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Supply Chain Management Practice and Operational Performance: The Mediating Effect of Market Orientation In Sudanese Manufacturing Companies

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DEDICATION

Every challenging work needs self-efforts as well as Guidance of elders especially those who were very close To your heart.

My humble effort I dedicate to my sweet and loving

Mother,
Sisters & Brothers
Friends
Whose affection, love, encouragement make me able to get such Success and honor,

Along with all hard working and respected Teachers

Acknowledgement

First of all I pay my whole hearted gratitude to the Almighty ***ALLAH*** that endowed me with an innate ability to recognize and acknowledge His existence .Without His grace and wish, I won't be hear where I am now and obviously this work can't be accomplished successfully.

After that I would like to extend my heartfelt gratitude to my thesis advisor **Dr Sidig Balal** .By his constructive criticism, guidance and countless fruitful discussions, he used to bring back me to the track, recharge and stimulate my enthusiasm for pressing on further .Undoubtedly, his innovative comments greatly improved the content of this thesis .Next, I would like to thank Mr. **Emad** f o r his effort…

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Abstract

Effective supply chain management (SCM) has become a potentially valuable way of securing competitive advantage through enhancing operational and improving organizational performances since competition is no longer between organizations ,but among supply chains. This study propose conceptual model by examining the mediating effects of market orientation on the relationships between SCM practices and operational performance This study employed the descriptive method where convenience sampling and self-administrated survey questionnaires were send to 120 manufacturer companies in Sudan, the rate of return (98.3%) questionnaire . This research used reliability and validity test .Then, path analysis with linear regression to prove the mediation effect was used for the data-analysis. The results showed that there is a statistically significant impact of the dimensions of SCM practice on the conformance, information sharing and integration have significant effect on time to market, information sharing and customer management have significant effect on cost, information sharing and supplier management have significant effect on reliability . The results shows that the mediating effect of customer orientation has significantly partial affect the relationship between SCM practice (information sharing, integration) and operational performance (reliability). Since competitor orientation mediating the relationship between information sharing and reliability. Furthermore, a new dimension was developed in operational performance (time to market, cost, conformance and reliability) .since if manufacturing companies focus on market orientation on their SCM practice , the operational performance increased , moreover the organizational performance increased and customer satisfy .

مستخلص الدراسة

أصبحت فعالية إدارة سلسلة التوريد (SCM) وسيلة قيمة للحفاظ علي الميزة تنافسية من خلال تعزيز الاداء التشغيلي وتحسين أداء المنظمة , طالما ان هنالك دور كبير لسلاسل الامداد في المنافسة بين المنظمات . لذلك اتت هذه الدراسة لاختبارات العلاقات بين ممارسات سلسلة الامداد، والأداء التشغيلي،وبيان اثر التوجه التسويقي كمتغير وسيط . تم استخدام المنهج الوصفي حيث جمعت البيانات عن طريق الاستبيان من عينة مناسبة من الشركات الصناعية السودانية ، وبلغت نسبة الاسترداد 98.3%) استبيانة. وقد استخدام اختبار الصدق والثبات ، وتحليل المسار مع الانحدار الخطي لإثبات الاثرالوسيط الذي تم استخدامه في تحليل البيانات. وأظهرت النتائج أن هناك تأثير ذو دلالة إحصائية لأبعاد ممارسات ادارة سلسلة الامداد على التوافق , كما وجدت الدراسة ان تبادل المعلومات وتكامل يكون لها تأثير كبير على الوقت اللازم للتسويق ,كما ان تبادل المعلومات وإدارة العملاء يكون لها تأثير كبير على التكاليف، وان تبادل المعلومات وإدارة الموردين يؤثران على الموثوقية. واشارت الدراسة ان توجه العملاء يتوسط العلاقة بين النتائج أن بين ممارسات ادارة سلسلة الامداد (تبادل المعلومات والتكامل) والأداء التشغيلي (الموثوقية) بشكل جزئ . كما ان توجه المنافسين يتوسط العلاقة بين مشاركة المعلومات والموثوقية، كما اظهرت نتائج الدراسة ان الأداء التشغيلي يتكون من اربعة ابعاد (زمن الوصول للسوق , التكلفة , التوافق والموثوقية) . وبناءا علي ذلك فقد اوصت الدراسة متخذي القرار والمدراء غلي اهمية التركيزعلي التوجه التسويقي من خلال ممارسات ادارة سلسلة الامداد لزيادة الاداء التشغيلي في الشركات الصناعية , لضمان رفع مستوي اداء الاعمال وارضاء العميل .

CHAPTER ONE

INTTOUDUCTION

1.0 Introduction

This chapter contains the background of the Study, Statement of the Problem, Question of the study, research questions, research objective, significance of the study, scope of study, the operalization of key definition and Organization of the study.

1.1 Background of the Study

Given intensifying global competition as well as structural and contextual disadvantages against developed economies (Buckley2009), small- and medium-sized enterprises from emerging countries (EC SMEs) meet some challenge of gaining sustained competitive advantage. Yet, business success and survival in dynamic and fast-changing markets depend heavily on being part of an effectively managed supply chain (Bayraktar et al. 2007), and adopting innovative means of doing business in supply chain domain (Taylor and Francis ,2015).

(Ketchen and Hult, 2007) Saied, in today's highly unsteady and competitive markets, rivalry among companies is transformed from competing on the basis of own capabilities to competing with the whole supply chain. Relating with this intensified competition organizations began to realize that it is not enough to improve efficiencies within an organization, but their whole supply chain has to be made competitive (Childhouse and Towill, 2003). These were seen in the last few years and the focus has shifted from the factory level management of supply chains to enterprise level management of supply chains (Gunasekaran et al., 2005). To make the whole supply chain competitive and enhance their performance, coordination of the supply

chain has become strategically important (Puigjaner and Lainez, 2008). Moslem et al. (2013) also stated as understanding and implementation of supply chain management (SCM) is a necessary condition to remain competitive in the global competition and improving profitability.

