CHAPTER : II
REVIEW OF LITERATURE

2.1 INTRODUCTION

Supply Chain Management (SCM) is strategically important in all business functions such as marketing, new product development, customer service and financial management. Traditional logistics activities like procurement, distribution and maintenance of supply, distribution and inventory management are acknowledged in contemporary SCM. The whole value chain optimization is used to achieve higher customer satisfaction and efficient operations. SCM needs to be adapted to dynamic business condition to keep or enhance competitiveness in any industry. The managers of today should be competent to understand these dynamics and improve SCM in their organization.

The review of literature is categorized into seven heads such as SCM Practices - General, SCM practices in industries, benefits of SCM, impact of SCM, SCM and information technology, SCM and financial management, and SCM and HR activities.

2.2 SCM PRACTICES - GENERAL

Amanda Mullan (1996)\(^1\) contributed his valuable ideas in his research work entitled “SCM in Asia Pacific today” that, in order to maintain a competitive advantage, firms must enhance their ability to plan, take action and manage and control products, services and information from supplier through effective SCM. To achieve this, many firms will be required to change their organizational structures, relationships with supply chain members and performance measurement systems. New information technology uses to enhance communication throughout the supply chain required as well in order to increase service levels and reduce operating costs. The important challenge for leaders is to avoid stagnation and to spread their insights further throughout their supply chains. Supply chain management managers have to
decide which areas offer the greatest strategic value of the supply chain. In order to do that, these managers have to forge closer ties with other functional areas within their own firms and within their supply chain management firms.

Stephen J. New (1997)² in his research article entitled “The scope of SCM research” has suggested that the implications of SCM have two key tasks. The first is to argue boldly for research which follows a genuine academic agenda. The fact that SCM is important in practice does not mean that research in the field has to be of practical value to powerful “users”. The second is to develop theoretical frameworks that allow such new academic agendas to emerge. If practical utility is not the measure of the value, the co-herent alternative intellectual missions are needed to prevent research fragmenting into the obfuscation and sophistry.

Andrew Cox (1999)³ in his article entitled “The research agenda for supply chain and business management thinking” noted that, supply chain thinking has opened up a new perspective on business management. It is an easy criticism to argue that the idea of a supply chain is simplistic, because the process by which raw materials are turned into end products and services is rare. A simple linear process chain, and much more like a spaghetti web of complex interconnecting relationships. The supply chain concept is a powerful metaphor, it simplifies a complex reality. Furthermore, it provides an understanding that there must be a complex interplay of business to business relationships within the process that links raw material manufacture with the end products and services that are created to energies business relationships.

M. Eric Johnson and David F. Pyke (1999)⁴ strongly commanded about supply that SCM is an exploding field, both in research and in practice. They suggested twelve areas in supply chain research and practice such as location, transportation and logistics, inventory and forecasting, marketing and channel restructuring, sourcing and supplier management, information and electronic mediated environments, product design and new product introduction, service and after sales support, reverse logistics
and green issues, outsourcing and strategic alliances, metrics and incentives and global issues. These areas appear to be somewhat disparate, but they are all linked by the integrated nature of the problems at hand. Firms operate in global environments, deal with multiple suppliers and customers, are required to manage inventory in new and innovative ways, and are faced with possible channel restructuring. The field promises to continue growing as the research advances and as firms continue to apply new knowledge in their global networks. Finally, as the internet changes fundamental assumptions about business, firms operating in supply chains will be required to understand this new phenomenon and respond accordingly.

Siddharth Varma, Subhash Wadhwa et al. (2000)\(^5\) in their research article entitled “Implementing SCM in firms: issues and remedies” pointed that formulation of a supply chain strategy still remains a formidable task since it depends on numerous factors. In fact, they suggested to work towards a mathematical algorithm which can make strategy formulation a simpler task. Even the concept of designing a supply chain strategy based on the classification of functional and innovative products may be inadequate because even among functional products, different product may require different strategies. Finally they concluded that, more work needs to be done on process industry supply chains.

Robert E. Spekman, Joseph spear et al. (2002)\(^6\) in their research articles entitled “SCM competency: learning as a key component” have briefed that successful supply chain partners seek more relationships and learn from their past mistakes. More importantly they invest in their people to build SCM competencies throughout the firm and the supply chain. Their research work recommended for training and experimentation become valued and these capabilities become institutionalized. Through such action, partners develop, nurture and sustain are important SCM skills and capabilities. From their point of view ,a competence in SCM will be a key determinant in gaining a sustainable competitive advantage.

Chuda Basnet, Fim carner, Joes wisner (2003)\(^7\) in their research article entitled
“Bench mark SCM in New Zealand” state that SCM requires quick movement of materials and information and close communication. The flow of information and communications can be greatly speeded through the latest telecommunication technologies. The delay in the physical movement of materials is going to continue to be a barrier to SCM in New Zealand. Even when there is a strong motivation for a New Zealand firm to adopt SCM, the small size of New Zealand firms makes it very difficult to pull all the supply chain members into the implementation. However, New Zealand firms need to realize, more effectively with larger overseas corporations by forming strategic alliance partnerships with their suppliers and customers, instead of competing individually. New Zealand manufacturers are following some of the SCM concepts, chiefly where it impacts the ability to meet delivery dates.

Kabossa A.B. Msimangira (2003) in his research article entitled “Purchasing and SCM practices in Botswana” felt that some organisations do not have purchasing policies clearly documented and known to the employees working in purchasing and stores. Although managing of purchasing and materials management is crucial for an organization, effective performance can only be realized the purchasing function and it supports purchasing personnel in meeting their requirements. In order for the organization to benefit from the operations of the purchasing and supply function, there is a need for top management to provide the purchasing departments or sections with a clear mandate or authority to operate professionally and encourage cross-section team work with other departments to complete purchasing and SCM activities efficiently and effectively. The existing purchasing problems in the organization, are caused by lack of trained personnel in purchasing and supply and most importantly, due to lack of recognition. They insist on the importance of purchasing and SCM in the organization can be enhanced by both top management and purchasing personnel. The most important factor to improve the situation in Botswana is training, purchasing and supplies personnel in SCM. Trained purchasing and supply chain personnel will make a major contribution to the organization by reducing operational costs, improving productivity and profitability, increasing efficiency and quick delivery of products to customers, and add value.
Khaled Al Falah, Mohamed Zairi et al. (2003)⁹ in their research article entitled “The role of SCM in world-class manufacturing” views that, Saudi private manufacturers have shown a very weak awareness concerning implementing Kanban tool in their firms and electronic linkage to the suppliers. At the same time, they have shown a good awareness in the aspects of reducing the inventory level and checking the inventory turnover. It appears that SCM awareness by local Saudis is less than that of by joint ventures. This can be seen clearly through the answers of suggested aspects. In spite of showing best practice in many aspects of SCM, joint venture manufacturers have shown the same problem as local manufacturers concerning the term SCM. This result can lead to claims that Saudi manufacturers look to SCM as a traditional inventory management. If there is serious intention to be a world-class manufacturer by Saudi manufacturers, they should rethink how they strengthen their supplier relationships, by raising the level of co-ordination and co-operation between their operations. World-class leaders will be aware of the success of other members of their supply chain, they will not save on efforts to raise the competitiveness of the whole supply chain.

Michael S.H. Heng et al. (2005)¹⁰ have contributed more about SCM activities in their research paper entitled “SCM and business cycles”. They have suggested that, SCM plays a role in influencing the economic behaviour by the way inventory is managed. This is certainly a very significant point, to make SCM one of the most important e-business topics for economists. There is yet another point that deserves the attention of economists, namely the contribution of SCM to economic productivity by way of direct cost reduction and by way of promoting more efficient production in the more general sense. Inventory holdings can be used to cover up mistakes wrong items ordered, defective manufactured parts thrown back into the storage space instead of being quickly fixed. Indeed. In an economic growth cycle, their suggestions was to run the risk of stoking the flame of inflation, if there is no productivity gain. Productivity gains can come in the form of technological innovation or other kinds of innovation.
Chee Yew Wong, Jan Stentoft Arlbjorn et al. (2005)\textsuperscript{11} in their research article entitled “SCM practices in toy supply chains” indicate that, the toy supply chains can be characterized as volatile and seasonal due to their highly-concentrated seasonality, short product-life-cycle, intense competition on innovation and pricing, high supply, demand uncertainty, and intense vertical-competition and power-asymmetric. Through their research study they have observed the environment with three distinguished SCM practices, namely “JIT” model, “main-order” model, and “one-off ” model. Most toy retailers and manufacturers apply the “push” business model, with low utilization of technology and information sharing, and they are slow in implementing contemporary supply chain initiatives. Indeed, most of these retailers wish to reduce the risk of inventory and markdown by implementing the demand-driven (JIT) model and initiating supply chain initiatives such as accurate response, cross-docking and so on.

John Storey, Caroline Emberson et al. (2006)\textsuperscript{12} concluded in their research article entitled “SCM: theory, practice and future challenges” that they have find the substantial gaps between theory and practice and they have suggested that SCM can be seen as part of a wider set of trends involving outsourcing, cross-boundary working, new organizational forms characterized by flattened hierarchies, teams, empowerment and so on. Second, the trend towards outsourcing and the increasing importance of intangibles heightens the need for and the potential of SCM. Third the trend towards fragmentation and variety in product and service offerings necessitates greater thought and skill in managing decoupling points and postponement of final product composition. Fourth, they suggested that globalization necessitates greater attention to logistics and to other component elements of SCM. The dispersion of nodes in the supply chain across the continents offers new business opportunities to freight handling companies and third party logistics providers.

