

A literature review on supply chain management barriers in manufacturing organization

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Abstract - Objective of this study is to identify barrier of supply chain management (SCM) in manufacturing organization through systematic literature review of past ten years and identify most critical barrier which hinder the performance of supply chain. List of barrier identified by comprehensive literature review is presented here. This paper has identified 23 key SCM barriers which help industrial practitioners and academic experts to implement SCM. Nowadays manufacturing organizations are competing based of supply chain to supply chain rather than organization to organization. Effective supply chain management help organization to in securing his position in this competitive environment and improving organizations performance.

Key words - supply chain management, literature review, Barrier

I. INTRODUCTION

The concept of supply chain emerged in the middle of 1980 and since has been widely used by academic experts and industrial practitioners and is still in a developing process. The supply chain management (SCM) implementation in an manufacturing organization achieves competitive advantage and strategic fit over other manufacturing organizations. A supply chain (SC) includes all the activities, functions and facilities involved in the flow and transformation of goods and services from the material stage to the customer [5] The SCM help in reduction in the inventory, accurate information sharing and develop trust among the SC partners [4] Yet, despite these important benefits, organizations continue to encounter a barrier which hinders them from effective implementation of supply chain.. These barriers are known as SCM barriers. They exist between inside and outside of manufacturing organization. unclear organization objective, Lack of top management commitment and support, Short-term decision-making perspectives ,Lack of information technology ,Poor ICT structure, Lack of education and training to employee and supplier employee ,Lack of necessary tools management skills and lack of motivation and employee involvement are some of barrier exist within manufacturing organization while resistance to change, lack of measurement system ,unwillingness to share information among supply chain partner, A lack of inter-organizational cooperation and coordination are barrier outside manufacturing organization.

Supply chain management is the integral and important part of organization to increase the profit of the organization. Effective supply chain management has become a potentially effective way to securing competitive advantage and improving organizations performance [13]

II. OBJECTIVES

The purpose of research is to (1) review the supply chain management in past ten years (2) find out most critical barriers in supply chain management in manufacturing organization which improve the overall performance of firm and try to minimize bull whip effect.

The analysis of this research is based on secondary data including books, journals, conference papers, review papers, online data base etc. SCM research paper are evolve from science direct, springer link, EMERALD publishing etc. Journal of modeling in management, Procedia -social and behavioral sciences, Journal of cleaner production, Procedia engineering, International journal of business management, supply chain management: an international journal, TQM Journal, journal of cleaner production with application of these journals. Literature review from 2005 to 2015 are covered in this review paper.

III. SCM IN MANUFACTURING ORGANIZATION

Supply chain is all activities involved directly or indirectly in completing a customer's order. A basic supply chain mainly consist of 5 stapes.

- supplier
- manufacturer
- distributor
- retailer
- customer

Through practical overview the concept of supply chain management emerged from some alteration in the area of manufacturing such as increase of cost, decrease in inventory, product life cycle and globalization of business [17].

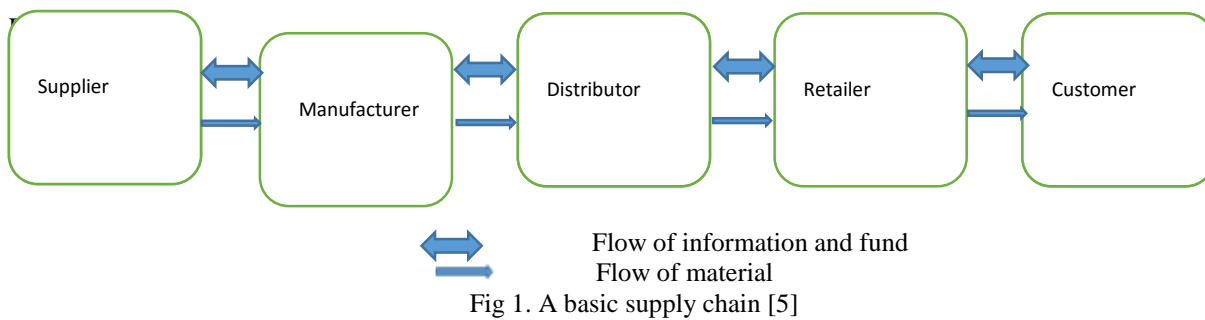


Fig 1. A basic supply chain [5]

In manufacturing organization supply chain management is nowadays perceived as effective mean for achieving successful supply chain competition [3] The understanding and practicing of Supply Chain Management (SCM) has become an essential prerequisite for staying competitive in the global race and for enhancing profitably [27]

Manufacturing organization in recent years focus on effective distribution service with physical product to gain competitive advantage [29]. supply chain management reduce unnecessary inventory, accurate information sharing, and developed trust among supply chain partners [23] supply chain management is influence by internal and external barrier related to organization. Lack of top management commitment, top management support, employees education and training, financial resources, Information technology, information communication technology are barrier within the organization. Unwillingness to share information among supply chain partners, lack of supply chain collaboration, information sharing, lack of trust among supply chain partners are outside of organization affecting barriers [8] [7]. Manufacturing organization in recent years focus on effective distribution service with physical product to gain competitive advantage [29]

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The implementation of supply chain need identification of effective barrier which strongly influence on supply chain performance.in this study barriers are identified from past ten years which had been identified by researcher in respective organizations.

