Application of Fishbone Analysis for Evaluating Supply Chain and Business Process- A Case Study on KMART

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Abstract
In this global era of science, technology and venture, it is obvious that doing business is a challenging job. And again, in this period of co-creation, delivering value has become the prime concern for every business which can be ensured by sustainable supply chain management. Structural efficiency of supply chain management is the main focus for retail enterprises to maintain profit and growth. Fishbone analysis, also known as "Ishikawa Analysis", is one of the most effective methods' of analyzing any business process and measuring performance. This study intends to evaluate the efficiency of K-Mart's value chain and business process. It provides insight about the problems associated with software, process, people, material, environment and management and sorts out possible solution for those problems.
Keywords: Fishbone analysis, Kmart, Supply Chain, Management

1. Introduction

The complexity of hyper-competitive business world has made the business process more challenging (Bose, 2012). To outset this challenge, prudent analyzing of current position to find out areas of problems is a necessary step that enables the business to step forward by resolving the current problematic issues (Southern, 1995). Fishbone Analysis is a practical way of intensively analyzing any business process. This study is about "The Fishbone Analysis" and its application to find out the problems and providing solutions to the case study of "What Happened to Kmart" (Balanced Scorecard Institute, 2007).

2. Literature Review

The fishbone analysis (originally named Cause and Effect analysis) was originally developed as a quality control tool. It helps to identify the following:

- •Discover the root cause of a problem.
- •Uncover bottlenecks in your processes.
- •Identify where and why a process is not working.

Cause and Effect Analysis was devised by Professor Kaoru Ishikawa, a pioneer of quality management, in the 1960s. The technique was then published in his 1990 book, "Introduction to Quality Control." The diagrams that could be created with Cause and Effect Analysis are known as Ishikawa Diagrams or Fishbone Diagrams. As a completed diagram can look like the skeleton of a fish. The technique uses a diagram-based approach for thinking through all of the possible causes of a problem. This helps to carry out a thorough analysis of the situation.

The fishbone diagram and analysis typically evaluates the causes and sub-causes of one particular problem and therefore assists to uncover all the symptoms of any business problem (American Society for Quality, 2005). In a typical fishbone diagram the main problem which is required to be resolved has been put on the head of the diagram and the causes are put as the bones and then smaller bones are created as the resemblances of the sub-causes. After completion of the diagram, it is a comprehensive evaluation of the causes of the main problems and also reveals the root causes as well (Balanced Scorecard Institute, 2007). There are six classic categories of a fishbone diagram which are categorized as the main causes of any problems of business process. Those are software, process, people, material, environment & management. The analysis of these six variables reveals the reasons of a problem irrespective of its type or severity (Ishikawa, 1986). In this study, the same thing was done for Kmart. First, the fishbone analysis will be done with six classic variables and in the second analysis those will be further analyzed with more causes or bones with subsections.

3. Case Summary

The complexity of hyper-competitive business world has made the business process more challenging (Bose, 2012). To outset this challenge, prudent analyzing of current position to find out areas of problems is a necessary step that enables the business to step forward by resolving the current problematic issues (Southern, 1995). Fishbone Analysis is a practical way of intensively analyzing any business process. This study is about "The Fishbone Analysis" and its application to find out the problems and providing solutions to the case study of "What Happened to Kmart" (Balanced Scorecard Institute, 2007).

4. First Fishbone Analysis

The fishbone analysis is certainly a very good way to reveal inside picture of one particular issue. It is of great usage also to for going inside into the story and that help to detect relevant issues simultaneously (American Society for Quality, 2005). In this study, at first, a simple fishbone analysis will be done by drawing the first fish bone with six classic categories. These categories are incompatible software, faulty process, people, material, environment and inefficient management. Major problems that are cause for the main problem are identified with this process. Later, the second & most important fishbone analysis will be done by putting that into the head of the second diagram and the causes will be shown by depicting bones in the diagram. customers and finally it was forced to file for Chapter 11 bankruptcy protection.