Larry Giunipero, Robert B. Handfield et al. (2006)\textsuperscript{13} concluded in their research article entitled “supply management’s evolution key skill sets for the supply manager of the future”. They insist on the need for purchasing to build strategic relationships,
focus on total cost and strategic cost reduction. They proved strong relationships drive lower costs through improved process efficiencies. Strong inter-company linkages fuel innovations which improve both quality and cost. Secondly, it appears that the supply management function can be divided into strategic and tactical areas. Tactical buyers will be more concerned with day-to-day activities, while strategic supply managers focus on building relationships and lowering total costs. Implementing these strategic initiatives require the development of new skill sets by the supply management professionals. Again they advised that, supply managers possess a good combination of communication, technical, and financial skills.

Nitin Seth, S.G. Deshmukh et al. (2006)\textsuperscript{14} stated through the research article entitled “A conceptual model for quality of service in the supply chain”. They proposed one model to reduce the gap between the service quality and SCM. This model provides guidelines for the organizations to understand the factors, which influence outsourcing decisions in a supply chain. The third party logistic role in the supply chain is influenced by the extent to which the logistics process needs to be outsourced, the perception of the service provider and receiver and relationship with the client, upstream and downstream the supply chains. They suggested that the conceptual service quality model proposed in the supply chain will be useful to both the academicians as well as the practitioners for visualizing and measuring the quality of services delivered by various stakeholders in the supply chain.

Soo Wook Kim (2006)\textsuperscript{15} in his research work entitled “Effects of SCM practices, integration and competition capability on performance” speaks of the role of supply chain (SC) integration is a critical intervening variable between SCM practice or competition capability and firm performance is highly emphasized, while in large firms, the infrastructural role of SC integration which drives the strong interrelationship between SCM practice and competition capability is stressed. This means that large firms had already achieved considerable levels of SC integration and based on such high level of SC integration, more close interrelationship between SCM practice and competition capability and more significant direct effect of these two
constructs on performance might be possible. In the early stages of supply chain integration process, the emphasis on systematic SC integration may be more crucial, and once SC integration has progressed somewhat, it may be advisable to focus on SCM practice and competition capability. Such implication also drives a deduction on the characteristics and features of SC integration. That is, the role of SC integration as an intervening variable means that even if a firm has excellent SCM practices and competition capabilities, close strategic alignment and co-ordination with its SC partners are indispensable for linking such SCM practices and competition capability to firm performance improvement.

B.S. Sahay (2006)\textsuperscript{16} explained in his research study entitled “Managing SC for competitiveness: the Indian scenario” that India is one of the world’s fastest-growing economies with diverse markets. Managing the SC in such a vast country is most challenging for any organization because of business practices, government regulations, technology capability, transportation infrastructure and so on. His findings reveal that most of the Indian organizations have aligned their SC objectives with the business objectives. They are now on a course of aligning their processes and management focus as per the focal areas of customer service, profit maximization and operational excellence. An enhanced level of competitiveness would require Indian organizations to manage the three-dimensional alignment to achieve the agenda set by the business strategy. The SC alignment model, provides a framework for realizing true SC efficiency and competitiveness. Different organizations will align themselves processes and management focus as per the focal areas of their organization depending on their capabilities and market situation. Some will need to focus initially on the business processes, others can move more quickly into the more advanced optimization with the support of top management involvement. In every case, Indian organizations need to act fast to capitalize on these opportunities to be competitive in the world market.

Paul A. Bartlett, Denyse M. Julien et al. (2007)\textsuperscript{17} indicated through their research work titled “Improving SC performance through improved visibility“ that
the exchange of high-quality information between partners improves the channel coordination and improves the overall responsiveness of the partnership and ultimately market performance. Furthermore, the sharing of information across the chain will lead to closer integration, which has been linked to improvements in productivity, customer service and overall market place performance.

S. Rajamohan and E.V.Rigin (2008)\(^{18}\) in their article entitled “Supply chain management” viewed that international consulting firms have developed large practices in SCM. They have pointed out twelve important areas of SCM which are useful to the effective practices of SCM. They have highlighted the relationship among distribution, logistics and SCM. Finally they insist on the importance of supplier and vendors relationship management to the effective SCM practices to meet out the end user expectations.

Bulent Sezen (2008)\(^{19}\) in his research work titled “relative effects of design, integration and information sharing on SC performance” states that in today’s competitive business environments, firms in a SC compete with other SCs. Therefore they should manage their SC effectively and efficiently. While integration and information sharing are the well-known manners for increasing the performance in SCs, design of a SC also has a critical role in the achievement of desired performance levels. Well-designed SCs can meet the changing needs of customers through sufficient capacities, optimally located suppliers and distributors, and good relationships between channel members. According to the implications of his research study he insists on the fact that flexibility, resource and output performances of SCs can be improved by emphasizing integration and information sharing, and specifically by concentrating on the SC design.

Petri Niemi and Janne Huiskonen (2008)\(^{20}\) in their article entitled “An approach to improving, performance with cross unit benchmarking” have suggested four phases of bench marking process such as general view, aggregate indicators, goal achievement: comparative indicators, competence or policy difference: classification to
generic product groups and cause analysis: item specific information. They introduced three variables namely demand volume, demand variation and replenishment lead time to measure the performance of the unit.

Jiun Sheng Chris Lin et al. (2008)\textsuperscript{21} in their research paper entitled “Determinants of manufacturers selection of distributors” explained that manufacturers, when selecting distributors, pay attention to not only distributors’ firm infrastructure and marketing capabilities emphasized by most previous research, but also distributors’ relationship intensity and logistics capabilities. There is evidence that marketing capabilities and relationship intensity may be more important predictors of manufacturers’ distributor selection. A distributor’s competency in marketing and earnest devotion to a reciprocal and close relationship seem to have more influence on the manufacturer’s decision. In an era of low margins, manufacturers must not only maximize their manufacturing and internal operation, but also cope with the growing importance of distributors in marketing distribution, efficiency, customer satisfaction, and cost savings. Recruiting good distributors in marketing channels can improve a manufacturer’s performance, and even increase its competitive advantage. Distributors’ relationship intensity as well as logistics capabilities also plays critical roles in the manufacturers distributor selection, and should be strongly underscored by both manufacturers and distributors.

Ole Mortensen (2008)\textsuperscript{22} have expressed their thoughts about “Integration between manufactures and the Third Party Logistics (TPL) providers” that the TPL providers, the main motive for increasing the use of ICT tools is that, the co-operation will be more efficient, especially in this regard, a reduction in costs is anticipated. The co-operation with the TPL providers will also in the future be established through tenders where it is expected that traditional providers will secure the contracts as historically they have proved themselves capable of performing similar tasks. TPL providers securing the contracts can be characterized as service providers offering services on the basis of economies of scale often several services which can be purchased as supplements. It is expected that the purchase services are perceived by
both manufacturers and TPL providers as primarily standard services purchased in a market with increasing competition.

Francois Maon, Adam Lindgreen et al. (2009)\textsuperscript{23} in their article entitled “Developing supply chains in disaster relief operations through cross sector socially oriented collaborations: a theoretical model” offered three major contributions that supporting to how business might contribute to improve the SCM practices of disaster relief agencies for that they provide a concise representation of the current practices and particularities of disaster relief SCs compared with those in a commercial context. Secondly they asked to highlight the main challenges and barriers to the development of more efficient SCM practices in the disaster relief sector in that they asked to classify into three sets of issues like learning, co-ordinating and measuring. Finally they establish a simple, functional model for understanding co-oporation and collaboration between corporate actors and disaster relief agencies might help relief agencies meet SCM challenges. This model consists of three strategic perspectives on cross sector collaboration like financial, capability, and entanglement perspectives.

Sharon Ordoobadi (2009)\textsuperscript{24} in his article entitled “Application of taguchi loss functions for supplier selection”, states that his model describes, how should the firm select the right supplier for outsourcing? The supplier selection criteria are based on quantitative as well as qualitative factors. The tangible, quantifiable factors are used in the economic evaluation phase of the proposed model. He said that, the decision maker then identifies the benefits and risks of outsourcing that are pertinent to the firm’s objectives. These benefits and risks are ranked according to their importance to the decision maker. In addition, the desired and acceptable levels for each of the benefit and risk categories are specified by the decision maker. The potential suppliers ranked according to their aggregate loss scores and one with a minimum loss score are selected to perform the outsourcing function. The proposed model helps the decision makers to build more informed decision regarding their sourcing decisions.
Lutz Preuss (2009)\textsuperscript{25} in his article entitled “Addressing sustainable development through public procurement: the case of local government” highlighted, the importance of supporting factors namely transparency, strategy, culture and risk management for sustainable SCM. His point of view, in some cases, sustainability challenges require procurement managers to reach further along the supply chain than had previously been the case. He argues that sustainability pushes local government along the road from purchasing to SCM.

Mette Andersen and Tage Skjoett Larsen (2009)\textsuperscript{26} quoted in their article entitled “Corporate Social Responsibility (CSR) in global SCs” that practising CSR in SCs requires, CSR is embedded within the entire organisation. It should not be just another corporate functional or staff activity at headquarters. It has to be disseminated to all functional areas, subsidiaries abroad and offshore suppliers. To achieve such embeddedness, knowledge enhancing mechanisms should be in place. Knowledge enhancing mechanisms can have both an internal and external dimension. The internal dimension includes employee training and sharing of experience among employee groups. The external dimension includes formal and informal training of key personnel at the supplier level, positive incentives for suppliers in terms of long-term contracts and enlarged volume if they implement codes of conduct, and regular auditing of suppliers’ performance. In their point of view observed that, knowledge controlling mechanisms is another way of embedding the concept of CSR into the organization.