In this study 23 barriers have been identify on the base of systematic literature review of past ten years. The main aim of these study is to identify barrier in manufacturing organization and which barrier among these have strong influence on successful implementation of supply chain

IV. LITERATURE REVIEW IN TABULAR FORM

Author name	SCM field	Journal name	Barriers	Remarks
Gorane and kant (2015)[23]	Performance of supply chain	Journal of modeling in management	<ul style="list-style-type: none"> • Lack of top management commitment and support • Unclear organizational objective • Resistance to change • Lack of motivation and employee involvement • Mistrust among employee and SC partners • Lack of education and training to employee and supplier • Poor ICT infrastructure • Lack of financial resources • Unwillingness to implement • Supply chain practice 	<ul style="list-style-type: none"> • By interactive structural modeling and MICMAC analysis it is found that lack of top management commitment and support and unclear organization objective is most critical among other barriers. • All barriers are affecting on implementation of supply chain • Effect on operational and financial performance of organization. • Organization with weak top management support results in unclear organization goal.

			<ul style="list-style-type: none"> • Lack of integration among SC Partners • Lack of collaboration among SC Partners • Unwillingness to share information among SC partners • Lack of responsiveness • Low customer satisfaction index • lack of education and training to employers and suppliers 	
Luthra and haleem (2015) [24]	Sustainable supply chain management.	Procedia -social and behavioral sciences	<ul style="list-style-type: none"> • Lack of legislative framework • Political instability • Unawareness among society about social practices • Lack of customer support • Top management commitment inadequacy • Financial checks • Lack of knowledge among SC members • Lack of trust among SC members • Technical obstructions 	<ul style="list-style-type: none"> • Most critical barriers for -implementing sustainable supply chain management. • By stick rule about framework help for business environment to adopt SSCM. • Technical complexity and non-availability of machinery and equipment for adopting sustainable SCM
Lalit et al. (2014) [10]	Green supply chain management	International journal of engineering research and technology	<ul style="list-style-type: none"> • Lack of necessary tools, • management skills and knowledge • Lack of management commitment • Loose government Legislation • Increment in overall cost or financial burden • Incompatibility with different management & manufacturing systems • Lack of research & empirical studies • Need of development of new analytical tools & models • Lack of awareness in companies • .Inadequate coordination between different departments • Inability to adopt adequate environment treatment measures • Lack of customers, suppliers and 	<ul style="list-style-type: none"> • Four-Wheeler Automobile Industries are facing more number of barriers as compare to Two-Wheeler Automobile industries and General Manufacturing Industries. • quantitative tools used for data collection • Company not having sufficient tools for adoption of GSCM • Not having good quality of human resource • Quality human resource learn and use new technology easily • Due to financial restriction quality of human resource is barrier • efficient policies should be adopt to remove these barriers • organization should try to minimize cost • high initial investment need for implementing GSCM

			shareholder's awareness	
V. Ravi (2014) [32]	SCM in electronics industry	Journal of cleaner production	<ul style="list-style-type: none"> • Lack of system and tool; • Short-term decision-making perspectives • Organizational structures inhibiting cross-functional Interaction • Lack of commitment from top management • Lack of awareness about environmental and other sustainability issues • A focus on the company's own impacts • Financial Constraints • Lack of R&D • Lack of green products • Lack of proper disposal of products 	<ul style="list-style-type: none"> • Various system and tools are needed for Eco efficiency • Lack of system and tool are barrier for eco efficiency • Manager take short term objective at cost of long term objective. • So underestimation of long term being barrier for eco efficiency. • Finance is needed for research and development • Difficulty in getting Eco efficiency initiative due to lack of system & tool, R&D.
Jayant and Azhar (2014) [1]	Green supply chain management	Procedia engineering	<ul style="list-style-type: none"> • Cost Implication • Lack of IT applications • Poor organizational culture in adopting GSCM • Lack of Top management commitment in adopting GSCM • Resistance to advance technology adoption • Lack of government support to adopt GSCM • Lack of knowledge about green practice • Lack of Technical expertise • Market competition • Less awareness of customer about GSCM • Lack of environmental awareness to the supplier • Fear of failure • Pollution/Wastage in industries • Non-availability of bank loans to encourage green product • Lack of training courses about implementing GSC 	<ul style="list-style-type: none"> • Relationship between barriers had been identified and for clarification MICMAC analysis carried out for driving and dependence power. • Barrier was identified based on literature review, interview with various departments. • Difficulty in linkage of barrier. lack of gov. support most influencing barrier

			<ul style="list-style-type: none"> • Lack of recycling and reuse efforts of organization • Lack of sustainability certification (ISO 14001) • Cost of disposal of hazardous products • Lack of awareness about reverse logistics adoption • Lack of corporate social responsibility 	
Gill and Pabla (2013) [38]	Performance measurement	International journal of engineering research and technology	<ul style="list-style-type: none"> • Lack of frame work • lack of education 	<ul style="list-style-type: none"> • framework is play major role in implementing performance of supply chain • Increase competitiveness and efficiency of organization
Millar (2012) [16]	Humanitarian supply chain	Human resource management international digest	<ul style="list-style-type: none"> • Lack of top management commitment and support, • Unclear organizational objective 	<ul style="list-style-type: none"> • People behave like what they feel no one can change its behavior. • For becoming expert in problem solving employees need to understand their responsibility accept their mistakes and change their selves. • Relationship between employee and employer should be interconnected rather than dependent/independent relationship in which responsibility exist in both the side.
Lee and Tseng, (2011) [4]	adoption of ICT in SCM	Industrial Management & Data Systems	<ul style="list-style-type: none"> • Poor ICT infrastructure • lack of trust • lack of advance information technology • lack of knowledge • lack of information sharing 	<ul style="list-style-type: none"> • Effective utilization of firms resource and capacity • Improve productivity • Supply chain performance increase • Redesigning of SC can be possible •
Marksberry, et al. (2011) [20]	Humanitarian SC	Journal of Manufacturing Technology Management,	<ul style="list-style-type: none"> • Mistrust among employees and supply chain partners • lack of motivation 	<ul style="list-style-type: none"> • Company allow worker to do job without fear of failure and assure that he will not lose his job • Creativity and change are interconnected. Creativity is outcome of change • Motivation play important role in successful implementation of supply chain

