IOSR Journal of Engineering (IOSRJEN)
ISSN: 2250-3021 ISBN: 2878-8719 PP 84-89
National Symposium on engineering and Research

Determining applicability of SCM practices in Process Industries

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Extended Abstract: - *WORLD SCENARIO Since last two decades the competition in different organizations intensified and markets became global, so did the challenges associated with getting a product and service to the right place at the right time at the lowest cost. Organizations began to realize that it is not enough to improve efficiencies within an organization, but their whole supply chain has to be made competitive.*

For any organization a supply chain consists all stages involved tangibly or intangibly to fulfil the customer request. The supply chain includes not only manufacturers & suppliers but also the transporters, warehouses, retailers & even customers themselves. Within each organization such as manufacturer the supply chain includes all functions involved in receiving & filling customer request.

The understanding and practicing of supply chain management (SCM) has become an essential prerequisite for staying competitive in the global race and for enhancing profitability. Council of Logistics Management (CLM) defines SCM as the systemic, strategic coordination of the traditional business functions and tactics across these businesses functions within a particular organization and across businesses within the supply chain for the purposes of improving the long-term performance of the individual organizations and the supply chain as a whole. SCM has been defined to explicitly recognize the strategic nature of coordination between trading partners and to explain the dual purpose of SCM: to improve the performance of an individual organization, and to improve the performance of the whole supply chain. The goal of SCM is to integrate both information and material flows seamlessly across the supply chain as an effective competitive weapon. The concept of SCM has received increasing attention from academicians, consultants, and business managers alike. Many organizations have begun to recognize that SCM is the key to building sustainable competitive edge for their products and/or services in an increasingly crowded marketplace. The concept of SCM has been considered from different points of view in different bodies of literature , such as purchasing and supply management, logistics and transportation, operations management, marketing, organizational theory, and management information systems.

I. SUPPLY CHAIN MANAGEMENT PRACTICES:

SCM practices are defined as a "Set of activities undertaken in an organization to promote effective management of its supply chain." To maximize the value of product & to increase the supply chain profitability different practices are widely used in different organizations .These are called as SCM practices.

II. OBJECTIVE OF RESEARCH PAPER:

The objective of this research paper is to investigate whether the best SCM practices so successfully implemented by manufacturing process & retail industries in the world, can become a dynamic long-term viable operations strategy for Indian process Industries. The theoretical perspective of this research is taken from literature review which mentions the supply chain management practices implemented in different industries in the world. However, the literature whilst highlighting many examples of successful implementation of SCM practices within various industries also provided limited evidence of its application within the Indian industry.

The research paper is divided in three sections as below.

- Identifying best SCM practices through literature.(Literature review)
- Investigate the implementation level of SCM8 practices in Indian Industries through survey instrument.(Survey questionnaire)
- Find out the problems in implementing SCM practices in Indian process Industries through case Study

III. RESEARCH APPROACH

The purpose of this research investigation is to address "how" & "why" research questions .The

intent was to investigate specific issues with regard to the level of implementation of supply chain management practices in Indian industries .For this following steps were carried out.

A. Development of Survey Questionnaire based on literature review.
B. Refinement of Survey questionnaire from Industrial experts & academicians.
C. Mailing the survey questionnaire to different Industries in India.
D. Multiple case study approach.
E. Analysis of survey & case study data.
F. Deriving conclusion based on results. Based on literature review following are the key SCM practices which have been successfully implemented by different Industries in the world.

Key SCM practices identified

1. Information sharing
2. Postponement
3. Lean practices & Just in time (J.I.T.)
4. Collaborative Planning Forecasting Replenishment (C.P.F.R.)
5. Vendor Managed Inventory (V.M.I.) Strategic supplier partnership
7. Reverse logistics
8. Green supply chain management (GSCM)
9. 9. Outsourcing
10. Cross docking

(i) Development of Survey Questionnaire based on literature review.

Based on review of literature relating to SCM practices a preliminary version of the questionnaire was developed .The survey questionnaire was divided in five prominent sections viz.Company demographic data, General SCM,Supplier section, Internal SCM & Customer section. The set of questions were closed type questions having fixed set of answers. (Lee, 1996)For majority of questions 5 point likert scale was used for measuring level of implementation of each practice. There were few open set of questions included in survey instrument. This 7 page questionnaire developed through literature was then send to SCM experts from Industry as well as academicians for further refinement.

(ii)Refinement of Survey questionnaire from Industrial experts & academicians

The developed survey questionnaire was first send to SCM industrial experts & requested for refinement of the same. The SCM experts provided few more SCM practices & asked for adding them in the survey questionnaire such as Direct on line (DOL) practice. This refined questionnaire was then further send to academicians for final refinement. As per their suggestions the open questions were deleted from questionnaire & it was finalized for mailing to different industries.