RiiKka Kaipia (2009)\textsuperscript{27} in his research work entitled “Co-ordinating material and information flow with SC planning” pointed that, how companies can select a SC planning mechanism to improve the balance between material flow and information flow. He suggested that companies with large product portfolios should differentiate their planning modes in order to improve the use of planning resources. A high level of execution flexibility is required for products with volatile demand or in some special situations, such as the introduction of new products. According to the volume of information execution flexibility framework, each level of execution flexibility
should be supported by an appropriate level of information sharing, and planning frequency. The planning level should be adjusted according to the product needs. According to his research note two main reasons for the imbalance between the volume of information shared and execution flexibility were identified. Primarily frequent plan updates according to demand changes caused planning nervousness. Secondly other factors contributing to the phenomenon are varying planning processes, delays in information flow, multiple decision-making phases, unsynchronized planning calendars, and long planning horizons.

Alain Halley and Martin Beaulieu (2009)²⁸ in their research work titled “Mastery of operational competencies in the context of SCM” investigate how a more thorough integration of the supply chain may be associated with a greater mastery of operational competencies. They found with only one competency, namely logistic services and the companies in the balanced integrated cluster. They differentiate themselves clearly from the others. Hence, the establishment of a superior integrated approach is not an easy task and is hardly accessible to all.

Cody Sisco, Blythe Chorn et al. (2010)²⁹ presented a paper in the national conference entitled “Supply Chains and the OECD Guidelines for Multinational Enterprises (MNE)”. They pointed out that SC relationships generally create significant value for MNEs. As growing competition in domestic and international markets force MNEs to become more efficient and to lower costs, sourcing inputs from more efficient producers, either domestically or internationally, can be an opportunity to improve margins. Another major motivation for building SCs is the opportunity for entry into new markets. Demographic shifts and rapid growth in developing economies present tremendous growth opportunities for MNEs. Developing supply chain relationships in these economies allow MNEs to build a local presence in order to build brand awareness, gain market. Global SCs also have positive impacts on productivity and may thus increase access to better, cheaper, and more varied goods and services. Supply chain relationships can also lead to increased
inflows of foreign direct investment (FDI) to developed economies insights, and reduce costs associated with delivering final products and services to local customers.

Peter Trkman, Kevin McCormack et al.(2010)\textsuperscript{30} in their research article entitled “The impact of business analytics on SC performance” investigate the relationship between analytical capabilities in the plan, source, make and deliver area of the supply chain. They have applied structural equation modeling and collected samples of 310 companies from different industries from the USA, Europe, Canada, Brazil and China. They strongly recommended reinforcing of the importance of a company's use of its databases, explicative and predictive models and fact-based management to drive its decisions and actions. The analytical capabilities can better guide the exclusively human decisions and provide automated decisions in some tasks in organizations. The marketing and logistics collaboration does not have a direct impact on firm performance but increases firm performance through the mediation of firm-wide cross-functional integration.

Leroy B. Schwarz and Hui Zhao (2010)\textsuperscript{31} have pointed out in their article entitled “The unexpected impact of information sharing on US pharmaceutical Supply chains” that a change in business practices in the pharmaceutical manufacturing leads to a distributed SC. The change essentially forced pharmaceutical distributors to maintain lower inventories. SC theory and practice in other industries suggest that by improving decision making and implementation, companies can operate with substantially lower inventories. This happened in pharmaceutical distribution when a securities and exchange commission investigation led manufacturers to force distributors to operate with less inventory.

Marcus Stoerkel and Andreas Heck (2011)\textsuperscript{32} in their research article “Global trends and practical examples of SCM within the mobile telecommunication industry” have pointed out that the companies have started to integrate certain functions into the organizations internally. Secondly they proceeded to integrate the different levels of the particular SC. The main goal was to increase visibility throughout the SC. In the
case of Nokia the change from logistics to SC was very beneficial and represented one of the key success factors in the battlefield of telecommunications. The lack of communication and common goals between the business partners in a particular SC is one of the biggest barriers against the efficient operational performance.

Ajay Verma and Nitin Seth (2011)\textsuperscript{33} in their article entitled “A conceptual framework for Supply Chain Competitiveness (SCC)” have identified a few benefits it helps in understanding the activities, roles and responsibilities of suppliers, manufacturers and distributors for achieving SCC. It provides directions for future studies for the SC competitiveness. Conceptual framework can be used as a guiding tool to understand SCC and further improvements. It can be used for managing SC according to the needs of organizations.

Priscila Laczynski de Souza Miguel (2011)\textsuperscript{34} in his article entitled “SCM measurement and its influence on operational performance”, identified the impact of the SCM as a multidimensional construct information sharing, long-term relationship, co-operation and process integration on different competitive priorities like cost, flexibility, quality and time.

Methvin and Annemarie Campbell (2011)\textsuperscript{35} in their conference proceedings entitled “healthcare provider SCM” highlights the significance of SCM for health care providers and details with the present and future considerations related to key processes, technology and metrics as more providers recognize the strategic imperative associated with progressive SCM. They envision significant growth of information, technology, credentials and overall development of the field in line with other industries. They pointed out that gained SC efficiencies represent sizeable savings for the US healthcare system going forward.

Banafsheh Behzad et al. (2011)\textsuperscript{36} in their research work entitled “Modelling healthcare internal service SC for the analysis of medication delivery errors and amplification effects” suggested the reduction of medication delivery errors of the
hospital and that by hiring employees with more average experiences can reduce medication delivery errors. Decreasing the fractional attrition rate, which means having more experienced employees for a longer time in the pharmacy, can reduce medication delivery errors. There is a trade-off between the productivity of the employees and medication delivery errors. Increasing the productivity could increase the errors. The task of assembling the medications needs accuracy. Therefore, the manager should try not to allow the productivity to increase more than a certain level.

According to Arawati (2011)\textsuperscript{37} in the article entitled “SCM, supply chain flexibility and business performance” the associations and effects of the four SCM practices were evaluated using Pearson’s correlations and structural equation modeling (SEM). The results of the study assist in the understanding of how SCM determinants influence supply chain flexibility and business performance. The result indicates that manufacturing companies should emphasize greater attention to the technology and innovation and lean production aspects of the SCM processes and a greater degree of management support for SCM implementations. By strengthening SCM, improved performance will be likely to occur. The findings of this study suggest that SCM would be able to support and accommodate the supply chain flexibility as well as increases the level of business performance. SCM increase the SC flexibility by improving product flexibility, volume flexibility and launch flexibility. This subsequently would lead to better business performance.

S.Rajamohan and E.V.Rigin (2011)\textsuperscript{38} in their research paper entitled “SCM innovations in HLL Trivandrum” state that the clearing and forwarding agencies practices supported the industry to deliver the products all over india to fulfill the needs of customers at the right time also to increase the margin through effective implmentaion of SCM .

M.J. Naude  and J.A. Badenhorst-Weiss ( 2011)\textsuperscript{39} in their article entitled “SCM problems at south African automotive component manufacturers” focused on ACMs and the problems they experience with the supply side, internal operations and distribution side of their SCs. The study found that the most significant problems
facing ACMs are internal process problems. The most significant problems are those relating to demand management and extend across the whole supply chain, from the customer side where customer demand drives the supply chain, internally in ACMs, to the supply side of the supply chain. It is quite clear that automotive SCs experience the bullwhip effect.

According to SCM summit (2012) focuses that SC brain is for the high-level executive concerned with managing risk, aligning the supply chain with corporate planning, achieving competitive advantage, balancing customer demands with the need to control cost, and improving the bottom line. The industry’s most experienced staff and many well respected content partners offer executive decision makers a synthesis of many minds, singularly focused and delivered in the medium.

2.3 SCM PRACTICES IN INDUSTRIES

Jan Holmstrom (1997) in his international research paper entitled ”Product range management: a case study of SC operations in the European grocery industry” viewed that the key business decision for a supplier operating in the European market is to provide good service for customers in all regional markets. Product range management has been overlooked as a way of achieving efficient SCM. The importance of product range management is pronounced in Europe, where language and regional differences necessitate product variety in the packaged goods business. To achieve this the marketeer must acquire the ability to respond quickly and efficiently across the full product range in these categories. In his case study one tactic successfully used to improve responsiveness was separating packaging from labeling, and the hub-and-spoke SC structure is a viable alternative.

P. Gary Jarrett (1998) presented his views in his research article entitled “Logistics in the health care industry” and stated that regulatory approaches may create market distortions and change access patterns. An alternative approach to
controlling prices is to restructure the market for health services to encourage greater price competition among providers. It would require the market leaders in the health care industry to adopt similar cost accounting methods to those used in the manufacturing industry and improve supply management practices through the implementation of JIT logistical systems. Market-oriented approaches used to controlling health care costs offer less certainty about the outcomes. Logistics in the health care industry reengineering health care supply chain and implementing JIT systems will be critical to the industry gaining control of its escalating costs. He wonders first, why has the industry been reluctant to implement the same competitive operational processes found in the manufacturing and distribution industries? Second, the manufacturing industry shares many similar business processes with the health care industry especially in the areas of supply distribution, inventory control, and product production.

