2 LITERATURE REVIEW

This chapter aims to provide a brief idea on the existing literature that supports the objective of this research work. It also helps in understanding the theoretical basis and to present the various viewpoints offered by different studies on supply chain management and telecom sector. Chapter is segmented into 17 different sections. Section 2.1 details out the review methodology adopted for the study. Section 2.2 to Section 2.5 brings our concept of supply chain with its type, historical developments and features of supply chain. Section 2.6 and 2.7 reveals importance of supply chain and critical success factors for a successful supply chain. Section 2.8 to Section 2.13 aims to explain business process integration through supply chain processes, partnerships and collaboration approach in the supply chain, performance measurement, sustainability and social responsibility in supply chains. Further on Section 2.16 reviews data on Indian telecom sector through multiple studies carried by Department of Telecom (DOT), research carried out by private sector organisation and industry association like FICCI, pre budget economic surveys, and supply chain scenario of the sector. In the end Section 2.17 details about concept of organisational performance.

Supply chain management can be defined as the design, planning, execution, control, and monitoring of supply chain activities with the objective of creating net value, building a competitive infrastructure, leveraging worldwide logistics, synchronizing supply with demand and measuring performance globally. Supply chain management has its inception from the areas of operations management, logistics, procurement, and information technology, and strives for an integrated approach.

This chapter attempts to critically review the literature on current supply chain concepts and telecom sector. Research papers published in international reputed journals on supply chain management and consultation paper and recommendations from department of Telecom, Government of India have been thoroughly analysed and an effort has been made to gain key insights on impact of supply chain dimensions of
telecom sector. Based on the review of literature, key objectives and hypotheses have been formulated.

2.1 REVIEW METHODOLOGY

Literature and contemporary studies on supply chain management in telecom sector have been limited. The Industry has been active only during the past two decades. The major policies and operations had been in the area of increasing revenue by adding on subscriber base. The objective behind literature review is to pull together and create base reference in line with problem being studied from articles in research and consultation papers, books, newspaper, case studies and other trustworthy and legitimate sources of information. Very few articles have been published in the recent past in reputed journals which have relationship with the proposed research work. For example study from Ajay Talwar (2009) was one of the studies which tried to study supply chain of cellular phone industry in India and further on studies carried out by department of telecom, Government of India along with few partners like KPMG and FICCI have provided a strong base for this present research work.

Research articles were downloaded from databases like EBSCO, SCMI, Telecom regulatory authority of India, companies’ websites article search was processed based on the key words – SCM and organisational performance. Most of the papers accessed, supported slightly the existing research work. To make the review concise and comprehensive, analysis was conducted on those articles which fulfilled the any of below criteria:

a. Article should depict the understanding of supply chain dimensions and their impact on performance on supply chain;

b. Article should portray understanding of telecom sector in India and there is an attempt to study the direct or indirect relationship with supply chain practices, concerns, competence on supply chain performance.

The next few sections brings out the concept understanding of supply chain, definitions, literature support and various relationships among supply chain constituents, supply chain performance and organizational performance. The
arrangement of the reviews / summaries are not in chronological order but placed according to the international and Indian perspectives for supply chain management and telecom sector in India.

2.2 SUPPLY CHAIN CONCEPTS AND PRACTICES

Features of supply chain management are in existence from over last few eras whether it’s purchasing or any of logistics activity however, the term *supply chain management* entered the public domain when Keith Oliver, a consultant at Booz Allen Hamilton (now Booz & Company) used it in an interview for the Financial Times in 1982. It gained admiration and acceptance in the mid-1990s, when a number of articles and books were published on the subject.

Supply chain research Group at the University of Tennessee defines supply chain Management as the systematic strategic co-ordination of multiple business functions and strategies within a particular company across all business functions in and across an organisation, with the objectives of improving the long-term performance of the individual companies and the supply chain as a whole. (Mentzer 2000)

Christopher (1992) defines a supply chain as the network of organisations that are involved, through the upstream and downstream linkages in different processes and activities that produces value in the form of products and services in the hands of ultimate customers.

A customer-focused definition is given by Hines "Supply chain strategies require a total systems view of the links in the chain that work together efficiently to create customer satisfaction at the end point of delivery to the consumer. As a consequence costs must be lowered throughout the chain by driving out unnecessary expenses, movements, and handling. The main focus is turned to efficiency and added value, or the end-user's perception of value.” (Hines, 2004)

Supply chain management has its reach in entire process of any organisation. According to the Council of supply chain management professionals (CSCMP), supply chain management encompasses the planning and management of all activities involved in sourcing, procurement, conversion, and logistics management. It also includes co-
ordination and collaboration with channel partners, which may be suppliers, intermediaries, third-party service providers, or customers. Supply chain management integrates supply and demand management within and across companies. More recently the loosely coupled self-organising network of businesses that cooperate to provide product and service offerings has been called the extended enterprise.

MIT (Massachusetts Institute of Technology) official definition “Integrated supply chain management (ISCM) is a process oriented approach of procuring, producing, and delivering products and services to customers. ISCM has a broad scope that includes sub suppliers, suppliers, internal operations, trade customers, retail customers, and end users. (Peter, 1998) It covers the management of materials, information and fund flows.”

Ganeshan and Harrison mentioned supply chain as “A supply chain is a network of facilities and distribution options that performs the functions of procurement of materials, transformation of these materials into intermediate and finished products and distribution of these products to customers.” (Supply Chain Management, 2014)

In current scenario supply chain is facilitating creation and development of strategic partnerships and relationships between suppliers and customers. Ohio State University’s Global SCM Forum says “Supply Chain Management is the management of relationships in the network of organisations, from end customers through original suppliers, using key cross-functional business processes to create value for customers and other stakeholders.”

Cisco mentioned that “Supply chain management aims to increase sales, reduce costs, and make full use of assets by streamlining the interaction and communication of participants along the supply chain. SCM solutions are networking technology to link suppliers, distributors, and business partners to better satisfy end customer while feeding real time data about customer demand into the partners’ production and distribution processes”. (Cisco Systems)
Supply chain management is often referred to an efficient management of the end to end process, which starts with design of product or service and end the time when it has been sold, consumed and finally, discarded by the consumer. (Lee and Bilington 1993, Swamitnathan and Tayur, 2003)

Ganeshkumar, C in his study on “Supply Chain Performance and Organisational Performance of Manufacturing Industries in Union Territory of Puducherry” has revealed that supply chain performance strongly influence organisational performance for manufacturing enterprises. Study concluded that supply chain performance of manufacturing enterprises is influenced largely by supply chain competence and supply chain practices. Supply chain competence can be enhanced by providing effective training to employees, utilizing 3PL and 4PL concepts to concentrate entirely on core activities and outsourcing the non-core activities. The manufacturing enterprises can improve their supply chain practices by monitoring quality of their products and by putting efforts to innovate their product line to adopt changes taking place in the environment. (Ganeshkumar, 2014)