A successful SCM implementation is expected to enhance the relationship between upstream suppliers and downstream customers, and thereby increase customer satisfaction and firm performance .Prior research has indicated SCM as a key driver of firm performance (Kannan and Tan, 2005). The performance of the supply chain is affected by different factors. One of the most important factors influencing the performance of supply chain is strategic supplier alliances (Narasimhan and Jayaram, 1998). Effective partnerships with suppliers can be a critical factor to guide supply chain management (Li et.al, 2006). The other factor is having good relationships with customers, which are needed for successful implementation of SCM programs (Moberg et al., 2002). Close customer relationship allows an organization to differentiate its product from competitors, sustain customer loyalty, and dramatically extend the value it provides to its customers (Magretta 1998). Furthermore, Wang et al. (2008) stated that integration and coordination across supply chain can be well provided through information sharing. Supply chain partners that exchange information regularly are able to work together as a single key. They are better able to understand the needs of the final consumer and hence are able to respond quickly to changing market (Li et al., 2006). Power (2005) also state that the failures can occur in case of information delays, shortage or distortion across the supply chain. Additionally, while information sharing is important, the significance of its impact on SCM depends on the extent of quality of information shared, when and how it is shared, and with whom (Holmberg, 2000 and Chizzo, 1998). According to Moslem et al. (2013) internal

lean practice is the other factor that affects supply chain performance. Lean production is a production system that aims to optimize production process by reducing waste and other inefficient factors.

Operational performance is a source of competitive advantage for the enterprise to differentiate itself in the eyes of the customers from its competitors by operating at a lower cost and hence at a greater profit (Christopher, 1992). Competitive priorities are conceptualized to measure operational performance by using price/ cost, quality, delivery, flexibility and time to market. Whereas, organizational performance refers to how well an organization achieves its market-oriented goals as well as its financial goals (Yamin et al., 1999). The short-term objectives of SCM are primarily to enhance production performance, while long-term objectives are to increase market share and profits for all members of the supply chain (Tan et al., 1998). Li et al. (2006) stated that any organizational initiative, including supply chain management, should ultimately lead to enhanced organizational performance.

Therefore, the researcher is intended to empirically test the framework identifying the relationships among SCM practices, operational performance and market orientation of the manufacturing companies.

1.2 Statement of the Problem

According to (Li et al., 2006)., nowadays the concept of SCM has received increasing attention from parts of people like academicians, managers, consultants, and business owners. Many organizations have begun to recognize that SCM is the key to building sustainable competitive edge for their products and/or services in an increasingly crowded marketplace and enhancing organizational and overall supply chain performance.

Despite the increased attention paid to SCM, the literature has not been able to offer much by way of guidance to help the practice of SCM that is applicable to every situation (Cigolini et al., 2004). This has been attributed to the interdisciplinary origin of SCM, the conceptual confusion, the evolutionary nature of SCM concept, and environmental difference in which organizations using supply chain concept are operating in. There is large evidence that cultural, social and economic aspects of each country do influence the link between SCM practices and performance (Harland, 1997; Mentzer et al., 2001, and Kaufmann & Carter, 2006).

On the other hand, much of the current theoretical/ empirical research in SCM focuses only on the upstream or downstream side of the supply chain, or certain aspects/perspectives of SCM (Li et al., 2006). Topics such as the role of relationships with suppliers in improving supplier responsiveness (Handfield and Bechtel, 2002), and the antecedence and consequences of buyer-supplier relationship (Chen and Paulraj, 2004) have been researched on the supplier side. Studies such as those by Clark and Lee (2000), and Alvarado and Kotzab (2001), focus on the downstream linkages between manufacturers and retailers. A few recent studies have considered both the upstream and downstream sides of the supply chain simultaneously. Tan et al. (1998) explore the relationships between supplier management practices, customer relations practices and organizational performance; Frohlich and Westbrook (2001) investigate the effects of supplier-customer integration on organizational performance; Tan et al. (1998) study SCM and supplier evaluation practices and relate the constructs to firm performance; Min and Mentzer (2004) develop an instrument to measure the supply chain orientation and SCM at conceptual levels; Gyaneshwar (2012) study operational performance through SCM Practices and Moslem (2013) study the impact of supply chain management practices on competitive advantage. to enhance the relationship between SCM practice and operational performance we

can used market orientation as mediator variable ,searching for the mediator in the previous studies found that most uses of market orientation variable in strategic and entrepreneurial orientation on performance e.g. .(Hussaini Hamid Abubakar, A.J. Bambale (2016) , Frambach et al (2003) , Ruzger el al (2014) and Ramayah et al (2016).,in the previous studies , Benjamin R Tukamuhabwa (2011) motioned proposed conceptual framework presupposes a positive relationship between market orientation and supply chain performance with organizational learning, supply chain management strategy, trust and commitment playing mediating roles, also the study show a positive relationship between market-orientation and business performance in Iran Khodro Company , and there is no study used market orientation to mediate the relationship between SCM practice and operational performance.

However, the relationship of SCM with performance cannot be regarded as conclusive (Cousins et al., 2006). Despite the increase of empirical research in the last few years, important differences in research design undermine comparability: lack of consensus about the definition and dimensionality of the SCM practice (s), use of different units of analysis, and different approaches to performance measurement.

As far as the knowledge of the study is concerned, there is no empirical study that is conducted in the area of SCM practices and operational performance (i.e. from perspectives of suppliers partnership, customers management, information sharing and integration practices on operational performance) and test market orientation as mediator , which incorporate upper and down streams industrial companies in Sudan.

1.3 Questions of the study:

1) What is the relationship between SCM practice and operational performance?

2) Is there is any relationship between SCM practice and market orientation?

3) What is the relationship between market orientation and operation performance?

4) Does the market orientation mediate the relationship between SCM practice and operational performance?

1.4 Objectives of Study

The specific objectives of the study are:-

1. To assess the relationship between supply chain management practices and operational performance.

2. To assess the relationship between supply chain management practices and market orientation.

3. To assess the relationship between operational performance and market orientation.

4. Finding out the mediating factor of market orientation on SCM practice and operational performance.

1.5 Significance of the Study

Theoretical :

1. This study attempt to integrate supply chain management practice and market orientation and operational performance deriving the theoretical framework.

2. Contribute to narrow the gap in the literature on the generalization of the causal relationship between SCM practices and performance.

3. This study attempt to link between the RBV theory and the market orientation.

4. Contribute to gap in the literature on the relationship between the dimension market orientation and the dimension of operational performance.

5. Help future researchers who are willing to conduct study on this topic.

Practical:

1. Help to better understand the processes of SCM practices in related with the manufacturing company under consideration.

2. Help to identify bottlenecks, waste, problems and improvement opportunities in the supply chain process of the company.

3. Use as a guide line to facilitate a more open and transparent communication and cooperation among supply chain partners of the company.

