that are growing in impact and importance. This is largely because unlike other industries, natural resources industry has not given the due attention to the supply chain management that it rightly deserves (Ligipoharama, 2012). Natural resources sector is the product based industry. It requires accuracy in service provision and continuity. Quality of service has more value than just a quantum of success. It is hard to contemplate that how such industry that is dominated by customer service cans can fall short in vital areas such as inventory, patient and material management. Despite of the size and importance of this industry, the area such as healthcare, supply chain management, and inventory management have been hugely ignored and relatively little attention are given to these dimensions (Kelle, 2009). It is the right time to understand the draw backs of the current natural resources supply management and plan and implement some radical changes as the current oil supply chain business model is no longer sustainable and is set to collapse in the near future unless some drastic changes are made overall (Handfiled.R.B, 2012). The objectives of this paper include understanding the oil supply chain, looking at current set of challenges facing the industry and establishing some program for change that may result in gaining competitive advantage.

Traditionally, oil companies have not put much effort to gain efficiencies in their supply chain. This is mainly due to the fact that in the past, oil manufacturers / companies never faced profit margin pressures and majority of them enjoyed patent protections. Present day cost pressures combined with regulatory compliance and generic products are forcing many to focus on their supply chain inefficiencies (Paths, 2011). The traditional oil supply chain was built for a different time when most blockbuster drugs had followed a simple model where manufactured drugs were shipped to a small number of wholesalers that then moved them onwards to retailers. That model has been long vanished along with some of the oil players that have not adapted to the changing times (Paths, 2011). Up until recently, most oil companies had given more priority to the product, price and other related marketing aspects first while the supply chain was way down in their priority list however; this way of thinking had to change due to significant challenges that lie ahead. The growth of the oil industry emerging markets add another level of complexity along with an increasing need for safety in the supply chain that demands visibility in a robust and real time way.

In the modern business, the supply chain management plays a vital role in enabling a business to face and cater the contextual challenges. This is because it enhances the business capacity to increase the competitiveness of the supply

chain framework. It increases the business potential to utilize the resources more effectively and help leaders in accomplishing business goals, increasing the efficiency of supply network, vigilant management, accurate control and flow of information, coordination between supplier and the end user, and inventory control (Cooper, 1997). Knowing that the oil industry has ignored this pivotal element for the business success and now is on a verge of supply chain management crisis.

As the oil industry supply chain increasingly becomes more complex and stretching across various countries and continents, the inherent risks to drug quality and safety will multiply many folds as a result. Hence special provisions are needed to secure the materials and to assure product authenticity and integrity as they make their way through the supply chain. We need to ensure that there are no opportunities for mischief through entire cycle of drug that starts from raw ingredient and component through to finished drug product, to the time it reaches the pharmacy and till the time it gets delivered to the patient. It must be made sure that the patient gets real authentic quality safe drug (Holmes, 2012).

In this research, the researcher will seek the ideal practices that are essential for the oil industry and the ways in which the oil business can use effective supply chain management to attain the competitive advantage through effective time management.

2. PROBLEM

This study aims to address a very important issue. Supply chain management in the oil industry needs some radical and rational changes to meet the needs and demands of today's competition and business requirement. It is essential for the industry as natural resources is a customer service dominated industry. The traditional model of supply chain management in the oil industry has been exhausted. To cope up with the global business requirement, it is essential to understand the new challenges faced by the industry, evaluate the best practices and apply the results of those practices. It is now more a matter of survival for the oil industry globally to apply an up to date supply management. After understanding this, the researcher has moved one step ahead and evaluated the prospects of the supply chain efficiency that leads to the competitive advantage for the oil industry. Globalization is changing the world where boundaries are fading. It offers prospects to businesses beyond the geographical boundaries. The intensity of the competition has increased as well. Effective supply chain holds a pivotal position in gaining the competitive advantage in other industries. In this research, the researcher will aim to establish the potential of effective supply change management for attaining the competitive advantage in the oil industry.

3. OBJECTIVE

During the research, the researcher focused on applied supply chain management practices of the oil industry, studied the most effective and best practices that are applied in various industries with the targets and attain results and finally compared the ideal practice and current situation to draw conclusion. The objective of the research is to evaluate how supply chain management can help an oil company in attaining competitive advantage in the oil industry. The researcher seeks to suggest a supply chain management model for the oil industry considering the changing needs and demands of the industry keeping in view the ideal and effective practices that are prevailing successfully in other supply chain management focused industries.

