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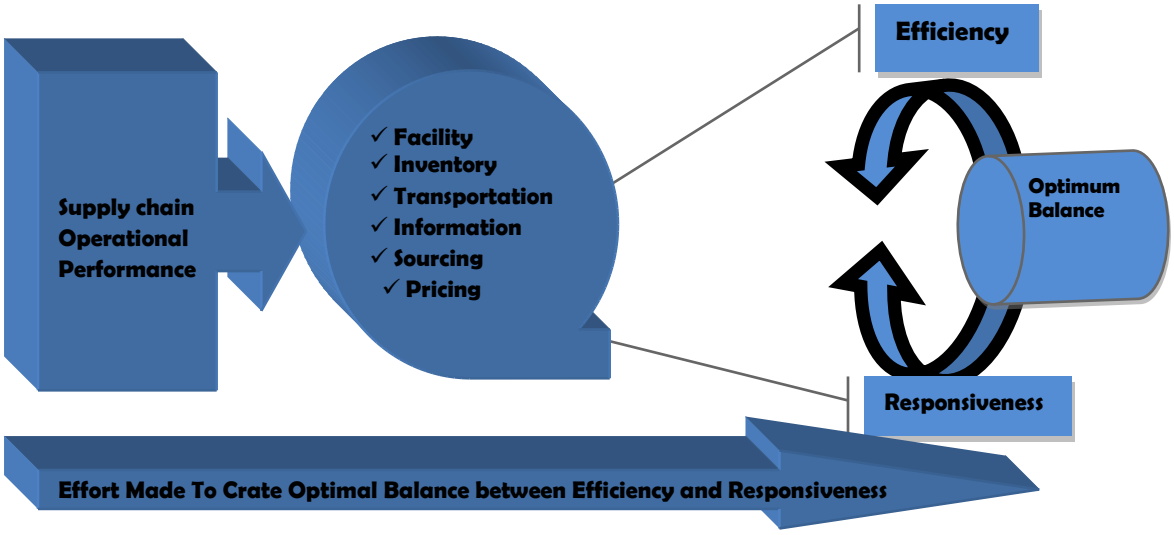
AN ASSESSMENT OF SUPPLY CHAIN PERFORMANCE DRIVERS ON MIDROC GOLD MINING



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ABSTRACT

Supply chain management is focusing on management of activities from raw material to final product and end user. This research paper is written to assess the factors or drivers included that are indispensable for any organization to increase efficiency in supply chain management.

The Purpose of this study is to assess the drivers of supply chain performance and how MIDROC Gold can manage these drivers for its competitiveness. The study contains quantitative and qualitative approach. In first phase the study develop a blueprint to go throughout the study. In the second phase the study reviewed conceptual and empirical literature about the drivers of supply chain performance. In third phase firm specific data collected internally were suggest a framework to manage the drivers of supply chain performance.

The whole finding regarding six drivers of supply chain performance that need to be managed to enhance firm's performance; i.e. Facilities, Inventory, Transportation, Information, Sourcing and pricing were concluded. These drivers are closely related with each other and have a greater impact on organizational performance. MIDROC Gold need to find a situation where, both efficiency and responsiveness in supply chain practices are at average level to enhance their performance. This average level can only be achieved through better management of drivers of supply chain performance.

Shortage of literature and empirical studies in similar area has not been as such satisfactory; this a bit challenging to the researcher to synthesize and/or substantiate empirical facts along with the case at hand. Drivers of supply chain performance, Efficiency, Responsiveness, Supply chain management, Supply chain performance are key terms in this study.

ACKNOWLEDGEMENT

A special thanks to "GOD" which have made this study possible. I would like to use this opportunity and express my gratitude to all Management and employees of the MIDROC Gold Mining for their cooperation in performing this research.

Moreover the Researcher would like to thanks the Adviser Dr. Matiwos Ensermu Jaleta for all lend a hand, guidance and patience.

Thanks! Indira Gandhi National Open University School of Management Studies makes me enrich to make it done. Without all these I would not been able to reach the goal and this report could not been possible. April, 2016.

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ACRONYMS

MIDROC	Mohammed Investment and Development Research Opportunity Corporation
ALEL	Adola-Legadembi Exploration License -
MEL	Metekel Exploration License -
(CIP)	Carbon in Pulp
(SCM)	Supply Chain Management
ROI	Return On Investment
GDP	Growth Domestic Product
LTL	Large Transport Logistics
TL	Transport Logistics
EDI	Electronic Data Interchange
CEO	Chief Executive Officer
ALEL	Adola-Legadembi Exploration License
MEL	Metekel Exploration License –
VMI	Vender Managed Inventory

CHAPTER ONE
INTRODUCTION

1.1 STUDY BACKGROUND

Supply chain management refers to what is at outside the firm to create high values for customers (Lalonde, 1996). Supply chain management includes the activities inside and outside the organization that are done by that particular organization in order to deliver the high values to customers. It means the management of organization must create check and balance on internal and external activities of organization.

Recently, the development of supply chain system is until the Integrated Supply Chain Management which may give several advantages for industries, such as improved delivery performance, reduction of lead time, and reduction of inventory (work in progress and finished products), improved flexibility, efficiency and utility, improved capacity realization and improved asset usage, it also includes how a company share information and take action in order to ensure the best flow of product from raw material to end user (Chiappe and Herrero, 1997).

Any organization can't makes its customers loyal until it adopted the smooth flow of raw material to production and final product to end user that delivers product just in time with efficiency. Any organization's ability to show effective performance always based on successful and effective adoption of supply chain activities with proper sequence and practices (Richey et al., 2009).

To increase a firm's performance the drivers of supply chain management are much valuable (Soni and Kodali, 2010). Drivers of supply chain performance management are as facilities, logistic management, transportation, inventory management, information distribution, pricing and sourcing. The better management of all these activities leads to increase a firm's performance (Lummus and Vokourka, 1999).

According to, Dr. Kevin McCormack and Dr. Archie Lockamy III, indicated following five maturity levels of supply chain management in their research paper. Ad Hoc: in this phase the processes of supply chain management were ill defined. Organizations were using traditional ways at that time. In this situation cost of supply chain management remains high and customer satisfaction low. Going farther, defined: processes in this phase were well defined and documented. There was improvement in organizational structure but still remained traditional.

In the stage of Linked: this was the break through level. Managers took strategic decisions. Cross functional teams formed and link between companies to other companies developed. Integrated: in this phase the parties of supply chain management involved in the actual process and advance management practices. Extended: in this phase competition based not among organizations but on mass level and among their supply chain practices. Horizontal integration and customer focus developed.

Previous research in the field of supply chain management give rise to two issues, that are research in this field always open for challenge and debate and research not only drive from industrial sector alone (New Stephen, 1997). This is new angle of research in the field of supply chain management. It refers to research in this field is not close ended it must be open ended.

Due to such and other rationale, the researcher deem and can further exploration done in different angles in this field and possibly detect gaps that call for research conductors can explore and study supply chain management and its sub areas.

1.2 COMPANY PROFILE

MIDROC Gold Mine Pvt. Ltd. Co. (MGOLD), a member of the MIDROC Ethiopia Technology Group, is engaged in Mining and Exploration activities in Ethiopia. The company is actively involved mining gold

while being engaged in exploration to find new gold deposits. Gold is exported in Doré form to a refinery in Switzerland.

MIDROC Gold Mine PLC owns and operates the Legadembi Gold Mine, which is located 500km south of Addis Ababa, Ethiopia. MIDROC Gold is actively involved in exploration projects, which are located near the mine (Adola-Legadembi Exploration License - ALEL), and in another area some 600km northwest of Addis Ababa /Metekel Exploration License - MEL (MGOLD: 2014).

MIDROC Gold is also planning to mine the deeper level resources of the present open pit mine, for this purpose an underground project is in progress. To date more than 3km of underground workings have been done, and the deeper resources have been evaluated for a minable vertical depth of 115m and a strike of 350m. The evaluation was done by 50m x 25m grid core drilling, which was conducted from underground cubbies. The ore bodies are open both down dip and along the strike, exploration drilling will continue for the deeper levels and other lenses that have not yet been evaluated (Ibid)

The Legadembi Gold Mine is an open pit operation with annual production of 1.6 million tonnes of ore. An underground mine is currently being developed beneath the open pit to extract deeper level ore - the commencement of full-scale underground mine operations is planned for 2007/08.

Gold is recovered in a Carbon in Pulp (CIP) technology process plant. Yearly average production is about 4500kg of gold-silver doré (fine gold production is in the order of 3,500kg). The average fitness is 78% for gold and 21% for silver; the remaining 1% accounts for other elements of no commercial interest. The gold doré bars are shipped to Argor Heraus refinery in Switzerland; the gold is then refined and sold to Commerz Bank in Zurich Switzerland (MGOLD: 2014).

Presently, MIDROC Gold Mine Plc employees a total workforce of 1,272, of which 860 is permanent and 12 are expatriate working at various capacities. The expatriates are working for the purpose of maintain the technology and expertise in the industry, and with MIDROC Gold Human Resource Strategy of knowledge transfer to the nationals. This system has very well worked so far and will bear

pool of expertise of national for the Company; which is also an invaluable asset for the mining sector of the country at large. MIDROC Gold also employs 109 employees on secondment basis from Trust protection and Personnel Service plc(Ibid).

1.3 PROBLEM STATEMENT

Managers these days recognise that getting products to customers faster than the competition will improve a company's competitive position. To remain competitive, companies must seek new solutions to important Supply Chain Management issues such as modal analysis, supply chain management, load planning, and route planning and distribution network design, thus, companies resort to supply chain practices to improve their performance (D'Amours, Ronnqvist, and Weintraub, 2008).

Supply chain management is applied by companies across the globe due to its demonstrated results such as delivery time reduction, improved financial performance, greater customer satisfaction, building trust among suppliers, and others (Lambert, 2006).

Stavrulaki and Davis (2010) assert that SCM processes which cross organisational boundaries can be easily defined, analysed and improved to provide companies with a sustainable competitive advantage by the identification of key performance drivers. According to (Soni and Kodali, 2010) Drivers of supply chain performance management are as facilities, transportation, inventory management, information distribution, pricing and sourcing.

Conversely, according to the preliminary study taken on the case at hand, due to low level of emphasis given to the effective identification and proper management of supply chain performance driver(s) there are observed potential collision on its supply chain efficiency and responsiveness in MIDROC Gold Manning plc. Due to such a fact, practices like meeting quality performance standards, Supply chain response time, total supply chain management cost (across the supply chain), Effectiveness of suppliers, Order fulfilment lead time, Order Delivery Lead Time, Damage-free delivery, fill rates,

Processing cost and flow times are some of activities suspicious conducted with operation management of the Firm are below standard.

Thus, grounding such probable issues, the researcher tries to assess the performance drivers in the supply chain of the company in impeding its efficiency and responsiveness to the effective operational management practice within it portfolio.

In order to articulate the plausible solution to the aforementioned gap the study have been tried to respond the subsequent inquires throughout the study.

- ✓ What kind of supply chain practice exists in MIDROC Gold?
- ✓ What are the drivers of firm's Supply chain performance?
- ✓ How does MIDROC assess performance drives in its Supply chain efficiency and responsiveness?
- ✓ What kind of task done yet for effective management of supply chain performance drivers to get competitive advantage?

1.4 STUDY OBJECTIVES

1.4.1 General Objective

The overall aim of the thesis was to assess supply chain performance drivers in MIDROC Gold Mining.

1.4.2 Specific Objectives

While the general objective mentioned above, specific objectives of the thesis were

- ✓ To study supply chain practice exists in MIDROC Gold Mining Plc?
- ✓ To identify the drivers of firm's supply chain performance?

- ✓ To examine how MIDROC assesses performance drives in its supply chain efficiency and responsiveness?
- ✓ To evaluate the kind of measure taken before for effective management of supply chain performance drivers in getting competitive advantage?

1.5 STUDY DELIMITATION

The study has been delimited interims of Geography, Periodic and Subjective delimitation. This research limits its subjective scope on the Supply chain Performance Drivers and possible effect on efficiency and responsiveness only. While, geographically delimited on its Head Quarter of the Firm which is found the Capital of the country Addis Ababa. Moreover, the study tries to assess five years data only from 2011 to current period to give a sound analysis on the issue under investigation.

1.6 STUDY SIGNIFICANCE

Conducting this study benefit different parties those are directly of indirectly lay on the territory of research result/report. Thus, it including

- ✓ To the firm under study, indicate the possible gap and way of remedial measures on the topic under study.
- ✓ To the third party can serve as reference on future research conducted on similar or related issues
- ✓ To the researcher, it can create an opportunity to intensify his intuition and knowledge of the issue as well as future research work/conduct
- ✓ At last, the study provided a clue for those who will be interested to conduct an in depth study on the issue.

1.7 STUDY ORGANIZATION

This research report was organized in four sections. The first episode I cover introductory aspect of the study which includes Study Background, Problem Statement, Study Objective, Study Delimitation, Study Significant, Methodology and Others. The second episode was also include Literature Review. The third section has been deal with Data Presentation, Analysis and Interpretation of Study findings, while the fourth episode focus on Summary of the Findings, Conclusions and Recommendations. Finally, list of Bibliography to be used and other appendices has been be annexed.

1.8 STUDY LIMITATIONS

There is no possibility for the research to be conducted without some sort of sanctions when it has been go through the research process. In fact in this study no critical challenges that can significantly affect the research result. However, shortage of literature and empirical studies in similar area has not been as such satisfactory; this a bit challenging to the researcher to synthesize and/or substantiate empirical facts along with the case at hand.

CHAPTER TWO

LITERATURE REVIEWS

2.1 OVERVIEW OF SUPPLY CHAIN PERFORMANCE

A lot of innovation happening today is not so much in the products as in the processes – the way in which the businesses are run. In recent years, supply chain management (SCM) has been the focus of executive meetings, business columns and research institutes as never before. The importance of integrated, globally optimized supply chains is well understood. Executives have discovered the impact on business performance that can be achieved by effectively managing their supply chains. An agile organization that can manage its business processes has become more and more important than the classic marketing mix of a strong brand and a great product (Heft, 2002).