Currently, there's a gap in the literature on supply chain management studies at present. There is no theoretical support for explaining the existence or the boundaries of supply chain management. A few authors, such as Halldorsson et al. (2003), Ketchen and Hult (2006), and Lavassani et al. (2009), have tried to provide theoretical foundations for different areas related to supply chain by employing organisational theories. These theories include:

a. Resource-based view (RBV)
b. Transaction cost analysis (TCA)
c. Knowledge-based view (KBV)
d. Strategic choice theory (SCT)
e. Agency theory (AT)
f. Channel coordination
g. Institutional theory (InT)
h. Systems theory (ST)
i. Network perspective (NP)
One of the most recent developments about supply chain theory has been presented under the name of "Supply Chain Roadmap", which is a method whereby an organisation’s supply chain strategy can be reviewed in an organised and systematic approach in order to assure alignment of the supply chain with the business strategy. Method is supported in the most important and recognised theories and practices about supply chain strategy and business strategy. The method allows the characterisation of the supply chain under analysis by 42 factors in a single page view called "The Map" and allows the comparison of this supply chain with six supply chain archetypes (Fast, Efficient, Continuous Flow, Agile, Custom Configured, Flexible), in order to find gaps between supply chain under analysis and the most proper supply chain archetype. Method is applied in four steps (Scope, Understanding, Evaluation, and, Redesign and Deployment). Method was developed by Hernan David Perez, an experienced supply chain manager in several industrial sectors, and, professor and international speaker in supply chain strategy. (Perez, 2013)

2.3 SUPPLY CHAIN TYPES

Based on complications and requirements expected from supply chain, customised supply chain types can be formed. Kulkarni, S. and Sharma, A. categorised supply chain in following types: (Kulkarni & Sharma, 2010)
a. Raw Supply Chain
This type of chain is lightly structured and commonly followed to the inheritance style. These supply chains are followed in subsidiary units and small scale industries.

b. Ripe Supply Chain
These types of chains are ones where companies believed that they have attained all that there is to attain and this was it. All actions are done in a systematic manner, companies have developed relationships with their suppliers and distributors, and there was some information flowing in through the chain. There are no new supply chain activities in the flow. These chains are in food sector.

c. Internal Supply Chains
These types of chains are mostly established in companies where companies have employed enterprise resource planning packages for fine tuning internal processes. However, they have not brought their suppliers and distributors into their fold. These categories of companies are found in all types of sectors but degree of adherence to enterprise resource planning packages varies.

d. Extended Supply Chains
These chains are mostly elevated chains that cover well beyond company’s borders to include the suppliers and distributors into their processes. These companies focus only on top supplier and top distributors that means Partial integration. Web sites and specific web pages are used to communicate with external partners. This category is found in all type of sectors such as automotive and telecom sectors.

e. Self-monitored Supply Chains
These types of chains are the ones where the establishment takes the lead in getting all partners in its fold and hence these supply chains are company centric and customer centric.

f. Outsourced Supply Chains
These are supply chains where third party logistics partner (3PL) usually takes care of everything such as outbound logistics, inbound logistics, relationships,
information flow. 3PLs make decisions and monitor supply chain. This is very rare and found to exist in some of the export houses but since now a day’s organisations want to focus on their core competences hence these kind of supply chains are expected to increase in future.

g. Production Oriented Supply Chains
These supply chains have a one point agenda: produce to optimize the capacity and labour. All other activities precede production. This is mostly found where low value items are made.

h. Financial Oriented Supply Chains
These supply chains are known as “cash to cash cycle” chain provides a company with negative working capital (High inventory turnover, low inventory, and low account receivable). This leaves company with high cash holdings. Upon demand they are converted or distributed and sold to customers who pay before the supplier’s account payable. This chain is found in big companies particularly in fast moving consumer goods sector such as Walmart, Macdonald where in customer pays upfront before possessing the goods and supplier is paid after wards.

i. Market Oriented Supply Chains
These supply chains are also known as customer supply chains. These are the physically built to order type of chains that are triggered when customer places an order. These supply chains are highly customer responsive and agile. These are found in Computer hardware sector.

j. Value Chains
These value chains are ultimate integration that is aimed at total optimisation and not optimisation in parts. These supply chains also addressed allied issues such as waste disposal, improving productivity. Not very commonly found but due to environmental regulations more and more companies are opting for it.

In Indian telecom sector, mix of supply chains categories are visible such as outsourced, financial oriented and market oriented. We have seen some unique supply chain models
getting developed where in supplier is paid for supplied equipment throughout life cycle of product that means payment for deliveries do not happen on supply but also during course of operations.

2.4 HISTORICAL DEVELOPMENTS
Six major movements can be witnessed in the development of supply chain management studies: creation, integration, and globalisation, specialisation phases one and two, and SCM 2.0. (Movahedi, Lavassani, & Kumar, 2009)

a. Creation Phase
Concept "supply chain management" was first created by Keith Oliver in 1982 but the model of a supply chain in management was of great prominence long before in the early 20th century particularly with the beginning of the assembly line. Prior to 1980 logistical tasks were restricted to storage and warehousing of raw materials and finished goods and their transportation. This phase reflected independent business task that means each business function such as purchasing, inventory, manufacturing, sales, and distribution were independently performed. The characteristics of this creation phase (post 1980) of supply chain management include the necessity for significant changes, re-engineering, rationalising driven by cost reduction programs, and extensive consideration to Japanese management concepts.

b. Integration Phase
Integration phase of supply chain management studies emphasised the development of electronic data interchange (EDI) systems in the 1960s and advanced during 1990s by the initiation of enterprise resource planning (ERP) systems. This phase sustained to advance into the 21st century with internet based two ways system growth. This phase of supply chain evolution is branded by both accumulative value addition and cost reductions through integration. During this period new inventory management techniques like Material requirement planning (MRP), Just in Time (JIT), and Vendor Managed Inventory (VMI) became popular instruments to plan and deploy inventories in complex and multi-level network. Also emerged a new concept of third level logistical service providers (3PLs), which changed the concept of
transportation industry. They are no longer transporter only but are integrated logistics service providers (ISPs). This phase of supply chain management is identified as the phase of integration of key business processes from the end user through original suppliers that provide products, services and information that add value for customers.