4. Help to identify which SCM practice (s) is more contributing for success of operational performance of the company.

1.6 Scope of the Study

SCM encompasses vast areas of managerial practices. However, it is difficult and unmanageable to conduct the study in all areas that summarizes SCM in terms of time, finance, and researches manage ability. Therefore, the scope of this study is delimited to SCM practices and operational performance of manufacturing company in Sudan.

The subject scope of this study is also delimited to the company's point of reference towards strategic supplier partnership, customer relationship, level of information sharing, communication and speed and integration. In terms of operational performance the study was delimited to operational (which was measured by price/cost, quality, delivery dependability and time to market) and market orientation (which customer orientation, competitors orientation.) The area of the study is also delimited to the manufacturing companies, through

assessing how the company interacts with their upper stream (suppliers)and the down streams of the supply chain.

1.7 The Operalization definition of key Terms:

Supply chain management:

Supply chain management is an integrated approach beginning with planning and control of materials, logistics, services, and information stream from suppliers to manufacturers or service providers to the end client. (Ou et al., 2010).

Supply Chain Management Practice:

SCM practices are defined as a set of activities undertaken in an organization to promote effective management of its supply chain (SuhongLia et al, 2006), like the Customer and supplier management, information sharing, communication and speed and integration practices (Abdelsalam 2013).

Operational performance:

Operational performance is a source of competitive advantage for the enterprise to differentiate itself in the eyes of the customers from its competitors by operating at a lower cost and hence at a greater profit (Christopher, 1992)**.**

Quality:

Quality has been defined in terms of conformance to specification and hence quality-based measures of performance have focused on issues such as the number of defects produced and the cost of quality Alberto Bayo-Moriones . Javier Merino-Díaz de Cerio (2002) **.**

Cost:

This results in low cost products thanks to the reduction of waste and enables the factory to give value to customers, AnneliePettersson (2008).

Time to Market:

This means fulfilling delivery commitments. On-time deliveries may have a significant impact on customer satisfaction, Moriones and Cerio(2002).

Market Orientation:

Define market orientation as organization culture based on three components: customer orientation, competitor orientation, and inter functional coordination, and names this instrument as MKTOR, Ramayah et al (2016)**.**

Customer orientation:

Defined as Customer orientation refers to firms ability in creating excellent value for customers and understanding the supply chain network (Deshpande & Farley, 2004; Narver & Slater, 1990; Narver, Slater, & MacLachlan, 2004; Tan, Bi, & Smyrnios, 2014**).**

Competitor orientation:

Competitor orientation is defined as ability of firm in identifying strength, weaknesses, long-term capabilities and strategies in order to gain market competitiveness (Day & Wensley, 1988; Samat, Ramayah, & Saad, 2006)**.**

1.8 Organization of the study

This project paper is organized in to five chapters: Chapter one contains the introduction part dealing with back ground of the study, the research problem, objectives of the study, scope and significance of the study. The second chapter discusses the literature review about the subject matter .In chapter three the theoretical framework and hypothesis development and research methodology were presented .In chapter four presents results and discussion of the study and finally, chapter five presents the summary of major findings, conclusion and forwarded.

Chapter Tow

Literature Review

2.0 introductions

This chapter contains the literature review of study, the concepts and definition of study variables and dimensions of the variables.

2.1 Concept of the Supply Chain:

The definition of supply chain management the integration of business processes from end user through original supplies that provides products , services and information that add value to customers (Galaskiewicz 2011 " (Cooper and Ellram 1993, La Londe and Masters 1994 , Lambert , Stock , Ellram, 1998) . La Londe and Masters Proposed that a supply chain is a set of firms that pass materials forward. Normally several independent firms are involved in manufacturing a product and placing it in the hands of the end user in a supply chain – raw material and component producers , product assemblers, wholesalers , retailer merchants and transportation companies are all members of a supply chain (La Londe and Masters 1994)(Abdelsalam Adam and Siddig blal 2013) . (Bayode 2016) stated, the planning and management of all activities involved in sourcing and procurement, conversion, and all logistics management activities." (The Council of Supply Chain Management Professionals, 2015). Supply chain management is an integrated approach beginning with planning and control of materials, logistics, services, and information stream from suppliers to manufacturers or service providers to the end client; it represents one of the most important change in business management practices It is one of the most effective ways for firms to improve their supply chain performance (Ou et al., 2010).

A successful SCM implementation is expected to enhance the relationship between upstream suppliers and downstream customers, and thereby increase customer satisfaction and firm performance. Prior research has indicated SCM as a key driver of firm performance (Tan, 2002). SCM comprises particular approaches and practices in order to effectively integrate suppliers, manufacturers, distributors, and customers to improve the sustained performance of individual firms and supply chain altogether in a cohesive business model (Chopra and Meindl 2001).While SCM primarily targets inefficiencies along supply chain, it also involves effective customer demand anticipation, optimal resources positioning corresponding to this demand and its effective fulfillment through healthier materials, information, and financial management. AnneliePettersson(2008)astated the definition of some authors:

Christopher (1998) defines SCM as the management of upstream and downs team relationships with suppliers and customers to deliver superior customer value at less cost to the Supply chain as a whole, Johnston (1995) defines SCM as the process of strategically managing the movement and storage of materials, parts and finished inventory from suppliers through the firm to customers. Kranz (1996) defines SCM as the effort involved in producing and delivering a final product from a supplier's supplier to the customer's customer. Carter et al. (1995) define SCM as a coordinated approach for managing the flow of goods from suppliers to ultimate customers, and that the goal is to meet customer service objectives while minimizing inventory and related costs. Simchi-Levy (2000) says that "Supply Chain Management is a set of approaches utilized to efficiently integrate suppliers, manufactures, warehouses and stores, so that merchandise is produced and distributed at the right quantities, to the right locations, and at the right time, in order to minimize system wide costs while satisfying service level requirements".

2.1.2 Supply chain management philosophy:

Abdelsalam(2013) stated that, Supply chain management as management philosophy takes a system approach to viewing the supply chain as single entities. This means that the partnership concept is extended into a multi firm effort to manage the flow of goods from suppliers to the ultimate customers. (Klemencic ,(2006) .Supply chain directly and indirectly affects the performance of all the other supply chain members, as well as ultimate, overall supply chain performance (Cooper et al, 1997). This reviewing of development of supply chain management supported by the philosophy that chain management built on there are several **characteristics of supply chain management as following:**

- A systemic approach to viewing the supply chain as whole and managing the total flow the supplier to ultimate customer (Menter, 2001).

- A strategic orientation toward cooperative effort to synchronize and converge intra-firm and inter-firm operational and capabilities into unified whole.