Michael Quayle (2003) expressed his ideas through his research article entitled “A study of SCM practices in UK industrial SMEs” and states that the issues of highest importance at site being leadership, strategy, marketing, waste reduction and team working are perhaps enlightened. The issues of medium importance such as new technology and inventory reduction are not unexpected, although customer management and time to market may be expected to be of higher importance. Supplier development, e-commerce, staff development, benchmarking and investors in people are the issues, he advised to find the ways to improve competitive advantage. More importantly, the issues of lowest importance to SMEs are things to do with innovation. The small firms' perception of their customers' requirements is interesting. The highest priorities of quality, price, production reliability, service reliability and capability to support are the traditional buyers results-oriented demands. The low priorities of e-commerce, research and development, value analysis and engineering should be a concern to customers, particularly those who have long-term relationships with smaller suppliers. It could be that customers have transmitted the wrong message. The customers may have focused simply on products and not the process. While SMEs aim to satisfy customer needs, it may be that the customer has not quite worked out its
need. The respondents’ priorities for their suppliers are not unexpected. High priorities are of pricing, quality, time to market, product and service, reliability and low priorities for research and development, new technology, value analysis, value engineering competitiveness and e-commerce efficiency and cost. In his point of view innovation is an overused term. The word means to introduce something new, to make changes.

B.S. Sahay, Vasant Cavale et al. (2003) in their research article entitled “The Indian supply chain architecture” stated that SCM has made inroads in the operations of Indian organizations. India has its own set of peculiarities about the functioning of consumer markets, which shape the demand management process the force which influences SC strategy, design, planning, initiatives and management. Indian organizations need to take multi-dimensional SC initiatives to meet the competitive business challenge for this achievement. First, align SC strategy with business strategy. Presently, the majority of Indian organizations have a weak alignment of supply chain strategy with business strategy. Secondly they have recommended that IT is the key enabler. Technology, which was earlier mistaken to be a driver for doing business in a particular fashion, has become an enabler for aligning business to consumer demand. IT can thus achieve breakthroughs in the area of SC design, configuration and planning, which otherwise can never be thought about. Finally SCM provides the ability to capture demands from the market, quickly translate it to supplier requirement and fulfill consumer needs. Indian organizations have a great deal of thinking to do while looking at their supply chain practices. Evolving the supply chain mindset of developing trust with supply chain partners involves sharing information, formulating a unified SC vision, working without contracts, undertaking a continuous dialogue for communication, understanding and addressing mutual SC concerns and evolving a win-win partnership to achieve bottom line results.

Dennis A. Pitta and Michael V Laric (2004) in their research paper entitled “Value chain in healthcare” investigated value as the foundation of the value chain and have explored several perspectives on value. They have observed three main
elements of value namely delivering superior value, the customer’s perceived value, and the lifetime value of the customer to the firm. Based on their suggestions the value chain concept recognizes the differences between the business-to-business elements that comprise the value delivery network and the business-to-consumer element that completes the value chain. All of the organizations in the value chain are important for service success. Thus the companies that build health care value chains must select and evaluate each chain member. If a value chain element has problems, it will affect the entire value delivery network and the outcome for the patient. Organizations that seek to maximize their self-interest, should recognize maximizing the chain’s performance will benefit them more. All the organizations in the value chain are important for service success. Marketers should assess each organization’s contribution and value like “lifetime customer value” to decide which chain members should get the most attention. The major player in the value delivery system has the responsibility of evaluating performance continuously and making changes when necessary. To maximize a health care provider’s profits, estimating a patient’s lifetime value is the first step in proactive marketing to that patient.

R.R. Bales, R.S Maull and Z.Radnor (2004) have contributed through their research report entitled “The development of SCM with in the aerospace manufacturing sector”. It demonstrates the complex nature of the aerospace manufacturing industry. The interdependent nature of the supply chain results from a combination of end-product complexity and the increasingly dynamic structure of the modern supply chain. The development of the global business environment increased economic pressure, causing organizations to focus on septic skills and competencies. Within the new emerging supply chain structure, the pressures which forced the OEMs to coordinate and maintain in-house productivity have reduced. A greater proportion and variety of work is carried out by specialist third-party organizations including the complete metal supply chain. This has altered the SC structure and decentralized the flow of information. OEMs have transferred risk down the SC, but in doing so they have lost direct control of the information flows at the basic supply and demand level.
Mohammed Saad and Bhaskar Patel (2006) suggested in their research article entitled “An investigation of SC performance measurement in the Indian automotive sector” that the evidence from the desk research and the field work offers significant changes within both the internal and external environments of Indian companies resulting from the introduction of new economic and industrial policies. These policies are helping to create a more liberalized and open economy and fostering competitiveness through learning and innovation. There is an increasing awareness about the need to collaborate with world-class players and enhance performance through the use of new management concepts. Indian companies are increasingly attempting to improve the coordination and integration with their suppliers both within and outside the national boundaries. Improving and establishing long-term relationships are also not fully perceived as important. Similarly, there is reluctance to adopt flatter and less hierarchical organizational structures. In their research report they said that there is a tendency to believe key factors such as quality, delivery and lead time can be improved by selecting the suppliers who possess significant technical experience and expertise. Performance improvement is essentially focused on the acquisition of technical and tangible factors. They also suggest that performance improvement is not seen as a common task based on shared learning and joint problem solving.

Eric W Ford and Julia A. Hughes (2007) in their research article entitled “A Collaborative Product Commerce (CPC) approach to value-based health plan purchasing” said that, the CPC principles are shaping purchasers’ efforts to improve quality and control costs in the health care sector. Second, it delineates and graphically depicts the barriers to effective program implementation CPC-based efforts are likely to encounter.

SC” identified that the organizations have so many programs going and initiate so many different projects that it is easy to lose sight of the overall objectives as well as how these initiatives are linked, positively or negatively. In many cases, the result is that even if all these projects and priorities succeed, key long-term objectives will still not be attained. In some extreme cases, the enterprise can even go bankrupt while still scoring highly on its defined performance indicators and evaluating its approaches to performance management positively. Learning belongs to the healthcare organization, and has to be actively promulgated through internal experts. In this way the customary problem of lack of institutional memory may be avoided.

Hokey Min (2009)\textsuperscript{50} who has written his valuable suggestions in his research paper entitled “The best-practice supplier diversity program at caterpillar” pointed that caterpillar not only helps save sourcing costs, but also enhances quality at the source by increasing supplier bases and nurturing innovative partners through the mentor protege program. As a matter of fact, bathes once discovered that discrimination against minority business enterprises could lead to higher business failure rates, lower profitability, and reduced sales revenues. Also, caterpillar learned that organizational culture including the buying firm’s leadership style or top management commitment, shared values, and business philosophy was a key driving force behind the successful implementation of the supplier diversity program. He advised that a supplier diversity program is more likely to succeed when it is ingrained in the “inclusive” culture that is open to more diverse supplier bases than traditional “good old-boy’s networks”. His findings indicated that buying firms with constructive cultures, those high in achievement, affiliating, encouraging, and self-actualizing behaviors, were likely to experience higher spending levels with diverse suppliers.

Janet Godsell and Remko van Hoek (2009)\textsuperscript{51} in their research article entitled “Fudging the supply chain to hit the number:five common practices that sacrifice the supply chain and what financial analysts should ask about them” stated that the supply chain does not run the company alone and can sometimes be overruled by functional perspectives for good economic reasons. However, financial analysts can help ensure
that shareholder value is served the best, even if that means missing a short term functional target sometimes. The bonus might come in lower but the stock options will increase in value. SC can be very good for everybody’s wallet, no fudging the number involved.

Noorfa Haszlinna Mustaffa and Andrew Potter (2009)\textsuperscript{52} in their Ph.D research paper entitled “Health care SCM in Malaysia: a case study” concluded that 28 percent of the orders cannot be delivered as required, either due to stock availability issues or incompatible packaging sizes. In addition, many clinics were placing urgent orders due to poor inventory control methods, which has a consequential impact on transportation costs. Therefore the company needs to implement a new strategy in order to reduce the operating cost and increase the customer service level. Based on the organizations current inventory management, a vendor management inventory approach appears to be the best solution for them. This should overcome some of the potential weaknesses from the application of JIT within the case study company.

Bongsug Chae (2009)\textsuperscript{53} stated in his research article entitled “Developing key performance indicators for supply chain: an industry perspective” that every system or organizations uses feedback for continuous learning and adaptation. Monitoring KPIs reveals the gap between planning and execution and helps to identify and correct potential problems and issues. He suggested for a practical approach to SC performance measurement by offering guidelines for designing metrics and proposing key metrics for SCOR model’s four meta level processes such as plan, source, make, and deliver. The suggested design guidelines and KPIs are derived from a set of industry standards and best practices in performance measurement and companies can benefit from adopting or adjusting them to their specific environments. For the success of performance metrics, finally he concluded that the companies need to nurture organizational infrastructures, particular roles and responsibilities.

H.M. Wee and Simon Wu (2009)\textsuperscript{54} in their research paper entitled “Lean SC and its effect on product cost and quality: a case study on Ford motor company”
shows how VSM supports the lean SC and identifies potential opportunities for continuous improvement to eliminate waste. Culture change is a long term philosophy, it is highlighted as the foundation for Toyota and other companies to sustain success. They also provide industry insight for those hesitant companies to follow the four-step problem solving process in implementing the lean supply chain effectively. They also discuss how a complex SC problem can be systematically analyzed and improved effectively by VSM.