Tumaini (2011) [31]	SCM in manufacturing	International journal of business management	<ul style="list-style-type: none"> • Lack of supply chain visibility • Lack of trust; • Lack of knowledge activity causing Bull whip effect, • silo mentality • lack of information technology 	<ul style="list-style-type: none"> • Increase loses due to mishandle shipment by electronically ensuring chain of custody. • reluctance to work together or share information of fear that other competitor will take advantage of them or use the information unethically • Information technology is key driver for firm which increase supply chain efficiency. Make supply chain more reliable. • Information technology play vital role to overcome this barriers.
Monoh et al. (2010) [2]	ERP implementation in SC	Business Process Management Journal	<ul style="list-style-type: none"> • Excessive customization • Lack of education and training to employee and supplier • Dilemma of internal integration • Poor understanding of business implementation and requirement • Lack of change management • Poor data quality • Misalignment of IT with business • Hidden cost • Limited cost • Limited training • Lack of top management commitment 	<ul style="list-style-type: none"> • ERP implementation not success as expected. • Failure of ERP implementation program is high and not achieve their benefit • Top management commitment play important role in success of ERP implementation
Adhikari (2010) [7]	Humanitarian supply chain	International Journal of Productivity and Performance Management	<ul style="list-style-type: none"> • Unclear organizational objective; • lack of motivation and employee involvement: • poor corporate culture • Lack of corporate culture. • Unproductive staff. • Lack of mechanisms to implement prevailing Labor Act • Increasing role of line managers in training and development • Business functions are not properly integrated and coordinated 	<ul style="list-style-type: none"> • For improving performance of organization continues learning concept for employer should be introduce. • After training employers attitude for job change. • Due to lack of motivation Firms competitive advantage cannot obtain. • Major hurdles in implementing HRM for performance management.

			<ul style="list-style-type: none"> • Lack of performance-based system. • Distorted flow of communication and information. • Low pay level and rising absenteeism. • Proliferating unionism. • Lack of interpersonal and communication skills of the employees • Lack of professional and vocational skills. • Lack of leadership skills of managers. • Low investment in HRD. 	
Schulz et al. (2010) [25]	Humanitarian supply chain	International Journal of Physical Distribution & Logistics Management	<ul style="list-style-type: none"> • Lack of proper organizational structure to create and share knowledge • A lack of inter-organizational cooperation and coordination 	<ul style="list-style-type: none"> • organization structure affect humanitarian operation • impact on performance of supply chain • supply chain cost can be reduce by proper assemblage of supply chain • smaller organization tack more benefit compare to larger of infrastructure
Malihe et al. (2010) [17]	Supply chain in manufacturing company	International Journal of Business and Management	<ul style="list-style-type: none"> • Lack of expert employees, • financial problem • Increasing production time • Increasing designing time • Lack of awareness about SCM • Management decision • Increasing product stock • Increasing tooling time 	<ul style="list-style-type: none"> • Expert's employees and suppliers relationship can successfully implement SCM. • by providing training to get adequate information and skills • by conducting seminar and training courses as best techniques to solve barriers
Yigitbasioglu (2010) [37]	Supply chain performance	international journal of physical distribution & logistics management	<ul style="list-style-type: none"> • Unwillingness to share information among SC partners • Lack of trust • Lack of empirical evidence • Lack of knowledge of states of nature • Lack of information sharing 	<ul style="list-style-type: none"> • Bull whip effect produce and can be overcome by accurate information sharing • Transaction cost theory use for information analysis. • Information sharing minimize uncertainty and improve decision making.
Stanley et al. (2010) [28]	Strategic supply chain	supply chain management: an international journal	<ul style="list-style-type: none"> • Inter firm rivalry • Inadequate information • Sharing 	<ul style="list-style-type: none"> • Can be overcome by effective use of technology,

			<ul style="list-style-type: none"> • Inconsistent operating goals • Lack of willingness shared • risks and rewards • Lack of willingness to share information • Managerial complexity • Lack of alliance • Guidelines • Processes poorly a praised in terms of costs • Non-aligned measures • Organizational boundaries • Measuring supply chain contribution • Measuring customer Demand 	<p>Information& measurement system.</p> <ul style="list-style-type: none"> • Cost reduction is prime factor for customer satisfaction and service. • People are most effective tool for supply chain collaboration. • Lack of trust that partner will use information unethically.
Xingxing Zu et al. (2011) [35]	Quality management	International Journal of Quality & Reliability Management	<ul style="list-style-type: none"> • Top management support • Customer relationship • Supplier relationship • Workforce management • Quality information • Product/service design • Process management • Six Sigma role structure • Six Sigma structured procedure • Six Sigma focus on metrics 	<ul style="list-style-type: none"> • Quality management is directly associated with top management commitment and support • By using TQM and six-sigma technique quality of product can be increased. • Results in decision improvement failure. • Major barrier in implementing total quality management initiative • Top management directly responsible for quality improvement. • Total quality management and six sigma technique used for systematic analysis and process and desirable quality product can be produce.