The fishbone analysis of Kmart reveals that the major issue here is its supply chain management system. Supply chain management is comprehensively defined as the summation and integration of all the sub-systems that require providing goods or services to the customers (Gregory, 1992). Kmart is mainly a merchandising organization serving its customers at a price lower than other outlets. And this is the main concept of discount stores that, these stores serve at fewer prices than variety stores with offering a wide price range. As far back as 1992, the Harvard Business Review pointed to Wal-Mart's well-honed business processes as the key to its success, with technology as an important enabler. Kmart's supply chain consist of inventory management, ordering, stock-keeping, delivery of goods, track of orders, information system & other processes that ensure successful running of the business. The first fishbone analysis reveals that, in this case, the major issue of Kmart is unable to ensure smooth & undisrupted supply chain. If that has been fulfilled then there is no reason why the organization can't achieve its historical success (Ishikawa, 1990). But why this is faulty? Where is the impediment? Is it the management or the process is faulty? The second fishbone analysis is likely to give the answer.
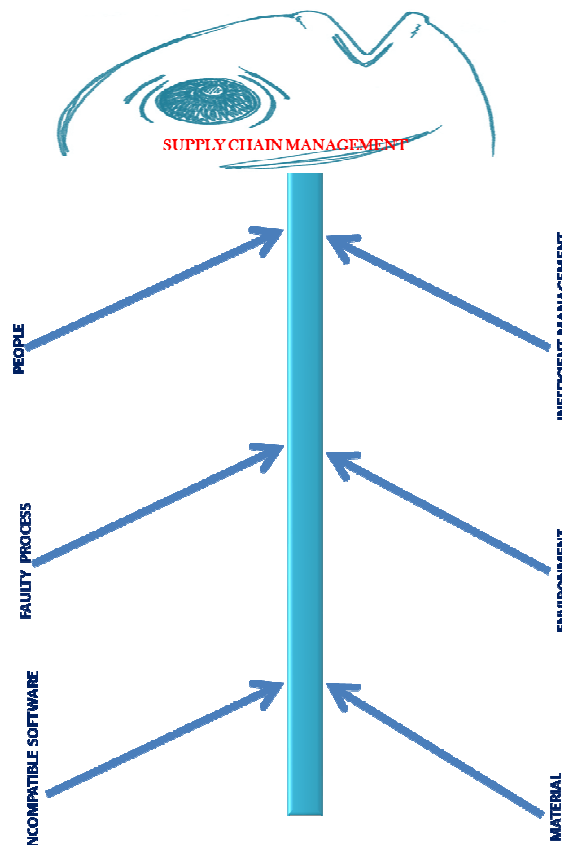

Figure 1: First Fishbone Analysis

5.   The Second Fishbone Analysis: Why- Why Analysis

The fishbone analysis helps to go inside and finding out the root cause. In this case study, the first fishbone analysis reveals that the main problem for falling behind is improper supply chain management. But what are the driving factors of this faulty supply chain? The second fishbone analysis along with Why-Why analysis will reveal the reasons. This evaluation will be done under six classic categories of the fishbone diagram and analysis (Ishiwaka, 1990). This analysis will reveal the factors that are creating this problem.

5.1 Incompatible Software:

The appropriation of required machinery and equipment is the key to maintain and enhance the operational efficiency of supply chain management (Otto, 1995). In case of Kmart its main equipment (information technology) concerning the maintenance of supply chain were outdated and old fashioned. Even its own management had no exact control over its most important IT project. Its IT system had inability to connect suppliers' computers perfectly while it had high maintenance cost. So both the hardware and software of the operation system resulted in failure to provide satisfactory customer service that curtailed the lion's share of the retail based business's profit.