A supply chain can be categorized in three types. In first type of supply chain, it functions like production; storage, distribution, and material control are not connected and are sovereign of each other. In second type of supply chain, these functions are assimilated under one strategy and are ERP empowered. In third type of supply chain vertical assimilation with their suppliers and customers is accomplished.

c. Globalisation phase

The globalisation phase of supply chain management can be characterised by the attention to world-wide schemes of supplier relations and the growth of supply chains over countries’ boundaries and to other regions. Use of global sources in organisations' supply chains can be traced back to quite a few years however, post late 1980s a significant number of organisations started to incorporate global sources into their core business. This phase is characterised by the globalisation of supply chain management in organisations with the aim of growing their lead over competitors, value addition, and cost reduction through world-wide sourcing.

d. Specialisation Phase- Outsourced Manufacturing and Distribution

In the 1990s, organisations emphasised on fundamental proficiencies and knowledge. Organisation restrained vertical assimilation, traded off operations which were not related to their proficiencies, and subcontracted those operations to organisations having expertise in those operations. This transformed organisations’ prerequisites by out-spreading the supply chain outside organisation’s premises and gave rise to customised supply chain partnerships and collaborations. This evolution advanced the important viewpoints of each organisation. Original equipment manufacturers (OEMs) who were brand owners needed distinguish ability throughout their supply base. They had to manage the whole supply chain from
above and not from inside. Subcontracted organisations managed material lists with
different identification and coding mechanism from numerous OEMs and executed
customer requirements for distinguish ability during the process and vendor-
managed inventory (VMI).

The specialisation model facilitate to build specific unique supply chain structures
for manufacturing and distribution of products from manufacturers, sellers, and
consumers that come together from inception stage of product like design to the end
of life cycle of product like disposal of product in environment friendly way. This
combination or number of associates may alter as per requirement of market
conditions based on geography or any specific channel requirement of market.

e. Specialisation Phase- Supply Chain Management as a Service

Specific focus within the supply chain originated in the 1980s with the initiation of
transportation brokerages, warehouse management, and carriers having no asset, and
developed further than transportation and logistics to functions of forecasting,
planning, relationship, implementation, and performance evaluation of supplies.
Marketplace conditions command rapid alterations from sellers, manufacturers,
traders, logistics sources, or customers in their capability as components of supply
chain structures. These alterations have major impacts on set up of supply chain and
may require alterations in its components, processes and optimisation.

These specific concentration areas within supply chain allows companies to
excel in their competencies in service they provide and it enables these organisation
to concentrate on their fundamental capabilities and create structure of competitive
complimentary collaborators or partners to deliver the best value from supply chain,
and thus offering effectiveness in execution performance. This supply chains’
specialisation is getting adopted at faster pace because of competence to swiftly
discover and set up related supply chain expertise without creating and operating an
exclusively sole and intricate proficiency in house. Specific packages offering
transport and warehouse management gained popularity during 1990s and further
grew from the application service provider (ASP) model from 1998 to 2003, to the
on-demand model from approximately 2003 to 2006, to the software as a service (SaaS) model currently in focus today.

f. Web-based Supply Chain Management (SCM 2.0)

With focus on globalisation and specific concentration areas, the web based supply chain management conceived to define changes within supply chains along with the development of processes, methods, and tools. The increasing desirability of collaborative and partnership approaches connected through world-wide web is highlighted by the growth of these approaches. Web based applications connect numerous customers and product or service providers with financial institutions, enabling them to carry out supply chain processes automatically.

These web-based applications enable creativity through accessibility of information to all stakeholders and promote collaboration among these stakeholders. These applications help to access the enormous data for available supply chain components on web. These applications are combination of supply chain processes, procedures for forecasting, ordering, supply, and distribution enabling organisations to respond swiftly to ever changing dynamic environment getting impacted due to global exposure of human resources and services, variable pricing for goods and consumables like oil, dynamic consumer demand resulting in shorter product life and specialisation requirement. Applications use already tested solutions to provide timely and correct outputs with flexibility to consider expected changes in environment. These solutions are created by associations of already established knowledge of successful supply chains for understanding its components, structure, and results obtained through these. The solutions offers numerous choices such as no-touch via business process outsourcing, mid-touch via managed services and software as a service (SaaS) or high-touch in the traditional software deployment model.

2.5 FEATURES OF SUPPLY CHAIN MANAGEMENT

Supply chain management as a function has its reach starting from inception of any project and goes up to final conclusion of project. One can find traces of supply chain function in any aspect of the business of any organisation starting from strategic
approach towards decisions like make or buy, defining inventory norms or operational challenges for day to day operations. Following are identified features of supply chain management function which are critical to success of any organisation’s supply chain policy:

a. **Superior Customer Value**
   Ultimate objective of supply chain is to fulfil customers’ requirement in cost efficient manner better than the competition. While achieving this objective superior value to all stake holders is ensured.

b. **Single Entity**
   Supply chain is always viewed as a single entity and it views dealing organisation as a single entity. A group consisting of representatives from various functions such as purchase, distribution, sales can be an entity for finalising the marketing plan, dispatch plan, production plan or procurement plan. Team work gives rise to this single entity and it helps in reducing administrative delays and improving empathy across the supply chain.

c. **Inventory Perspective**
   Earlier Inventories were viewed as buffer to reduce co-ordination requirements across the network of activities as well as firms but current supply chain concept view inventory in perspective of speedy flow and buffer to be used as last option after proper information sharing and co-ordination. This shall result in leaner system which will be more responsive in long run and will help in improving flexibility, reducing replenishment cycle, reducing uncertainties without keeping safety stocks, enhancing market responsiveness capability, and improving quality.

d. **Strategic Orientation**
   Supply chain management decision is more a strategic decision rather than an operational one. For example while hiring contractual manpower for unloading truck from the market one could consider long-term contract with supplier or transporter itself to unload the vehicles.
e. Outsourcing vs. Insourcing

Current date norm in telecom industry is outsourcing non-core process and remain focused on core competency. It’s a strategic decision, which all activities need to be undertaken in house and remaining should be given to outside firms who have better capability, expertise, and volume to execute the same in more efficient and effective ways.

f. Supply Chain Relationships

Supply chain concept concentrates more of partnering relationships among all members such as strategic partners, suppliers, channel participants, and all third party logistics service providers. This partnership philosophy helps members with high level of motivation to take appropriate proactive actions for achieving objectives of organisation and supply chain.

g. Flexible Approach

 Efficient supply chain requires flexibility in processes starting from planning, procurement to manufacturing to warehousing to delivery. Since change is the only thing which is constant hence business conditions also keeps on changing and flexibility is must.

2.6 IMPORTANCE OF SUPPLY CHAIN MANAGEMENT

Organisations increasingly find that they must rely on effective supply chains, networks or business relationships to compete in the global market and networked economy. In Peter Drucker's (1998) new management paradigms this concept of business relationships extends beyond traditional enterprise boundaries and seeks to organise entire business processes throughout a value chain of multiple companies. (Drucker Peter F, 1954)

In recent decade globalisation, outsourcing, and information technology have enabled many organisations to successfully operate collaborative supply networks in which each specialised business partner focuses on only a few key strategic activities. (Scott, 1993) This inter-organisational supply network can be acknowledged as a new form of organisation. However, with the complicated interactions among the players,
the network structure fits neither "market" nor "hierarchy" categories. (Walter, 1990) From a systems perspective a complex network structure can be decomposed into individual component firms. (Yong & David, 2004) Traditionally companies in a supply network concentrate on the inputs and outputs of the processes with little concern for the internal management working of other individual players. Therefore the choice of an internal management control structure is known to impact local firm performance. (Mintzberg, 1979) To quote Michael Porter, the ‘competitive strategic guru’: “the element of strategic purchasing a vital component in the corporate planning process is aimed at gaining competitive advantage. Slowly but surely the importance of strategic supply chain management is coming out of its closet.”

