

## EMERGING SUPPLY CHAIN MANAGEMENT PRACTICES IN INDIAN MANUFACTURING INDUSTRIES

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### ABSTRACT

*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 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 especially manufacturing Industry. This paper mainly focuses status of Manufacturing Industries in India on SCM parameter.*

*The research paper is divided in three sections as below.*

- *Identifying best SCM practices through literature.(Literature review)*
- *Investigate the implementation level of SCM practices in Indian Industries through survey instrument.(Survey questionnaire )*
- *Find out the problems in implementing SCM practices in Indian manufacturing through case study & derive conclusion.*

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## **INTRODUCTION: 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. 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.

## **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.)**
- 6. Strategic supplier partnership**
- 7. Reverse logistics**
- 8. Green supply chain management (GSCM)**
- 9. Outsourcing**
- 10. Cross docking**

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.

#### 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.

#### 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.

#### 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.

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.

#### **Case study TYRE INDUSTRY**

The Indian tyre industry is two-tired, tier 1 players (top five tyre companies viz. MRF,Apollo,JK,CEAT,Goodyear,) accounts for over 80% of industry turnover& have a well diversified product mix & presence in all three major segments i.e. Replacement Market, OEM, &Export. Tier two companies are small in size, mainly concentrating on production of small tyres for two/three wheelers etc., tubes & flaps & the replacement market. This case study mainly focuses the supply chain management of tyre industry located at Nashik in Maharashtra.

#### **Status of SCM practices in case study**

<b>SCM practices</b>	<b>Level of implementation</b>	<b>Remark</b>
Information sharing	High	With the SAP software
Postponement	Moderate	
Lean&JIT /DOL	Moderate	Use of 5S & pull system
CPFR		With the SAP software

	Moderate	
VMI	No	Dominant suppliers
Strategic supplier partnership	Moderate	
Reverse Logistics	No	Less opportunistic environment
Green SCM	Moderate	
Outsourcing	Moderate	
Cross docking	No	Lack of awareness

#### **Strength Weakness Opportunity & Threats analysis of case studies**

After the analysis we tried to find out root causes of each case study for not implementing certain prominent SCM practices. So the five case studies are arranged in tabular form with the perspective of their strength, weakness, opportunities & threats.

<b>Case study number</b>	<b>Strength</b>	<b>Weakness</b>	<b>Opportunity</b>	<b>Threats</b>
1	As the firm is one of the largest tyre companies, it has implemented best SCM practices in the view of global competition. Economical aspect is not an issue to adapt new techniques, software.	The price of raw materials, most of which are petroleum by-products. Carbon, synthetic rubber and nylon tyre cord are off shoots of petrochemicals. Thus, the future of the industry will swing with the	By maintaining strategic relations with suppliers & enhancing distribution network company can survive form Indian as well as global competitors.	Threat of fluctuation of raw material prices. The biggest threat, however, is yet to fully materialize. It will be from global majors like Bridgestone and Michelin, which control 36 per cent of the global

	The company can invest in SCM practices even for a longer pay back. Period. Excellent distribution network	supply of crude oil.		tyre market.
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### SUMMARY & CONCLUSION

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. There is higher level of SCM practice implementation at upstream (supplier side). But the retail industry is implementing higher level of SCM practices at downstream (towards customer) such as customer relationship management, agile practices, reverse logistics. & E business.

The second objective was to identify the problems in implementing SCM practices in manufacturing Industries through case study. 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 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 industries to assess their whole supply chain & implement the identified practices.

### **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 study discussed in this research is one .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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