Mauricio F Blos and Kenji Watanabe (2009)\textsuperscript{55} in their research article entitled “Supply Chain Risk Management (SCRM): a case study on the automotive and electronic industries in Brazil” discussed that, a supply chain vulnerability map which shows the four quadrants like financial, strategic, hazard and operations of supply chain vulnerability from the empirical study from the 46 investigated industries developed. They have drawn attention to importance of three significant practices in SCRM implementation. As suggested by the respondents they are a better SC communication, SCRM and business continuity management (BCM) training program, and the creation of a chief risk officer (CRO). These are significant factors of supply chain risk management practices to reduce disruptions of supply chain risk. The investigated managers the awareness of possible disasters through risk management, also believed that their companies could reduce the loss in profit if the SCRM is implemented and develop the risk assessment and contingency plan program.

Niaz Ahmad, Muhammad Usman Awan and Abdul Raouf (2009)\textsuperscript{56} in their research paper entitled “Development of a service quality scale for pharmaceutical supply chains” suggested that empathy is not a critical dimension of service quality in distributor, retailer interface of pharmaceutical SC in Pakistan. In investigating the perception of pharmaceutical retailers regarding the dimension “empathy”, qualitative studies are recommended so that the reasons for the non emergence of “empathy” as the significant service quality dimension may be identified. One possible reason for distributors not to be empathetic is the monopoly of pharmaceutical companies in the
market. Studies could also be conducted in the distributor-retailer interface of pharmaceutical SC in other cities of Pakistan and in other countries.

Emilio Esposito and Renato Passaro (2009)\(^5\) highlighted ideas through research their paper entitled “Evolution of the SC in the Italian railway industry” and concluded that in the railway manufacturing industries the organization and the efficiency of the vertical relationships with the supply systems are crucial for large firm competitiveness. This highlights that the industrial policy measures should consider not only cost efficiency of large firms but also the SMEs supplier development. Since it is not possible to separate the organizational and behavioral aspects related to outsourcing strategies and organizational and adoption problems related to SMEs supplier development to create an integrated and collaborative SC.

Jari Collin, Elisa et al. (2009)\(^5\) in their research paper entitled “How to design the right supply chains for our customers” pointed that any company can pursue an operation based competitive advantage using the SC design method. The key is to identify the customer value thresholds, leverage demand visibility, and differentiate the supply chain accordingly. Their experience with innovative high tech, high design, and machinery products in both B2B and B2C relationships has demonstrated the benefits of customer-aligned SCs.

S. Rajamohan and E.V.Rigin (2010)\(^5\) pointed out in their research article entitled “Sales promotion and SCM practices in HLL Trivandrum” that due to the competitive advantage industries some times offer promotional discounts to attract new customers, increase sales volume or reduce inventories, such promotions require planning to ensure that the industry select the level of discounts that best encourages volumes and resulting profit levels that most approximately meet the firms specific competitive objective.

E.V.Rigin (2010)\(^5\) in his national level conference paper entitled “Innovative practices in Hindustan Latex Limited Trivandrum” viewed that innovative practices in
HLL are increasing their turnover and level of production. Forecasting is an important technique in HLL to predict the future production and sales activities. The primary production planning and control department is effectively forecasting future production planning activities in HLL Life care.

Ajay Verma and Nitin Seth (2011)\textsuperscript{61} in their article entitled “A conceptual framework for supply chain competitiveness” indicate that the framework would be highly beneficial to the organizations in leveraging the efficiency of SCM and to achieve SC competitiveness. The roles and responsibilities of suppliers, manufacturers and distributors are used for achieving SC competitiveness. It provides directions for future studies for the SC competitiveness. It can be used as a guiding tool to understand SCC and further improvements. It can be used for managing SC according to the needs of organizations. Looking at the outcomes from SCC, it is one of the most important aspects of business success.

Priscila Laczynski et al. (2011)\textsuperscript{62} in their article entitled “SCM measurement and its influence on operational performance” explored the impact of the SCM as a multidimensional construct such as information sharing, long-term relationship, cooperation and process integration on different competitive priorities like cost, flexibility, quality and time. The empirical results provided evidence of a positive impact of SCM on operational performance, supporting previous empirical research and contributing to generalize.

Methvin and Annemarie Campbell (2011)\textsuperscript{63} in their conference preceding entitled “Healthcare provider SCM” highlight the significance of SCM for healthcare providers and detail present and future considerations related to key processes, technology and metrics. As per their note more providers recognize the strategic imperative associated with progressive SCM, their envision significant growth of information, technology, credentials and overall development of the field in line with other industries. They concluded that gained SC efficiencies represent sizeable savings for the US healthcare system going forward.
Rana Basu, Mousumi Modak et al. (2011)\textsuperscript{64} in their research work entitled “Analyzing the Risk factors of SCM in Indian manufacturing organizations” point out that the risk factors in SC in context to Indian manufacturing organizations, all risks cannot be avoided. Risk mitigation planning provides an organization with a more mature decision making process in facing unexpected losses being caused by unexpected events. Existence of the supply chain can be seen in both service industries as well as in manufacturing industries and the complexity variation occurs from industries to industries and from firm to firm. Beside other issues organizations must consider the overall costs including cost of space, expenses related to doing businesses outside the country. With this the socioeconomic, political and cultural dimensions can be considered as important issues in order to manage the SC risks.

S. Rajamohan and E.V.Rigin (2012)\textsuperscript{65} in their research article entitled “SCM practices on healthcare products of HLL Life care Ltd, Trivandrum”, identified 13 basic elements which are important to implement effective SCM in HLL Life care. They have pointed out that SCM approaches used to efficiently integrate suppliers, manufactures, warehouse and customers.

Nimawat Dheeraj and Namdev Vishal (2012)\textsuperscript{66} have suggested a few ideas in their research paper entitled “An Overview of green SCM in India” and said that, cost and complexity are perceived as the biggest barriers to implementing green SCM, which highlights the need for cost effective and easy to implement solutions. Brand building is one of the top incentives for green SCM, highlighting the importance of public perception of how companies operate. Recycling of raw materials and component parts are the top green manufacturing and production focused initiatives adoption of green practices is highest in those areas of the supply chain where there is a direct relation to cost savings and efficiency. Most of the Indian manufacturing small and medium enterprises like cutting and hand tools and auto parts and spare parts and industrial equipments and machinery
manufacturer and various other products manufacturers are seem to be quite advanced in the implementation of green warehousing and distribution initiatives, most likely because these initiatives often also mean added efficiency.

Daniel G. Wolf et al.(2012)\(^7\) have organized the programme in supply chain risk management they have suggested that SC risk has grown from multiple factors such as, dependencies on foreign technology, infrastructure vulnerabilities, inadequate procurement practices, and deficient standards. It is necessary to converge efforts on managing risk as opposed to eliminating risk. SC risk cannot be delegated to a single sector to resolve. It has to be recognized as a global issue requiring a multi-cultural, multi-disciplinary approach to include standards, engineering, technology, legal and procurement specialists all with the similar intent. Awareness of supply chain risks throughout a systems’ life-cycle is an all important objective for mitigating compromised components. People at all levels within an organizations hierarchy should recognize SC risk.

2.4 BENEFITS OF SCM

Felix T.S. Chan and H.J. Qi (2003)\(^8\) in their research article entitled “An innovative performance measurement method for SCM” have proposed a process-based model, appropriate performance measures, teamwork evaluation and the fuzzy measurement algorithm are designed. All these designs support comprehensive measurement of the holistic performances of SCs. In particular, the introduction of fuzzy set theory in setting weights and measuring performances is advantageous, because this fuzzy method addresses the real situation of human judgment with fuzziness in measurement activity without losing the important information as the crisp method. With this performance measurement method SCM easily benchmark the performance of the entire system and analyze the effectiveness of their strategies to identify the potential opportunities. All this feedback information facilitates more objective decision making and performance improvement in SCM.
B.S. Sahay and Ramneesh Mohan (2006) in their research article entitled “Third party logistics practices: an Indian perspective” that indicates that changing business environment has pushed organizations in India to concentrate on their core and offload a host of logistics functions to experts in the field. Globally, the range of effective logistics outsourcing includes, apart from transportation, warehousing and custom clearance a whole range of other activities such as freight bill payments, auditing, contract manufacturing and assembly operations, packaging and labelling. The practices in Indian industry reveal that warehousing, inbound and outbound transportation, custom clearing and forwarding are the most frequently outsourced activities. Activities such as packaging, fleet management and consolidation are gaining attention and growing in popularity. Their research findings indicate that more and more companies are planning to use third party logistics services in the future as an integrated set of services rather than for just movement of material.

V.M. Rao Tummala, Cheryl L.M. Phillips et al. (2006) expressed their views in research article entitled “Assessing SCM success factors: a case study” and suggested reducing cost of operations, improving inventory, lead times and customer satisfaction, increasing flexibility and cross-functional communication, and remaining competitive appear to be the most important objectives to implement SCM strategies. The results indicate that SCM initiatives should be integrated with purchasing, manufacturing, materials management, logistics, quality and forecasting functions. In fact the use of internet technology is changing the way, the SC members conduct their business transactions regularly. Developing and maintaining customer supplier relationships is also important. The authors insists on that the company needs to seek ways to improve internal and external logistical operations throughout its operating business units to address system wide costs and service levels to satisfy customers and the company’s desired goals and objectives. Use of suitable IT systems would be most helpful to achieve this purpose. SCM performance measures related to logistics such as customer satisfaction, delivery times, responsiveness and so on, as important. Inventory turnover, cost reduction and on-time delivery is perceived to be the three important performance measures to evaluate the impact of SCM.
B.S. Sahay, Jatinder N.D. Gupta et al. (2006)\textsuperscript{71} their research paper entitled “Managing SC for competitiveness: the Indian scenario” analyse research conducted for assessing the current state of SCM practices followed by Indian organisations and identifying important areas that need to be addressed in order to increase their competitiveness. Their research framework outlined that achieving competitiveness by alignment of SC strategy with business strategy, giving due coverage to three dimensions namely objectives, processes and management focus. Different organizations will align their processes and management focus as per the focal areas of their organization depending on their capabilities and market situation. Some will need to focus initially on the business processes, others can move more quickly into the more advanced optimization with the support of top management involvement. The authors concluded that, Indian organizations need to act fast to capitalize on these opportunities to be competitive in the world market.