4. RESEARCH QUESTIONS

This research seeks to find out answer to the following main research question:

“Can effective supply chain management be a source of competitive advantage for the oil industry? “

In order to answer this main question, this study will seek answers to the following questions:

“What is the importance of supply chain management in oil industry? ”

“What are the most effective supply chain management practices that are applied in various industries?”

“What are the needs and requirements of today's oil industry? “

“How these best practices can facilitate the oil business in attaining competitive advantage in the industry?”

“What is the role of time management in effectiveness of the oil company supply chain?”

Answering all these questions has enabled the researcher to suggest the ideal and most useful practices for the oil industry of today not only for survival but also to attain competitive advantage in today's competitive dense global business.

5. SCOPE OF STUDY

In this study, I will try to understand the most applied and effective supply chain management practices of different industries. On the basis of the research I will design a comprehensive supply chain management model and practices for the oil industry. Also,

- The study will try to discover potential issues with the help of surveys, observations, interviews with oil companies' management

- Two of the most successful supply chain management models from different industries will be studied and evaluated.
- The potential of the ideal successful practices will be explored with reference to the oil industry.

6. LITERATURE REVIEW

Traditionally to attain competitive advantages in the oil industry, the focus was either on R&D or on the marketing department. As the scope of the business and the demand of the products have changed, the focus is now shifted to the optimization of the supply chain. Supply chain holds a vital role equally for the businesses with high profit margins and low profit margins. Supply chain management and optimization is evolving in the oil industry. For this report, my research focused on understanding the best practices in supply chain management in different industries and then will analyze the potential of these practices for the optimization of the oil industry (Handfiled.R.B, 2012).

Literature review includes practices that are already applied in the oil supply chain industry as well as in some other areas of the health sector in general. It will also address briefly the various aspects of the supply chain and the supply chain management in the context of business operations. It will also provide a snapshot view of the global oil industry and the Pakistan oil industry in particular details. The aim of the literature review will be to understand and analyze the challenges and issues that are presently being faced within the oil supply chain in Pakistan. During the research it was noticed that the oil companies are not very flexible in sharing the information relating to their supply chain. It is mainly because they want to keep such kind of information exclusive to the company.

7. SUPPLY CHAIN

In the past two decades, consumer preferences have evolved and have drastically changed. Modern day consumer is more educated, informed and has all the resources at his disposal to seek a better and superior alternative. They have the wisdom and the knowledge of the product they seek and the available alternative for the same product. It appears that consumers are much more price and quality sensitive and are always on the lookout for a better value product and service. For businesses to succeed in this competitive environment, they need to be more agile and adaptive and should be able to sense and respond in real time to changing global business environment (Enyinda & Szmerekovsky, 2008). As these businesses seek to create greater value for their customers by changing the way they do business, within this environment supply chain is one area that has gained immense importance as a result.

According to Walker (2005) supply chain can be defined as a network accustomed to provide products and services from raw materials to end customers by means of a designed flow of knowledge and information, physical delivery, distribution and cash (Walker, 2005). This definition in its entirety captures/highlights some of the key elements within a supply chain that are the various processes namely sourcing, manufacturing, transporting and distributing products and services. One equally important thing is the information and financial flows that is taking place in both directions (Lane, 1993). And the most important component is the satisfaction of end user requirements. Supply chain along similar lines as a network of conveniences and distribution choices that execute the functions of procurement of materials, conversion of these materials into more advanced and final products, and the distribution of such final products to customers as well as in case of oil industry to hospitals, store pharmacy or patient in an ideal and effective manner.

Looks at the supply chain from the perspective of managing relationships upstream and downstream as “a network of organizations that are involved through the upstream and downstream linkage in different processes and activities that produce value in the form of products and services in the hands of the ultimate consumer”. In other words, it is the end to end integrated process. It starts from the design and development of the product all the way till the customer receives the product. To manage this upstream and downstream relationship among suppliers, company and manufacturer, resellers and the final consumers within the supply chain is a concept called the Supply Chain Management (SCM).

8. SUPPLY CHAIN MANAGEMENT

Supply chain management is a concept that has emerged since the 1990s as companies started to realize that they can no longer operate independently and required the cooperation of all the partners involved within a supply chain. Researcher's work on value chains and value systems captures the essence of organizing activities within the firms in order to transmit value to the ultimate customer.