- A customer focuses to create unique and individualized source of customer value leading towards customer satisfaction. (Mentezer et al 2001, Klemencic ,2006).

- Efficient operations performance by ensure smooth flows of sources. (Klemenic , 2006).

-Determine the requirement of successful implementation supply chain management philosophy.

-Integrated behavior (Mentzer ,et al , 2001).

-Access and sharing information (Greene 1991).

-Cooperation and coordination (Ellram and cooper 1990 , Tyndal , 1998) .

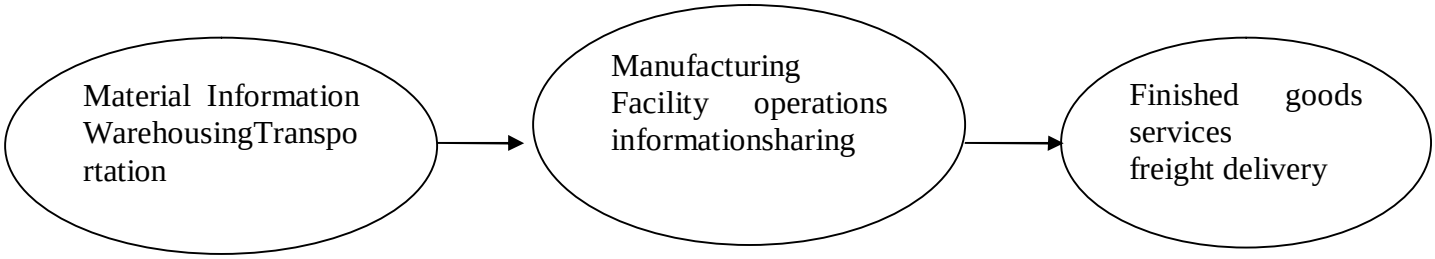
-Focusing in serving customers.

-Built long –term relationship (Mentzer , et al ,2001) .

Above review of the literature of supply chain management philosophy showed the supply chain management as system approach build on (input – process – output) .

The following shape describe the system approach

Figure 2.1



Mentzer , JT 2001 , supply chain management , SAGE publications, international Education and professional p4

Its idea of coordination of supply chain from an overall perspective is more accurately called supply chain orientation. The actual implementation of this orientation across various companies in supply chain is more appropriately called supply chain management Vrijhoefl and koshela (1991). Supply chain orientation as defined before , recognition by an organizational of the systematic, strategic implication of the tactical activities involved in managing the various flows in supply chain the implementation of supply chain orientation requires several companies in the supply chain to utilize supply chain processes to realize the set of management activities , the author regard supply chain orientation as first step (and a prerequisite) towards SCM and summaries it into three main characteristics of supply chain members:

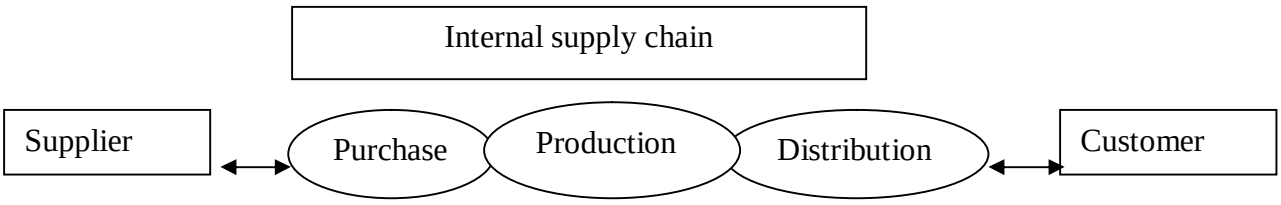
The supply chain members should have a system approach and regard the supply chain as whole. A strategic orientation where cooperative efforts by the supply chain members should synchronies and converge operation as well as strategic capabilities into a unified whole.A focus on customer value in order to create customer satisfaction. In other words, a supply chain orientation is a management philosophy, and supply chain management is the total of all the

overt management actions undertaken to realize that philosophy .This leads closer to understanding and defining supply chain management(Abdelsalam 2013).

2.1.3 Supply chain objective:

The basic objective of supply chain management is to "optimize performance of the chain to add as much value as possible for the least cost possible". In other words, it aims to link all the supply chain agents to jointly cooperate within the firm as a way to maximize productivity in the supply chain and deliver the most benefits to all related parties (Finch 2006). Furthermore, (Mentzer 2001) the significant importance of SCM as" the systematic, strategic coordination of the traditional business functions within a particular company and across businesses within the supply chain, for the purposes of improving the long term performance of the individual companies and the supply chain as a whole".(Ferry Jie,al.et 2007).

The primary objective of supply chain is customer satisfaction. In a way that the concerning product with the highest quality and the minimum price and by the concerning time to be delivered to customers. In order to optimize the inside chain supply chain process each member must be coordinated with other members. Fig. 1 displays supply chain process in a schematic manner.



Fig(2.2)Supply Chain Process

2.1.4 Supply chain management practices:

The SCM practices refer to complete set of actions which are done in organizations towards to improve the efficiency in the internal supply chain. The modern evaluation of the SCM practices that comprises of partnership with the supplier, process of outsourcing, compression of cycle time, continuousness of process flow and sharing or technology and information by using purchasing the quality and relations with the customer (Tan, annan, & Handfield,1998) ,

SCM practices are defined as a set of activities undertaken in an organization to promote effective management of its supply chain (SuhongLia et al, 2006). Supply base management refers to how firms utilize their suppliers processes , technology and capabilities to enhance supply chain performance and competitive advantage (Farley , 1997) , and how the manufacturing , logistics , materials , distribution and transportation functions are coordinated within organizations (Lee and Billington , 1992) , also Mentzer et al ,(2001) state that SCM in practice means includes the involved companies planning and strategy for coordination of their supply chain, including collaboration between functions internally as well as across company .

Six Aspects of the SCM practices all the way through the factor study, integration of SC, sharing of information, characteristics of supply chain management of client services, physical proximity also the capabilities of just in time (J.I.T)(Chen &Paulraj, 2004) Relationship in long-standing communication, cross functional team and participation of vendor for the Purpose of measuring the relationship of supplier buyer. It is explained as the long-term based association between company and the supplier. The purpose is to achieve the long term based benefits in the way of achieving the organizational benefits (Abdelsalam and Sidigbalal, 2013).