Wickramasinghe and Gamage (2011) [33]	supply chain quality management	The TQM Journal	<ul style="list-style-type: none"> • lack of education and training to employer and supplier • lack of team work • lack of communication 	<ul style="list-style-type: none"> • Study is carried out to improve high involvement work practice. • Improvement in quality can be measured by reduction in customer complain, increase number of customer, decrease in scrap and rework percentage.
Zhu and Geng (2010) [25]	extended supply chain	Journal of cleaner production	<ul style="list-style-type: none"> • Lack of financial gain • Resource and capabilities • Lack of top management support • Lack of human resource capabilities • Lack of training • Lack of advance technology 	<ul style="list-style-type: none"> • classified barriers into coercive, normative and mimetic, internal barriers • Coercive, normative and mimetic drivers are generally weak compared to internal barriers. • By stick rules by Chinese Gov. & also provide subsidies for ESER (energy saving emission reduction) goal. • Financial gain achieved by reducing discharging cost. • by improving information sharing through computer assisted platform which help in data resource and decision making • For ESER goal develop software for information system which help for improving decision.
Ou et al. (2010) [40]	Supply chain performance	International Journal of Operations & Production Management	<ul style="list-style-type: none"> • Customer focus • Management leadership • Human resource • Quality data and reporting • Supplier management • Design management • Process management • unwillingness to implement supply chain practice • low customer satisfaction index 	<ul style="list-style-type: none"> • Identified barrier which is related to organizations financial performance • barrier which positively increase customer satisfaction • positive customer satisfaction also effect on internal environments of the organization
Tai and Ho. (2010) [29]	Customer relationship in supply chain	Industrial Management & Data Systems	<ul style="list-style-type: none"> • unwillingness to share information among supply chain partners 	<ul style="list-style-type: none"> • Information sharing directly influence on customer relationship

			<ul style="list-style-type: none"> • lack of Order information • lack of Operational information • lack of Managerial information • lack of Strategic information • lack of Customer relationship 	<ul style="list-style-type: none"> • Developed model indicate that information sharing with different customer display different opinion which help firm to produce right competitive product.
Tsinopoulos and Bell, (2009) [36]	Supply chain integration	Journal of Manufacturing Technology Management	<ul style="list-style-type: none"> • Poor ICT infrastructure • Lack of management awareness • Lack of skill • Perceive risk to business and Information security 	<ul style="list-style-type: none"> • Study focus on SC integration by small engineering to order company • Developed model for implementation of barrier • Education to senior manager of firm is essential about model
Longinidis and Gotzamani, (2009) [9]	ERP implementation in supply chain	Industrial Management & Data Systems	<ul style="list-style-type: none"> • interaction with IT department • resistance to change • pre implementation process • ERP product and adaptability 	<ul style="list-style-type: none"> • Identified critical factor that cause failure in ERP. • IT department is responsible for ERP system. • ERP system is very expansive and also need major changes in organization • Employee Resistance to change is most effecting barrier
Amaral and Sousa. (2009) [39]	benchmarking in supply chain	Benchmarking: An International Journal	<ul style="list-style-type: none"> • employee resistance to change • employee fear of exclusion • unwillingness to change • poor project team benchmarking • lack of benchmarking 	<ul style="list-style-type: none"> • All barriers are related to internal benchmarking • Barriers are classified into organizational, benchmarking project management, and benchmarking data barriers.
Rouibah, et al. (2009) [21]	Organizational factor in supply chain	Industrial Management & Data Systems	<ul style="list-style-type: none"> • lack of education and training to employee & supplier • lack of top management support • lack of resources • user involvement • .user satisfaction • operational activity 	<ul style="list-style-type: none"> • Top management commitment and support is most effecting on information system and information technology • Lack of education and training is most affecting factor in information system and information technology
Bhat rajashekhar (2009) [8]	Humanitarian supply chain	The TQM journal	<ul style="list-style-type: none"> • Lack of benchmarking • Lack of top management commitment and support • Unclear organizational objective • Lack of motivation and 	<ul style="list-style-type: none"> • Lack of benchmarking help in identifying strength and weakness of firm to the standard in their group. • Related to top management committeemen • Resistance to change can be overcome by standard