On the other hand, a recent study shows that only a fraction of today's supply chains are managed effectively. One important reason is the mounting challenges faced by the executives. These include globalisation, outsourcing, and significant increase in supply and demand uncertainties, more products with short life cycles and the proliferation of products in today's markets. Supply chain (SC) performance measurement is attracting the attention of practitioners and academic researchers. Various authors report the importance of measuring and managing SC Performance to improve the understanding and cooperation among partners to raise SC coordination and finally to pursuit SC excellence(Ibid).

In SC performance measurement different authors points out the opportunity to classify measures in qualitative and quantitative. Typical measures concerning the first one are customer satisfaction, flexibility, information and material flow integration, effective risk management and supplier performance; while distinctive indicators for the second are costs and customer responsiveness. In a subsequent work, the same author (Beamon, 1999) proposes also to distinguish measures in three

dimensions: resource (distribution costs, inventory, ROI, etc.) that analyses efficiency levels, output (sales, on-time deliveries, customer complaints, etc.) that 8 measures business results and finally flexibility (reductions in the number of lost sales, increased customer satisfaction, etc.) which evaluates SC readiness to the dynamism of the environment (Brewer and Speh, 2000).

2.2. SUPPLY CHAIN PERFORMANCE DRIVERS

Chopra and Meindl (2007) mentioned in their book about six drivers of supply chain performance. A company can enhance its responsiveness and efficiency by the good management of six drivers of supply chain performance. The major drivers of Supply chain performance consist of three logistical drivers & three cross-functional drivers. *Logistical drivers*: • Facilities • Inventory • Transportation while, *Cross-functional drivers*: • Information • Sourcing • Pricing Company's supply chain achieve the balance between responsiveness & efficiency that best meets the needs of the company competitive strategy.

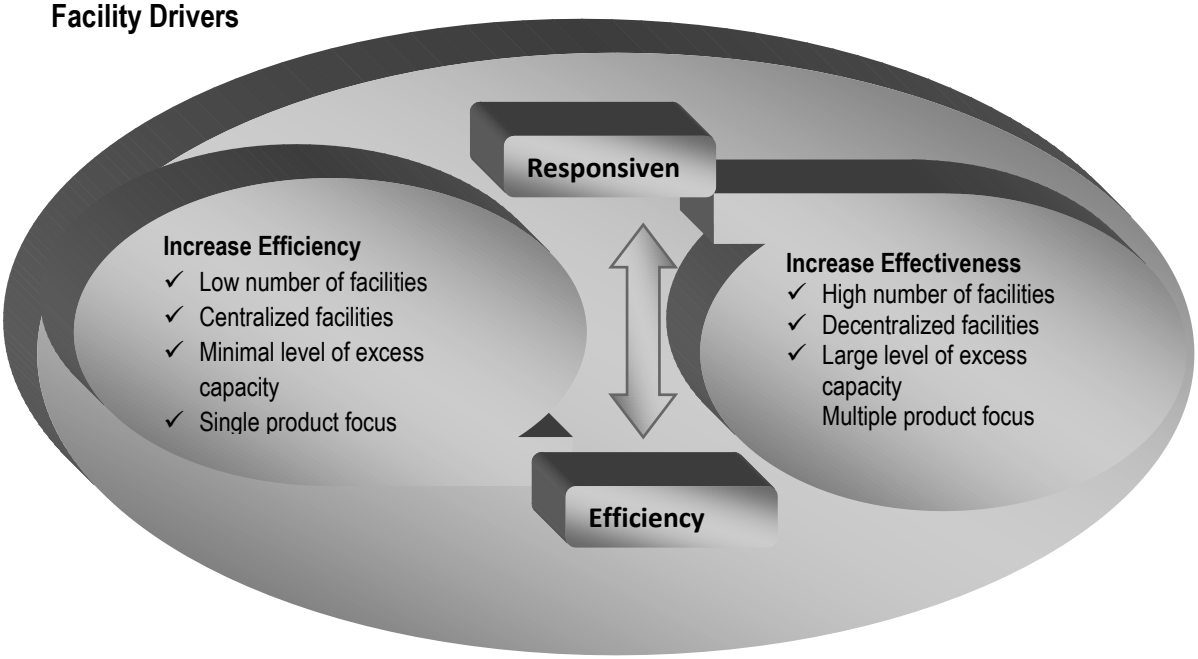
- ✓ Facilities mean the actual physical placement of raw material, work in process material and finished goods. For example, warehouses and storerooms are the facilities in supply chain management.
- ✓ Inventory means flow of all material in supply chain activities such as from raw material to finished goods.
- ✓ Transportation means by which medium and route the inventory flow from one place to another place.
- ✓ Information refers to data flow and analysis of data and distribution of this final information among supply chain personnel's.
- ✓ Sourcing means how and by whom different activities of supply chain management to be performed such as manufacturing, storing and transportation.
- ✓ Pricing refers to price setting that how much the company can demand for its products.

2.3 CONCEPTUAL REVIEW OF SUPPLY CHAIN PERFORMANCE DRIVERS

2.3.1 FACILITY EFFECTIVENESS:

In the literature, Nazali and Pitt (2009) argued that how new emerging phenomena's can lower the problems in facilities management. The implementation of supply chain management activities is indispensable for the ease of facilities management in service delivery problems. It is a good effort to overcome the gap between demand and supply of facilities management. Supply chain management helps organizations to adopt market position in the competitive environment. Facilities would be effectively managed by strategic planning in supply chain management through faster services and by decreasing costs as facilities management is a driver of supply chain management. (Jensen, 2011 P.78) discussed that facilities management always supports supply chain activities. Core business concept creates value for external customers while facilities management creates value for internal customers with the support of core business. The purpose of long term facilities management is to create strategic relationship between core business needs and provisions of facilities.

Facility Drivers



Source: Chopra and Meindl (2007)

2.3.1.1 FACILITIES MANAGEMENT (FM)

Facilities management (FM) is a new field of study emerging within engineering as well as a new service sector that has been developing due to outsourcing of non core competencies such as cleaning and office management to third party providers. As a consequence, there are many definitions and understandings of facilities management (e.g., Then, 1999; Nutt, 2000). One way to understand FM is to look at it as the integration of the organizational processes in order to maintain and develop the services supporting and improving the effectiveness of the primary processes (Jensen, 2009). Another definition describes FM as an integrated approach to operating, maintaining, improving and adapting the buildings and infrastructure of an organization in order to create an environment that strongly supports its primary objectives (Pathirage et al., 2008, p. 5). These views are implicitly based on the concept of the value chain that distinguishes primary activities from secondary activities of an organization.

Pathirage et al. (2008) argue that the FM literature identifies four generations of FM that focus on the changes to the management of facilities over the last few decades. In the first generation, FM was considered as an overhead to the organization and was something that had to be managed at minimum cost rather than optimum value. In the second generation, FM took a process perspective and promoted the process focus between the organization's individual businesses and the FM organization by making FM activities within the organization a continuous process. In the third generation, FM became more concerned with resource management, concentrating on managing supply chain issues associated with FM functions. Finally, the fourth generation focuses on the alignment between organizational structure, work processes and the enabling physical environment arguing that the organization's strategic intent must clearly reflect the facilities dimensions in its

strategic business plans. This article does make such strict distinctions and is mainly positioned in the third generation of FM according to Pathirage et al. (2008).

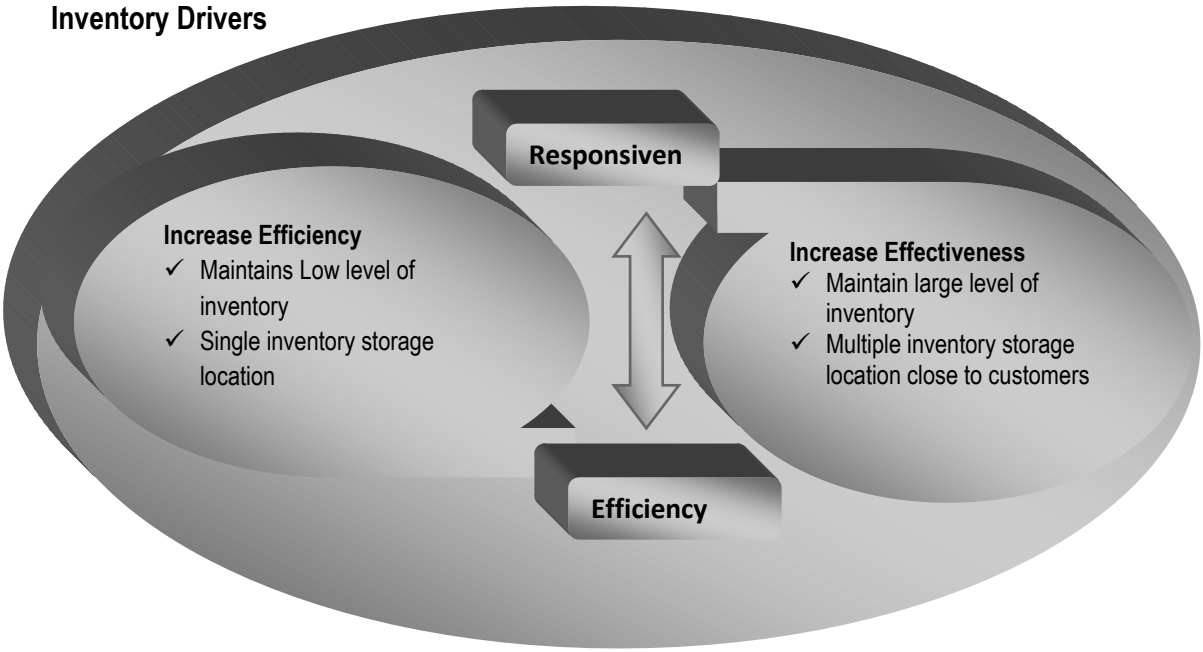
2.3.2 INVENTORY EFFECTIVENESS:

Baker (2007) explored the importance of buffer inventory in international supply chains and told that it is very difficult to eliminate this type of inventory. The proper check and balance on lead time is required. It is not necessary to check whether the inventory good or bad but the necessary is to find whether it is at correct level or not. This was the traditional way of inventory management. In the current scenario the authors used to tell about how inventory reduction strategies, risk management and inventory control functions can be done that can enhance efficiency of supply chain activities.

Stanger et al. (2010) gave frame work about the two key research questions on inventory management practices and performance. Reza Nasiri et al. (2010) suggested an attempt to define how supply chain distribution network leads to location of inventory, allocation of inventory and decision about inventory. Inventory policies refer to at what level institution demand inventory and how control it.

The increasing customer requirements are a great stimulus for networked and integrated inventories management. High level of competition in the result of emergence of new markets boosts up the customer requirements. Businesses that have the networked and organized system of inventory management in supply chain activities can stand in changing environment of business world. Networked inventory management system is a key concept that can be used to enhance organizational efficiency and performance.

Inventory Drivers



Source: Chopra and Meindl (2007)

2.3.2.1 PURPOSE OF INVENTORY MANAGEMENT IN SUPPLY CHAIN

Inventory is the stock of any item or resource used in an organization. An inventory system is the set of policies and controls that monitor levels of inventory and determine what levels should be maintained, when stock should be replenished, and how large orders should be. All firms (including JIT operations) keep a supply of inventory for the following reasons:

To maintain independence of operations a supply of materials at a work centre allows that centre flexibility in operation. For example, because there are costs for making each new production setup, this inventory allows management to reduce the number of setups. Independence of workstations is desirable on assembly lines as well. The time that it takes to do identical operations will naturally vary from one unit to the next. Therefore, it is desirable to have a cushion of several parts within the workstation so that shorter performance times can compensate for longer performance times. This way the average output can be fairly stable Shin et al. (2012)

To meet variation in product demand If the demand for the product is known precisely, it may be possible to produce the product to exactly meet the demand. Usually, however, demand is not completely known, and a safety or buffer stock must be maintained to absorb variation.

To allow flexibility in production scheduling A stock of inventory relieves the pressure on the production system to get the goods out. This causes longer lead times, which permit production planning for smoother flow and lower cost Operation through larger lot size production. High setup costs, for example, favour producing a larger number of units once the setup has been made.

To provide a safeguard for variation in raw material delivery time When material in ordered from a vendor, delays can occur for a variety of reasons: a normal variation in shipping time, a shortage of material at the vendor's plant causing backlogs, an unexpected strike at the vendor's plant or at one of the shipping companies, a lost order, or a shipment of incorrect or defective material.

To take advantage of economic purchase order size There are costs to place an order: labour, phone calls, typing, postage, and so on. Therefore, the larger each order is, the fewer the orders that need be written. Also, shipping costs favour larger orders – the larger the shipment, the lower per unit cost.

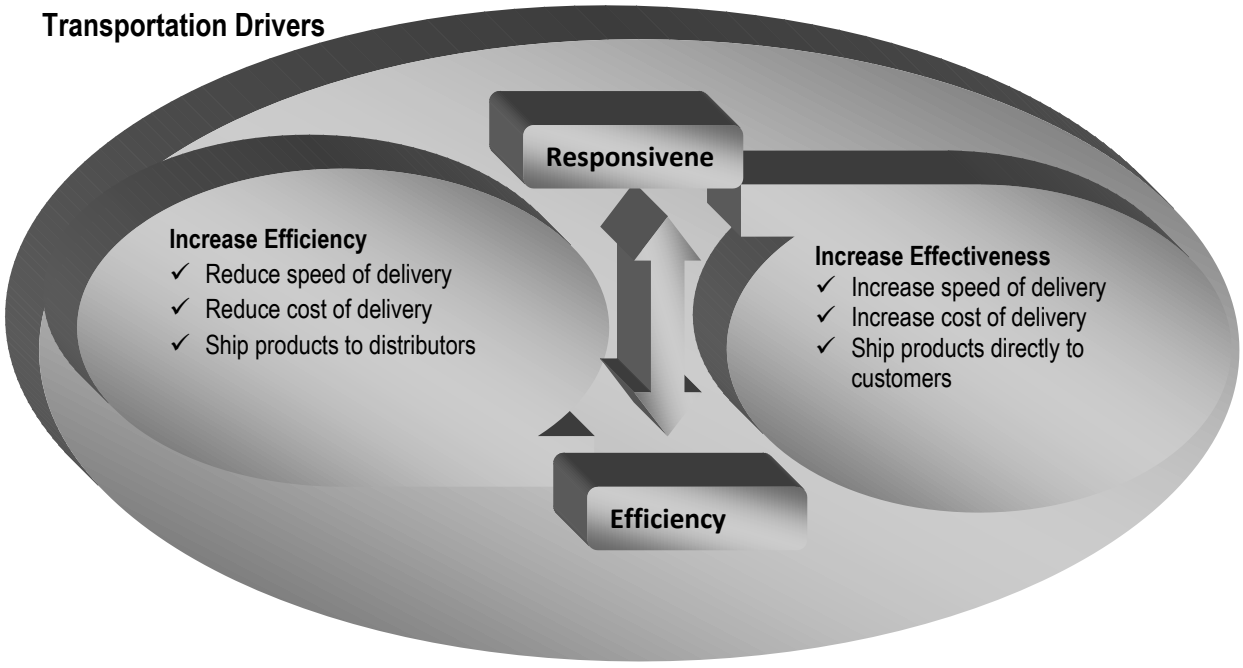
2.3.3 TRANSPORT EFFECTIVENESS:

Shin et al. (2012) provided framework for rout finding mechanism of transportation system in supply chain management. This paper helps to give explanation and full understanding to managers that how they save their supply chain activities from various unusual and unwanted risks. By using this assessment and route finding approach the managers can find the ways from which their unexpected cost become low and also supply chain risks reduced. Transportation is considered to be big problem in the management of supply chain activities.