(iii)Mailing the survey questionnaire to different Industries in India

For mailing the final questionnaire basically manufacturing industries were selected with the help of buyer's guide published by automotive component manufacturers Association of India (ACMA).A sample size of 200 industries was selected. Before sending mail to these Industries a phone call was made to contact to Supply chain management executives of those firms who would like to participate in Survey subsequently another call was made to ensure that they received the questionnaire. The survey questionnaire was also mailed to few process industries & retail industries .After 4 weeks
35 usable copies of questionnaire were received. The response rate was 17.5% & this was considered satisfactory for the purpose of the study.

(iv)Developing Multiple case study approach

Survey & multiple case study approach have been found to be appropriate for this research investigation because the purpose was to address what& why research questions. The survey tells the answer of what is level of implementation of different SCM practices in Indian Industries whereas the why question is related to case study. Here the efforts are made to identify the implementation problems of SCM practices in Indian Industries. The intent was not to formally test a hypothesis but to investigate specific issues with regard to the adoption of Supply chain management practices in different industries .A total of five case studies representing manufacturing& process industries were selected for this research investigation. The industries vary in size, number of employees, products variety& so on. The five industries were studied through a visit tour together with interviews ,documentation & questionnaire wherever possible process flow details, sales data, details of manufacturing strategy, software used were collected. This method comprising of multiple data collection technique was considered the best method for gathering effective data on SCM practices. The initial

contact with each potential industry was made by email & telephone. Prior to each visit a list of questions was supplied to enable the personnel in each Industry to prepare their responses. The questions covered were related to supply chain management of that Industry. Also it contained the basic data such as players in SCM,,facilities provided, geographical distribution of facilities, production process .Basically the questions were divided in to 5 categories viz. Demographic data, General SCM ,SCM at Upstream level, Internal SCM &Downstream SCM .Additionally the visit was supported with the survey instrument developed for survey activity.

Visits to each company were extensively planned and combined interviews with physical tours. Firstly a semi-structured interview was carried out which generally took at least 2 hours. At the beginning of the interview, the first task was to introduce the research by outlining the objectives and briefly describing the Supply chain management framework. The content of the interview mainly focused on information with regard to company's products, market, raw material and processes& the practices they adopt. Within each focused topic, there were several issues on which the respondents' views were sought. This methodology was based on the method described by Yin (1994), i.e. having some topics of discussion in mind rather than a fixed list of interview questions. After an initial interview, a plant tour was undertaken coupled with an informal semi-structured discussion. As and when questions arose during the plant tour, it was answered. After the plant tour, a brief meeting was held with relevant personnel to clarify any outstanding issues. Wherever possible documents pertaining to production processes, sales figures, operating procedures were collected. Subsequent to the on-site visit, a seven-page questionnaire was also sent to all companies. The questionnaire mainly dealt with issues pertaining to SCM principles and practices. A majority of the questions were closed set questions & having a likert scale provided. In this research investigation different data gathering methods were employed in order to obtain a reliable view of current practices in the manufacturing & process industry and to address the limitation for implementing the world wide accepted SCM practices.

(v)Analysis of survey data

The purpose of survey instrument developed was to get the answer of what is the present status of Indian industries on the supply chain management background. The survey data clearly reflects the level of implementation of SCM practices in Indian industries. It is observed from survey analysis that in this scenario of globalization due to flattening of world the Indian industries have began to implement the prominent SCM practices which have been accepted globally. But the Indian industries are at the initial stage of implementation. It was observed that majority of the commonly adopted SCM practices in India are lean, JIT, Strategic supplier partnership, outsourcing. But the emerging practices such as CPFR, VMI, cross docking, CRM, reverse logistics were observed at very lowest level of implementation. The Indian industries are still using conventional communication tools except few which are implementing advanced IT tools .The higher level of SCM practice implementation was observed in manufacturing industries, then in retail industry. The process industry was at the least level of implementation of SCM practices. Also it was observed that the large sized industries are adopting SCM practices at higher level as compared to SMEs .Finally in near future it is expected that the implementation level of SCM practices in Indian industries will defiantly grow due to stringent competition of the industries in the world.

IV. CASE STUDY APPROACH

Two case studies were undertaken in food process industries producing wide variety of products in order to investigate the obstacles in implementation of SCM practices in Indian industries. The food industries were the process industries producing sugar & processed milk.

The next section describes each of the case studies. Each case study describes its supply chain & tries to identify implementation problems of SCM practices.

Case study 1 (Sugar industry)

Niphad sugar industry is an agriculture company located in Nashik district, Maharashtra, India. It is one of the largest sugar industries out of 111 industries in Maharashtra. The company's turnover of current year 2007 was over 150 crores.It currently employees 1280 permanent employees& around 520 temporary staff to fulfil seasonal needs. Also they have 500 daily wages staff .This factory owns & operates its production facility located at Niphad in Waste Maharashtra. The company procures sugarcane from farmers & transfers them to the production facility for processing that yields white sugar for domestic consumption & raw (yellow) sugar for export to Europe & America which is then processed there for their domestic or industrial consumption.