			<ul style="list-style-type: none"> • employee involvement • Poor corporate culture • Resistance to change 	training and education help in implementing TQM
Arshinder, et al.(2008) [12]	SC coordination	International Journal of Production Economics	<ul style="list-style-type: none"> • Lack of information sharing • Joint decision making • Performance of SC contracts • Lack of modern technologies • Lack of top management commitment and support 	<ul style="list-style-type: none"> • Adoption of latest information technology can improve firms performance • All member are connected for resource and information • Development of coordination mechanism in essential
Archer et al. (2008) [19]	SCM in SME	Supply chain management an international journal	<ul style="list-style-type: none"> • Lack of education • Lack of responsiveness • Unwillingness to share information among SC partners • Poor ICT infrastructure • Resistance to change 	<ul style="list-style-type: none"> • Lack of education hurdles in efficient and cost effective e- business process. • Education is essential for advantage and disadvantage of e-business
Donk, (2008) [6]	integration of SCM and ICT	International Journal of Operations & Production Management,	<ul style="list-style-type: none"> • Poor ICT structure • Inadequate or mismatch information technology 	<ul style="list-style-type: none"> • aim is to finding relationship and integration of SCM and ICT • information technology play major role in in integration
Meehan and Muir, (2008)[11]	SCM in small to medium enterprise	The TQM Journal,	<ul style="list-style-type: none"> • Lack of skill • Lack of power to influence others in SC • Lack of experience • Lack of interest • Lack of trust among supply chain members • Lack of knowledge/experience • Geographical distance from customers/suppliers 	<ul style="list-style-type: none"> • Barriers are classified into individual, relational and organizational level • barriers are classified at chain level to find priorities and directions are clarified and agreed • customer response is basic for successful SCM and specific area on which driving SC successfully
Sadi and al-dubaisi, A.H.(2008) [14]	Supply chain performance	journal of management development	<ul style="list-style-type: none"> • self-confidence • need for conformity and risk taking • use of the abstract • use of systematic analysis • task achievement 	<ul style="list-style-type: none"> • Creativity impact on performance of firm • Barriers can be overcome by strong information channel between different department of the firm so increase flexibility

			<ul style="list-style-type: none"> 6.physical environment 	<ul style="list-style-type: none"> Motivational factor also effect on firm
Lai and Lee, (2007) [15]	Supply chain knowledge management	Business Process Management Journal	<ul style="list-style-type: none"> lack of organizational culture lack of education and training to employer and supplier lack of knowledge activity 	<ul style="list-style-type: none"> Organization culture is directly effect on knowledge activity For improving knowledge management activity culture is most affecting factor
Rao et al. (2005) [13]	Supply chain performance	journal of operation management	<ul style="list-style-type: none"> strategic supplier partnership, customer relationship information sharing information quality internal lean practice and postponement 	<ul style="list-style-type: none"> Customer satisfaction improve customer relationship which help firm to produce different product from its competitor. Building long term relation with customers and improve customer satisfaction.

I. CRITICAL BARRIERS IDENTIFIED FROM LITERATURE REVIEW

Sr. no.	Barrier identify	Literature support	Remarks
1.	Lack of top management commitment and support	Gorane and kant (2015), V. Ravi(2014), Jayant and azhar (2014), Millar (2012), Xingxing Zu et al. (2011), Arshinder et al.(2008), Sadi and al-dubaisi, (2008)	<ul style="list-style-type: none"> Organization with weak top management support results in unclear organization goal. Top management behavior and support help employee to boost confidence level and is impact on firms performance [23] Top management commitment have direct influence on strategic level decision. Most affecting for cleaner production program. impact on organizational culture and environmental issue [32] Top management is responsible for regulation and implementation of GSCM. Major driver for implementing GSCM. [1] Top management commitment and behavior play important role in improving performance of human. Human cannot change his behavior without adequate environment [16] Quality management is directly associated with top management commitment and support. By using TQM and six-sigma technique quality of product can be increased. [35] Top management is responsible for coordination activity. SC collaboration can be improved by greeter support from top management [12] Top management is main factor affecting hall supply chain performance Behavior of top management also affect firms performance [14]
2.	unclear organization objective	Gorane and kant (2015) Milar (2012) Adhikari (2010) Sadi and al-dubaisi, (2008)	<ul style="list-style-type: none"> impact on overall development and performance of organization clear and crisp organization objective help competitive advantage [23] Expertise or task domain skill is the foundation for all creative work. Clear objective is greater priority for improving organizations efficiency [14] Major hurdles in implementing HRM for performance management. For improving performance of organization continues learning

			concept for employer should be introduce. After training employers attitude for job change. [7]
3.	Lack of resources and capability	zhu and zeng (2010)	<ul style="list-style-type: none"> Chinese manufacturers should provide intangible resources such as management support and allocate tangible resources such as investment and human resources to implement ESC practices for ESER goals [26].
4.	Political instability	Nathra and haleem (2015)	<ul style="list-style-type: none"> Regulation of policy and implementation of GSCM political influence of the country became main hurdle in implementing SSCM[24]
5.	Unawareness among society about social practices	Nathra and haleem(2015)	<ul style="list-style-type: none"> Indian people are not conscious for ecofriendly product. Lack of awareness about environmental issues.[24] NGO force on company to adopt sustainable ecofriendly product.
6.	Lack of necessary tools, management skills and knowledge	Lalit et al. (2014)	<ul style="list-style-type: none"> Organization not having necessary tool for implementation of GSCM.Tools for adoption of GSCM play vital role in in implementing Indian automobile companies[10]
7.	Short-term decision-making perspectives	V. Ravi (2014)	<ul style="list-style-type: none"> Manage take short term decision which ultimately impact on long term decision which is barrier for eco efficiency.Top management is involve in this decision[32]
8.	Lack of awareness about environmental and other sustainability issues	V. Ravi(2014)	<ul style="list-style-type: none"> Main barrier for implementing eco efficiency program.By providing sustainability training in context of environmental can improve awareness and sustainability[32]
9.	Lack of frame work	Gill and pabla (2013)	<ul style="list-style-type: none"> Lack of framework reduce performance of firm and effectiveness. Framework design on 3 performance metrics. Resources, output, flexibility. Lots of metrics and measures are to be calculated in this framework [38]
10.	Poor ICT structure	Lee and Tseng, (2011), Tsinopoulos and Bell (2009), Donk. (2008).	<ul style="list-style-type: none"> Strategic fit can be achieved. Efficiency of firm increase. Profit increases and time of information sharing increases [4] Reduce cost and improve quality of SC network. Operation movement can be improve. Help in improving management decision [36] ICT help for better use of operational and supply chain. Give inspiration for new business development. Efficient flow of information to get higher customer responsiveness [6]
11.	Mistrust among employees and supply chain partners	Marks berry et al. (2011)	<ul style="list-style-type: none"> due to mistrust overall complex and slow decision making impact on supply chain decision.Due to fear of partners that other partner will take advantage of their idea unethically and take benefit of it.[20]
12.	lack of information technology	Tumaini (2011), Stanley et al. (2010), Donk. (2008)	<ul style="list-style-type: none"> Information technology is key driver for firm which increase supply chain efficiency. Make supply chain more reliable. Adopting advance Information technology play vital role to overcome this barriers. [31] By using information technology we can better use of warehouse raw material data, store information, analyze critical data and reduce bull whip effect. Data only become efficient and secure if data remain with right people at right time [28] Proper usage of information technology increase efficiency of manufacturing organization [6]