It provides the organizations with the supplier and they help the organization in the process of planning and solving any problem. It enable the organization to work effectively and efficiently with the key supplier who are ready to bear the responsibility about the success or failure of the product and the services. The supplier involvement to designing process of the product and services could be cost efficient (Tan, Lyman, & Wisner, 2002).in the other side of relationship Customer Relationship involves managing the complaints of the customers and fast solutions to their problems this helps the organization for maintaining the long term and good relationship with the customers.

with refer of the literature review that study supply chain management practice in the literature review the dimension of the supply chain management practice have many dimensions and there is no acceptable framework of dimensions , according to the many studies (suppliers and customers management , information sharing , speed of responsiveness & relationship ,integration) this dimensions is more shared between authors than others dimensions . (Abdelsalam , 2013) .

2.1.4.1 Customers and suppliers management:

This aimed to integrate the customer and supplier specification in design, set the dimensions of customers and suppliers measurements (Bhagwat, et al.2007) Many firms are reducing the number of primary suppliers and allocating a majority of the purchased material requirements to a single source This action provides multiple benefits including:

(1) Fewer suppliers to contact in the case of orders given on short notice,

(2) Reduced inventory management costs.

Customer's management:

Organizations depend on their customers and therefore should understand current and future customer needs, meet customer requirements, and strive to exceed customer expectations. Customer relationship management (CRM) is an important component of SCM (Gharakhani, et al. 2012). The nature of customer relationships have conceptualized along acontinuum ranging from creating relationship (interaction) Izquiredo ,et al, (2005) . Customer relationship is aimed to manage customer complaints and expectations , improve customer satisfaction (Hoots, 2004 ; Bagchi et al , 2006) , maximize customer loyalty and retention (Ngai, 2005; Leverin&Liljander , 2006) , reduce cost increase profitability Ngai , (2005) and build long –term relationships (Bennani , (2007) . Collaborative relationships with customers normally revolve around turst building shared burden, long – term commitment and fair negotiation Chin et al, (2011). Strategic partnerships with customersenanle organizations to fully cooperate with the most profitable customers. Kalacota and Robinson (1999) considered that customer relationship management can be seen as the consistent organizational activity under usage of integrated selling, marketing and service strategy. That is, trying to define the real need of the customer, by the enterprise integrating various process and technology, in asking internal product and service improvement, in orderto drawn effort of enhancing customer satisfaction and loyalty.

Customers participating in the initial stages of the development process can help to raise information about potential improvements and innovations Lagrosen,(2005) . Customers are involved in reference groups to provide suggestions and their product requirement. Many firms have begun to switch from a product – centric approach (Xu et al , 2002) , as now delivery superior customer value is becoming vital for the success of the firms Wang , et ,al (2004) .

The customer –centered approach , coupled with customer relationship management (CRM) software allows organizations to unite the relationship marketing strategies and information technology (IT) to develop mutually beneficial and valuable long – term relationships with customers and other key stakeholders (Dimitriadis& Stevens , 2008) .

Suppliers management:

Suppliers partnership represents the long –term relationship between the organization and suppliers .An effective suppliers management can be a critical component of a leading edge supply chain Gharakhani ,et al ,(2012) . Through strategic supplier partnership, organization can work closely with suppliers who can share responsiplity for the success of the company . Effective partnership is dependent upon an environment grounded in mutual trust , loyalty , positive sum game , fairness in negotiation, goal and intent revelation ,and commitment among partners (Chandra and Kumar, 2000). Good partenerships have regarded as strategic decision in sharing of risks and benefits, reducing cost and continuous improvement in allspheres of their activities (Tumala , et al , 2006) ,Survey conducted on Crotain companies from manufacturing and service sectors showed that collaboration with other firms or organizations , also include suppliers, innovation . Such strategic supplier partnerships should enable successful SCM. Bhagwat, et al (2007) many firms are reducing the number of primary suppliers and allocating a majority of the purchased material requirements to a single source. Fewer suppliers to contact in the case of orders given on short notice.

Reduced inventory management costs.

Improved trust due to communication.

Improved performance shin et al. (2000) and customer service.

Good relationship management with suppliers and customers is a crucial of supply chain management. In the past, emphasis was placed on the importance of adversarial or arms-length relationships as the way of doing business. Now , closer , trust – based and long- term relationships with supply chain partners is imperative in sustaining competitive advantage as no company could maintain leadership in all of the different critical technologies required for producing a wide range of products . The non-core processes, sometimes with part of the core processes, have to be outsourced. Tompkins (2002) found that long –term partnerships should be built on trust and mutual desire to work together and there should be no obstacles that hinder information transfer .Oliver and Delbridge (2002) also discovered that long- term and trust – based relationships and win-win partnerships must be based on the agreed rules for sharing risks and benefits, rather than price-based competition for good supply chain parties can gain management practices . Through this relationship supply chain parties can gain managerial, technological, and also financial benefits. These include increased mutual dependence, enhanced, willingness to share information and knowledge, exploitation of new technology, and pursued long0term commitment Elleram, (1991).Procter&Gamble (P&G) improved its on-time deliveries to Wal-Mart through such a strategic partnership development Simchi- Levi et al, (2000) . In this strategic area, there are two key operational issues namely, communication channels and cross-functional teams, which are elaborated below (Chin,et al 2004) .

2.1.4.2 Supply chain integration:

The integration of supply chains has been described as: attempting to elevate the linkages within each component of the chain, to facilitate better decision making and to get all the pieces of the chain to interact in a more efficient way and thus create supply chain visibility

and identify bottlenecks .The main drivers of integration are listed by Handfield and Nichols (1999) as:

- The information revolution;

- Increased levels of global competition creating a more demanding customer and - demand driven markets; and

- The emergence of new types of inter-organizational relationships.

They described the three principal elements of an integrated supply chain model as being information systems (management of information and financial flows), inventory management (management of product and material flows), and supply chain relationships (management of relationships between trading partners). The basis of integration can therefore be characterized by cooperation, collaboration, information sharing, trust, partnerships, shared technology, and a fundamental shift away from managing individual functional processes, to managing integrated chains o processes. The extent of integration can begin with product design, and incorporate all steps leading to the ultimate sale of the item (Transportation and Distribution ,Modern Materials Handling , (Graham.& Stevens 1989) stated that to developing an integrated supply chain that evolving number of stages:

Stage1: ("base line") is typified by the company that vests responsibility for different activities in the supply chain in separate, almost independent, departments. Even in relatively small concerns the "base line" **.**

Stage 2: Companies typically apply time phased planning to the materials and manufacturing management areas using MRP or MRPII techniques. Within the distribution network, demand will continue to be aggregated**.**

Stage 3: Stage of development recognizes that there is very little point in just focusing on the flow of goods into the organization unless the flow is well managed on the way to the customer. This stage involves the integration of those aspects of the supply chain directly under the control of the company and embraces outward goods management, integrating supply and demand along the company's own chain.