The supply chain has a dynamic mechanism. It includes different organizations performing different, unique and integrated activities that are essential for a flow of product and service from the provider to the customer (Whewell, 2010). At many occasions, the needs and demands of the supply chain activities appear to conflict with each other. Therefore, it is vital to see the large picture in order to understand and balance the demands of the effective supply chain. So for a successful supply chain management, the integration of all the involved partner activities is crucial (Haakonsson, 2009). This can be further illustrated through the following definitions.

Michael Hugos (2006) defines supply chain as “supply chain management is the coordination of production, inventory, location, and transportation among the participants in a supply chain to achieve the best mix of responsiveness and efficiency for the market being served” (Hugos, 2006). Researcher refers supply chain management as the collaborative effort of multiple channel members to design, implement and manage seamless value added processes to meet the real needs of the end customers (Magnan, 2008).

Other dimension was highlighted by Morgan in 1997 when they stated that it is the supply chains and not the firms that compete and the strongest competitors will be those that can provide management and leadership with a fully integrated supply chain. A supply chain that will have all the partners, external customers, their suppliers and their suppliers supplier's, all integrated into one system. And if in case there is any inefficiency that is experienced across the supply chain, it will be assessed to represent the true capabilities of the (entire) process.

This management of supply chain has become an important issue in recent years as many companies move away from the vertically integrated model towards a more horizontal integration. Looking at this from an oil industry's perspective, it appears that the economies of scale enjoyed within the industry by most players are being reduced as many patent protected products with billions of dollars worth of sales are to expire in the immediate to near future and that has resulted in an increase in generic product competition. Most companies have started to refine their supply chain to make it more flexible and cost effective that is able to meet tomorrow's needs and challenges. Within the oil industry, there are a numerous set of forces, both internal and external, that are dictating the need for a different sort of supply chain (PricewaterhouseCoopers [PwC], 2011).

9. METHODOLOGY

The American Marketing Association (AMA) defines marketing research as the function that has the potential of connecting the customer, consumer and the general public to the marketer with the help of the data and information collected. In other words, market research provides the relevant information to identify the market opportunities, threats, problems and solutions. It is a process of understanding the existing market and identifying the potential market (Burns, 2007).

The exploratory nature of this work suggests adopting a secondary data. Qualitative research methods will apply for getting an in-depth insight of the situation. The research is essentially based on detailed analysis of secondary data drawn from authentic sources such as library databases mainly Business source premier, ABI, Emerald, Data monitors, IBIS World and from other industry/company websites.

To understand the importance of time management in the OGDC supply chain, a survey was conducted to understand the relation between coordination, logistic management and production efficiency with time management. The data was collected by providing a semi structured questionnaire to the staff randomly from different parts of the supply chain. The other tools used to collect the data are observation and interviews.

10. DATA ANALYSIS

The data show time management has a positive relation to production efficiency in the oil and gas industry. OGDC is continuously working on time management leading to competitive advantage. The oil and gas industry is a competition dense industry globally, but in the local market, OGDC is faced with much competition. Still the strategy adapted by OGDC to continuously working on the salient features that can lead to competitive advantage is successful till now as it is aimed in the right direction with the company finding its position in the global market. To understand the importance of time management in the OGDC supply chain, a survey was conducted to understand the relation between coordination, logistic management and production efficiency with time management. The data was collected by providing a semi structured questionnaire to the staff randomly from different parts of the supply chain. The other tools used to collect the data are observation and interviews. The data also indicates that production efficiency is positively related to time management.

At the same time, management depends on effective coordination between different sections of the supply chain. Time management is highly affected by the accuracy of logistic management. Time management is negatively related to formalities and time consuming procedures. The majority of employees (65%) are quite particular about the time management in their daily work routine. Almost 35% of the employees struggle with time management but are able to achieve it somehow. On the whole, 48% of the employees are satisfied with the time management practices at the OGDC.

Note that the result of regression for all three dependent variables with VIF of less than 1.8 shows low multi collinearity. The increase in explaining variance was 10 percent in time management ($F(1,167) = 19.2$ $p < 0.01$), 10 percent ($F(1,167) = 19.2$ $p < 0.01$) for coordination at OGDC, and 4 percent ($F(1,167) = 7.1$ $p < 0.01$) for policies and procedures ($F(1,167) = 19.2$ $p < 0.01$) for production efficiency and ($F(1,167) = 19.2$ $p < 0.01$) for logistic management. These results, therefore, show that the time management has a positive relation to the production efficiency adopted by OGDC. However, it has a negative relation to time consuming process and procedures.