13.	Lack of education and training to employee and supplier	Monoh et al. (2010), Wickramasinghe and Gamage (2011), Rouibah, et al. (2009), archer et al. (2008), Meehan and Muir (2008), Lai and Lee (2007). Malihe et al. (2010)	<ul style="list-style-type: none"> • Accurate information sharing platform is necessary. Strong communication to others partners in SC increase responsiveness of employees and increase efficiency of supply chain [11] • Education and training according to organizational culture can improve knowledge activity. Sharing of knowledge effectively is essential for implementation of KM [15] • Education is essential for successful implementation of ERP. Both employer and supplier quality information sharing can improve performance of organization. [2] • Education and training is impact on performance of supply chain. For improving supply chain quality education and training is essential. [33] • Education and training is essential for any organization to learn new concept and apply effectively. Top management support and behavior is also affect firms performance [21] • Lack of education hurdles in efficient and cost effective e- business process. Education is essential for advantage and disadvantage of e-business [19] Expert's employees and supplier's relationship can successfully implement SCM. • by providing training to get adequate information and skills.by conducting seminar and training courses as best techniques to solve barriers [17]
14.	A lack of inter-organizational cooperation and coordination	Schulz et al. (2010)	<ul style="list-style-type: none"> • increase complexity of disaster.response will call more coordination and specialization of task increase complexity Among humanitarian organization [25]
15.	Lack of proper organizational structure to create and share knowledge	Schulz et al. (2010)	<ul style="list-style-type: none"> • organization structure affect humanitarian operation impact on performance or humanitarian supply chain.supply chain cost can be reduce by proper assemblage of supply chain.smaller organization tack more benefit compare to larger of infrastructure [25]
16.	Lack of awareness about SCM	Malihe et al. (2010)	<ul style="list-style-type: none"> • Awareness about SC play vital role for responsive and efficient supply chain in manufacturing firm. employee should understand his responsibility to contribution to firm[17]
17.	unwillingness to share information among supply chain partners	Tai, and Ho. (2010), Stanley et al. (2010, yigitbasioglu. Ogun.(2010), Meehan and Muir (2008)	<ul style="list-style-type: none"> • Bull whip effect produce and can be overcome by accurate information sharing. Transaction cost theory use for information analysis. Information sharing minimize uncertainty and improve decision making [37] • In SCM collaboration is mainly depend on information sharing an information sharing also affect partner for use of resources effectively [28] • In SME supply chain partners fear that information sharing is crucial for him. Other SC partner may use data Which is harmful to its organization [11]
18.	lack of measurement system	Stanley et al. (2010)	<ul style="list-style-type: none"> • All SC partner not use same metric for measurement so all problem related to SC cannot be solve if all partners use different measurement system[28]
19.	Lack of financial gain	zhu,and geng (2010)	<ul style="list-style-type: none"> • Financial gain achieved by reducing discharging cost.To overcome financial gains, the Chinese government should enact stricter ESER-related regulation which can increase discharge fee and at

			the same time provide subsidies for proactive environmental practices for ESER goals[26]
20.	unwillingness to implement supply chain practice	Ou et al. (2010), Rao et al. (2005)	<ul style="list-style-type: none"> • Due to limited financial capacity organization resist to implement or change supply chain practice Hurdle in operational performance of the firm [25] • By appropriate instrument for collecting data SC practice can be implemented. Competitive advantage, SCM performance, and organizational Performance, Can be improve [13]
21.	low customer satisfaction index	Ou et al. (2010), Rao et al. (2005)	<ul style="list-style-type: none"> • Customer satisfaction improve customer relationship which help firm to produce different product from its competitor. Building long term relation with customers and improve customer satisfaction. [13] • Positive customer satisfaction indirectly influence on internal operational performance of the firm. Customer satisfaction is key driver for improving performance of the firm [25]
22.	employee resistance to change	Longinidis and Gotzamani (2009), Amaral and Sous (2009), Bhat and rajashekhar (2009), archer et al. (2008).	<ul style="list-style-type: none"> • ERP system is very much expensive and major organizational changes are necessary to adopt ERP system in organization. Employee resistance because he has to develop new skill and learning is essential. [9] • Due past bad experience employee generally resistance to change new initiative. For improving benchmarking change is essential [39] • Resistance to change can be overcome by standard training and education help in implementing TQM Inadequate resource are impact on resistance to change [8] • changes necessary in business processes to internally integrate their systems and link them to their business partners • change in ordinary supply chain can implemented by e supply chain [19]
23.	lack of motivation and employee involvement	Sadi and al-dubaisi, (2008)	<ul style="list-style-type: none"> • Organizations must improve positive behavioral elements such as optimism, passion, and self-image and minimize negative. Behavior elements such as sarcasms, destructive criticism, status consciousness and fear of Evaluation[14]