In the 21st century changes in the business environment have contributed to the development of supply chain networks. As an outcome of globalisation and the proliferation of multinational companies, joint ventures, strategic alliances, and business partnerships, significant success factors were identified complementing the earlier "just-in-time", lean manufacturing, and agile manufacturing practices. Also technological changes particularly the fall in communication costs (a significant component of transaction costs) have led to changes in co-ordination among the members of the supply chain network. (Ronald, 1998) To generate the highest value to stakeholders, firms need to offer product/services which are of best quality at the same time cost efficient coupled with an improvement of productivity and profitability by optimum utilisation of resources reducing idle time. To achieve these objectives a successful supply chain organisation is must. A good supply chain has cost saving potential by maximising the value of product. Success of any company in supply chain fields depends on meeting principle of five R that means supply chain success depends upon planning and facilitating: (Kulkarni & Sharma, 2010)

a. movement of Right thing
b. at the Right time
c. at the Right place
d. at the Right cost
e. In the Right quantity
2.7 CRITICAL SUCCESS FACTORS OF SUPPLY CHAIN

In order to achieve desired performance from supply chain we need to review factors which affect success of any supply chain. Presence of these success factors in supply chain can aid into performance of any supply chain. Following are key factors which every organisation need to possess so that supply chain of any organisation can be successful:

a. **Infrastructure Flexibility**

   In order to meet the ever changing dynamic environment of industry scenario infrastructure of supply chain management has to be flexible so that it can accommodate the ever happening changes in environment without impacting deliverables of supply chain such as spikes in requirement due to sudden spurt in requirement.

b. **Customer / Stake holders’ Co-operation**

   While designing the supply chain management it is must to involve all stake holders including customer so that inputs can be considered at planning stage only and effective supply chain can be set up. Without co-operation from all stake holders chances of success of supply chain are limited.

c. **Optimised Network Structure**

   Network structure needs to be optimised considering the balance between cost of supply chain structure and deliverables of supply chain. Balance needs to be achieved in order to meet the 5Rs objectives of supply chain that means movement of right thing at the right time at the right place at the right cost in the right quantity.

d. **Identification / Codification System**

   In order to ensure identification and traceability of all components in supply chain codification methodology needs to be finalised for components and processes. Codification is must for any supply chain so that complete organisation speaks on one single platform.
e. Geographical Constraints

Topographical constraints if any needs to be reviewed and de-risked in advance so that geographical area dependency can be pre-determined to design effective supply chain.

f. Process Capability

Capability of supply chain processes needs to be monitored, reviewed, and improved on continual basis to deliver optimum results from a supply chain.

g. Logistics Economics

Transport and logistics need to be economically designed and route mappings need to be secured proactively so that waste during transportation or any of the logistics’ process can be eliminated.

h. Co-ordination

Co-ordination among the constituents or stake holders of supply chain is mandatory requirement. In absence of good co-ordination and effective communication chances of success of supply chain are limited as most of the time stake holders may keep on resolving differences reactively and proactive approach to problem solving in any process shall be missing.

2.8 BUSINESS PROCESS INTEGRATION THROUGH SUPPLY CHAIN PROCESSES

Effective supply chain management involves a change from managing individual functions to assimilate activities into key supply chain processes. Supply chain business process integration involves collaborative work between buyers and suppliers, joint product development, common systems, and shared information. Managing an integrated supply chain needs a seamless information flow. In order to optimize product flows, implementation of a process approach is must. Supply chain management is the management of relationships in the network of organisations, from end customers through original suppliers, using key cross-functional business processes to create value for customers and other stakeholders.
Successful supply chain management needs applying cross-functional practices within the company and assimilating them with key associates of the supply chain. (Figure 2-1) The key supply chain processes stated by Lambert are as mentioned below (Lambert, 2014):

a. **Customer Relationship Management Process**

Customer relationship management relates to the association of an organisation with its customers. Customer service is the source of customer information. It also delivers the customer with real-time information on scheduling and product availability through interfaces with the company's manufacturing and distribution facilities. Customer relationship management provides the structure for how the relationships with customers will be developed and maintained. Management identifies key customers and customer groups to be targeted as part of the firm’s business mission. The goal is to segment customers based on their value over time.
and increase customer loyalty by providing customised products and services. Cross-functional customer teams tailor product and service agreements (PSA) to meet the needs of key accounts and for segments of other customers. These agreements specify levels of performance. The teams work with key customers to improve processes and eliminate demand variability and non-value added activities. Performance reports are designed to measure the profitability of customers as well as the financial impact on the customer.

b. Customer Service Management

It is the organisation’s appearance to the customer. It provides the key point of contact for administering the contract or agreement. Customer service delivers real-time information on committed shipping dates and product availability through interfaces with the organisation’s functions such as manufacturing and logistics function. The customer service process may also include assisting the customer with product applications.

c. Demand Management Style

Demand management is the supply chain management process that balances the customers’ requirements with the capabilities of the supply chain. It relates to engagement with customer at early stages and gets to know about the customer demands in advance. Post knowledge of customer demands, forecasting of demand needs to be done in organisation’s functions so that requisite prerequisites such as ramp up of raw material procurement, manufacturing facilities or distribution network. With the precise process in place organisation can match supply with demand proactively and perform with marginal interruptions. The process is not only limited to forecasting but it comprises harmonizing supply and demand, increasing flexibility, and reducing demand variability. A good demand management process can enable a company to be more proactive to anticipated demand, and enables agility to unanticipated demand.

d. Order Fulfilment Cycle

Order fulfilment cycle involves synchronisation of processes post receipt of customer orders to delivery of shipment to customer and related obligations post-
delivery. In the present changing environment, order to cash cycle is one of the most important factor for delivery hence, all efforts need to be done by organisation to reduce the cycle time. The order fulfilment process does not mean only processing orders. It comprises all actions essential to formulate customer prerequisite and to plan a network and a process that ensures an organisation to meet customers’ need while reducing the total delivered cost. This is not only a logistics function, but needs to be implemented cross-functionally and with the synchronisation of key suppliers and customers. The objective is to develop a seamless process from the supplier to the organisation and to its various customer segments.

e. Manufacturing Flow Management Process

The manufacturing process produces and delivers goods to the delivery channels based on projections or orders in hand. Manufacturing methods must be elastic so that these can adapt to market variations and must accommodate customisation. Manufacturing elasticity replicates the capability to make an extensive variety of products in a judicious method at the minimal cost. Changes in the manufacturing flow process contribute in reducing lead times which results in better receptiveness and effectiveness in fulfilling customer demand. To attain this wanted degree of manufacturing elasticity planning and execution need to spread beyond the organisation’s supply chain. This process includes events in direct relation to planning, scheduling, and supporting manufacturing operations, such as work-in-process storage, handling, transportation, and time phasing of components, inventory at manufacturing sites, and maximum flexibility in the coordination of geographical and final assemblies postponement of physical distribution operations.