Huq et al. (2010) argued on the different effects of transportation system on the supply chain modelling. The critical factor of this study is how the managers can manage transportation and controls the transportation cost. And also, evaluated the important issues of transportation that play in the integrated supply chain management costs. Managers can also analyze from this study that how they can save the supply chain transportation activities from unnecessary insufficiencies and costs.

Better management of transportation system can drive supply chain activities with efficiency and effectiveness.

The third party relationship in shipping and transportation activities of supply chain management. This paper examines forces that have shaped and organized the relationship between supply chain management and third party partnership. Third party relationship in shipping, transportation, logistics and warehousing boosts up the work efficiency and increase organizational performance. This relationship is beneficial both for manufacturers and for service providers and this relationship also reduce the cost of supply chain activities (Walter, 2006)



Source: Chopra and Meindl (2007)

2.3.3.1 ROLE OF TRANSPORTATION IN SUPPLY CHAIN

Transportation refers to the movement of product from one location to another as it makes its way from the beginning of a supply chain to the customer's handle. In the exciting new broad look at the business of transportation, including Supply Chain Management, Logistics, & procurement. Freight transportation costs in the United States amount to about 6% of the GDP. Many manufacturers &

retailers have found that they can use state of the art supply chain management to reduce inventory & warehousing costs while speeding up delivery to the end customer. Any supply Chain's success is closely linked to the appropriate use of transportation. Wal- Mart has effectively used a responsive transportation system to lower its overall costs. At DCs, Wal- Mart uses cross-docking, a process in which product is exchanged between trucks so that each truck going to a retail store has products from different suppliers.

There are two keys players in any transportation that takes place within a supply chain. The shipper is that party that requires the movement of the product between two points in the supply chain. The carrier is the party that moves or transports the product. For e.g., when Dell uses UPS to the ship its computers from the factory to the customer, Dell is the shipper & UPS is the carrier.

There are numbers of factors affecting carrier decisions:

- ✓ The vehicle- related is incurred whether the vehicle is operating or not & is considered fixed for short-term operational decisions by the carrier.
- ✓ Fixed operating cost is generally proportional to the size of operating facilities. This includes any cost associated with terminals, airport gates & labour that are incurred whether vehicles are operating or not.
- ✓ Trip-related cost includes the price of labour & fuel incurred for each trip independent of the quantity transported.
- ✓ Quantity-related cost are loading / unloading costs & a portion of the fuel cost that varies with the quantity being transported.
- ✓ Overhead cost includes the cost of planning & scheduling a transportation network as well as any investment in information Technology.

A carrier's decisions are also affected by the responsiveness it seeks to provide its target segment & the prices that the market will bear. The various modes of transportation include water, rail,

intermodal, truck, air, and pipeline & package carriers. Water is typically the least expensive mode but is also the slowest whereas air & package carriers the most expensive & the fastest. Rail & water are best suited for low-value; Large shipments that do not need to be moved in a hurry. Air & package carriers are best suited for small, high-value, emergency shipments. Intermodal TL carriers are faster than rail & water but somewhat a more expensive. LTL carriers are best suited for small shipments that are too large for package carriers but much less than a TL.

2.3.4 INFORMATION EFFECTIVENESS

Supply chain involves the flow of both tangible and intangible resources including materials, information and capital across the entire supply chain. Supply chain practice focuses on material movement while information sharing focuses on information flow. Two major aspects of information sharing are information content and information quality. Information content refers to the information shared between suppliers and buyers. Information quality measures the quality of information shared between suppliers and buyers. There are two dimensions of information sharing- connectivity and willingness. Both dimensions are found to impact operational performance and to be critical to the development of a real information sharing capability. The value of information-sharing can be defined as the benefits derived from sharing information minus the associated costs.

High performing firms had a higher percentage of information exchanged via EDI with customers and suppliers. Their results demonstrated that information technology investment alone is not enough. Only when management teams emphasize on the technology investment and choose the appropriate information to share, a firm can achieve effective firm performance. The face-to-face communication can raise the level of information sharing. When companies are willing and able to share vital- and often proprietary decision-making information, trust can be established and collaboration will be promoted. Technology becomes a tool to augment and promote information sharing and real collaboration.

Walter (2006) has analyzed the role of information management in supply chain efficiencies. Management information system is an essential part of any organization whether it manufacturing or service organization. Thus studies, argued that before analyzing the supply chain activities we would needs to check what is demand and perform functions in accordance with demand. And this activity can be performed in better way if the management information system in the organization is well established that enhance organizational efficiency.

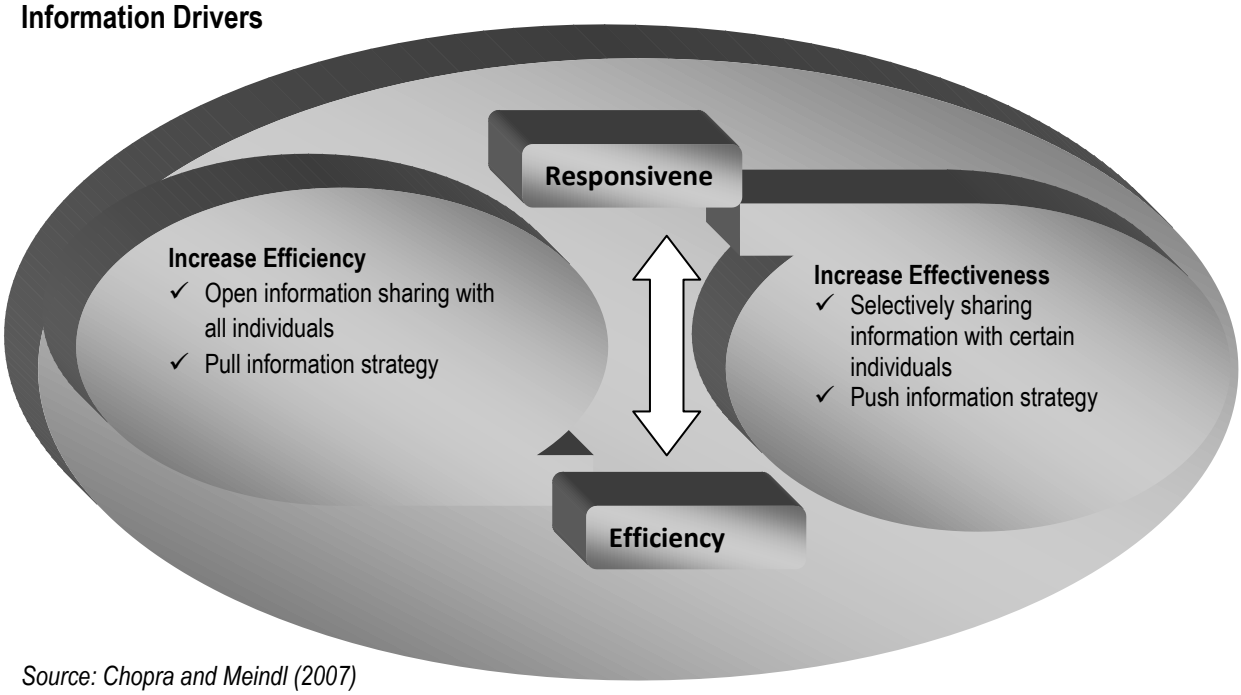
Karkkainen et al. (2007) provided frame work of information system in supply chain management, which is important to explore how and for what the companies use inter-firm information system in supply chain management and how the inter-firm information system work in good manner. The following three categories of inter-firm information system use for supply chain management as transaction processing, supply chain planning and collaboration, order tracking and delivery co-ordination. Further they explored the drivers of these inter-firm information systems. Better inter-firm information system can reinforce the efficiency of supply chain activities and organizational efficiency.

Tibin et al. (2012) proposed the information sharing in supply chain management activities. In supply chain activities, supply information reinforce by demand information makes input of material to be value added process that increased its market value for purchasing, manufacturing and distribution. The final output of supply chain activities can be determined by input of these activities.

Pieter Van Donk (2008) argued upon the challenges in supply chain management and information and communication management. Managers would needs to implement information and communication technologies in the field of supply chain management for the better output. Information sharing and communication technologies considered to be driver that enhances organizational efficiency in the context of supply chain management. Mclaren and Vuong (2008) explored and classified supply chain management information system as a plus point for enhancing organizational

efficiencies. Selection and analysis of supply chain management information system is difficult but a better information system is considered to be driver that drives supply chain activities.

Information Drivers



Source: Chopra and Meindl (2007)

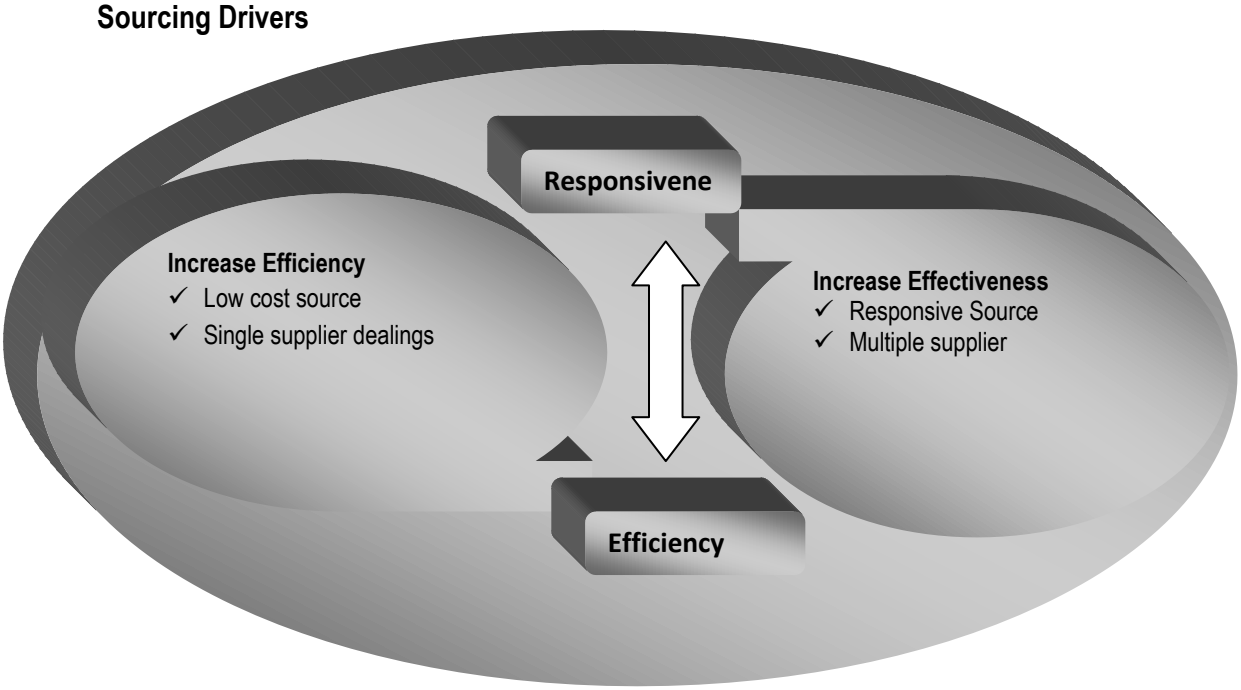
2.3.5 SOURCING EFFECTIVENESS

Cox et al. (2007) supported that how an appropriate sourcing strategy can be choose for a business and also includes the interrelationship among firm's sourcing, marketing and branding strategy. Sourcing means the appropriate inputs for making and delivering goods and services to final customers. Paziran deh .A (2011) argued upon the sourcing in global health supply chains for developing countries. The scholars explored that if we want to find best sourcing strategy we would need to investigate product, organization and country factors. And quality is considered to be a key factor while selecting sourcing strategy. Sourcing in supply chain activities is a key driver that drives the organizational functions in order to achieve organizational efficiencies.

Companies in any manufacturing sector are always looking for low-cost raw material, domestic or imported. With the objective of improving their competitive advantage, some of them see importing as an appealing option. As there are some advantages when importing resources, such as lower labor cost and lower cost of resources, there are also some disadvantages that companies have to take

into account when evaluating whether or not to work with offshore companies. Importing raw materials, components or products increases the dependence on suppliers (Lockamy and McCormack, 2010), and some risks are identified such as culture, language, foreign exchange rate, regulations, quality, political and economic stability, and transportation delays (Canbolat et al., 2008).