II. CATEGORIZATION OF BARRIERS IN MANUFACTURING ORGANIZATION

Strategic barrier	Individual barrier
Unclear organization objective	Lack of education and training to employee and supplier employee
Lack of top management commitment and support	resistance to change
low customer satisfaction index	lack of motivation and employee involvement
Lack of awareness about SCM	Unawareness among society about social practices
Short-term decision-making perspectives	Lack of awareness about environmental and other sustainability issues
Political instability	Lack of necessary tools, management skills and knowledge
Lack of resources and capability	Organizational
Cultural barrier	Lack of financial gain
unwillingness to implement supply chain practice	Lack of frame work
unwillingness to share information among supply chain partners	lack of measurement system
Mistrust among employees and supply chain partners	Lack of proper organizational structure to create and share knowledge
Technological barrier	A lack of inter-organizational cooperation and coordination
Lack of information technology	
Poor ICT structure	

III. CONCLUSION

Main goal of any manufacturing organization is to step up efficiency of organization in such way that it satisfy customers demand at right time. To obtain this objective it is necessary to identify SCM barriers and analyses it. In this paper we have identified 23 key barriers which hinder the performance of SCM. The practitioner need to concentrate on this barriers more cautiously during implementation in their organizations.

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REFERENCES

- [1] Arvind jayant and mohd azhar "analysis of the barrier for implementing green supply chain management practices: an interpretive structural modeling approach, *Procedia engineering* 97, (2014) pp.2157-2166.
- [2] A Momoh, Roy and E, Shehab, "Challenges in enterprise resource planning implementation: state-of-the-art", *Business Process Management Journal*, Vol. 16 Iss 4 (2010) pp. 537 – 565.
- [3] B.S. Sahay Jatinder N.D. Gupta, Ramnesh Mohan (2006), "Managing supply chains for competitiveness: the Indian scenario", *Supply Chain Management: An International Journal* 11/1 (2006) 15–24
- [4] Ya-Ching Lee Pin-Yu Chu Hsien-Lee Tseng, "Corporate performance of ICT-enabled business process re-engineering", *Industrial Management & Data Systems*, Vol. 111 Iss 5 (2011), pp. 735 – 754
- [5] Chopra S, and Meindl, P, *A book of Supply Chain Management*, Prentice Hall (2013) pp.1-43
- [6] Dirk Pieter van Donk "Challenges in relating supply chain management and information and Communication technology: an introduction", *International Journal of Operations & Production Management*, Vol. 28 No, 4, (2008), pp. 308-312
- [7] Dev Raj Adhikari "Human resource development (HRD) for performance management The case of Nepalese organizations" *International Journal of Productivity and Performance Management* Vol. 59 No, 4, (2010) pp, 306-324
- [8] K, Subrahmanya Bhat , Jagadeesh Rajashekhar, "An empirical study of barriers to TQM implementation in Indian Industries", *The TQM Journal*, Vol, 21 Iss 3,(2009) pp, 261 – 272
- [9] Longinidis, P. and Gotzamani, K, "ERP user satisfaction issues: insights from a Greek industrial giant", *Industrial Management & Data Systems*, Vol. 109 No, 5, (2009), pp.628-645
- [10] Lalit, Dr. M. S. Narwal, Arun Kumar, "Barriers and Their Relative Importance to the Adoption of Green Supply Chain Management in Indian Context" *International Journal of Engineering Research & Technology* Vol. 3 Issue 1 (2014) pp. 2260-2269.
- [11] Joanne Meehan, Lindsey Muir, "SCM in Merseyside SMEs: benefits and barriers", *The TQM Journal*, Vol. 20 Is 3, (2008) pp. 223 – 232.
- [12] Kaur Arshinder, Arun Kanda, and S.G. Deshmukh " A Review on Supply Chain Coordination: Coordination Mechanisms, Managing Uncertainty and Research Directions", *International Journal of Production Economics* (2008), 115(2): 316–335
- [13] Suhong Li, S Subba Rao, T.S. Ragu-Nathan, Bhanu Ragu-Nathan." development and validation of measurement instrument for studying supply chain management practice", *journal of operation management*, vol, 23 NO1, (2005) pp. 618-641
- [14] Muhammad Asad Sadi, Ali H. Al-Dubaisi Barriers to organizational creativity", *Journal of Management Development*, Vol. 27 Iss 6 (2008) pp. 574 – 599.
- [15] Ming-Fong Lai and Gwo -Guang Lee "Relationships of organizational culture toward knowledge activities", *Business Process Management Journal*, Vol. 13 No, 2, (2007) pp. 306-322.
- [16] Guy Millar, "Employee engagement – a new paradigm", *Human Resource Management International Digest*, Vol. 20 No, 2, (2012) pp. 3-5.
- [17] Malihe Manzouri , Mohd Nizam Ab Rahman , Haslina Arshad & Ahmad Rasdan Ismail "Barriers of supply chain management implementation in manufacturing companies a comparison between Iranian and Malaysian companies", *journal of Chinese institute of industrial engineers* Vol. 27, No, 6; (2011) pp. 456-472
- [18] Neeraj bhanota, p venkateshwara rao, s,g deshmukha" enablers and barriers of sustainable manufacturing: results from survey of researchers and professionals" *Procedia CIRP* 29, (2015) pp.562-567.
- [19] Norm archer, shan kang ,Claire kang,"barriers to adoption of online supply chain solution in small and medium enterprises, supply chain management an international journal 13/1 (2008) pp, 73-82.
- [20] Phillip Marksberry, Fazleena Badurdeen, M,A, Maginnis "An investigation of Toyota's social-technical systems in production leveling", *Journal of Manufacturing Technology Management*, Vol.22 No, 5, (2011), pp. 604-620
- [21] Kamel Rouibah and Hosny I. Hamdy and Majed Z. Al-Enezi "Effect of management support, training, and user involvement on system usage and satisfaction in Kuwait", *Industrial Management &Data Systems*, Vol. 109 No, 3, (2009), pp, 338-356.
- [22] Sunil Luthra, Abid Haleemc "Hurdles in implementing sustainable supply chain management: Aanalysis of Indian automobile sector " *Procedia - Social and Behavioral Sciences* 189 (2015), pp. 175 – 183
- [23] S. J. Gorane, Ravi Kant "Modelling the SCM implementation barriers", *Journal of Modelling in Management*, Vol. 10 Iss 2 (2015), pp.158 – 178
- [24] Sunil luthra, and abid haleem, "Hurdles in implementing sustainable supply chain management: An analysis of Indian automobile sector" *Procedia - Social and Behavioral Sciences* 189 (2015), pp.175 – 183.
- [25] Schulz .S.F, and Blecken, A, "Horizontal cooperation in disaster relief logistics: benefits and impediments", *International Journal of Physical Distribution & Logistics Management*, Vol. 40 Nos 8/9, (2010), pp.636-656