W. Green Jr, Dwayne Whitten et al (2008)\textsuperscript{72} in their research report entitled “The impact of logistics performance on organizational performance in a supply chain context” describe that the logistics performance is positively impacted by SCM strategy and directly impacts marketing performance which, in turn, impacts financial performance. These results support the positive relationship between logistics performance and organizational performance. The success of the individual supply chain partners depends upon the overall success of the SC in which the partners participate. Manufacturing managers should consider the implications for the overall SC when making decisions related to their organizations manufacturing, purchasing, selling, and logistics processes. Those processes are integrated and co-ordinated throughout the SC to better serve the ultimate customers. It has become critically important to measure the performance at the supply chain level as well as organizational performance. Their study incorporates an established measure of logistics performance as a surrogate for supply chain performance. Logistics is clearly a supply chain function in that it links manufacturers and customers although those customers may not be the ultimate customers in the supply chain. The sustained, long-term success of a manufacturing organization now depends upon developing
competitive advantage as a member of one or more supply chains. The logistics processes linking manufacturer and customers play an important role in supporting a SCM strategy.

Stanley E. Fawcett et al. (2008)\textsuperscript{73} in their research paper entitled “Benefits, barriers and bridges to effective SCM” indicate academics and practitioners a quantitative and qualitative analysis of the benefits, barriers and bridges to successful collaboration in strategic Supply Chains (SC). According to their research suggestions cost reduction is a prime motivator to strategic SC collaboration, customer satisfaction and service is perceived as more enduring by managers. SC goal is difficult considering the pressures from shareholders for individual firms to produce short term gains that can lead to long-term losses in value from strategic SCM. All managers recognize technology, information, and measurement systems as major barriers to successful SC collaboration. However, the people issues such as culture, trust, aversion to change, and willingness to collaborate are more intractable. Companies continue to invest in technology, information, and measurement systems. However, managers must not overlook the training, educating, and bringing together of the right people to use those systems and to interact with one another. Forming the right teams for the right tasks will then result in well-defined pilot projects and success stories that will help create buy-in from other organizations members and thus increase their commitment to SC collaboration.

Kamel Aissa Fantazy et al.(2009)\textsuperscript{74} in their research study entitled “an empirical study of the relationship among strategy , flexibility and performance in the SC context” this paper examines the relationships among strategy, flexibility, and performance in the SC context. Their suggestion is that firms should invest resources and time to develop appropriate flexibility dimensions to fit into their strategies. Innovative strategy the firms must invest time and resources in developing new product flexibility and delivery flexibility. While customer oriented strategy firms are required to invest heavily in developing sourcing, product, and delivery flexibility, follower strategy firms need no investment in any specific type of flexibility.
According this study Canadian manufacturers must reconsider how they use information technology to enhance information systems flexibility and improve overall SC performance.

Chich Jen Shieh (2010)\textsuperscript{75} in his research paper titled “SCM Organizational innovation and corporate culture: The impact of relatedness” proposed that SCM and the organizational innovation are able to help maximize Organizational value and competence in the market. The corporations practicing SCM must set up an organizational structure with innovation to face the internal and external challenges for advancing competence. The acquirement of competence of an innovative organization relies largely on the development of creativeness of all staff. Therefore, such an organization should emphasize that each member or team must be able to set into action independently the operational strategies, take responsibility for management, and link together to form the intact value chain. Rapid changes of the environment under competition require a corporation to show its ability of quick response.

Jinesh Kumar Jain et al. (2011)\textsuperscript{76} have conducted research study entitled “Evidence of SCM in Indian manufacturing firms: a survey”. They have conducted survey of 98 different companies. This survey is able to provide a fairly accurate overview of the status of SCM in perspective of level of information sharing with customers, degree of investment in SC automation tools, mode of SC communication used, and benefits of using bar coding technology. The study depicts that SC strategy of most companies is focused on improving information sharing with immediate customers related to market development and delivering products on time. However competitive advantage can be obtained through use of automation tools of SC like electronic data exchange and using internet based communication technique and for enhancing the data security, bar coding technology is also used by the Indian manufacturing firms. The overall results are encouraging with 26 percent response rate, in Indian scenario and underline the need for more such studies of Indian firms.
Paravin Katariya and Dr. Sahebrao Chavan (2012)\textsuperscript{77} in their research work entitled “SCM and its emphasis on health care management” they have commanded that the customer satisfaction is the final result of effective and efficient SCM of any organization. With reference to this study the SCM is related to quality, quantity, price and service. This is required for customer satisfaction and a sound economy. Hence, SCM is the universal tool for attaining a sounder position in the global market during the current crisis period. Effective and efficient SCM represents an opportunity to add value and decrease costs in the U.S. health care system. To accomplish this end, it is necessary for top-level executives and SC managers to reform and transform their approach to the SC. Each hospital or system must determine what value can be achieved through the SC and the structure itself to meet its goals.

Wenjuan Wang and Darshan (2012)\textsuperscript{78} in their paper entitled “A frame work for understanding the benefits of SCM systems” indicate the following benefits namely improved the customer satisfaction, building long term relationship with customers, fully information sharing and integration, increased productivity, capacity and quality, improved strategic and tactical focus.

2.5 IMPACT OF SCM

Uma V. Sridharan, W. Royce Caines et al. (2005)\textsuperscript{79} in their research study entitled “Implementation of SCM and its impact on the value of firms” examined the effect of SC implementation issues on firm value. In this study they have found that SC implementation issues can have a major impact on the value of the client firm as well as the firm, that provides the SC solutions. The major lesson learned from this study is that implementation problems in SCM solutions can adversely impact the client firm value and hence, great care should be taken with the implementation of new SCM solutions. Other lessons include, when a standard SC template is modified to suit a customers requirements, particular care should be used in the implementation and provider firms should be very insistent that client forms follow the providers implementation methodology. Secondly SCM systems are designed to be very
complex to track a multiplicity of product varieties, there may be added difficulties in implementation. Prior to a client switching to a new SCM system there should be adequate testing to see if the system meets the client’s requirements.

Angel Martinez Sanchez and Manuela Perez (2005) in their research paper entitled “SC flexibility and firm performance: A conceptual model and theoretical study in the automotive industry” say that the relationship between the dimensions of SC flexibility and firm performance is a sample of automotive suppliers. The research has found a positive relationship between superior performance in flexibility capabilities and firm performance. The results show that companies enhance the basic flexibility capabilities at the shop floor level more than aggregate flexibility capabilities at the customer-supplier level. But aggregate flexibility capabilities are more positively related to firm performance than basic flexibility capabilities. Thus, companies might miss opportunities to improve competitiveness by underestimating customer-supplier flexibility capabilities. They analyse the impact of some SC characteristics on flexibility performance. The results indicate that flexibility capabilities are enhanced in SC with higher environmental uncertainty, technological complexity, and mutual understanding, but with lower interdependence between the agents involved in the SC. The results contribute to a better understanding of the forces and constraints that companies face with flexibility capabilities.

Michael Tracey, Jeen Su Lim et al.(2005) in their article entitled “The impact of SCM capabilities on business performance” empirically tested the impact of SCM capabilities on business performance. The results of this study strongly support the hypotheses that SCM capabilities are an important competitive advantage and is an important determinant of a firms business performance. Managers of manufacturing concerns need to grant adequate consideration and resource allocations to the chain management area if they are to realize an approach to business that will enhance their firms’ ability to satisfy customers. Lowering costs, improving quality, achieving operational flexibility, and increasing service demands are empowering managers to contribute in a meaningful way to company competitiveness. According this study it
is found that, the outside-in capability dimensions such as inbound transportation, material warehousing, inventory control and production support showed an indirect effect of the four performance measures. The inside-out capability showed significant positive direct effects on all four measures of the performance construct. The purchasing, customer order processing, strategy development and information dissemination capabilities would affect both the outside-in capability and the inside-out capability showing their indirect effects on the four performance measures. Excellent SC information systems allow managers to gather, process, and disseminate data which is critical to adjusting appropriately to fluctuating environmental conditions. Based on this study it is found that the firm’s success in the areas of cost control, operational flexibility, functional integration, and information dissemination all hinge on the quality of its SCM processes.

Soo Wook Kim’s (2006)\textsuperscript{82} in his research work is entitled “Effects of SCM practices, integration and competition capability on performance”. The purpose of his research work is to examine the causal linkages among SCM practice, competition capability, the level of the SC integration, and firm performance. The Linear Structural Relations (LISREL) results on small firm and large firm groups indicate that in smaller firms, the role of SC integration as a critical intervening variable between SCM practice or competition capability and firm performance is highly emphasized, while in large firms, the infrastructural role of SC integration which drives the strong interrelationship between SCM practice and competition capability is stressed. This study indicates that small firms, and efficient SC integration may play a relatively more critical role in performance improvement, while in large firms, the close interrelationship between SCM practice and competition capability may have a more significant effect on performance improvement.