5.2 Faulty Process:

Efficient supply chain and operation process ensures efficient performance of any business. A sound process ensures synergy and contributed towards greater business success in product and service industry (Poli, et al., 1988). In Kmart's business faulty process was existed from ordering supplier to shipment of goods. Due to this problem customers often found empty shelve when they searched their favorite products. At the same time Kmart often experienced replenishments problem and excess stock problem for different types of products. For this faulty process had increased faulty when its warehouse provided inadequate facility. On the contrary it had low inventory turnover. Actually it was noticed again and again that the existing overall process of Kmart was actually incompatible with any improvisation of existing IT system.

5.3 Manpower Problem:

Only efficient and effective human capital can ensure profit and growth for the business (Sturges and Kilani, 1992). The people of Kmart were not giving standard customer service to create better impression. The shrinking rate for the company was also very high which gives negative impression about Kmart's employees. This employee group also failed to communicate top management ultimately. This employee group had also experienced a downsizing which causes low motivation to the job.

5.4 Material Problem:

Material management is the key for ensuring smooth and high-performed supply chain management (Sturges and Kilani, 1992). Kmart was dealing with an unmanageable quantity of materials which was creating inefficiency in overall material handling process. The organization had not a proper warehousing system. It often dealt with inferior goods. For this reason, the retailing giant had to carry undesirable cost and ultimately it had to set price above the competitor's price.

5.5 Environment Problem:

There is an appropriation of an overall business environment and environment needs to be conducive for high level of business success (Sturges and Kilani, 1992). Kmart was operating in such a market where there were many strong competitors. Those competitors offer high competition for Kmart and Kmart struggled to give a proper fight back. Unrest demand nature of the market and continuous price pressure from competitors broke proper concentration of Kmart to the strategy of the competitors. In this adverse environment, promotion driven model could not work effectively.

5.6 Inefficient Management

Kmart's top management had continuous failure in predicting future well. Management had never identified the best performing products. Kmart's management could neither focus on sale nor calculate local demand. Its management could not set any perfect strategy for attracting prospective customers. Management failed to take the best decision both in IT project selection and portfolio selection. Even the good online marketing program could not see the light of success. Kmart's management wanted to distinguished itself but imprudent decision making and inefficient management blocked that way.
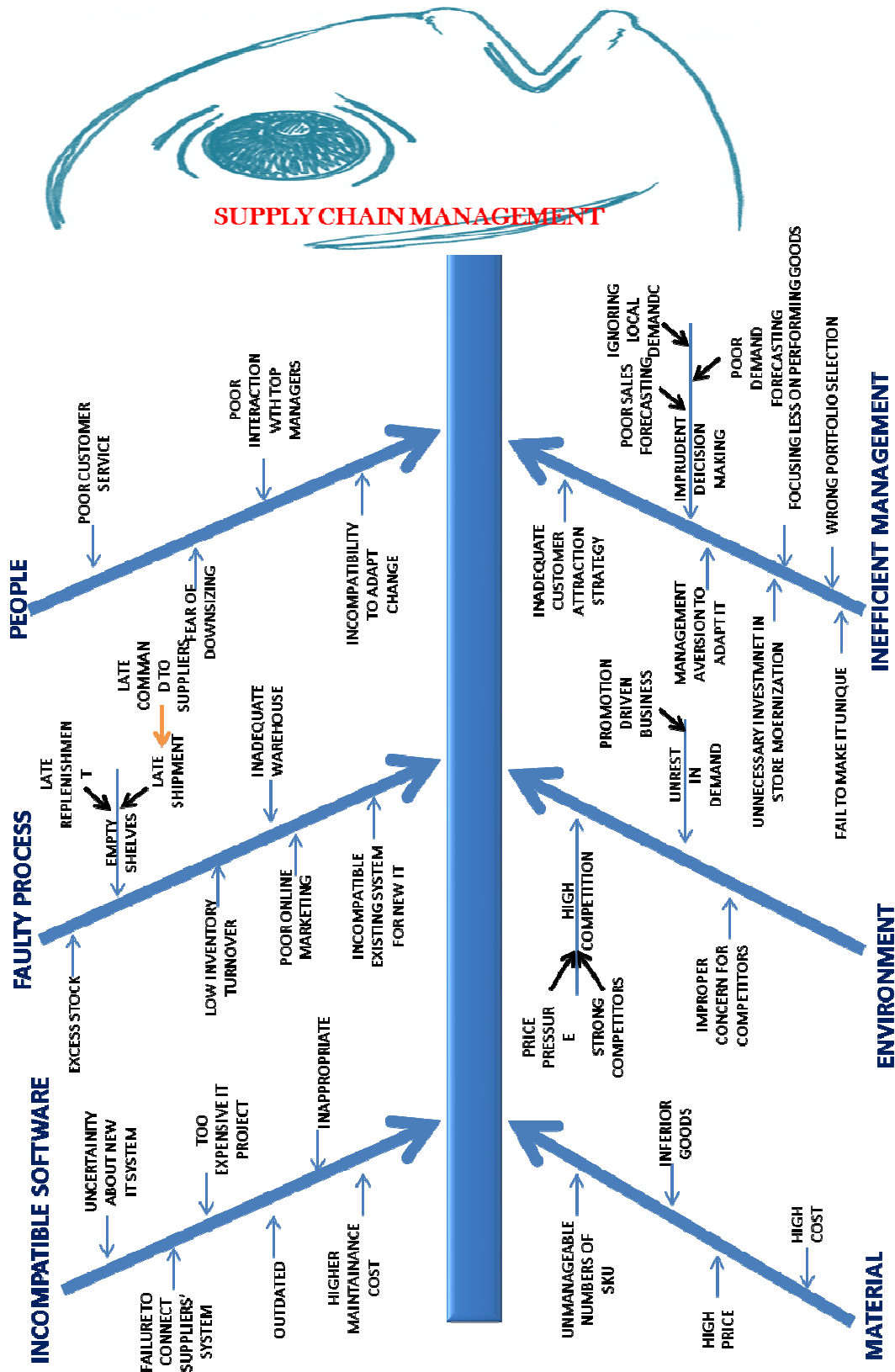
Figure2: Second Fishbone Analysis: Why Why Analsyis