Sourcing Drivers



Source: Chopra and Meindl (2007)

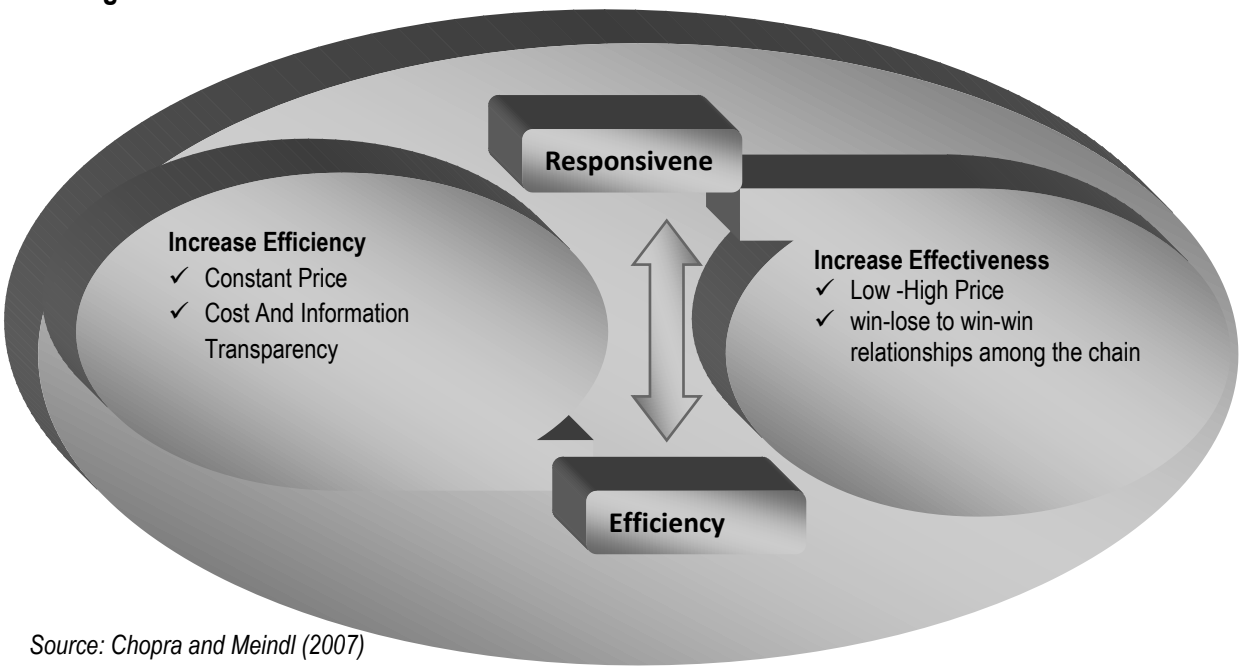
2.3.6 PRICING EFFECTIVENESS:

Traditionally, pricing has been considered as a process for dividing profit between two bargaining parties facing each other in negotiations, without considering the opportunity to act collaboratively in price definition in order to develop mutually beneficial relationships. Only recently, scholars started to investigate the development of new collaborative approaches which involve also the pricing process. These contributions underline a new perspective on price definition across the supply chain, as a result of the interaction between several supply chain members through the adoption of cost transparency and information sharing.

Yong et al. (2012) suggested on the dynamic pricing in supply chain activities. There is an interrelationship exist between price expectation and price fluctuation. The maximum output in form of money can only be generated through supply chain integration. Pricing function is a way to earn what firms deserve from its output.

Yan and Wang (2010) explored pricing strategy and firm's performance in supply chain management issues. Authors derived service level and pricing strategy by two market structures that are non-coordinative structure and coordinative structure. In order to maximize profit the management and giant retailer must employ coordinative structure. Coordinative structure includes the proper sequencing in supply chain activities and interrelationship among these activities.

Pricing Drivers



Source: Chopra and Meindl (2007)

2.3.6.1 New Perspective on Pricing

According to Lancioni (2005), in order to shift to complete forms of partnership, Supply Chain Management literature underlines the necessity to develop win-win approaches for the involved firms. In the same vein, Christopher and Gattorna (2005) and Dohrup (2006) suggest the adoption of innovative pricing approaches arguing that major opportunities are located not within the organization, but across the whole network. Recent contributions (Voeth and Herbst, 2006; Bunte, 2006; Von

Lanzenauer and Pohl, 2007; Buxmann, 2007) advance a new collaborative approach to determine the pricing process from a supply chain perspective, in the same way as today's industrial markets need to collaborate on logistics, purchasing and production to optimize joint outcome.

Voeth and Herbst (2006) offer a first contribution to investigate pricing from a supply chain point of view. They developed for the first time the conceptual model of "Supply Chain Pricing", intendeds a collaborative tool to increase the joint profits within the supply network. The different actors should avoid optimizing their own positions, in order to reach an optimum that satisfies the interest of the whole chain. In this manner, the pricing process becomes the remuneration for the collaboration in the value creation within the supply network, thus developing close and long-term relationships across the network and shifting from win-lose to win-win relationships.

In their conceptual model, they maintain that cost transparency (Lamming et al., 2001) and information transparency (Lancioni, 2000, Christopher and Gattorna, 2005) are critical to support the implementation of this new pricing approach. Also Von Lanzenauer and Pohl (2007) focus their research on the development of win-win outcomes, by investigating the redefinition of the supply contract in a B2B context of a supply network. Again, they underline the importance of information exchange, commitment and involvement between the parties and the definition of an adequate contract

2.4 REVIEW OF EMPIRICAL DATA

2.4.1 FACILITIES: Facilities are where a product is being stored, assembled and fabricated. The better management about the role, location, capacity and flexibility of these facilities having a positive affect towards supply chain performance. In facilities management a company proved to be more responsive or more efficient but not at same For example, an auto parts distributor have many warehousing facilities exist near to the customers for providing them quick and better access of products. These

many warehousing facilities show responsiveness of distributor but at the same time his efficiency becomes low because he is paying high cost for warehousing. In contrast if he has fewer warehouses exists only at main points than he is more efficient because of low cost of warehouses but his responsiveness is very low (Sunil Chopra and Meindl, 2007)

Shutdown of production and other facilities leads to downsizing in a firm. Managers should carefully consider the eight factors before closure of one site out of a set of two or more having similar activities. These eight factors are as (a) Plant Size, the efficiency of small plants is less than large plants. At small plants the average cost of each unit produced is higher. So, the managers would need to close the plants of small size rather than large size. (b) Site Constraints, this factor is important in number of ways. Extra space is indispensable for vehicles and car parking. Extra space is also helpful for the future modification of production and storage facilities. Managers would decide for closure of less space and high constraints sites. (c) Capacity, this factor is closely related with size of plant or site. It may be occurs the capacity of one site is different from the other. The few activities and small capacity associated with small size plants and sites respectively. Lower and small capacity plants and sites cannot survive and managers would close these types of plants and sites. (d) Labor Productivity, managers must check and balance the labor characteristics and productivity regarding each plant.

Closure should be given to those plants and sites where the labor productivity is low. (e) Distance from Head Office, if the production plants or sites are far from firm's head office than the authority of head office top management is limited. They have less information about their subordinates at concerned site. Therefore, if a firm having two plants one near to head office and other far from head office than closure would be given to high distant site. (f) Age of Building or Plant, old age building and plants require high cost of maintenance. So, managers must give closure to those plants or sites where the building or machinery is old and requires high cost for operations. (g) Remoteness, this factor includes

transportation cost associated with different production and storage sites and managerial time involved to maintain it. Closure would be given to those sites where these types of activities are considered to be unusual. (h) Grants Elsewhere, this factor includes plant expansion, building rehabilitation and training cost. Grants are given to those site where above three activities could be done. Those sites would subject for closure where the grants for above activities is not helpful for the productivity of company (Kirkham et al., 1998).

2.4.2 INVENTORY: A clothing retailer proved to be more responsible by storing large inventory but efficiency becomes low because of high inventory cost and low work quality (Sunil Chopra and Meindl, 2007). Perishable inventory can be management in supply chains through following six ways. (a) Hire the experienced staff and give them training, this step includes that human resources planning in any manufacturing firm plays a vital role to hire efficient personnel. Organizations needs to hire experienced personnel and after hiring organizations would give them training for better output in relation to inventory management. (b) Define target stock levels and order patterns, includes that the personals for inventory management to be well known about the targeted stock levels and must know order patterns of respective organizations. This leads to ensure just in time delivery of inventory. (c) Organize and control transparency of inventories, inventory management personals must be well known about their inventory in home to forecast about what their next requirement of inventory. (d) Simple inventory procedures, organizations must follow up the simple inventory management procedures. (e) Fresh stock and check and balance on shelf life, this step tell that organizations must keep fresh stock in their inventory and maintain check and balance on the shelf life of inventory. They must use inventory before its expiry. (f) Collaboration with other businesses, organizations must create valuable relations with businesses outside the organization. This step leads to the vertical and forward integration (Stanger et al., 2012)

Vendor-managed inventory (VMI) is efficient in construction sites and also for other manufacturers. Authors apply their methodology on three selected pilot sites and find that the efficiency and responsiveness of vendor managed inventory is higher than that of organization's self managed inventory. Authors argued upon eight key steps that are; time for finding item, receiving and storing item, order v/s recording, rushed orders, hardware store visits, time for invoice handling, total time spent at site and remaining inventory (Tanskanen et al., 2009).

There are following four approaches for inventory. (a) Inventory speculation, means holding inventory with business in accordance with quick delivery of raw material for manufacturing. In this context the advantage is the just in time delivery of inventory but the disadvantage is that the organizations face high cost of holding the inventory and capital investment. (b) Inventory postponement, this approach includes that delay in inventory purchasing. It means organizations using this approach are totally out of cost speculation, free from holding cost and free from large speculative capital investment. But this approach is limited by the fact that quick delivery of raw material is not possible. (c) Inventory consignment, according to this approach inventory physically holds by the manufacturer but ownership still in the hand of supplier. When, manufacturer used a part of inventory than he pays the price of used inventory to supplier. In this way manufacturing firms can use inventory quickly without any investment. This approach has disadvantage that inflation may occur in the price of inventory. (d) Reverse inventory consignment, in this approach inventory is owned by the manufacturer and manufacturer pay price to supplier but physical possession held in the hand of supplier; whenever, manufacturer wants than supplier supply the inventory. This approach decrease the inflation risk and having low cost of holding the inventory. But disadvantage of this approach is the capital investment in inventory. Any organization can adopt one from the above four approaches for inventory management by forecasting these three factors that are; customer demand requirement, nature of supply line and bargaining power of firm

relative to the supplier (Wallin et al., 2006). The forecasting of these three factors is indispensable for any manufacturing firm if it wants to adopt one inventory management approach from above four.

2.4.3 TRANSPORTATION: By using fast transportation service we can increase responsiveness but efficiency becomes low because of high cost of fast transportation and more chances of damage (Sunil Chopra and Meindl, 2007). A better transportation approach for manufacturing firms is joint routs planning. This concept includes that to enhance efficiency and responsiveness the manufacturing firms must continue their transportation function in collaboration with the firms outside internal environment. Joint route planning can be achieved by two ways that are outsourcing transportation function or horizontal cooperation with other transportation service providers. These two concepts lead to achieve the economies of scale by decreasing the distribution cost. Joint route planning concept save 30.7 percent costs in comparison with traditional transportation system (Cruijssen et al., 2007).

Outsourcing means the organizations contracts with third parties to distribute their final product to customers on their own behalf so that the transportation cost of manufacturing firms become low. Horizontal cooperation means the manufacturing firms contracts with the firms of same size and level for collaboration to distribute the products. In manufacturing firm the performance of transportation activity can be increased by a model of smart transportation management system. This model includes three components that are smart freight, smart vehicle and smart infrastructure. (a) Smart freight, it means instead of using traditional identification of barcodes for individual products the firms must needs to develop and use new technology that identify the whole freight unit.

This concept of smart freight can be achieved by developing automatic identification software, integration of organizations and data exchange, decentralize information setup and enabler's technology etc. (b) Smart vehicles, it means the organizations needs to develop special smart vehicles

in which management information channel installed. This information system automatically provides information at database about the goods in vehicle loads and unloads. This concept can be managed by developing goods identification system in vehicle and the vehicle system (vehicle management, transportation management and driver management). (c) The smart infrastructure, this concept of smart infrastructure can be achieved by the collaboration of physical infrastructure and digital infrastructure (Stefansson and Lumsden, 2009).

2.4.4 INFORMATION: Information provides customer taste to supplier that leads supplier's responsiveness and efficiency because supplier forecasts customer demand and only supplies required product (Chopra and Meindl, 2007). In January 2000, the manager of Swedish post office started a programme to involve their customers in developing new transportation services; At that time company losing their customers and wanted to know about the needs and wants of customers to satisfy them. Company's managers decided to conduct direct meetings with their customers to provide services in accordance with customer demands; this process done through exchange information between company and customers. After knowing the customer demand they started their transportation services and use one vehicle instead of five and pollution problem also reduced that resulting in increase efficiency. This increase in cost efficiency of the firm can only be achieved through direct information sharing between firm and customer.

Continuous conversation with customers plays a vital role in strategy development that resulting in creation a planning team for company. A company can identify its customers or distributor companies for strategic planning input by these four ways. (a) Use 80/20 rule, according to this rule the company must in conversation with those specific top 20 percent customers that generate 80 percent of company income. (b) Choose the companies in different conversation channels. (c) Choose that company that considers your product or service for different applications. (d) Continue with companies that want to

continue with you. The conversation in above four steps can be done through following five ways. (a) Marketing department, best way for conversation to identify the customer for strategic planning input. (b) Customer service manager, this conversation channel is good only if their conversational level match with customer level. (c) Sales staff, they considered to be excellent in conversation but it is only for short term purpose. (d) CEO's conversation, a good way but the conversation not at good time. (e) Outside agencies, working as third parties and valuable for good information distribution to customers (Oleksak, 2005).

Business information system can be developed by these twelve ways. (a) Geographical information system, this information system enables the companies to know about the customer income level, population and lifestyle. (b) Inventory management system, it involves just in time delivery of inventory by exchanging information about the inventory level. (c) Warehouse management system, information sharing about warehouse that how much the stock available for customer and how much required by the customer. (d) Smart chip technology system, this is technology in which smart cards developed to know the customer habits and for tracking the customers. (e) Customer relationship management system, through this step the firms develop such information system through which they know the customer needs and wants and then manufacture to enhance relationship with customers. (f) Supply chain management system, this information system exchanges information among the different stages of supply chain management. (g) Transportation management system, this system provides information about the orders and shipments. (h) Self checkout stands, through these systems the cartons scanned and payment to be made without human interactions. (i) Kiosks, these are the system just like the online stores. (j) Electronic commerce system, this system provides the facility of sales electronically. (k) Electronic data interchange system, this system provides easy and quick access of data from business to business. (l) Global information system, this system is useful for those organizations working in many countries through satellites information sharing system (Kadiyala and Kleiner, 2005).

Knowledge creation for the customers is a valuable concept to attract the customers. Organizations can provide knowledge and information to customers by these four steps, Socialization, Externalization, Combination and internalization (Ramırez, 2012). The interrelationship of these four steps is indispensable for distribution of knowledge from customers' needs to the end process of attracting the customers.