Factor analysis

Items	Factor 1	Factor 2
TM1	0.90	0.11
TM1	0.92	0.05
Q1	0.11	0.21
Q2	0.05	0.79
Q3	0.04	0.81
CD1	0.08	0.74
CD2	0.04	0.06
LM1	0.15	0.05
LM2	0.11	0.05
PE1	0.89	0.12
PE2	0.85	0.03
PP1	0.06	0.02
PP2	-0.12	0.01

Table 1: the factor analysis (In the table CS refers to customer satisfaction items, Q indicates quality, CD represent Coordination; LM the abbreviation of logistic management, PE indicates production efficiency whereas PP represents policies and procedures.)

Descriptive statistics

	Mean	SD
Independent variables		
Dependent variables		
Policies and procedures	3.43	1.35
Time management	4.10	1.23
Coordination	4.21	1.10
Logistic Management	4.10	1.30
Quality	4.40	1.28

The globalization has dramatically changed the needs and requirements of business. To address these issues, the need for a proactive reaction and the capacity to act quickly arises. Companies that want to be leaders and successful business performers will need to think entirely differently about customers, markets, competitiveness, competitors, etc.

Companies in the future will constantly search for ways to use and to capitalize on their competitive advantage to be able to satisfy future needs of customers. With the change in the industrial structure, the challenges faced by the tourism industry in references to the responsibility towards the environment and surroundings also changed.

Time management is particularly important for the oil and gas supply chain management. The production and distribution efficiency is primary dependent on the time management. Time management on the other hand is dependent on coordination and logistics management. The time consuming process and procedure affects the time management capacity of the various units in the supply chain of OGDC, thus effecting the production and distribution.

11. FINDINGS AND CONCLUSION

The oil industry has been radically changed in the last few years. The ever growing globalization has changed the needs and requirements of businesses. With all these changes taking place within the industry structures, the increasing challenges faced by the oil and gas sector in reference to supply chain management has become extremely complex and diversified.

- Synchronization of the business supply chain is essential to facilitate the movement of the products. Its importance in supply chain is radiant and a proper application of technology can enhance the supply chain synchronization.
- Supply chain integration and its cohesion determine the success of the supply chain for any business.

- The global oil industry is highly exposed to various risks. For an efficient supply chain management, efficient supply chain risk management measures should be applied. Contingency plans should be developed and aligned in advance. The supply chain operation should be made agile so that they can cater the potential risks associated with the business.
- The supply chain should be made flexible enough to adopt changes and technology innovation.
- Technology can aid the security features in multiple ways with its overt features, covert features and forensic features.
- To increase the performance of supply chain, it is essential to ensure safety and security at every level.

12. LIMITATIONS

Like all other studies, this research has limitations. The structure format of the report had to be slightly altered from that of case study format as the company site visit was cancelled and the semi structured interview which was to be conducted with the relevant personnel never took place. And this research report has mainly relied on all available secondary sources of information from databases, to company reports, industry reports to company websites. The employees who became part of the survey and interview were reluctant to share true and clear information about the whole situation. Another shortcoming of the study is that the oil supply chain was mainly analyzed from a supply chain management point of view only. However, other areas within the oil and gas industry such as consumer behavior etc. have not been discussed as part of this report.

The report was to be completed within a given time which again has restricted the scope of our findings. The findings of this study should be useful for practitioners in the industry who can compare various dimensions required for best industry practice and possibly apply to their organizational practices.

13. CONCLUSION

Oil industry needs to establish a much deeper understanding of the various business/product/consumer segments needs and then needs to design a supply chain for that particular purpose i.e. designing a specialized supply chain. It is best to know your product classification based on functional/innovative product and then to have a supply chain strategy that can best match your product which is to have either an efficient supply chain, effective supply chain or a combination of both of these. A centralized supply chain is applied and recommended for OGDC. It is essential to maintain a cooperative and interactive culture with partners and to have the most advanced technology applications. Oil industry needs to be flexible towards the application of new technological innovations and to adapt to these modifications in the most rapid way possible. Another feature is the implementation of track and trace technologies within the product supply chain that enhances the visibility. Companies that offer the best security attributes in their supply chain may gain a competitive edge over rivals.

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