The main product of sugar industry is Sugar but there are series of by-products of this industry which are mentioned in the following table.

Case study 2(Milk dairy)

AAREY Milk plants: There are 33 milk plants in India under the milk scheme catering different regions .Our study is focused at one of the plant at Nasik, Maharashtra

Government Milk Scheme: This dairy is having a facility of processing raw milk & packing storing of milk. The maximum capacity of milk processing is 50,000 lpd. The main products are Ghee, processed Milk; these products are produced, packed & distributed.

V. ANALYSIS OF CASE STUDIES

For analyzing the case studies we have made five sections

Demographic data General SCM Supplier section Internal SCM Customer section Demographic data

VI. SUMMARY & CONCLUSION

The main goal of the paper work was to investigate the level of implementation of SCM practices in process industry in India & the problems in implementing those practices. This goal was addressed through specific objectives as highlighted in paper.

The first objective was to undertake a literature review of supply chain management practices which presents a comprehensive literature review through which ten prominent SCM practices were identified. These were the practices accepted & implemented by majority of industries in the world. It was observed that many of the industries in the world which has implemented these SCM practices has seen a drastic improvement in their whole supply chain. The literature whilst highlighting many examples of successful implementation of SCM practices in different industries, also provided limited evidence of its use in Indian industries.

Heightened challenges from global competitors due to the "flattening of the World"(Friedman, 2005) during the past two decades have prompted many Indian Industries to adopt new supply chain management practices .The second objective of the research was to investigate the implementation level of SCM practices in Indian Industries through survey instrument. With the help of literature review a survey instrument was developed. To investigate the implementation level of SCM practices in Indian industries, this survey questionnaire was mailed to different manufacturing, process & retail industries in India. The purpose of this was to investigate whether the world wide accepted practices can become a competitive weapon for Indian industries.

The survey results shows that Indian Industries have been forced to implement different SCM practices due to emerging competition. But the level of implementation is not appreciable. Even the Industries are not aware of some of the SCM practices such as VMI, CPFR,CRM etc.Many firms are at the very initial stage of SCM practice implementation & results of their adoption will come out in the coming few years. But the Indian Industries are definitely set to grow. The industry sectors which typically show above average levels of SCM practice implementation are manufacturing industries. By contrast, it is the process sector which recorded least level of implementation. .Also the survey data unravelled that there is positive correlation between size of the industry & level of SCM practice implementation.

The third objective was to identify the problems in implementing SCM practices in Indian Industries through case study. For this case study approach was carried out. For case studies two food process industries were selected. The case study research approach revealed many facets of Indian industries especially problems in implementing emerging SCM practices. It is concluded that the major obstacle in implementing SCM practices are reluctance shown by industry management, lack of employee involvement. When we compared internal SCM of Indian industries with foreign Industries the results were very disappointing. Indian Industries has to take stronger & immediate steps to develop relations with their suppliers, Concentrate internal supply chain i.e. work environment, infrastructure to enhance productivity. The one more lagging parameter in Indian industries is less concentration on downstream than the upstream. The satisfaction of end customer is the ultimate goal of supply chain management.

In the light of survey data & case studies this research provides theoretical & managerial contribution. The major contribution of this research is identification of SCM practices which have been accepted globally & comparing them in Indian process industries. So this research shows that gap of SCM practice implementation in India & industries in world. The results of this research may prove useful for Indian process industries to assess their whole supply chain & implement the identified practices. It is also concluded that there are certain practices such as postponement, which can be successfully implemented in manufacturing industry but cannot be adopted by food industry due to perish ability & lower shelf life. But almost other practices are suitable for process industries. The industries in India has to benchmark their supply chain with world class industries There are many of the identified SCM practices such as reverse logistics,TPL,GSCM,CRM which have been found a very lower implementation in Indian industries. On the contrary by implementing these practices in an opportunistic way, Indian industries can compete the emerging stringent competition.

In the current scenario where world is becoming flatter every day ,Indian process industries must be

continuously improving by enhancing their strengths & eliminating their weaknesses .The adaption of SCM practices will make the Indian industries to improve their competitive advantage & organizational performance. So by implementing the above discussed SCM practices the Indian Industries can survive in globalization scenario & face the emerging competition due to flattening of the world. So the research suggests finally going for collaborative planning forecasting & replenishment concept which is applicable to all the sectors of industries.

VII. Future scope of research

This research provides future researchers a standard reference for current scenario of SCM practices in India. The survey respondents were from different Indian industries. Due to limited span of time we have received small sample size of survey respondents. This research can be further empirically tested by taking larger sample size. Also the case studies discussed in this research are process Industries. So by conducting multiple case studies in different industries more comprehensive & detail results can be obtained. Further few case studies in retail industries can enhance the research results .In this way it would be interesting to know the impact of SCM practices on different industries in India by developing detail survey instrument & conducting more case studies.

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