2.4.5 SOURCING: When Motorola outsourced its production functions to China manufacturers its efficiency increased but responsiveness became low because of long distances (Chopra and Meindl, 2007). Outsourcing has many positive implications for organizations in relation to house functions of organizations. There are four key strategies of outsourcing to be adopted in any firm that are as follows. (a) Focus: even with low volume of sales and profits the managers continued to focus primarily on activities and outsource most of production functions. (b) Scaling with-out mass: outsourcing leads organization to exist in market without expansion in business size. (c) Disruptive innovation: disruptive includes setting prices low at starting to attract customers and then increase step wise to show the improvements in business. In this concept firms not only outsource their production functions but also outsource the final assembly to others. (d) Strategic repositioning: Medium clock-speed firms are always benefited from the outsourcing strategies because they can create long term relations with third parties in medium duration that is unachievable by very low or very high clock-speed firms (Perrons and Platts, 2005).

2.4.6 PRICING: If a transportation company charges high and low costs for quick and late delivery respectively than efficiency oriented customers demand quick delivery and responsiveness oriented customers demand late delivery (Chopra and Meindl, 2007).

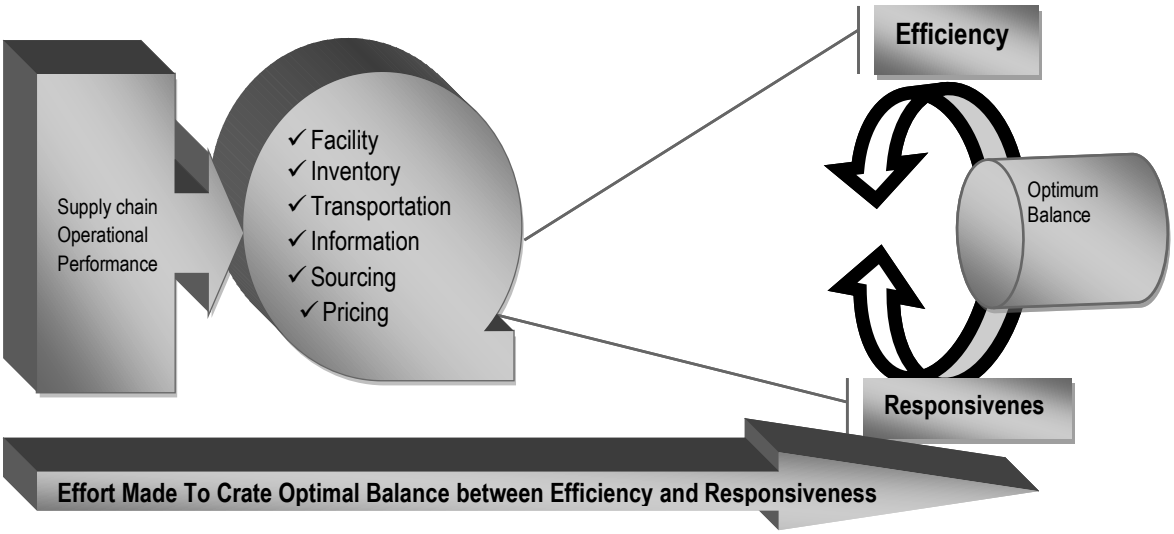
There are two approaches of pricing in relevant research paper that are linear pricing approach and strategy matrix pricing approach. Standard linear approach includes following five steps to determine the correct price. (a) Company pricing objective, a company pricing objective is may be profit

maximization, sales volume, market share target return on investment level or survival. (b) Pricing policies, a company can choose pricing strategy as skimming pricing, penetration pricing, life cycle pricing, above/at/below competitors or customer value. (c) Develop list price, by using above strategies a price list to be developed. This list can be developed by using cost based, competitive based or demand based methods. (d) Discounts, discounts are to be given on the basis of variation in quantity, season, credit, special sales or allowances for distribution channels to perform services. (e) Adjustments and final pricing, adjustments to be made for different geographical locations. It involves the difference of standard prices and shipping zone prices. After adjustment final prices decide. Strategy matrix pricing approach includes price setting in relation with customer characteristics. In this approach company objectives compare with competitive situation and evaluate alternatives (Duke, 1994). These approaches are in following figure 5,

The Rowley's solution of pricing policy and pricing methods is as follows. There are following four pricing policies for business world. (a) Pioneer pricing policy, in this policy the organizations evaluate their development cost and their aim of payback period. It includes price skimming (setting price at high level to capture profit in short term and penetration pricing (setting price at low level to enhance market share). (b) Psychological pricing, in the context of this policy organizations set price on emotional response rather than rational response. It includes odd even pricing (set price as 49.99 rather than 50), customary pricing (the price that customer willing to pay even in ups and downs of market situations) and set price high (to create prestige image as jewellery). (c) Professional pricing, set price at standard weather the customer is willing to pay or not. (d) Promotional pricing, this policy is to be adopted when organizations want to draw customer attention towards a specific product. It includes two options, price leaders (set price near to cost or below and earn revenue from other product) and special event pricing. (Aims to increase sales volume and generate operating expense on special event).

To calculate the price following nine price calculation methods. (a) Cost plus pricing, this is to be used when the production costs are undeterminable. In this way manufacturer forecast the seller's cost and add a percentage of overall production cost to it. (b) Mark up pricing, includes predetermined percentage of cost. (c) Demand oriented pricing; organizations use this method when demand of a product is high. (d) Price differentiation, it includes different price of a same product at different segments or channels. For example, the different price at restaurants and at supermarkets. (e) Geographical pricing, include different prices at different geographical locations. For example, price of a cold-rink is high at airport as compare to a general store. (f) Competition oriented pricing; prices are to be set in relation to competitors. (g) Historical pricing, set today's price in relation with yesterday's price because customers accept prices relating to early prices. (h) Discounts, in this pricing method organizations offer various types of discounts in prices to customers. (i) Bundling, in this method the price of bundle of one product is less than if the customer purchase one unit of same product (Rowley, 1997).

2.5. Conceptual Framework to Manage SC Performance Drivers



The responsiveness of supply chains to changing market requirements and their overall efficiency are important issues in supply chain design and management and therefore currently receive wide attention

in the scientific community as well as in practice. Responsiveness can be defined as the "ability to react purposefully and within an appropriate time-scale to customer demand or changes in the marketplace, to bring about or maintain competitive advantage"). In contrast, a supply chain would be considered efficient if the focus is on cost reduction and no resources are wasted on non-value added activities (Holweg, 2005).

Companies have three principal means to buffer against changes in quantity demanded for specific products, namely inventory, capacity and time. Safety stocks, excess capacity and safety lead times all provide a time buffer to be able to react to demand variability (Hopp and Spearman, 2004). One could argue that one sensible approach to increase responsiveness could be to raise the inventory levels of finished goods or components, which would allow more flexibility for reactions to changes in customer demand. Increased inventory levels do, however, reduce the efficiency of the supply chain since they are costly, both in terms of storage cost and cost of capital. This suggests that such an increase in inventory may not be the optimal approach to increase responsiveness – or, as Hopp and Spearman phrased it: "inventory is the flower of all evil, and variability is its root" (2004), i.e. high inventory levels are a sign that something is suboptimal in the supply chain, and other strategies such as variability reductions may be more beneficial than inventory increases.

In an efficient supply chain, suppliers, manufacturers and retailers manage – implicitly through independent ordering processes between tiers or through explicit coordination of ordering decisions of the different supply chain elements – their activities in order to meet predictable demand at the lowest cost. A responsive supply chain, in contrast, requires an information flow and policies from the market place to supply chain members in order to hedge inventory and available production capacity against uncertain demand. Improving responsiveness in a supply chain, however, incurs costs for two primary reasons: (1) excess buffer capacity and inventories need to be maintained, (2) investments to reduce lead times need to be made.

In general, the cost resulting from investments in responsiveness needs to be compared to the opportunity cost of lost sales resulting from stock outs (Thonemann, Behrenbeck, Küpper and Magnus, 2005). These stock outs are most likely to occur with products that are subject to demand fluctuations. Responsive supply chains aim to avoid such stock outs and therefore priorities the ability to react to changing customer requirements (Alicke, 2003).

Providing the right degree of responsiveness and having an efficient supply chain at the same time is a goal that is hard to achieve and that typically involves trade-off decisions by management, since increased responsiveness can be perceived to come at the expense of reduced efficiency, and vice versa. However, there may be strategies, such as revised planning approaches, that restructure supply chain processes to achieve both goals at the same time and enable a supply chain to be responsive and efficient simultaneously.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Research Design

The design of the study was descriptive in nature. Related literature has been studied regarding SCM and supply chain performance drivers, which gave rise to the problem, research objectives and the justification for the issue. This provided a clear theoretical framework that formed the basis for the study. The outcome of the literature study was the development of a research framework to determine supply chain performance indicator.

3.2 Nature and Source of Data

Both primary and secondary sources of data/information were used. Primary data sources were collected through face-to-face interview questionnaire (empirical study), while secondary data sources will be collected through extensive literature reviews.

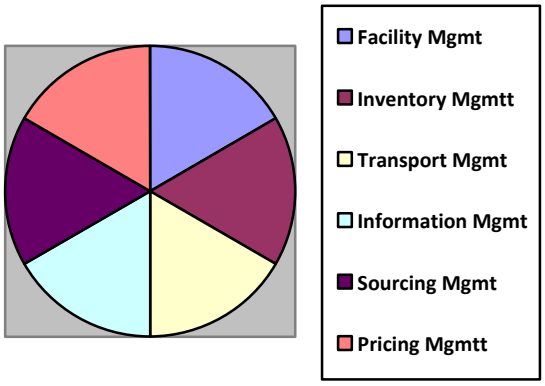
3.3 Sample and Sampling Techniques

860 permanent staff were target population of the study, of which 264 Management bodies and employees of MIDROC Gold Mining was taken as sample respondents with 95% confidence level and 5% margin of error.

A Stratified sampling technique used to determine who the respondents would be. The population defined to focus on those who have expert knowledge about Supply Chain Practices and stratified sampling due to existence of heterogynous category of respondents within the chain. Specific participants for interviews were thus select according to their strategic positions in the supply chain.

Figure 1 Sample Presentation

	RESPONDENTS	
SUPPLY CHAIN	**Mgmt**	**Employees**
Facility Mgmt	2	42
Inventory Mgmt	2	42
Transport Mgmt	2	42
Information Mgmt	2	42
Sourcing Mgmt	2	42
Pricing Mgmt	2	42
TOTAL	**12**	**252**



3.4 Data Collection Techniques

Interview and questionnaire intends to be used as one of the technique to collect primary data. The interview questions were semi-structured and measured using a five-point Likert response format with the end points (1) “strongly disagree” and (5) “strongly agree”, and (1) “no extent” and (5) “a very great extent”. The intention of using interview as a data collection method came from the study believes that the nature of the topic to be assessed need in-depth and complete clarification from the data source/Expertise in Firms supply chain circle, while secondary data were collected through literature study and review.

3.5 Data handling and Analysis

The data were analysed descriptively (frequencies, percentages, charts, mean and standard deviations) using the Statistical Package for Social Sciences (SPSS). And also data will be presented using tables, graphs and/or charts in order to make the analysis more illustrative.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

This episode deals with presentation, analysis and interpretation of data obtained from respondents through administration of questionnaire and interview. In order to make complete and reliable the output of the study, appropriate type of date were collected, presented, analyzed and interpreted in the upcoming section. Considering non return rate of questionnaires the researcher distribute 260 questionnaires distributed to the employee and administered structured interview to 12 management respondents, accordingly 254 of them were properly filled and returned which signifies that since the study sample respondents are 252 it can conducted under 100% response rate . In totting up to this, for 12 management bodies were served structured interview, thus, all the data collected properly edited and coded for proper analysis using SPSS analytical tool.

4.1 Biography of Respondents

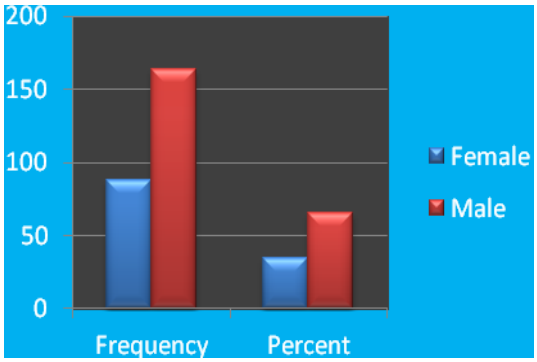
Table 1- Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	88	35	35	35
	Male	164	65	65	100
	Total	**252**	**100**	**100**	

Source: Primary data (2016)

To recall what has been sighted earlier the respondents of this study are employees and management of MIDROC Gold working under different department in different managerial and/or operational area and/or position of the

Fig: 1 Gender



Source: Primary data (2016)

Company. Gender, Job position, level of education, experience/service year is presented in the following session. Thus, the biography of the respondents with respect to gender as follows;

As can be seen in table 1 above, 164 (65%) of the respondents were male, and the remaining 88 (35%) of them were female. This indicates that the company's operation demanding more of competency from male employees. Which can clearly illustrated in following graph

In table two item one below seen that, the job position of the respondents that 210(83%) of them belongs to non supervisory employee. While the other, 42 (17%) fall under the supervisory staff. Moreover, under the same table of item two 49(19%), 170(68%) and 33(13%) of the respondents replied that, Diploma and below, Degree and above Degree respectively. From this one can being informed about the level of respondents in understanding and reflecting reliable data regarding the issue that will addressed by the study.

Table 2: Position ,education and experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	**Supervisory**	42	17	17	17
	Non supervisory	210	83	83	100
	Total	**252**	**100**	**100**	
Education					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	Diploma and below	49	19	19	19
	Degree	170	68	68	87
	Above degree	33	13	13	100
	Total	**252**	**100**	**100**	
Experience					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	0-5	115	45	45	45
	6-10	110	44	44	89
	Above 10	27	11	11	100
	Total	**252**	**100**	**100**	

Source: Primary data (2016)

Regarding item 3 of the same table majority of the respondents i.e. 115(45%) and 110(44%) of the respondents have been working within the company from 0-5 to 6-10 years respectively. This can implies that, respondents are capable of reflecting about management practice with regard to supply chain performance driver in MIDROC.