Stage 4: That full supply chain integration is achieved by extending the scope of integration outside the company to embrace suppliers and customers.

2.1.4.3 Communication and speed:

Mohaghar et.al (2011) defined it as a meaningful and on time share of information in a formal or informal ways between companies Effective two-way communication is demonstrated throughout the literature as essential to successful supplier relationship. Effective inter organizational communication could be characterized as frequent, genuine, and involving personal contacts between buying and selling, personnel or customer, supplier (Ellram 1997). In order to jointly find solutions to material problems and design issues, buyers and suppliers must commit a greater amount of information and be willing to share sensitive design information The quality of communication, information sharing and participation are all significant predictors of successful SC relationships. Mohaghar, et al(2011). Communication channels have to be well developed in order to enhance interactions and communications within and across organizations (Cooper and Ellram, 1993). Communication is an essential ingredient and lies at the heart of information transfer (spekman et al, 2002). Frequent communication of objective, measurements, and upcoming changes can keep all parties to relationships to a partnership House and Stank, (2001). In addition communication channels can enable the entire supply chain to have quick response and flexibility to meet the ever-

changing needs of the marketplace. Meanwhile, personnel at different levels within both organizations can propose suggestions or feedback for continuous improvements, and also receive and transmit required information with customers and suppliers for decision making .this explains why communication among individuals , groups and organization interaction are critical along the supply chain .

2.1.4.4 Information sharing:

Information sharing refers to exchange of information among companies, customers and suppliers. Lee (2002) stated that information should be interoperable, which means that one system can talk to another. Simatupang and Sridharan, (2002) defined information sharing as the access to private data between business partners thus enabling them to monitor the progress of products and orders as they pass through various processes in the supply chain. The Information links between internal primary data repositories and business applications and those of partners allow faster demand forecasting and planning (Zailani, 2005). The author adds that the technological wave of internet and e-commerce provides a new opportunity to create a “smart” integrated supply chain.

Information exchange with suppliers. How much information is shared affects the company-supplier bond. Narasimhan and Kim (2002) lists market information exchange between company and suppliers as an indirect determinant of performance. Level of organization linkage with customers through information network. Organization linkage refers to the bond between the company and customer(s). Formation of an informal information network helps in company-customer information sharing, which directly strengthens the bond between them (Narasimhan and Kim, 2002). Due to the "explosion" of system–wide information and communication technologies, supply chain members can share rich information to lower costs

more than ever before. In order to improve the effectiveness of SCM , different kinds of software tools and techniques are being employed that allow speedy information transfer and make it more useful and applicable under different situations along the supply chain . In the following, three operational factors, namely, Web-based IT tools, fact-based decision making support, and engineering materials flows. Chin, et al (2004), found that the effective management of material flows in the supply chain is the most imperative strategic success factor .Towill et al (2000) opined that control of a smooth low lies at the best SCM design and practices and re-engineering of material flows can improve supply chain performance. Moreover, the efficient flow of material ensures products are delivered to customers on time. This implies that inventories of raw materials, work –in-process (WIP) and finished goods can be kept at the lowest level, which can reduce the inventory holding costs significantly, Fredendall and Hill, (2001). There are two operational issues to be addressed in this area, namely, reducing inventory levels and logistic network design. Reduction of inventors across the supply chain organization is one of the major driving forces to examine a critically various supply chains and the associated processes. Matching supply chain and demand accurately is a critical challenge as distorted information (i.e. due to bullwhip effect) from one end of supply chain to the other can occur at anytime, which results in excessive inventory, poor product forecasts, insufficient or excessive capacities, poor customer service and high costs for corrections, However, a variety of approaches are being employed to keep the minimum inventory levels. Logistic network design, development of an effective logistics network is essential to support an efficient flow of various kinds of materials, such as raw materials , work-in-process (WIP) and finshed goods among supply chain members. With this logistics network , channel members can minimize annual system –wide costs, including production and

purchasing costs , inventory holding costs , facility costs (storage , handling, and fixed costs) and transportation costs to meet different servise levels of requirements Simch-Levi et al ,(2000).

Table (1.2) Supply Chain Practice

Author	Description
(Donlon 1996)	Supply chain practice includes supplier partnership, outsourcing, cycle time compression, continuous process flow and information sharing
(Tan et al. 1998)	Supply chain practice includes purchasing, quality, and customer relations
(Alvarado &Kotzab 2001)	Using inter-organizational systems in supply chain practice
(Tan et al. 2002)	Using inter-organizational systems in supply chain practice such as EDI, and elimination of excess stock levels by postponing customization toward the end of the supply chain
(Chen &Paulraj 2004)	Using supplier base reduction, long-term relationship, communication, cross-functional teams and supplier involvement to measure buyer-supplier relationships
(Min &Mentzer 2004)	There are seven elements of supply chain practice such as agreed vision and goals, information sharing, risk and award sharing, cooperation, process integration, long-term relationship and agreed supply chain leadership
Chowa, et al ,2008	There are for elements (suppliers and customer mgt, information sharing, speed of communication, supply chain features) .
Sukati , et al , 2011	Strategic supplier partnership, customer relationship, information sharing.
Chin et al ,2011	Information sharing, customer relationship, strategic supplier partnership, material flow management and corporate culture.
Adebayo (2012)	Strategic supplier partnership, customer relationship, level of information sharing, Quality of information sharing, and internal supply chain process (Postponement).
Woldemichael(2012)	strategic supplier partnership, customer relationship, quality and degree of information sharing and internal lean practice
Abdelsalam ,2013	Customer and supplier management, information sharing, responsiveness and integration.
Valmohammadi,(2013)	Geographical proximity of suppliers, outsourcing, strategic planning, Information technology (IT)such as the EDI, ERP, e-procurement and CRM, holding safety stock, strategic supplier partnership, supply chain performance, information sharing and coordination, postponement and customization, supply chain benchmarking, subcontracting
Mwale (2014)	Outsourcing, strategic supplier partnership, customer relationship, information Sharing, postponement, quality of information sharing and lean practices.