f. Supplier Relationship Management

It is the process how an organisation networks with its suppliers. It is orderly, valuation of suppliers’ strengths and capabilities in line with organisations’ supply chain vision, identification of activities for which suppliers can be associated and planning and execution of all dealings with suppliers, in a coordinated method to take full advantage through those collaborations. The emphasis of supplier relationship management is to cultivate mutually constructive associations with
strategic supply or service providers to provide enhanced levels of revolution and competitive advantage. Supplier relationship management is comparable to customer relationship management. Organisations deals with customer over multiple transactions on same lines they keep their supplier engaged in multiple activities such as association at the time of product design, contracts negotiation and formulation, purchasing and scheduling during order fulfilment cycle, engagement during logistics and delivery. Just as a company needs to develop relationships with its customers, it also needs to foster relationships with its suppliers. A product and service agreement is negotiated with each key supplier that defines the terms of the association. For less critical suppliers, the agreement is not negotiable. Long-term relationships are developed with a small core group of suppliers. The desired outcome is a win-win relationship where both parties benefit.

g. Product Development and Commercialisation

In this process customers and suppliers must be assimilated into the product development process in order to condense the time to market. As product life cycles truncates, the suitable goods must be developed and effectively launched with ever-shorter time schedules in order for firms to remain competitive. This association starts with identification of customer needs to selection of materials and supplies to development of production methodology and integration of best practices till launch and commercialisation of product.

h. Returns Management

Returns management is a supply chain management practice through which actions linked with returns, reverse logistics, gate keeping, and prevention are managed in an organisation. The application of this process allows organisation to manage the reverse product flow competently, to ascertain prospects to moderate undesirable returns and to device methods to reuse possessions such as packing material. It is significant to appreciate the total influence of return products and its relationship with revenue. Economically returns signify a negative adjustment to sales books. Other than this, it has got operational cost as well such as transportation cost, inventory carry cost, and brand value impact. Effective returns management can
improve an organisation’s effectiveness, improve customer relationships and will be an important portion of a unified supply chain management approach and delivers an opportunity to attain a sustainable competitive benefit.

i. **Procurement Process**

Procurement and development plans are agreed with suppliers to support the manufacturing flow management process and the launch of new products. The expected result is an affiliation where both organisations prosper and product lead time to market can be reduced. To map processes and to communicate effectively functions of purchasing are tied together with electronic programs such as enterprise resource planning. Procurement activities include resource planning, supply, sourcing, and negotiation, order placement, inbound transportation, storage, handling, and quality assurance, coordination with suppliers on matters of scheduling, supply continuity, hedging, and research into new sources or programs.

j. **Physical Distribution**

This relates to the movement of a final product/service to customers. End customer is the final destination of a marketing channel, and the availability of the product or service to end customer is what every member of channel works for. Physical distribution joins a marketing channel with its customers through it links manufacturers, wholesalers, and retailers. Physical distribution is accomplished with a systematic approach and deliberates key interconnected functions to deliver competent movement of products. The functions are interrelated because any time a decision is made in one area it has an effect on the others. The importance of physical distribution is that it offsets the cost of inventory control which could be much more costly. Managing physical distribution from a systems approach can provide benefit in controlling costs and meeting customer service demands.

k. **Outsourcing / Partnerships**

This includes not just the outsourcing of procurement of materials, components and services. The logic of outsourcing or strategic partnerships is that the organisations increasingly focus on their core activities in the value chain in which they have a unique advantage and outsource non-value adding activities to subject matter
experts. This scenario is clearly evident in logistics where transportation, warehousing, and inventory control is increasingly subcontracted to logistics partners. Also, managing and controlling this network of partners and suppliers requires a blend of central and local involvement; strategic decisions are taken centrally while the monitoring and control of supplier performance and day-to-day liaison with logistics partners are best managed locally.

1. Performance Measurement

There is a solid connection among characteristics of supplier and customer integration to market share and profitability. Captivating benefit of supplier competences and stressing a long-term supply chain perspective in customer relationships can both be connected with an organisation’s performance. As logistics capability turns into a critical factor in building and preserving competitive lead, measuring its performance grow into increasingly important, because the difference between profitable and unprofitable operations becomes narrower. Organisations engaging in widespread performance measurement can understand improvements in overall throughput. In such organisations internal processes are reviewed and evaluated including cost, supplier valuation, customer service, productivity, asset measurement, and quality. External performance is analysed through customer perception and best practice benchmarking.

m. Warehousing Management

To reduce a company's cost and expenses, warehousing management is carrying the valuable role against operations. In the case of perfect storage and office with all convenient facilities such as loading and unloading facilities with proper area, area for service station, stock management system in company level helps in reducing manpower cost and increasing on time correct deliveries at correct costs.

2.9 PARTNERSHIPS IN THE SUPPLY CHAIN

A partnership is a custom-made business association based on reciprocal confidence, candidness, collective risk and collective rewards those results in business performance which is higher than what would be attained by the two organisations working independent. (Figure 2-2) Drivers are the persuasive logics for two organisations to
partner which results in the anticipated profits from a growing partnership. These drivers can be summarised in four categories: asset/cost efficiencies, customer service improvements, marketing advantage and profit growth/stability. Higher concentration on drivers in partnership shall result in more opportunity of a prosperous conglomerate. Facilitators are aspects of ecosystem which support the prospect of success of partnership. These environmental features or aspects prevail in all associations and are not altered in the short-range. Facilitators check how expected partners gel up with each other and contain:

a. Synchronisation of companies’ cultures
b. Synchronisation of organisations’ viewpoint and skill-set
c. Viewpoint of support between the potential partners
d. Degree of symmetry between the firms

![Figure 2-2 Partnership Model](Lambert, 2014)

Adding to the above four, there are five facilitators which when exist will reinforce an association but cannot be expected always. These facilitators are such as organisations have a challenger, organisations existing in close physical vicinity, the possibility for distinctiveness in the association, and former association understanding and organisations have a shared end user. Partnership components are administrative
manageable features of an association. By application of these constituents the real prospective of association can be attained. Partnership components include:

a. Style  
b. Planning levels and content  
c. Measurements and operating checks  
d. Level of communication between organisations  
e. Module for sharing risks and rewards  
f. Mutual trust and commitment  
g. Type of agreement used in the association  
h. Scope of association  
i. Commercial interest among partners

Outcomes replicate the result of the association and the capability of the organisation to attain their specified drivers. The outcomes can be observed in terms of three primary categories:

a. Overall performance outcomes related to the improvement of profits  
b. Practice outcomes such as upgraded service or reduced costs  
c. Competitive improvement outcomes such as standing in the market, business share or knowledge