4.2 Analysis and Discussion of Data Directly Affect the Study

Company's supply chain is an integral part of its approach to the markets it serves. The supply chain needs to respond to market requirements and do so in a way that supports the company's business objectives and strategy. The business strategy a company employs starts with the needs of the customers that the company serves or will serve. Depending on the needs of its customers, a company's supply chain must deliver the appropriate mix of responsiveness and efficiency. A company whose supply chain allows it to more efficiently meet the needs of its customers will gain market share at the expense of other companies in that market and also will be more profitable.

Table 3: Supply Chain Practice Linked With Firm's Objective

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low extent	107	42	42	42
	Some extent	103	41	41	83
	Great extent	42	17	17	100
	Total	**252**	**100**	**100**	

Source: Primary data (2016)

As it signify in the above data, 107(42%), 103(41%) and 42(17%) of the respondents replied that, the firms objective and supply chain practise linked at lower extent, some extent and to grate extent respectively. This shows that majority of the respondents negatively commenting the linkage between firm supply chains along with its objectives.

What is more, the research rose similar point to the management staff of the firm, accordingly replied that, MIDROC Gold set different objectives at different level this objectives basically somehow drive

along with different factors, supply chain is one of it. However not satisfactory reflected on operational performance.

Table 4: Firms Supply Chain Ensure Its Performance And Efficiency

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	167	66	66	66
	Neutral	24	10	10	76
	Agree	61	24	24	100
	Total	**252**	**100**	**100**	

Source: Primary data (2016)

Majority of the respondents i.e. 167(66%) of them not belongs to agreed members of the company regarding the supply chain of the firm ensuring its performance as well as efficiency. Significant number of respondents on the other extreme agreed with the performance of the supply chain. This implies that, task of coordination of activities not properly integrated in a manner that support firm's performance/efficiency.

Facilities are where a product is being stored, assembled and fabricated. The better management about the role, location, capacity and flexibility of these facilities having a positive affect towards supply chain performance. Inventory is the stock of any item or resource used in an organization. An inventory system is the set of policies and controls that monitor levels of inventory and determine what levels should be maintained, when stock should be replenished, and how large orders should be. Many manufacturers & retailers have found that they can use state of the art supply chain management to reduce inventory & warehousing costs while speeding up delivery to the end customer. Any supply Chain's success is closely linked to the appropriate use of transportation. Information provides customer taste to supplier that leads supplier's responsiveness and efficiency because supplier forecasts customer demand and only supplies required product (Chopra and Meindl, 2007). When Firm outsourced its production functions to other manufacturers its efficiency will increased but

responsiveness will became low because of long distances (Chopra and Meindl, 2007). If a transportation company charges high and low costs for quick and late delivery respectively than efficiency oriented customers demand quick delivery and responsiveness oriented customers demand late delivery (Chopra and Meindl, 2007).

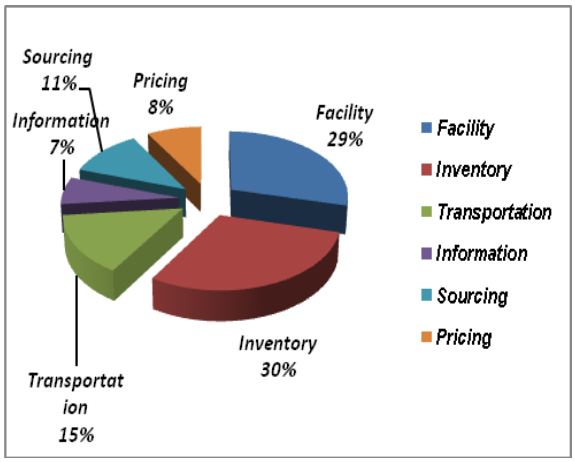
Table 5: Which Factor more Influence Firms Supply Chain

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Facility	73	29	29	29
	Inventory	75	30	30	59
	Transportation	37	15	15	74
	Information	17	7	7	81
	Sourcing	29	11	11	92
	Pricing	21	8	8	100
	Total	**252**	**100**	**100**	

Source: Primary data (2016)

As it signify in the above data, majority of the respondents i.e. 73(29%) and 75(30%) said that, facility and inventory are the major driver that can significantly influence MIDROC supply chain performance. While the remaining, 37(15%), 29(11%), 21(8%) and 17(7%) of them replied that, transportation, sourcing, pricing and information respectively influence the performance of firms supply chain. Moreover, similar point have be discussed with respective management of the MIDROC, but differently factors playing greater role in the firms supply chain are information and sourcing boldly acknowledged by them. This indicates that management couldn't clearly identify the pressure from which driver(s) impede firm's supply chain performance.

Fig: 2 Factors Influencing Supply Chain



Source: Primary Data (2016)

Plant Size, the efficiency of small plants is less than large plants. At small plants the average cost of each unit produced is higher. So, the managers would need to close the plants of small size rather than large size (Sunil Chopra and Meindl, 2007)

Table 6: Operational Facility Compatible With Plant Size

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	131	52	52	52
	Neutral	41	16	16	68
	Agree	80	32	32	100
	Total	**252**	**100.0**	**100.0**	

Source: Primary data (2016)

As can be seen in table 6 above, 131 (52%) of the respondents replied that, operational facility not compatible with firms plant size. While the remaining 41(16%) and 80(32%) of them replied that they are not having both extreme and agree respectively. This indicates even if majority of the respondents refusing to accept its compatibility significant number of respondents agree with its compatibility. Form this one can easily infer that the space left by the company management in proper coordination and management practice of goals and activities.

Define target stock levels and order patterns, includes that the personnel for inventory management to be well known about the targeted stock levels and must know order patterns of respective organizations. This leads to ensure just in time delivery of inventory. Fresh stock and check and balance on shelf life, this step tell that organizations must keep fresh stock in their inventory and maintain check and balance on the shelf life of inventory. They must use inventory before its expiry

Table 7: Appropriate Stock Level and Order Pattern

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	18	7	7	7
	Disagree	164	65	65	72
	Neutral	61	24	24	96
	Agree	9	4	4	100
	Total	**252**	**100**	**100**	

As can be seen in table 7 above, majority of the respondent i.e. 164(65%) refusing existence of appropriate stock level and order pattern. On the other hand significant number of respondents i.e. 61(24%) supporting majority of the respondents replied that, operational facility not compatible with firm's plant size. While the remaining 41(16%) and 80(32%) of them replied that they are not having both extreme and agree respectively. This indicates even if majority of the respondents refusing to accept its compatibility significant number of respondents agree with its compatibility. Form this one can easily infer that the space left by the company management in proper coordination and management practice of goals and activities in relation with supply chain practice.

Table 8: Inventory Management Practice Responsiveness

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	118	47	47	46
	Neutral	61	24	24	71
	Agree	73	29	29	100
	Total	**252**	**100**	**100**	

Source: Primary data (2016)

The Level of its responsiveness of inventory management practice of MIDROC was asked to the respondents and accordingly 118(47%) that is majority refusing to accept. While the remaining 73(29%) and 61(24%) of them replied that they agree and being neutral respectively about the issue has been raised. Form this one can easily infer, the supply chain of the firm has encountered grater pressure from one of its driver due to difficulty in its proper management.

Table 9: Facility Location Reasonably Set With Plant And Machinery

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	149	59	59	59
	Neutral	61	24	24	83
	Agree	42	17	17	100
	Total	**252**	**100**	**100**	

Source: Primary data (2016)

As can be seen in table 9 above, majority of the respondent i.e. 149(59%) said disagreed with MIDROC's facility location against with its plant and machinery existence of appropriate stock level and order pattern. On the other hand significant number of respondents i.e. 61(24%) and 42(17%) of the respondents replied that, they are being neutral and agreed respectively with facility location of are in lined with plant and machinery.

Labour Productivity, managers must check and balance the labour characteristics and productivity regarding each plant. Closure should be given to those plants and sites where the labour productivity is low. Distance from Head Office, if the production plants or sites are far from firm's head office than the authority of head office top management is limited. They have less information about their subordinates at concerned site. Therefore, if a firm having two plants one near to head office and other far from head office than closure would be given to high distant site (Swamidass et al., 2001).

Table 10 Firm Facility Ensure Labour Productivity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No extent	76	30	30	30
	Low extent	73	29	29	59
	Some extent	103	41	41	100
	Total	**252**	**100**	**100**	

Source: Primary data (2016)

The studies were asked respondents about the extent of firm's facility ensuring labour productivity. Accordingly, 103(41%), 76(30%) and 73(29%) replied that, some extent, no extent and low extent respectively. Thus, majority of the respondents' somehow agreed existing facility contribution to labour productivity. This can signify that still there is place left by the management that can cause inefficiency in supply chain performance.

Four Approaches of Inventory, (a) Inventory speculation, means holding inventory with business in accordance with quick delivery of raw material for manufacturing. (b) Inventory postponement, this

approach includes that delay in inventory purchasing. But this approach is limited by the fact that quick delivery of raw material is not possible. (c) Inventory consignment, according to this approach inventory physically holds by the manufacturer but ownership still in the hand of supplier. When, manufacturer used a part of inventory than he pays the price of used inventory to supplier.(d) Reverse inventory consignment, in this approach inventory is owned by the manufacturer and manufacturer pay price to supplier but physical possession held in the hand of supplier;

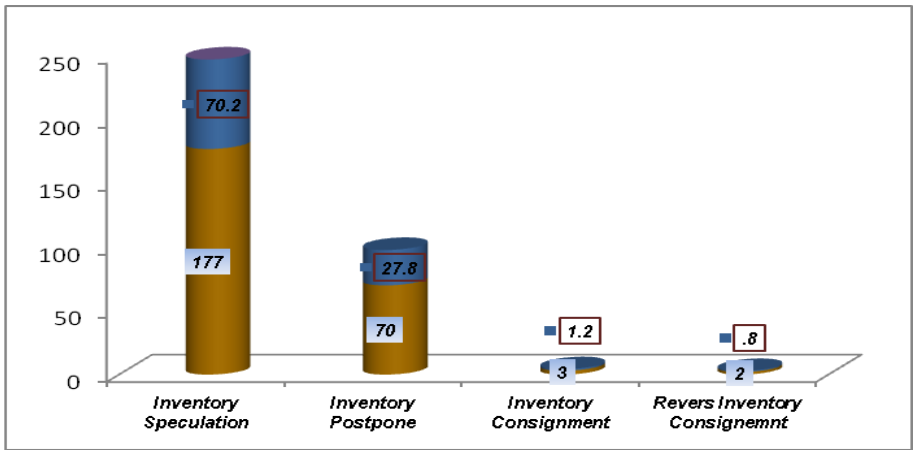
Table 11: Inventory Management Approaches And Maintaining Simple Inventory Procedure

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Inventory Speculation	177	70	70	70
	Inventory Postpone	70	28	28	98
	Inventory Consignment	3	1	1	99
	Reveres Inventory Consignment	2	1	1	100
	Total	**252**	**100**	**100**	

Source: Primary data (2016)

As can be seen in table 11 above, majority of the respondent i.e. 117(70%) replied that, the firm has been used simple inventory procedure which specifically inventory speculation approach in managing its inventory. While the remaining significant number of respondents i.e. 70(28%) replied that the firm use inventory postponement approach in order to manage its inventory. Moreover, data obtained from the management body of the firm reflected that, inventory speculation approach is the one followed by the firm. From this one can infer, that the firm operate in the just in time delivery of inventory.

Fig:3 Inventory Management Approach



Source: Primary data (2016)

Vendor-managed inventory (VMI) is efficient in construction sites and also for other manufacturers. Authors apply their methodology on three selected pilot sites and find that the efficiency and responsiveness of vendor managed inventory is higher than that of organization's self managed inventory. Authors argued upon eight key steps that are; time for finding item, receiving and storing item, order v/s recording, rushed orders, hardware store visits, time for invoice handling, total time spent at site and remaining inventory (Tanskanen et al., 2009).

Respondents were asked to share about the experience the do have regarding vender managed inventory practice, accordingly the response given depicted the table 12 below. 131(52%) that is majority refusing to accept existence of vender managed inventory practice with in the firm. While the remaining 61(24%) and 60(24%) of them replied that they being neutral and agree respectively about the issue has been raised.

Table 12 Firm Experience Vender Management Inventory Practice

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	131	52	52	52
	Neutral	61	24	24	76
	Agree	60	24	24	100
	Total	**252**	**100**	**100**	

Source: Primary data (2016)

A better transportation approach for manufacturing firms is joint routs planning. This concept includes that to enhance efficiency and responsiveness the manufacturing firms must continue their transportation function in collaboration with the firms outside internal environment. Joint route planning can be achieved by two ways that are outsourcing transportation function or horizontal cooperation with other transportation service providers.

As can be seen in table 13 below, majority of the respondent i.e. 168(67%) replied that, firms transportation is efficacy and responsive at lower extent. On the other hand remaining number of respondents i.e. 66(26%) and 18(7%) of them replied that, to some extent and no extent the level of firm's transportation is efficient and responsive. Thus, one can infer from this the firms transport is not responsive and efficient according to the respondents.