- [26] Qinghua zhu, Yong geng “drivers and barriers of extended supply chain practices for energy saving and emission reduction among Chinese manufacturers”, journal of cleaner production volume 40, (2010), pp. 6-12.
- [27] Suhong Li , Binshan Lin ” Accessing information sharing and information quality in supply chain management” Decision Support Systems 42 (2006), pp.1641–1656.
- [28] Stanley E, Fawcett, Gregory M, Magnan, Matthew W, and McCarter,” benefits, barriers, and bridges to effective supply chain ,management”, supply chain management, an international journal ,13/1 (2010), pp.35-48.
- [29] Yi-Ming Tai and Chin-Fu Ho “Effects of information sharing on customer relationship intention”, Industrial Management & Data Systems, Vol. 110 No, 9, (2010), pp.1385-1401.
- [30] Tanco, M., Jaca, C. and Viles E. Mateo, R. “Healthcare teamwork best practices: lessons for industry”, The TQM Journal, Vol. 23 No. 6, (2011), pp. 598-610.
- [31] Tumaini Mujuni Katunzi "Obstacles to Process Integration along the Supply Chain: Manufacturing Firms Perspective" International Journal of Business and Management Vol. 6, No, 5 (2011).
- [32] V. Ravi “Analysis of interactions among barriers of eco-efficiency in electronics packaging industry” Journal of Cleaner Production, (2015) pp. 1-10.
- [33] Wickramasinghe, V, and Gamage, A, “High-involvement work practices, quality results, and the role of HR function an exploratory study of manufacturing firms in Sri Lanka”, The TQM Journal, Vol, 23 No, 5, (2011), pp. 516-530.
- [34] Waal, A. and Counet, H. (2009), “Lessons learned from performance management systems implementations”, International Journal of Productivity and Performance Management, Vol. 58 No. 4, pp. 367-390.
- [35] Xingxing zu, huaming zhou, and xiaowei zhu donqind “quality management in china: the effect of firm charecteristics and culture profile “, international journal of quality and reliability management, vol. 28 Iss; 8 (2011), pp. 800-821.
- [36] Ya-Ching Lee Tsinopoulos Keith Bell, "Supply chain integration systems by small engineering to order companies", Journal of Manufacturing Technology Management, Vol.21 Iss 1 (2009) pp. 50 – 62. [37] yigitbasioglu, ogun,”information sharing with key suppliers: a transaction cost theory perspective”, international journal of physical distribution & logistics management, vol. 40 no 7, (2010) pp. 550-578.
- [38] Sumeet Singh Gill, BS Pabla “Critical Review of Performance Measurement Frameworks in Supply Chain Management” international Journal of Engineering Research & Technology Vol. 2 Issue 10, 2013
- [39] Paulo Amaral Rui Sousa, (2009), "Barriers to internal benchmarking initiatives: an empirical investigation", Benchmarking: An International Journal, Vol. 16 Iss 4 pp. 523 – 542
- [40] Chin S. Ou, Fang C. Liu and David C. Yen “A structural model of supply chain management on firm performance”, International Journal of Operations & Production Management, Vol. 30 No, 5, (2010), pp. 526-545.