A supply chain management is considered to be successful only if it leverages the linkages among its member appropriately. Most of the studies including the one by Supply Chain Management Institution, Ohio University in “Building High performance Business Relations” (Lambert D. M., 2008) had brought forth the worth of partnerships for the success of supply chain, but the challenge is in Indian telecom scenario to find effective approaches for evolving the right type of relationship. Partnerships are costly propositions in terms of the time and effort required due to this an organisation can’t make every supplier a strategic partner because of limitations of resources. Hence it become utmost important that these scarce resources are used only for associations which maximize benefits to organisations. In order to identify the association where these kinds of partnership need to be used, partnership model as detailed above is to be used which delivers an organised and repeatable method to form and preserve custom-made business association that will be strength for organisations looking for competitive edge.
2.10 THE COLLABRATION FRAMEWORK

The Partnership Model can be used to create relationships with utmost important customers or suppliers where there is past experience of working together and both sides understand the association as having the prospective for strategic partnership. But in real world most of the time these conditions are not met hence, Collaboration Framework (Lambert & Enz, 2014) can be used to frame collaborative business relationships where the settings for using the Partnership Model have not been met successfully. A new association with high prospective or a significant association to each side that is not a balanced association are examples where The Collaboration Framework can be used.

![Collaboration Framework Diagram]

**Figure 2-3 Collaboration Framework**

(Lambert, 2014)

The Collaboration Framework can (Figure 2-3) be used in the creation of product and service agreements with key associates, be it customers or suppliers. During the collaboration discussions, decision makers from both organisations explain their prospects and jointly come to an understanding on objectives for the association.
2.11 PERFORMANCE MEASUREMENT IN THE SUPPLY CHAIN

Most of the performance measures called "supply chain metrics" are nothing more than logistics measures that have an internal focus and do not capture how the firm drives value or profitability in the supply chain. (Lambert, 2014) These measures may actually prove to be dysfunctional by attempting to optimize the performance of individual functions at the expense the firm's overall performance and the performance of the other firms in the supply chain, an approach that eventually decreases the value and competitiveness of the supply chain. A well-crafted system of supply chain metrics can increase the chances for success by aligning processes across multiple firms, targeting the most profitable market segments, and obtaining a competitive advantage through differentiated services and lower costs. Inappropriate metrics, on the other hand, will result in failure to meet end customer expectations, sub-optimisation of departmental or company performance, missed opportunities to outperform the competition, and conflict within the supply chain.

There is need to provide a framework for developing supply chain metrics that translates performance into shareholder value. The framework focuses on managing the interfacing customer relationship management and supplier relationship management processes at each link in the supply chain. The translation of process improvements into supplier and customer profitability provides a method for developing metrics that identify opportunities for improved profitability and aligning objectives across the firms in the supply chain. By understanding the profitability at each link, management, over time, can take decisions that will maximize performance for the supply chain.

2.12 TAX EFFICIENT SUPPLY CHAIN MANAGEMENT

Tax efficient supply chain management is a business model that considers the effect of tax in the design and implementation of supply chain management. As the consequence of globalisation, cross-national businesses pay different tax rates in different countries. Due to these differences, they may legally optimize their supply chain and increase profits based on tax efficiency.
2.13 SUSTAINABILITY AND SOCIAL RESPONSIBILITY IN SUPPLY CHAINS

Supply chain sustainability is a business issue affecting an organisation's supply chain or logistics network, and is frequently quantified by comparison with SECH ratings, which uses a triple bottom line incorporating economic, social, and environmental aspects. SECH ratings are defined as social, ethical, cultural, and health' footprints. Consumers have become more aware of the environmental impact of their purchases and companies' SECH ratings and, along with non-governmental organisations (NGOs), are setting the agenda for transitions to organically grown foods, anti-sweatshop labour codes, and locally produced goods that support independent and small businesses. Because supply chains may account for over 75% of a company's carbon footprint, many organisations are exploring ways to reduce this and thus improve their SECH rating.

It has been reported that companies are increasingly taking environmental performance into account when selecting suppliers. A 2011 survey by the Carbon Trust found that 50% of multinationals expect to select their suppliers based upon carbon performance in the future and 29% of suppliers could lose their places on 'green supply chains' if they do not have adequate performance records on carbon.

The US Dodd–Frank Wall Street Reform and Consumer Protection Act, signed into law by President Obama in July 2010, contained a supply chain sustainability provision in the form of the Conflict Minerals law. This law requires SEC-regulated companies to conduct third party audits of their supply chains in order to determine whether any tin, tantalum, tungsten, or gold (together referred to as conflict minerals) is mined or sourced from the Democratic Republic of the Congo, and create a report (available to the general public and SEC) detailing the due diligence efforts taken and the results of the audit. The chain of suppliers and vendors to these reporting companies will be expected to provide appropriate supporting information.

Wieland and Handfield (2013) suggest that companies need to audit products and suppliers and that supplier auditing needs to go beyond direct relationships with first-tier suppliers. They also demonstrate that visibility needs to be improved if supply
cannot be directly controlled and that smart and electronic technologies play a key role to improve visibility. Finally, they highlight that collaboration with local partners, across the industry and with universities is crucial to successfully manage social responsibility in supply chains.

2.14 SUPPLY CHAIN COMPONENTS

Supply chain components are important elements of any organisation. Performance of any organisation depends on level of integrations and management of a process line which is a function of the number and level of components added to link. (Ellram and Cooper, 1990; Houlihan, 1985) Following are major components of supply chain:

a. Management Components

Literature on business process re-engineering, buyer-supplier relationships and supply chain management suggests various possible components that should receive managerial attention when managing supply relationships. Lambert and Cooper (2000) identified components like planning and control, work structure, organisation structure, product flow facility structure, information flow facility structure, management methods, power and leadership structure, risk and reward structure and, culture and attitude. Adding more management components or increasing the level of each component can increase the level of integration of the business process link.

b. Reverse Supply Chain

Reverse logistics is the process of managing the return of goods. It is also referred to as "aftermarket customer services". Any time money is taken from a company's warranty reserve or service logistics budget, one can speak of a reverse logistics operation. Reverse logistics is also the process of managing the return of goods from store, which the returned goods are sent back to warehouse and after that either warehouse scrap the goods or send them back to supplier for repair / replacement depending on the warranty of the merchandise.

c. Systems and Value

Supply chain systems configure value for those that organize the networks. Value is the additional revenue over and above the costs of building the network. Co-
creating value and sharing the benefits appropriately to encourage effective participation is a key challenge for any supply system. Tony Hines defines value as follows: "Ultimately it is the customer who pays the price for service delivered that confirms value and not the producer who simply adds cost until that point".