Table 13: Efficiency And Responsiveness Level Of Firm Transportation And Collaboration

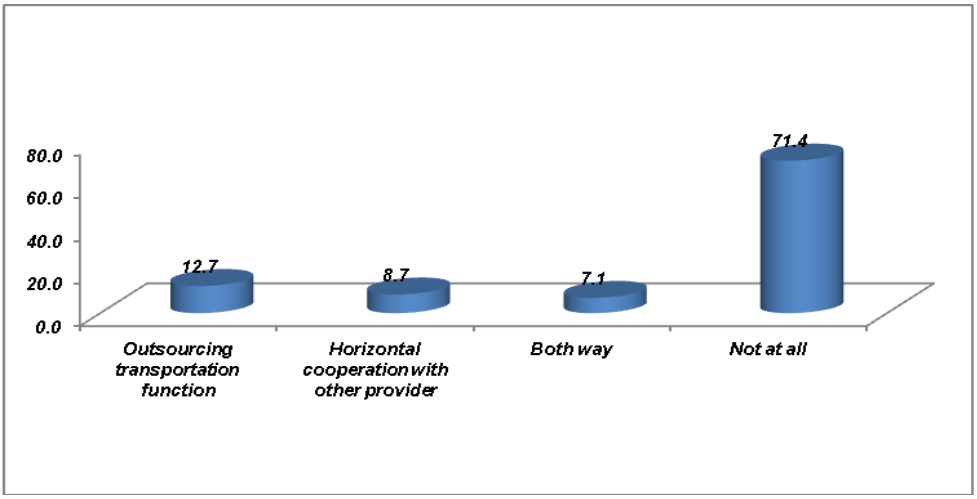
1		**Frequency**	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	No extent	18	7	7	7
	Low extent	168	67	67	74
	Some extent	66	26	26	100
	Total	**252**	**100**	**100**	
2		**Frequency**	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	No extent	61	24	24	24
	Low extent	58	23	23	47
	Some extent	109	43	43	90
	Great extent	24	10	10	100
	Total	**252**	**100**	**100**	

Source: Primary data (2016)

Respondents were asked about collaboration of firms transportation with others accordingly, as can be seen in table 14 item 2 above, 109(43%), 61(24%),58(23%) and 24(10%) of them replied that, firms transportation collaborated with others to some extent, no extent, low extent and great extent respectively. Thus, one can infer from this the firms transport is not responsive and efficient according to the respondents. Moreover, the respondents were asked to indicate possible alternative means of transportation used by the firm, accordingly majority of them i.e. 180(71%) of them replied that, no

since there is no sufficient collaboration practice alternative means used not at all exists in the firm. While the remaining replied as outsourcing and horizontal cooperation with other providers has been used as alternative means.

Fig: 4 Alternative Means of Collaboration



Source: Primary data (2016)

Information provides customer taste to supplier that leads supplier's responsiveness and efficiency because supplier forecasts customer demand and only supplies required product. Continuous conversation with customers plays a vital role in strategy development that resulting in creation a planning team for company. A company can identify its customers or distributor companies for strategic planning input by these four ways. (a) Use 80/20 rule, according to this rule the company must in conversation with those specific top 20 percent customers that generate 80 percent of company income. (b) Choose the companies in different conversation channels. (c) Choose that company that considers your product or service for different applications. (d) Continue with companies that want to continue with you. (Chopra and Meindl, 2007)

As can be seen in table 14 below, majority of the respondent i.e. 152(60%) replied that, firms provide accurate customer test to the suppler at some extent the remaining significant respondents i.e. 58(23%)

42(7%) of them said low extent and great extent. From this one can easily understand that, there exist gap in proper demand information flow on the supply chain.

Table 14: Firm provide accurate customer test data to suppliers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low extent	58	23	23	23
	Some extent	152	60	60	83
	Great extent	42	17	17	100
	Total	**252**	**100**	**100**	

Source: Primary data (2016)

Business information system can be developed by these twelve ways. (a) Geographical information system, this information system enables the companies to know about the customer income level, population and lifestyle. (b) Inventory management system, it involves just in time delivery of inventory by exchanging information about the inventory level. (c) Warehouse management system, information sharing about warehouse that how much the stock available for customer and how much required by the customer. (d) Smart chip technology system, this is technology in which smart cards developed to know the customer habits and for tracking the customers. (e) Customer relationship management system, through this step the firms develop such information system through which they know the customer needs and wants and then manufacture to enhance relationship with customers. (f) Supply chain management system, this information system exchanges information among the different stages of supply chain management.

(g) Transportation management system, this system provides information about the orders and shipments. (h) Self checkout stands, through these systems the cartons scanned and payment to be made without human interactions. (i) Kiosks, these are the system just like the online stores. (j) Electronic commerce system, this system provides the facility of sales electronically. (k) Electronic data interchange system, this system provides easy and quick access of data from business to business. (l)

Global information system, this system is useful for those organizations working in many countries through satellites information sharing system (Kadiyala and Kleiner, 2005).

able 15: Firm information system significantly assists responsiveness and firm's sourcing practice

1		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	58	23	23.0	23
	Disagree	115	46	46	69
	Neutral	18	7	7	76
	Agree	61	24	24	100.0
	Total	**252**	**100.0**	**100.0**	
2		**Frequency**	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	Disagree	173	69	69	69
	Neutral	61	24	24	93
	Agree	18	7	7	100
	Total	**252**	**100**	**100**	

Source: Primary data (2016)

Regarding firms information system responsiveness and sourcing practice respondents were asked and replied accordingly, as can be seen in table 15 item 1 above, 115(46%), 61(24%), 58(23%) and 18(7%) of them replied that, they disagree, agree, strongly disagree and neutral respectively that information system supporting responsiveness of firms supply chain.

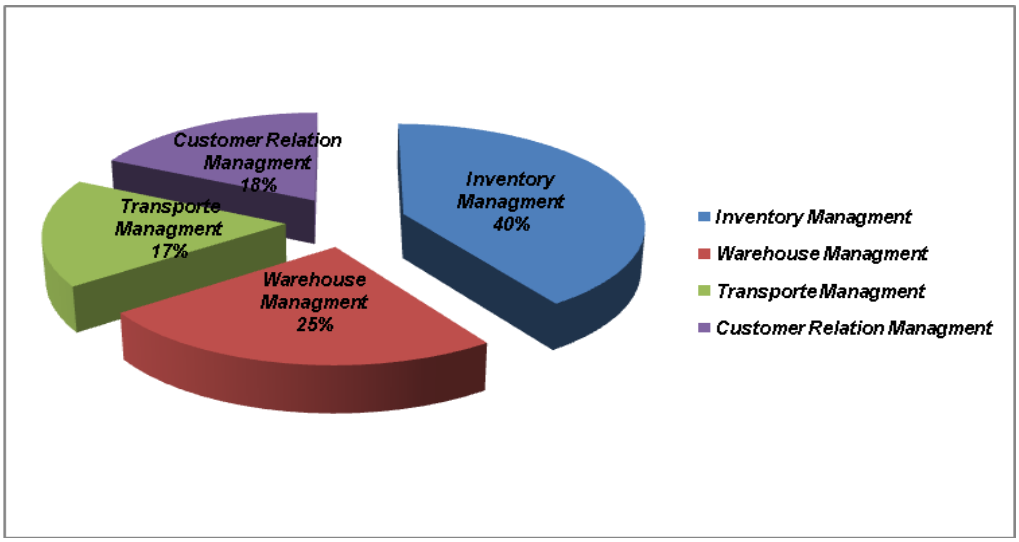
Effective sourcing is one of the strategies that can overcome challenges of supply chain performance. Jonsson (2008) outlines two basic sourcing strategies as single sourcing and multiple sourcing. Single sourcing has to do with a company using one supplier for a particular item even when there are several other suppliers available on the market. The use of single sourcing approach is driven by cost effectiveness as small purchase volumes that do not make economic sense to use several supplies. Again the need to create collaborative and partnership relations with supplies may be compelling motivational consideration for single sourcing approach.

Sadler (2003) delineates that partnership sourcing is developed and implemented with the intention to achieving competitive advantage. The assertion continues that partnership sourcing aims at, among

other things, reducing stock times, shortening lead times, achieving a greater flexibility, improving the cash flow as well as lowering the administrative costs. Multiple sourcing by contrast is concerned with the used of several alternative supplies for the performance of certain supply chain activities. The use of multiple sourcing is inspired by the fact that the company can improve its negotiation leverage and reduce risk, that is one supplier can be used to compensate other in an event that one runs into delivery challenges although there is the notion that multiple sourcing approach reduces the chances of carrying out continuous improvement work (Coyle et al., 2013)

In this regard, sourcing practice of the firm majority of the respondents i.e. 173(69%) of them said that they refuse to accept existence of proper sourcing practice in MIDROC. While significant respondents want to take neutral position regarding the issue has been raised. On the other hand, the study tries to have respondents by gibing chance to rate what kind of system can enhance firms supply chain efficiency and accordingly replied as depicted in the graph below. Majority i.e. 102(41%) of the believes that, inventory management has greater contribution in efficiency of the supply chain, while the reaming significant respondents said that, warehouse management, customer relation management and transportation management respectively has contribution to the firm's supply chain efficiency.

Fig: 5 System Contribution to Efficiency of Firm's Supply Chain



Source: Primary data (2016)

Table 16: Firm Pricing Objective Compatible with SC Capability And Policy Adopted

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low extent	110	44	44	44
	Some extent	118	47	47	91
	Great extent	24	9	9	100
	Total	252	100	100	

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Pioneer pricing	127	50.4	50.4	50.4
	Psychological pricing	37	14.7	14.7	65.1
	Professional pricing	56	22.2	22.2	87.3
	Promotional pricing	32	12.7	12.7	100
	Total	**252**	**100**	**100**	

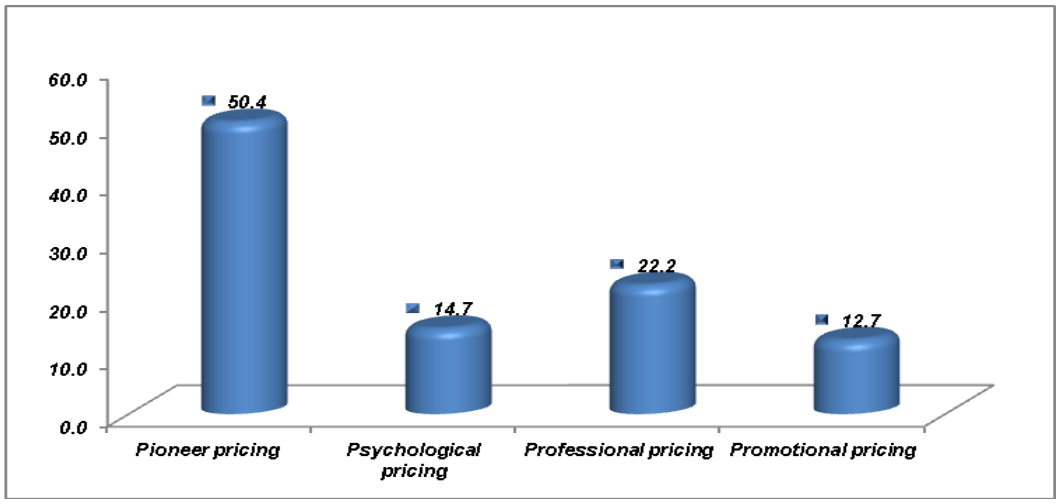
Source: Primary data (2016)

As can be seen in table 16 above, respondent replied that 118(47%) and 110(44%) of them said firms pricing objective compatible with is supply chain capability. While the remaining, 24(9%) said it is compatible with firms objective. This may dictate the gap in integrating firm's objective with supply chain activities. Similarly majority of the respondents i.e. 127(50%) of the respondents confirm that the firm adopt pioneer pricing as pricing policy.

Pricing policies for business world Includes. (a) Pioneer pricing policy, in this policy the organizations evaluate their development cost and their aim of payback period. It includes price skimming (setting price at high level to Capture profit in short term and penetration pricing (setting price at low level to enhance market share). (b) Psychological pricing, in the context of this policy organizations set price on emotional response rather than rational response. It includes odd even pricing (set price as 49.99 rather than 50), customary pricing (the price that customer willing to pay even in ups and downs of market situations) and set price high (to create prestige image as jewelry). (c) Professional pricing, set price at standard weather the customer is willing to pay or not. (d) Promotional pricing, this policy is to be adopted when organizations want to draw customer attention towards a specific product. It includes

to options, price leaders (set price near to cost or below and earn revenue from other product) and special event pricing.

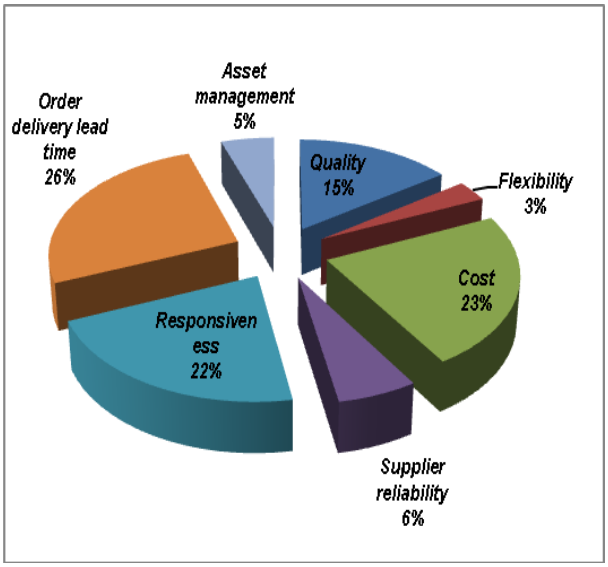
Fig: 6 Pricing Policy Adopted



Source: Primary data (2016)

As can be seen in table 17 below, respondents were asked to rate which factor more influence supply chain performance of the firm and accordingly 66(26),58(23%),54(22%),38(15%), 15(6%), 13(5%) and 8(3%) of them replied that, order delivery lead time, cost, responsiveness, quality supplier reliability, asset management and flexibility respectively contribute and/or influence operational performance of the firm supply chain. This may indicate that order delivery lead time, cost and responsiveness have greater influence on firm's supply chain operation performance.

Fig: 7 Factor Highly Affect Firm's SC Operation



Source: Primary data (2016)

Table 17: How Do You Rate Firm Sc Operational Performance Interns Of The Flowing Factors					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Quality	38	15	15	15
	Flexibility	8	3	3	18
	Cost	58	23	23	41
	Supplier reliability	15	6	6	47
	Responsiveness	54	22	22	69
	Order delivery lead time	66	26	26	94.8
	Asset management	13	5	5	100
	Total	**252**	**100**	**100**	

Source: Primary data (2016)

As it is depicted in the table 18 items 1 below, respondents were asked to share their knowledge concerning the extent of which the management of the firm proactively oversee drivers. Accordingly 112(44%), 82(33%) and 58(23%) of them replied that, no extent, low extent and some extent respectively. This can implies that, the existence of concern looking proactively act on supply chain drivers. Data from the management share the majority idea that, most of the issue put ahead of time on paper but its proactive action not as such taken in practical.

Table 18: Management Of The Firm Oversee Drivers Proactively And Challenge Posed By Sc Drivers					
1		**Frequency**	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	No extent	112	44	44	44
	Low extent	82	33	33	77
	Some extent	58	23	23	100
	Total	**252**	**100**	**100.0**	
2		**Frequency**	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	Low extent	149	59	59	59
	Some extent	61	24	24	83
	Great extent	42	17	17	100
	Total	**252**	**100.0**	**100.0**	

Source: Primary data (2016)

Moreover, regarding experiencing challenges pose by drivers also replied that, 149(59%), 61(24%) and 42(17%) said that, low extent, some extent and great extent respectively. Form this one can easily infer majority of them cannot trace challenge from driver which is difficult to the management of proper functionality of drivers.