2.2 Operational performance:

Performance measurement has defined as systematic process of efficiently and effectively quantifying a concept or an action sundram ,et.al(2011). Supply chain management, analysis, and improvement are becoming increasingly important. The literature includes apporouches to supply chain management in addition to supply chain models. The performance measures utilized in these models directly affects their real –world applicability of these measures,Banihashemi ,(2011). The supply chain is a complex system with many interfaces and dynamic interaction; it is significant challenge to define results. Supply chain consists of all parties involved, directly or indirectly, in fulfilling a customer request. The supply chain not only includes the manufacture and supplier, but also transports, warehouse, retailers, and customers themselves Banihashemi, (2011).(Ku et al .2015) The operations strategy of the company indicates the importance of each of the performance dimensions; the supply-chain-management literature reports a number of studies on the operational performance benefits that a firm derives from linking with suppliers and with customers (Fantazy et al. 2010).Previous research found that information exchanges among supply chain entities lead to improved quality consistency, delivery lead time, ability to change volume quickly, and price (Schwarz et al. 2010; Wong et al. 2011a). Supply chain practices underlying supply chain integration dampens demand amplification effects along the supply chain, consequently reducing inventory-carrying costs and improving delivery performances.

Subject of the measurement, evaluation and conceptualization of operational performance in a company is a recurrent theme in the different areas of the academic literature. One of the first general classifications, and one that has been widely used, is that of Venkatraman and Ramanujam (1986). They adopt a strategic management perspective and focus on the

measurement to establish a division between financial and operational performance, with the emphasis on the latter. Following a similar line, Kaplan and Norton (1992) believe that the traditional measurements of financial performance are no longer valid for today's business demands. Therefore, they consider that operational measurements of management are needed when dealing with customer satisfaction, internal processes and activities directed at improvement and innovation in the organisation, which lead to future financial returns.

Manufacturing performance, which encompasses part of the operational performance previously mentioned, is commonly used in the field of operations management. This type of result takes into account the company's performance in reaching its basic objectives, that is, productivity, quality and service. There are several studies which aim to establish a classification of this kind of results (Corbett and Van Wassenhove, 1993; Neely, Gregory and Platts, 1995; Filippini, Forza and Vinelli, 1998). For example, Corbett and Van Wassenhove's model considers three dimensions of performance:Cost or efficiency, quality and time .Efficiency refers to the best possible use of all available resources in order to maximize output.

Operational performance is a source of competitive advantage for the enterprise to differentiate itself in the eyes of the customers from its competitors by operating at a lower cost and hence at a greater profit (Christopher, 1992). Li *et al.* (2006) also describes the dimensions of the competitive advantage constructs are price/cost, quality, delivery dependability, product innovation, and time to market. Based on the above used study, the researcher adopts price/ cost, quality, delivery and time to market as dimensions of competitive advantage to measure operational performance in this study.

2.2.2 Cost:

This results in low cost products thanks to the reduction of waste and enables the factory to give value to customers.

2.2.2.1 Logistics cost versus Supply Chain Cost

AnneliePettersson (2008) Logistics cost and Supply Chain Cost (SCC) is two terms that are used both in the industry and the academic world. SCC cost has a wider definition than Logistics cost in accordance with the wider scope for Supply Chain Management compared to Logistics Management. Logistics cost is normally referred to as cost components related to distribution cost and cost for warehouse as reflected by the definition of logistics according to Lambert et al (1998). SCC is the total cost in the Supply chain. Bowersox and Closs (1996) define SCC as cost components related to: Order handling, Purchasing, Stock handling , Manufacturing and Systems needed to handle the Supply like for example the order system. Ayer (2001) writes that the SCC is sometimes considered being the same as Logistics Cost. Due to this, some misunderstandings regarding these two terms may exist

2.2.2.2 Supply chain cost:

In this thesis, Supply Chain Cost is defined as all cost in a Supply chain. Analysis of SCC can be performed in different ways. Different kind of grouping of cost can be found in the literature. Bowersox and Closs (1996), Chen (1997), Sachan et al. (2005) and Byrne and Heavey (2006) have done similar definitions. These definitions use for example different terms for the same thing like Production cost in the definition of Chen (1997) and Manufacturing cost in the Bowersox and Closs (1996) definition. Su et al. (2005) make a general definition without defining the cost types into different groups. Chen (1997) says that SCC can be placed

in the five categories: production cost, transportation cost, warehousing cost, inventory carrying cost and Internal material handling cost. Sachan et al. (2005) have studied the total Supply Chain Cost in the Indian grain chain. They define the total Supply Chain Cost as the sum of farmer's price, total additional cost, total mark-up and total wastage. Farmer's price is the cost of growing and processing the grain and the margin for the farmer. Additional cost includes: (Inventory holding cost, Materials holding cost, transportation cost, order processing cost , packaging cost)

2.2.3 Quality:

Traditionally quality has been defined in terms of conformance to specification and hence quality-based measures of performance have focused on issues such as the number of defects produced and the cost of quality. With the advent of total quality management (TQM) the emphasis has shifted away from conformance to specification and moved towards customer satisfaction. In either case, firms must obtain high levels of quality performance in order to improve or, at least, maintain their level of competitiveness. Alberto, Bayo-Moriones . Javier Merino-Díaz de Cerio (2002).

2.2.4 Time:

The first dimension of time-based performance is reliability. This means fulfilling delivery commitments. On-time deliveries may have a significant impact on customer satisfaction, which makes it an issue to be taken seriously in operations management. The second time related dimension refers to the speed of production processes, which is frequently measured as the time elapsing between materials reception and delivery of product to the customer. One of main goal of just-in time (JIT) and other production planning and control systems (e.g., Optimized Production Technology) is to improve the flow of production processes, in order to

respond more rapidly to customer demands. Based on the above used study, the researcher adopts the cost, quality is dimension of operational performance, Alberto Bayo-Moriones . Javier Merino-Díaz de Cerio(2002)

2.3 Market orientation:

2.3.1 The concept:

Market orientation has been defined as a strategic orientation toward being responsive to the needs of customers, which is rooted in an organization's culture (Kohli and Jaworski, 1990; Narver and Slater, 1990). A growing literature has examined the benefits market orientation brings to a firm (Jaworski and Kohli, 1993). It has been shown to enhance firm performance in a variety of organizational and industrial contexts (Narver and Slater, 1990; Slater and Narver, 1994). The concept of market orientation has been developed by marketing scholars as a strategic framework to explore how firms pursue and secure sustainable competitive advantage (Kumar et al., 2011). In the literature, the impact of marketing on firm performance has been operationalized through development of the concept of market orientation and formulation of measures to assess this (Narver and Slater, 1990). Market orientation has been defined as a strategic inclination toward being responsive to the needs of customers, which is rooted in an organization's culture (Jaworski and Kohli, 1993; Kohli and Jaworski, 1990). The primary objective of a firm's market orientation is to provide superior customer value based on insights gained from analysis of customer and competitor behaviors, and the balance between the two (Avlonitis and Giannopoulos, 2012).