2.15 GLOBAL APPLICATIONS

Global supply chains pose challenges regarding both quantity and value. Supply and value chain trends include:

a. Globalisation
b. Increased cross-border sourcing
c. Collaboration for parts of value chain with low-cost providers
d. Shared service centres for logistical and administrative functions
e. Increasingly global operations, which require increasingly global coordination and planning to achieve global optimums
f. Complex problems involve also midsized companies to an increasing degree

These trends have many benefits for manufacturers because they make optimisation possible such as larger lot sizes, lower taxes, and better environments (such as, culture, infrastructure, special tax zones, or sophisticated OEM) for their products. There are many additional challenges when the scope of supply chains is global. This is because with a supply chain of a larger scope, the lead time is much longer. There are more issues involved, such as multiple currencies, policies, and laws. The consequent problems include different currencies and valuations in different countries, different tax laws, different trading protocols, and lack of transparency of cost and profit.

2.16 TELECOM SECTOR IN INDIA AND SUPPLY CHAIN MANAGEMENT

Telecom sector in India and supply chain management as a concept started almost same time that is around twenty years back. To start with country was not having any much of technical insights into aspects of telecom networks which pit dependence on overseas players for built up and maintenance of telecom networks. Strong partnerships emerged between global suppliers and Indian telecom service providers with opening of this sector to private sectors. In these partnerships, global equipment suppliers were given
contracts for equipment supplies as well as helped in designing and managing operations of networks of telecom service providers. This gave rise to import of most of the equipment from overseas.

Department of telecom came up with its mission to promote research and development and product developments in cutting edge technologies and services for domestic and worldwide markets, promote development of new standards and generate IPRs to make India a leading nation in the area of telecom standardisation and to make India a global hub, for telecom services and telecom equipment manufacturing. (Department of Telecommunication, Ministry of Communications and IT, Government of India, 2010) This challenge to manufacturing has been identified by government through studies carried out by Telecom autohortiy of India (TRAI) (Telecom Regulatory Authority of India, 2011) for encouraging the manufacturing of telecom imports in India and it came out with recommendations to enhance telecom equipment manufacturing in India. (Telecom Regulatory Authority of India, 2010)

Telecom Regulatory Authority of India through its consultation paper for encouraging telecom equipment manufacturing in India identified the following measures for sourcing of inputs to be taken by the stakeholders during the pre-consultation exercise: (Telecom Regulatory Authority of India, 2010)

a. Indigenous manufacturing facilities for electronic components, chips should be established to have a strong component base.

b. Research and development units that are capable of developing integrated circuits and owning their own intellectual property rights should be encouraged by declaring their product as indigenous for policy purposes even if the integrated circuits are fabricated abroad. This will lead to establishing a strong market presence and the setting up of commercially viable fabrication facilities.

c. Duties on inputs to the component industry also need to be rationalized.

d. India must strive for 75-80 per cent component sourcing within the country, either through existing companies or bringing in companies who have been partnering with vendors and EMS players abroad.
e. The Government needs to promote supply chain development in major manufacturing hubs. This will lead to cost advantages as well as help the manufacturing process with easy availability of components.

f. Setting of Electronic Manufacturing Service (EMS) companies should be incentivised.

g. Further, capability and strength of making indigenous VLSIs, providing telecom & embedded solutions require full exploitation of the country’s infrastructure and export market. In view of this, indigenous manufacturing of electronic components should be encouraged to have a strong component base to eliminate delays in product ionisation process on account of component procurement. Duties on inputs to the component industry should be made zero under deemed export status.

Federation of Indian Chambers of Commerce and Industry mentioned in their content profile on telecom sector that an attractive trade and investment policy and lucrative incentives for foreign collaborations have made India one of the world’s most attractive markets for the telecom equipment suppliers and service providers. Few such constructive policies are: (FICCI, 2012)

   a. No industrial license is required for setting up manufacturing units for telecom equipment.
   b. 100% Foreign Direct Investment (FDI) is allowed through automatic route for manufacturing of telecom equipment.
   c. Payments for royalty, lump sum fee for transfer of technology and payments for use of trademark/brand name on the automatic route.
   d. Foreign equity of 74% (49 % under automatic route) is permitted for telecom services - basic, cellular mobile, paging, value added services, NLD, ILD, ISPs - and global mobile personal communications by satellite.
   e. Full repatriability of dividend income and capital invested in the telecom sector.

However, in the euphoria of high growth in services, the equipment manufacturing received least priority. India mainly depends on imported components from China or European countries. Of late, it is realized that lack of domestic manufacturing may pose
a serious challenge to India’s continued success in the telecom sector. The manufacturing segment is dominated by foreign firms and Indian companies occupy only a small space in the total domestic manufacturing base. Though there is a sizeable demand for telecom equipment which is also growing, supply is largely met through imports from China and Europe. (Chattopadhyay, 2013)

In spite of efforts, through consultation papers and strategic plans for increasing Indian products from Department of Telecom, results are not very encouraging and still major portion of huge telecom equipment demand is getting imported or being manufactured by global suppliers. Thereby, resulting in drainage of foreign exchange out of shores of the country, resulting in non realisation of significant benefits from Indian market to country’s own economy.

Non-availability of Indian products, quality of Indian products, lucrative financial deals, lead time, price advantage, international commitment / obligations, aggressive business scenario, ease of installation, after sale service and warranty policies, and regulatory scenario contributed to non-consideration of business case by Indian suppliers. Though central government had come up with multiple guidelines and recommendations over past few years to promote manufacturing in India but real benefit to economy can be seen only when the products will be designed and manufactured in India because until then even for Indian manufactured items most of foreign exchange will be flowing. In case efforts are put in for designing network equipment of current technologies of 2G, 3G or LTE then, by the time product will be designed and developed in India, global technology will change and Indian designed product will become outdated. Considering this, a concentrated effort need to be put in by public and private sector including technical research institutions so that development efforts are directed towards future technologies like 5G for network equipment and 4G and 5G for end user equipment which are expected to be launched in the next couple of years. Moreover, this process of reviewing the manufacturing scenario has to be dynamic because environment is not sacrosanct and challenges keep on changing on daily basis. Study concluded that opportunity exists for Indian suppliers and technical institutions to develop Indian product which can fulfil the need of future
technologies and country’s outflow of foreign exchange can be curtailed. (Arora & Bedi, 2015)

Jayashankar M. Swaminathan in Managing supply chain operations in India: Pitfalls and Opportunities concluded that supply chain management is challenging even when operating in a developed economy such as the US. It gets even more challenging in an emerging economy like India. It is particularly difficult for multinational firms that may have a successful strategy in their home country that try to utilize the same approaches in India. One of the major challenges of operating a supply chain in India is the under developed infra-structure for transportation, power and water. (Jayshankar, 2006)

Mohanty and Dabade in their paper on Prime factors of Vendor Selection for Indian Telecom Service Provider for effective SCM brought forward thought of Swaminathan in Indian context and viewed that the procurement (either product or service) is quite cumbersome unlike the developed economy. Hence to select a vendor or to outsource a service a company has to consider and evaluate many parameters which sometimes overlap and make the process confusing. Study brought forward four prime factors from 15 variables for vendor selection of Indian telecommunication service provider as perceived by the procurement authorities of Indian telecommunication service providers (Mohanty & Dabade, 2013)