S.C. Lenny Koh et al.\textsuperscript{83}(2007) in their research article entitled “The impact of SCM practices on the performance of SMEs”, determine the underlying dimensions of SCM practices and empirically test a framework identifying the relationships among SCM practices, operational performance and SCM-related organizational
performance with special emphasis on small and medium size enterprises (SMEs) in Turkey. They are given the empirical justification for a framework, that identifies two groups of SCM practices and describes the relationship among SCM practices, operational performance and SCM-related organizational performance within the context of manufacturing SMEs. This study offers a number of managerial implications they are first, by developing and validating a multi-dimensional construct of SCM practices and by exhibiting its value in improving operational performance of SMEs. It provides SCM managers with a useful tool for evaluating the efficiency of their current SCM practices.

Arif Khan K, B. Bakkappa et al. (2009) in their research paper entitled “Impact of agile SC delivery practices on firms, performance: cluster analysis and validation” used to identify the critical distribution practices of agile SC provide a comprehensive framework, that can be used to improve the responsiveness of SC. This paper indicates to developing and validating the SCM deliver and agility constructs of SCM practices and by exhibiting its value in improving organizational performance. This paper directed to evaluate the effectiveness of their distribution practices across the SC and take corrective actions wherever needed.

Reham A. Eltantawy et al. (2009) in their research paper entitled “Supply Management Ethical Responsibility(SMER): reputation and performance impacts” determine the impact of SMER and strategic supply management skills on SM perceived reputation and performance. This study highlights the fact that strategic supply management skills had a significant positive direct and indirect, through SM perceived reputation, impact on SMP. Nevertheless, the direct path from strategic skills to ethical responsibility was not supported. Without the supportive business environment, top management support and its ethically conscientious philosophy, skills are unlikely to translate into SMER.

Prakash J. Singh and Damien Power (2009) in their research work entitled “The nature and effectiveness of collaboration between firms, their customers and
suppliers: a SC perspective” investigate a model of collaboration based on the notion of firms having strong working relationships with their suppliers and customers. They have prepared a simple but effective model for how firms could realistically and meaningfully pursue collaborative relationships with multiple trading partners beyond a one to one dyadic focus. This model does not require large investments of resources, development of special infrastructure, creation of new entities, dramatic re-alignment of how business is done so on. This study indicates that collaborative arrangements with trading partners are important drivers of improved firm performance. The effect of customer relationship with performance is greater than supplier involvement. The supply side activities also account for a significant proportion of the variance in performance metrics.

Szu Yuan Sun et al. (2009)\textsuperscript{87} pointed out their thoughts through their research work entitled “The impact of alignment between SC strategy and environmental uncertainty on SCM performance” that SC strategy is widely believed to be able to improve SCM performance. According to one of the famous frameworkers of SCM Lee proposed an environmental uncertainty framework to devise the right SC strategy. This study seeks to empirically investigate Lee’s uncertainty framework and examine how the alignment between SC strategy and environmental uncertainty impacts perceived SCM performance. The study suggested an alignment between environmental uncertainties and SC strategies would positively impact on SCM performance. This implies that aligning SC strategies with environmental uncertainties within a SC is more important than based simply on examining the relationship between SC strategy and SCM performance. The authors suggested to form a SC strategy without considering the alignment between SC strategies and environmental uncertainties. The findings of the study indicated that the imitating competitor SC strategy can be less advantageous to a firm than expected without considering the similarities in firm environmental uncertainty.

Allen N. Shub and Peter W. Stonebraker (2009)\textsuperscript{88} in their research study entitled “The human impact on SCs: evaluating the importance of soft areas on
integration and performance” show that the soft human and organization variables have a more enduring effect. Thus, in the long run, there must be reasonable fit across most or all of the hard and soft variables that sustain the performance of integrated SCs. This has been generally demonstrated in the case of JIT, an early phase of SC integration. They strongly indicates that it posits a relationship between the well-defined structure, culture, and empowerment variables and SC integration and performance. In the aggregate, these variables constitute a major component of the senior management and leadership strategy of an organization. According to their suggestions, SC integration has become the basis for competitive edge in many industries during the later years of the twentieth century and the emerging twenty-first century. Ultimately, the best-managed SC is determining how to manage and apply a myriad of nebulously defined soft contributors to that success.

Judit Nagy (2011)\textsuperscript{89} in his Ph. D research thesis entitled “How risk management in SC affects SC performance” point out that SCM tools are to improve the efficiency of information sharing between SC participants and to smooth material flow carried out by the parties in collaboration. Cost management and performance assessment tools aim to explore the costs and profit realized by the co-operating companies as well as the entire SC. All the tools adapted either at a company or on SC level, strive to enhance the overall performance of the SC. The performance of a SC can be assessed by the value created for the end consumer and by the profit the partners realize. However, companies and SC adopt tools to manage the different flows, the way they face and handle risks coming either from the system or from the surrounding environment has a key influence on the performance achieved.

2.6 SCM AND INFORMATION TECHNOLOGY

According to Macleod (1994)\textsuperscript{90}, SC managers increasingly want to automate all of the SC, from forecasting to distribution, and to link every element of the chain. More and more companies want an integrated solution to enable them to see the entire SC at once. They want to know if they drill down to forecast, they can see the demand history, which is a combination of data which have come from sales order
processing, inventory management and the warehousing system

Van Oldenborgh (1994)\textsuperscript{91}, point out that the ability to reduce human intervention the flow of parts and products along the entire length of the SC can help in reducing logistics costs and boosting customer satisfaction. Unfortunately for many midsize companies in these economic times, such clarity in global distribution remains largely restricted to major multinationals with deep pockets and volumes large enough to justify the initial investment in IT that can run into Millions of dollars.

Towill (1997)\textsuperscript{92} in his article entitled that “To survive, let alone win, a company must be part of one or more supply chains producing world class performance”, indicates that the companies need to work together and optimize the complete pipeline by establishing a seamless supply chain think and act as on to maximize their market share. Only with the support of the holistic chain concept can further significant and radical improvements in individual business performance be realized

Jaideep Motwani et al. (2000)\textsuperscript{93} noted in their research article entitled “Information technology in managing global SC” pointed that SC managers increasingly want to automate all of the SC, from forecasting to distribution, and to link every element of the chain. More and more companies want an integrated solution to enable them to see the entire SC at once. IT impacts on decision making, departmental performance, and organization-wide performance. This information can be of tremendous value for organizations planning to implement global SCM. More comprehensive and comparative case studies of successful implementation and the role played by IT in these implementations would be helpful to those who are still struggling.

Richard A. Lancioni et al. (2000)\textsuperscript{94} in their article entitled “The role of Internet in SCM” say that the use of the Internet in SCM is rapidly increasing. The key ingredient for success in managing a SC is fast, accurate information from a wide
range of operating areas including transportation, inventory, purchasing, customer service, production scheduling, order processing, and vendor operations. The ability to react quickly to market changes and to adjust inventory, production, and transportation systems accordingly is necessary for cost efficiency and for the improved utilization of assets. The internet will continue to provide logistics managers with this information and enable them to improve the profitability of their SCs. On a continuing basis, the internet will enable logistics managers to monitor their SC operations and reduce costs when inefficiencies arise.

Zillur Rahman (2004) in his research article entitled “Use of Internet in SCM: a study of Indian” achieve research findings that indicate that the advent of the internet has transformed industries and redefined the rules of competition. Information technology and changed the nature of relationships between businesses and their customers. Given current trends the internet influence will continue to grow into the foreseeable future as businesses collaborate with suppliers and partners, source, produce and distribute products and services globally. The internet will continue to provide managers with fast and accurate information from a wide range of operating areas including transportation, inventory, purchasing, customer service, production scheduling, order processing and vendor operations to enable them to improve profitability of their SC. On a continuing basis, the internet enable logistics managers to monitor their SC operations and reduce costs when inefficiencies arise. The effects of this are and will continue to affect the profitability of firms dramatically.

David C. Chou et al. (2004) have said in their research article entitled “Web technology and SCM” that the business environment changes rapidly. The change in corporate strategy increases their dependency on suppliers. A wide range of products and services provided by the suppliers makes SCM increasingly complex. Under this situation, the collaborative relationship between trading partners in the supply chain becomes critical. Effective SCM must respond to this challenge. Fortunately, the internet is able to facilitate this challenge. The internet offers the SC enormous potential and entirely new methods for streamlining coordination between business
partners and customers. The internet enhances SCM’s performance and it is an essential part of e-commerce. As the SCM evolves in the information age, the network supports co-ordination between business partners to make all the information, transactions, and decisions flow through the network. As a successful SCM model, dell computers has established competitive advantages with the advancement of the networked economy. The competition is increasingly based on SC efficiency, firms need to put SCM at the heart of their business model to be successful. They must take advantage of the internet and web technology to achieve higher quality and lower cost collaboration with trading partners.

William M. Lankford (2004) in his article entitled “ SCM and Internet” the internet provides a tool, that allows SC activities to be carried out in a synchronized, instantaneous manner, facilitating maximum SC performance. The positive benefits of integrating the internet into management of the SC generally outweigh the risks and associated costs, and firms that have completed such integration hold a current competitive advantage over those that have not. Internet deployment is not a means to an end in and of itself, but is rather a SCM tool that can be used to improve customer satisfaction, reduce costs, smooth production flows and shorten cycle times. Research by the Forrester research group estimated that roughly $1 trillion in business was done worldwide through e-commerce in 2000, and predicted that this will increase to $6.9 trillion by the end of 2004. Within a few years, larger firms will not be able to stay competitive without leveraging the power of the internet to improve their SC performance. For better or worse, the internet is an SCM tool that is here to stay.