6. Solutions to the Problem

K-mart is facing the problem of supply chain management and there are several reasons of it. It is important to find out proper solution of these problems so that K-mart can secure the best position in the most competitive

retail discount store. Here, are some solutions under the six classic categories to help K-mart for improving its supply chain management.

6.1 Solution to Incompatible Software Problem
K-mart needs to modify the existing IT System which will be better and compatible to both the K-mart people and the supplier. Proper Training can be provided through the Pilot System in some specific stores to both the K-mart employees and supplier in order to improve the efficiency to meet the compatibility and measure the performance that provide the feedback to management. IT System is one of the major problems in supply chain management. So it is important to develop such an IT system that will reduce the overall cost and increase the revenue that will provide then an edge to minimize their loss.

6.2 Solution to Faulty Process Problem
Well performed IT System must be properly implemented so that Replenishment Time gets reduced. Incorporate with the IT Systems, warehouse system need to be improved. By focusing on the better performing products stock turnover can be increased. Better warehousing and high stock turnover confirms the adequate stock in K-mart. If the point of focus provides on the high performing product, it's possible to increase the inventory turnover.

6.3 Solution to Manpower Problem:
People are the most important success factor for any organization. One of the main problems that were found through the Fishbone analysis is that there is a gap between the K-mart people and the top level management. Top management was not fully aware of the immediate feedback of the approaches they have implemented as the employees in the K-mart failed to provide proper information regarding this matter. Customer Service was also a weak point of K-mart employee. It should be improved. Proper Training can be a tool to improve their efficiency. Through the operation there arose a situation of downsizing which hindered them to provide their best for K-mart. It should be dispelled and ensure and inspire the employees to strive to achieve organizational goals. One of the problems of K-mart was that they failed to cope up with the frequent offerings of the competitors. K-Mart undertook various strategies against those offerings but only a few got the touch of success. The reason was employees were incapable of adapting the changes and failed to convey the proper message. So it is important to remove the gap so that the employees can easily contact with the top management in order to build an efficient supply chain.