Supply chain in the mining sector is becoming increasingly complex. This complexity has increased the vulnerability and exposures of mining operations to many internal and external challenges that have the potential to cause huge distraction to the operations of SC activities. As a result, most businesses have realized the need for mechanisms to identify these challenges and risks in early stages and then manage them in the most effective way to survive the adverse consequences that may come about. Also, the large number of links that need to be created between members of the SC in the mining operations have increased the challenges facing the sector such that even small incident in one distant area can lead into adverse consequences for other associates within the SC (Christopher et al., 2006, Otchere et al., 2013; Faisal, Banwet and Shankar, 2006; Chopra and Sodhi, 2004). SC challenges varies with type of industry and the level of complexity of the SC network, however, it could be seen that most of the SC associated challenges are common in most industries including mining. The mining SC, for example, is characterized with frequent occurrence of natural disasters, labour disputes, and uncertainty in supply and demand, supplier bankruptcy, political changes, and terrorism among others (Anane, 2011 and Tsikata, 2007).

CHAPTER FIVE

FINEDING OF THE STUDY

5.1 SUMMARIES OF MAJOR FINDINGS

In the modern era of technology firms whether manufacturing or service they are looking forward to increase their efficiencies and performances. Supply Chain Management is one of the major tools that play a vital role in enhancing organizational efficiency in this world of new technology. This research paper is written to assess the factors or drivers included that are indispensable for any organization to increase efficiency in supply chain management. Supply chain management is focusing on management of activities from raw material to final product and end user. It includes the suppliers of raw material, transformational process; final product and the activities of how deliver final product or service to end user. Accordingly after detailed analysis has been done the following major findings has been summarized.

- ✓ The study disclose, 164 (65%) and 88(35%) are male and female respondents respectively, from which 170(68%) of them are Degree holders, 210(83%) non supervisory employee and 225(89%) of them working not more than 10years within the company.
- ✓ As it is revealed by the study, majority i.e. 107(42%) and 103(41%) of the respondents replied that, the supply chain practise linked with objective of the firm has not satisfactory look.
- ✓ 167(66%) of respondents not belongs to agreed members of the firm regarding the supply chain ensuring firm's performance as well as efficiency as indicated by the study.
- ✓ As it is connoted by study, facility and inventory counts 73(29%) and 75(30%) from among other drivers in the way that can significantly influence MIDROC supply chain performance.
- ✓ The study signifies Operational facility not compatible with firms plant size said majority of the study respondents i.e. 131 (52%).

- ✓ Majority of the respondent i.e. 164(65%) refusing existence of appropriate stock level and order pattern within the firm as indicated by the study.
- ✓ The inventory management practice of MIDROC is not responsive said 118(47%) i.e. majority as connoted by the study.
- ✓ The study reveals, 149(59%) refuse to accept MIDROC's facility location against with its plant and Machinery.
- ✓ The firm has been used simple inventory procedure which specifically inventory speculation approach in managing its inventory said 117(70%) of study respondents ,
- ✓ 131(52%) that is majority refusing to accept existence of vender managed inventory practice with in the firm as it is revealed by the study.
- ✓ The transportation practises exist within the firm not as such efficient and/or responsive as it is depicted by 168(67%) respondents in the study. Beside, no sufficient alternative means used by the firm in collaboration with other said 180(71%) respondents in the study.
- ✓ Majority i.e. 115(46%), replied that, they do not agree, that information system supporting responsiveness of firms supply chain as it signify by the study.
- ✓ Majority of the respondents i.e. 173(69%) of them said that they refuse to accept existence of proper sourcing practice in MIDROC data from the study.
- ✓ The study signifies that, 228(91%) of respondent refuse compatibility of firms pricing objective along with is supply chain capability. More importantly, the firm adopt pioneer pricing as pricing policy as testified with127 (50%) of the respondents.
- ✓ The study reveals, order delivery lead time, cost, and responsiveness are factor more influence supply chain performance of the firm accounted 66(26), 58(23%), and 54(22%), respectively.
- ✓ Respondents refusing to agree with management of the firm proactively oversee drivers i.e. 112(44%), majority as indicated by the study.

5.2 CONCLUSIONS

- ✓ The firm can enhance its responsiveness and efficiency by the good management of six drivers of supply chain performance. Logistical drivers such as, facility and inventory from among other drivers in the way that can significantly influence MIDROC supply chain performance.
- ✓ The better management about the role, location, capacity and flexibility of facilities having a positive affect towards supply chain operational performance, in this regard MIDROC Operational facility not compatible with firms plant location and size, capacity and labour productivity.
- ✓ Define target stock levels and order patterns, includes that the personnel for inventory management to be well known about the targeted stock levels and must know order patterns of respective organizations. This leads to ensure just in time delivery of inventory. However, firm's under the study, fail to do so. Moreover a firm proved to be more responsible by storing large inventory (responsive) but efficiency becomes low because of high inventory cost and low work quality since MIDROC used inventory speculation policy.
- ✓ Using fast transportation service the firm can increase responsiveness but efficiency becomes low because of high cost of fast transportation and more chances of damage. To enhance efficiency and responsiveness the firm's may do transportation function in collaboration with the firms outside internal environment. Given this, practice of firm's transport management has fail to do so.
- ✓ Information provides customer taste to supplier that leads supplier's responsiveness and efficiency because supplier forecasts customer demand and only supplies required product, however, the firm's information management in accordance with supply chain performance has been divergent to this.

- ✓ Sourcing in supply chain activities is a key driver that drives the organizational functions in order to achieve organizational efficiencies.Companies in any sector are always looking for low-cost raw material, domestic or imported. To do so, firms find best sourcing strategy based on product, organization and country factors. Passive practice of such issue makes MIDROC sourcing effectiveness questionable.
- ✓ Company objective may be profit maximization, sales volume, market share target return on investment level or survival. If a transportation company charges high and low costs for quick and late delivery respectively, than efficiency oriented customers demand quick delivery and responsiveness oriented customers demand late delivery. Such compatibility issue have been override by the firm under study this may resulting from firm's adopted pricing policy.
- ✓ Performance with maximum effectiveness and minimum operating cost indicated through various key supply chain performance indicators, such as Quality, Flexibility, Cost, Supplier reliability, Responsiveness, Order delivery lead time, Asses management etc. however, order delivery lead time, cost, and responsiveness are factor more influence supply chain performance of the firm under study.

5.3 RECOMMENDATIONS

The firm under study need to find a situation where both efficiency and responsiveness in supply chain practices are at average level to enhance firm's performance and output. This average level can only be achieved through better management of drivers of supply chain performance along with its objectives. High efficiency and maximum responsiveness could never ever to be achieved at same time.

A firm's supply chain needs to achieve balance in efficiency and responsiveness that leads company's competitive strategy and/or attainment of objectives', drivers of supply chain performance that needs to be managed to enhance organizational performance and output. These drivers are closely related with each other and have a greater impact on firm's performance.

The firm recommended to forecast factors like; customer demand requirement, nature of supply line and bargaining power of firm relative to the supplier, before adopting its inventory management approach. The forecasting of these three factors is indispensable for the firm if it wants to adopt one inventory management approach. Beside, time for finding item, receiving and storing item, order v/s recording, rushed orders, hardware store visits, time for invoice handling, total time spent at site and remaining inventory are eight steps need to be followed before using vendor managed inventory.

The firm strongly advise to consider model of smart transportation management system to enhance the performance of its transportation activity, i.e. Smart freight, Smart Vehicles, and The smart infrastructure:

In order to explore proper benefit from sourcing activity of the firms, it is better to find best sourcing strategy based on product, organization and country factors

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CERTIFICATE OF ORIGINALITY

This is to certify that the project titled **"Assessment of Supply Chain Performance Drivers on MIDROC Gold Mining"** is an original work of the Student and is being submitted in partial fulfillment for the award of the Master's Degree in Business Administration of Indira Gandhi National Open University. This report has not been submitted earlier either to this University or to any other University/Institution for the fulfillment the requirement of a course of study.

SIGNATURE OF GUIDE

Place: _____

Date : _____

SIGNATURE OF STUDENT

Place:_____

Date: _____

Note: This certificate is to be submitted along with the Project Report (Should be bound within the Project Report)

Dear Participant;

I am a graduate student at **INDIRA GANDHI NATIONAL OPEN UNIVERSITY**. For my final project, I am going to **Assess Supply Chain Performance Drivers at MIDROC Gold Mining**. Because you are working for and the Company, I am inviting you to participate in this research study by completing the Surveys Questions.

The following questionnaire will require approximately 15mts to complete. There is no compensation for responding nor is there and known risk. In order to ensure that all information will remain confidential, please do not include your name. If you choose to participate in this project, please answer all questions as honestly as possible and return the completed questionnaires promptly, at drop box located in department manager.

Participation is strictly voluntary and you may refuse to participate at any time. Thank you for taking the time to assist me in my educational endeavours. The data collected will provide useful information regarding big picture of your company supply chain performance driver's management and practice for its competitive advantage.

Warm appreciation ahead of all'

RESPONDENT BIOGRAPHY

Male **Female**	
_____	Gender
_____	Current Position
_____	Service Year
_____	Academic Status

MIDROC GOLD SUPPLY CHAIN PRACTICE

No	**Item**	**1**	**2**	**3**	**4**	**5**
		No Extent	Low Extent	Some Extent	Great Extent	V. great Extent
2.	To what extent, supply chain practice linked with firm's objective?					
No	**Item**	**1**	**2**	**3**	**4**	**5**
		Strongly disagree	disagree	Neutral	Agree	Strongly agree

3	Do you agree firms capability aliened with supply chain operation capacity?					
4	To what extent firms supply chain ensure its performance and efficiency?					

5. In your opinion, how do you express firms supply chain management practice?

_____

_____

_____

_____

FIRM'S SUPPLY CHAIN PERFORMANCE DRIVERS

No	**Item**	**1**	**2**	**3**	**4**	**5**
6	Based on your experience, rate which factor/s highly influence firm's SCM?	No Extent	Low Extent	Some Extent	Great Extent	V. great Extent
	Facility					
	Inventory					
	Transportation					
	Information					
	Sourcing					
	Pricing					
	All					

No	**Item**	**1**	**2**	**3**	**4**	**5**
		Strongly disagree	disagree	Neutral	Agree	Strongly agree
7	The firm operational facility is compatible with its plant size?					
8	Operational capacity installs meet with firm's plant size?					

No	**Item**	**1**	**2**	**3**	**4**	**5**
		Strongly disagree	disagree	Neutral	Agree	Strongly agree

9	The firm has appropriate stock level and order pattern?					
10	The inventory management practice of the firm is highly responsive?					
11	Do you think firm's facility location reasonably set with plant/machinery?					

12. If you said strongly agree/disagree the above question please specifies your reason?

_____
_____
_____
_____

No	**Item**	**1**	**2**	**3**	**4**	**5**
		No Extent	Low Extent	Some Extent	Great Extent	V. great Extent
13	To what extent firm's facility ensure labour productivity?					
14	How do you rate the firm maintains simple inventory procedures?					

15. What kind of inventory management approaches used by MIDROC Gold?

☐ Inventory speculation
☐ Inventory postponement
☐ Inventory consignment
☐ Reverse inventory consignment

16. In your opinion, your firm experience vender management inventory practice?

☐ Strongly disagree
☐ Disagree
☐ Neutral
☐ Agree
☐ Strongly disagree

No	**Item**	**1**	**2**	**3**	**4**	**5**
		No Extent	Low Extent	Some Extent	Great Extent	V. great Extent

17	How do you rate efficiency and responsiveness level of firm's transportation?					
18	To what extent the firm transportation function collaborate with outsiders?					

19. If you said no, said not extent/great extent please indicate in which way?

- ☐ Outsourcing transportation function
- ☐ Horizontal cooperation with other providers
- ☐ Both ways
- ☐ Not at all

20. How do you express transportation practice of the firm in the SC?

_____

_____

_____

_____

No	**Item**	**1**	**2**	**3**	**4**	**5**
		No Extent	Low Extent	Some Extent	Great Extent	V. great Extent
21	To what extent the firm's provide accurate customer test data to suppliers?					
		Strongly disagree	disagree	Neutral	Agree	Strongly agree
22	The firm's information system significantly assists responsiveness of its SC?					
23	Sourcing practice of the firm assist getting appropriate input for making and delivering goods and services to final customers?					
24	Rate which system/s contributes to the efficiency of firm's SC operation?	**1**	**2**	**3**	**4**	**5**
	Inventory management system					
	Warehouse management system					
	Transport management system					
	Customer relationship management					

No	**Item**	**1**	**2**	**3**	**4**	**5**
		No Extent	Low Extent	Some Extent	Great Extent	V. great Extent
25	To what extent the quality maintained as per firms performance standard?					

26	How do you rate firm pricing objective compatible with SC capability?					

27. How do you express the sourcing strategy used by the firm with its SCM performance?

_____

_____

_____

_____

28. Which pricing policy adopted by the firm?

- ☐ Pioneer pricing
- ☐ Psychological pricing
- ☐ Professional pricing
- ☐ Promotional pricing

MIDROC Gold Supply Chain Efficiency and Responsiveness

No	**Item**	**1**	**2**	**3**	**4**	**5**
		Strongly disagree	disagree	Neutral	Agree	Strongly agree
29	SCM of the firm is efficient and cost – effective across the entire system?					
30	Rate firm's SC operational performance based on listed factors?					
	Quality					
	Flexibility					
	Cost					
	Supplier reliability					
	Responsiveness					
	Order delivery lead time					
	Asset management					
No	Item	1	2	3	4	5
		No Extent	Low Extent	Some Extent	Great Extent	V. great Extent
31	To what extent the management of the firm oversee drivers proactively?					
32	Have you experience challenge posed by firm's SC drivers/forces?					

33. If you said no extent or very extent please specify in short?

_____
_____
_____
_____

34. Based on your experience/opinion, suggest any ideas/issues to be considered by the management of MIDROC Gold that assist to get competitive advantage?

_____
_____
_____
_____
_____

THANK YOU VERY MUCH FOR YOUR TIME