2.17 ORGANISATIONAL PERFORMANCE

Organisational performance relates to the degree to which organisation is able to meet its performance objectives related to market performance as well as its financial performance. No standardised definition has been arrived about organisational performance by researchers however, results from study carried out by Ou et. al suggest that results of positive benefits reaped from a successful SCM implementation show that SCM improves operational performance which yields greater customer satisfaction and financial performance. Higher financial performance is also attributable to better customer value resulting from the achievement of better customer satisfaction. (Ou, Liu, Hung, & Yen, 2010)
The study from Hsu et. al tested the proposition that supply chain management practices mediate the relationship between operations capability and firm performance. Operations capability is defined in terms of a firm's new product design and development, total quality management and just-in-time capabilities. Results suggested the existence of a direct relationship between operations capability and performance. (Hsu, et al., 2008)

Few researchers have used marketing performance indicators such as product quality and new product development. The study showed that Quality Management (QM) practices are significantly correlated with the supplier participation strategy and this influences tangible business results, and customer satisfaction levels. The data also showed that QM practices are significantly correlated with the supplier selection strategy (Lin, Chow, Madu, Kuei, & Yu, 2005).

Lia Suhong et al in their study concluded that effective supply chain management (SCM) has become a potentially valuable way of securing competitive advantage and improving organizational performance since competition is no longer between organisations, but among supply chains. This research conceptualised and developed five dimensions of supply chain practice such as strategic supplier partnership, customer relationship, level of information sharing, quality of information sharing, and postponement and tested the relationships between supply chain practices, competitive advantage, and organisational performance. The results indicated that higher levels of supply chain practice can lead to enhanced competitive advantage and improved organisational performance. (Lia, Nathanb, Nathanb, & Raob, 2006)

Marketing performance relates to the organisation’s ability to increase sales and increase market share giving edge over the competition. Financial performance relates to organisation’s profitability and return on investment as compared to its competition. Supply chain’s main goals are to provide right product at right time at right cost with right quality and at right location, which contributes to both marketing and financial performance by improving productivity of resources, reducing inventories hence, it helps in improving profits and increases market share. Supply chain management can be considered as an effective tool which can help to reduce cost to company without
impacting its revenues hence, supply chain leads to enhanced organisational performance. Therefore, it is necessary that supply chain of telecom sector is analysed and studied to improve organisational performance.

In order to study the impact of supply chain management to organisation performance there is a need to create a structured approach for reviewing objectives of supply chain management. Measurement information can be used to set objectives, analyse and resolve problems, and define and amend processes. Internal measurement of an organisation gives greater insight into performance. These internal assessments can be done through tools such as SWOT analysis, market research, strategic planning, SMART goals, company reviews and consulting. However, most of the organisations concentrate on financial performance while measuring organisational performance. To measure organisational performance, standalone financial performance is not a true reflection of organisational performance as most of the time organisation concentrates on passing financial risks to their suppliers or customer to improve financial performance on short term basis. Most of the organisations chase financial results without understanding what really creates and sustains results. From an organisational perspective people (employee’s and customers), products and processes are measured in terms of productivity, profitability and satisfaction. The measure of satisfaction has only risen to the top of performance metrics because there is a direct correlation to productivity and profitability which are extensions of financial performance. (Deragon, 2013)

In order to enhance edge in competitiveness, organisation are adopting a strategy to stick to their core competencies and outsource non-core competencies. Competitive advantage in organisation performacne is getting enhanced by coordinating functions across supply chain partners. (Mentzer, 2007) Council of Supply Chain Management Professionals (CSCMP) in India and A.T. Kearney highlighted seven supply chain best practices or themes that successful organizations across India are using to gain competitiveness in their organisational performance: (Kearney, 2013)
a. **Collaborate to Integrate the Value Chain Virtually**

Collaboration can be executed across functions or across value chain or even beyond the value chain as well. In order for success of any collaboration, it needs to work on a win-win approach with complementary objectives with long-term milestones clearly marked and tracked for progress for collaborating organisations.

b. **Replace One-Size-Fits-All with a Tailored Approach**

With a good mix up of organisations from veterans to new start-up operations, never before diversity is prevailing in India. Hence, approach to deal with veterans may not fit with the start-up organisation so in supply chain, approach will have to be customised to appreciate and working with diverse sets of organisations.

c. **Plan More Frequently and across Multiple Horizons**

With fast-changing technological, demographic, political and economic environment pushing supply chain to its extreme. Executives of successful supply chain need to see the big picture while also focusing on the details. This can be achieved with frequent and multi-horizon planning sessions: weekly reviews for short-term planning, and regular reviews for long-term planning.

d. **Implement Pull Replenishment across the Value Chain**

In order to reduce costs and services, supply chain organisations in the country are following pull replenishment strategies across their entire value chains from customers to vendors in place of push replenishment strategies from vendors to suppliers. With this pull strategy, customers ensure that they don’t carry unjustified inventories in their warehouse.

e. **Actively Manage Complexity**

More and more organisation in the country are adopting supply chain strategies such as value analysis, activity-based costing, or business process re-engineering.
reengineering to optimise the process so that non value adding activity or processes can be get rid off and value additiona activity or process can be maximised.

f. **Let Business Needs Drive Technology and Automation Choices**

In order to overcome challenges owing to environment changes it is becoming must to adapt to technological advancements and go for automation to meet the business requirements judiciously. A fine balance needs to be build up between incorporation of technology and human touch so that competitive advantage can be secured.

g. **Reconfigure the Supply Chain Organisation to Include Business Management Capabilities**

With change in challenges due to change in environment and business conditions expectations from supply chain are ever changing. These expectations call for renewing the skill and capabilities of supply chain professionals considering the business management capabilities and needs of the organisations.

Organisations across industries who follow these practices or strategice approaches, to overcome challenges for fast pacing environmental changes can gain competitiveness over other organisations.

2.18 **CONCLUSION**

Several researchers from India and abroad have provided their work on supply chain management as a concept and in other specific industries. Nonetheless there is a large scope of supply chain management in telecom industry and impact of supply chain in organisation performance in telecom sector is still not touched by any one effectively. Hence this gap in study the supply chain management in telecom sector is being attempted to be addressed in this study.

The literature study has provided basic foundation for the research. An attempt has been made to provide an overview of the supply chain management and telecom
sector’s supply chain. Industry’s role and importance in the national economy has already been discussed in Section 1.1 and Section 1.3. Initiatives taken and recommendation proposed by Government of India for growth in value chain of the section are also discussed in section 2.16. However importance of supply chain management function for telecom sector in India is not being served by these researches. The objective of this research is to examine the current supply chain dynamics of Indian telecom industry and to identify key factors of telecom industry’s supply chain competitiveness. Further on to identify bottlenecks of supply chain performance and to find out the way they impact organisational performance and how to enhance effectiveness of these supply chain operations.