Pietro Evangelista and Edward Sweeney (2006) in their research article entitled “ Technology usage in the SC : the case of small 3PL” suggested that to stimulate ICT innovation and knowledge, several organisations have a potential role to play. Such organizations could act in promoting the dissemination of technological knowledge, assessing the main and most critical future technological trends, or developing and adapting specific ICT applications in response to the needs of the associated companies. In this way, small 3PLs will be facilitated in shifting the focus
of ICT expenditure from a short term and functional approach to a more strategic view of technology as an enabler for improving competitive capability. In conclusion, the competitive landscape for small 3PLs is continually changing to reflect evolving customer requirements and other business pressures. The capability of emerging ICT is increasing at a rapid rate and its effect adoption has the potential to significantly enhance the competitive capability of small 3PLs. However, it is clear that many barriers exist to the successful adoption of ICT by these providers.

Amir M. Sharif, Zahir Irani and Don Lloyd (2007)\textsuperscript{99} in their article entitled “Information technology and performance management for build-to-order SCs” highlight that the organization fully recognized the need to improve SC efficiency from a service, speed, quality and, ultimately, market share perspective. It regarded the development and introduction of an integrated BTO system as the vehicle to deliver the necessary improvements thus, emphasizing it as a change agent.

Dirk Pieter van Donk (2008)\textsuperscript{100} in his research paper entitled “Challenges in relating SCM and information and communication technology” specified that SCM is a type of management. Management theories used to identify and understand effective and ineffective managerial activities in the context of SCM and ICT. Rigorous research into this direction could help to resolve, why implementing ERP systems and using them beneficially for managing the supply chain seems so problematic, and to understand why implementation plans seem to be rational and wise but difficult to realize. It might also address issues touched upon in this special issue, such as who is responsible for a certain part of the chain and how is that reflected in the design of the ICT.

O. A. Balasubramaniam and A. Somu (2011)\textsuperscript{101} in their research paper entitled “IT-Enabled SCM using Decision Support Systems (DSS)” highlighted that SC is a very complex network connecting various suppliers, customers, manufacturers and enterprises. Typically it generates issues which require conflict resolution and consensual decision-making. DSS is one such IT tool that addresses these problems
and provides solutions for semistructured business problems. DSS has been integrated into many activities and business processes of the supply chain like logistics management, inventory management, sales and distribution planning, materials and production planning. Various DSS implementations and deployments in SCM tasks like transportation planning, manpower planning, customer engagement, production support etc are studied. However, considering the potential benefits, existing implementations are not wide spread because of several problems like complexity, resistance to change by user, customization needs, diverse platforms and so on. Recently, distributed software agents and web services integrated with DSS approaches are proposed to overcome this problem. More deployments of IT-enabled supply chains using DSS by enterprises are needed.

S. Rajamohan and E.V.Rigin (2011) in their article entitled “SCM and internet” stated that the information technology is playing a vital role to the effective practice of SCM. The information technology factors should be identified by the company to build the effective logistics and SCM activites. The reduction of data in the effective manner helps to increase the effectiveness of the SCM activites.

Dragana Rejman et al. (2012) in their article entitled “Management Information System (MIS) of Purchase Function in e-SCM” pointed out many advantages that the implementation of MIS developed for purchasing processes They have listed the achievements in the following areas like economical, functional and rational management of the records about the quantity, quality and level of stocks of input materials or parts, input prices and supply conditions in the market. Monitoring of material and financial flows in real time. Reduction of the data acquisition processing time and purchasing processes. Increasing the number of output information due to the rapid and multiplicative intersection of the collected data about the materials or parts in the process of development, technological characteristics, requests, data about the required materials or parts for purchasing, current stock of finished products and input materials, materials or parts in transport and so on. MIS increasing the number of processed data, increasing the quality of information, eliminating human errors in data processing, online communication with suppliers.
and customers. Integration into existing company website, online registration of data on customer satisfaction, as well as information on complaints.

Navid Nikakhtar and Yang Jianzheng (2012) in their research paper entitled “Role of e-commerce in SCM to minimize costs” suggested that the effective SC is benefiting from electronic tools for further co-ordination and integration of the SC. Furthermore, in order to find an effective SCM, it is necessary to recognize major performance of effective IT. One of the basic tools for this goal is the role and inevitable position of e-commerce in the SC. By applying e-commerce tools subject of electronic SC, it is possible to have a complete image of e-commerce and IT in SCM. What is so much important in electronic SC is the integration of SC systems as mentioned in this paper. The organizations which are interested in priority in market and today active business environment should benefit from their priority than competitors by the use of upgraded knowledge and their facilities in e-commerce and especially performing of modern SC systems and updating of companies and organizations and their powerful man power.

2.7 SCM AND FINANCIAL MANAGEMENT

Jill E. Hobbs (1996) in his article entitled “A transaction cost approach in SCM” pointed out that, transaction costs and cost reduction, lie at the heart of the interest in SCM. Adversarial relationships along the SC increase transaction costs. Co-operation, teamwork and the rapid interchange of data among companies in a SC will reduce transaction costs. He concluded that a better understanding, relationships among workers and suppliers reduce costs. From his analysis it is observed that transaction costs are important because they affect the organization of economic activity or vertical coordination.

William B. Joyce (2006) examined through his research work on “Accounting, purchasing and supply chain management” that purchasing function in business organizations is becoming increasingly important. Among the reasons are
increased levels of outsourcing, increased use of the internet, greater emphasis on supply chain management, globalization, and continuing efforts to reduce costs and increase quality.

Among purchasing responsibilities are obtaining the materials, parts, supplies, and services needed to produce a product or provide a service. Price, quality, and reliability and speed of delivery are important variables. Purchasing from selects suppliers, negotiates contracts, establishes alliances, and acts as liaison between suppliers and various internal departments. It is also involved in value analysis, vendor analysis, make or buy analysis, supplier audits and supplier certification. In many business organizations there is a move to reduce the number of suppliers and to establish and maintain longer term relationships with suppliers. Supplier partnerships may involve co-operation that takes the form of sharing of planning and information, and perhaps co-operation in product and process design.

Stephan M. Wagner et al. (2012) have in their research paper entitled “The link between SC fit and financial performance of the firm”, investigated and quantified the impact of SC fit on the financial performance of the firm. To achieve a SC fit, firms must consider three basic steps first, they need to understand the demand and supply uncertainty of their products and associated customer needs. Second, they need to understand the characteristics and capabilities of their supply chain, that is, the position along the efficiency–responsiveness continuum. Third, they need to ensure that the degree of SC responsiveness in SC design characteristics and capabilities is consistent with the products’ supply and demand uncertainty. The goal is to target high responsiveness for a SC facing high implied uncertainty, and efficiency for a SC facing low implied uncertainty.

2.8 SCM AND HUMAN RESOURCES MANAGEMENT

Chu-Hua Kuei, Christian N. Madu et al. (2001) in their research article entitled “The relationship between SC quality Management practices and organizational performance” suggested that improvements in organizational
performance are associated with improvements in SC quality management practices. There is a significant association between improvements in supplier quality management, customers' relations, and supplier selection and the quality-tendency groups. Their point of view perceptions are not an exact measure of reality but they provide a good guide to managerial decision-making processes.

Rozhan Othman and Rohayu Abdul Ghani (2008) reported in their industry background about “SCM and suppliers HRM practice” pointed that SCM needs to be supported by specific forms of HRM practice among the suppliers. Suppliers in this study appear to recognize the need to develop HRM practices that provide them with adaptability to enable them to fulfill their role in a SC. They also suspect that suppliers who develop more rudimentary forms of HRM practice will find themselves in a lockout situation. They would be less capable of responding to changing customer requirements and future competitive pressure.

Jungbae Roh, Paul Hong et al. (2008) have stated in their research article on “Organizational culture and supply chain strategy: a framework for effective information flows” that, in a rapidly changing business environment, although the formation of networks is important, the cultural patterns are less clear and more undistinguishable. Firms may not easily grasp the complexity that exists between organizational culture and supply chain strategy. An effective design of SC information infrastructures requires solid understanding of the underlying organizational cultural traits, strategic priorities and behavioral practices. The organizational culture of a dominant or principal organization influences the suppliers and distributors in the same SC. The organizational culture of a dominant or principal organization influences the suppliers and distributors in the same SC.

2.9 CONCLUDING REMARKS OF THE REVIEWS AND RESEARCH GAP IDENTIFICATION

SCM is widely used to increase overall performance of the company. SCM practices are used in all the business activities such as finance, human resource management, information technology and so on. The foreign industries use
effectively the applications of SCM. The Indian based companies have given attention to the effective implementation of SCM. There are number of models help to find out the benefits, problems and impacst of SCM practices. Moreover the network design activities increase the efficiency of the manufacturing industry. The effective SCM are highly supporting to decrease the total cost of the product and the product or services reach the customer place at the right time. It is clear from the review of literature that studies on various dimensions of SCM practices in Indian manufacturing industries especially Indian public sector company are too few and a large research gap exist. Therefore the researcher decided to delve into the SCM practices in health care products of HLL Life care limited, Trivandrum and tried to fill up the research gap.
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