6.4 Solution to Materials Problem
K-mart needs to choose the appropriate goods on their stores based on the customer preferences and the records of sales turnover. It is seen that a large number of product was included in K-mart's product portfolio. As K-mart is facing great challenges from their competitors and going through the financial crisis, they need to give priority on the high performing product and ensure the availability of those all the time. They also focus on removing the low performing product from their portfolio. In order to survive on the competition K-mart needs to set the price of their products at a competitive level. For this reason, they should focus on minimizing their cost by restructuring the management, Implementation of Well Improved IT system, building a strong channel with suppliers, Proper Inventory management and eliminating the low performing product from their portfolio.

6.5 Solutions to Environment Problem
K-mart was the first retailer to introduce the discount store but with passage of time they just lose their ground. Wal-Mart and Target continues to make their position very strong in this arena through better promotional offering, improved customer service and proper use of technology. K-mart needs to analyze the current market position and adopt proper strategy that will enable K-mart to grab more market position secure their stands in the completion. They should keep an eye on the competitors' offerings and the feedback of those offerings. It is important to estimate the market demand. On the basis of market demand and competitors' strategy K-mart can implement their new promotional offerings in some specific stores under a pilot project. Based on the feedback of the offerings it can be implemented in all the stores or made further adjustment to build a strong supply chain management.

6.6 Solution to inefficient Management Problem:
Customer attraction and retention should be the core view of the management. Management needs to focus on the local customer demands and the sales records of the stores. Based on these it is possible to identify the high and low performing goods and build up the attractive product portfolio. As K-mart is passing through the tough time cost reduction can be very effective tools. Unnecessary investments in store modernization should be continued. Proper Sales forecasting is very essential for K-mart as it will help them to increase their sales volume

along with increasing revenue. Management should develop a strategy that will make K-mart different from the competitors. K-mart can offer a certain discount on purchase of specific products and offer rewards on purchasing a high volume from K-mart stores. It can make its employees more active by providing appraisal, rewards and bonus on achieving the target. This will help K-mart to become a unique retailer. In order to increase the efficiency in their supply chain management, it is important to adapt improved IT System. Management can also provide training for their employees so that they could easily adapt to the use of improved IT System and ensure the best use of it.

7. Limitations of Fishbone Analysis

Fishbone analysis makes a logical evaluation of actions to specific events and situations. It is an excellent tool to bring out expected result but still it is not beyond limitations. This approach has some serious limitations. The fishbone graph provides no clear sequence of events that leads to failure. Instead, it displays all the possible causes that may have contributed to the event. Another limitation is that it cannot isolate the specific factors that caused the event (Juran, 1999). Another severe limitation is that users can overlook important, complex interactions between causes because of the nature of the diagram. Again if a problem is caused by a combination of factors, it is difficult to use the tool to identify and solve problem. It creates further problem when it is the situation to distinguish between necessary and significant conditions for the occurrence of an events. The tool also fails to represent details of the relevant cases (Watson, 2004).

8. Conclusion

Every theory contains more or less limitations. But limitations are not the only outcome of fishbone theory. In Kmart's case fishbone diagram is really a perfect tool in identifying the major problem of the company. From fishbone diagram we have identified that the major problem for the company is supply chain management. There are different sub-causes to make the problem severe for Kmart. We have identified almost all the causes which have brought down Kmart's position among the retail giants. We have also offered some ways to overcome this struggling situation. We hope if Kmart adopts these solutions, it will be able to give a tremendous fight-back to its major competitors.

In short we can say that, adjustment to the current competition is important factor to sustain in the business. And problem solving, time management and proper decision making is the key to adjust with the competition. So, entrepreneurs must possess the characteristics of proper time management and decision making to define business growth and resolve problems.

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