2.3.2 Building companywide marketing orientation:

Many companies are beginning to realize that their organizations are not really market and customer-driven—they are product or sales driven. Companies such as Baxter, General

Motors, and Shell are working hard to reorganize themselves into true market- driven companies. The task is not easy: it requires changes in job and department dentitions, responsibilities, incentives, and relationships. To create a market- and customer-focused company, the CEO must: convince senior managers of the need to be more customer-focused; appoint a senior marketing officer and marketing task force; get outside help and guidance; change reward measurement and system to encourage actions that build long-term customer satisfaction; hire strong marketing talent; develop strong in-house marketing training programs; install a modern marketing planning system; establish an annual marketing excellence recognition program; consider restructuring as a market-centered organization; and shift from a department focus to a process-outcome focus.

DuPont successfully made the transition from an inward-looking to an outward- looking orientation when it began building a "marketing community" by reorganizing divisions along market lines and holding marketing management training seminars for thousands of managers and employees. The company also established a marketing excellence recognition program and honored employees from around the world who had developed innovative marketing strategies and service improvements. It takes a great deal of planning and patience to get managers to accept customers as the foundation and future of the business, but it can be done, as the DuPont example shows. (Marketing Management, Millenium Edition by Philip Kotler-2002).

2.3.3 The dimension of Market Orientation:

Ramayah et al (2016) mentioned that (Narver & Slater, 1990) define market orientation as organization culture based on three components: customer orientation, competitor orientation, and inter functional coordination, and names this instrument as MKTOR. Defined as Customer orientation refers to firms ability in creating excellent value for customers and understanding

the supply chain network (Deshpande & Farley, 2004; Narver & Slater, 1990; Narver, Slater, & MacLachlan, 2004; Tan, Bi, & Smyrnios, 2014). And Competitor orientation is defined as ability of firm in identifying strength, weaknesses, long-term capabilities and strategies in order to gain market competitiveness (Day & Wensley, 1988; Samat, Ramayah, & Saad, 2006)

Research on market orientation reveals three dominant conceptualizations, all of which suggest ways to create and deliver superior value to customers (Langerak, 2001), introduced by Kohli and Jaworski (1990), Narver and Slater (1990), and Deshpande et al. (1993). Then Narver, Slater, and MacLachlan (2004) combined these three conceptualizations through a synthesis of previous approaches that also aimed to extend their boundaries. They argue that market orientation exists in two essential and complementary forms: "reactive" (or "driven by the customer" in Slater and Narver's [1998] terms and "constrained by the customer" in Day's [1999] terminology) and "proactive". The latter refers to a company trying to uncover and satisfy the customer's latent needs. Yet, in a previous work, Narver et al. (2000) showed that including a proactive market orientation significantly increases the explanatory power of the reactive market orientation on company's performance, and introduced the concept of "total market orientation". The underlying rationale is that of a positive interaction, the two market orientations complement each other. In a consumer goods context, it is likely that firms engage in both simultaneously, and transition from one form to another is part of a dialectic influenced by the relationship between the company and its environment, i.e., consumers [demand] competitors [their behavior on the market] and market conditions [growth, stability, decline] in a broad sense (e.g. Kohli&Jaworski, 1990). To date, there is no study examining both proactive and reactive behaviors as dimensions of the same construct.

2 .3.4 Market Orientation and Firm Performance

To begin with, market orientation is a business culture that yields better performance through the firm commitment to creating and delivering value to customers (Slater &Narver, 2000). According to Kohli, Jaworskiand Kumar (1993), market orientation is a firm reaction to business environmental factors such as consumers and competitors. It comprises a suitable response to changes in the market needs (Wang, Chen, & Chen, 2012). Therefore, market orientation is a firm valuable intangible resource that is very rare, and cannot be imitated by competitors, due to the constant pursuit of knowledge about customers' need and strategy of the competitors (Didonet, Simmons, Dيaz-Villavicencio, & Palmer, 2012).In other words, it is a systematic information generation on current and possible customers and competitors, studying the information to understand the market and use the analyzed information to develop strategies (Lafferty &Hult, 2001). Several studies acknowledged the importance of market orientation on firm performance. For instance,Farrell and Oczkowski (2002)report that high firm performance is positively influence by market orientation of the firm. Aswell,Kara, Spillan and DeShieldsJr (2005) concord that market orientation is a significant predictor of small sized firm performance.

Therefore, small enterprises that are involved in market orientation activities found to perform better than those that have not thought through this essential orientation (Dauda&Akingbade, 2010). Similarly, SMEs performance study in Ghana shows that there is asignificant impact of market orientation on firm performance (Mahmoud, 2011). Equally, market orientation and performance relationship found to be significant in a study of 356 SMEs (Idar&Mahmood, 2011). By the same token, some studies examined the influence of market orientation and the individual elements on the performance and reported that they have

appositive influence on performance (Alam, 2010). Furthermore, some studies indicate that firm performance is positively affected by market orientation through other variables (Long, 2013; Wang, Chen, & Chen, 2012). Though, even with the remarkable importance of market orientation on firm performance, Keskin (2006)reports that there is no direct effect of market orientation on firm performance.Olavarrieta and Friedmann (2008) confirm this finding and conclude that market orientation no significant direct effect on firm performance. Similarly, Polat and Mutlu (2012) report that market orientation is not related to firm performance. In the same way, investigation on influence of strategic orientation measured by market orientation on innovation and business performance shows that it has no contribution to business performance (Ferraresi, Quandt, dos Santos, &Frega, 2012).

2.4 Supply chain management practice and operational performance:

According Shah *et al*.(2002),much of the current theoretical/ empirical research in SCM focuses on only the upstream or downstream side of the supply chain, or certain aspects/perspectives of SCM. However, there are certain previous researchers have devoted deal of attention to the relationship of supply chain management practice(s)and certain aspects of overall organizational performance from different perspective/dimensions or overall supply chain. Some of these researches finding are discussed as follow:

Alireza*etal*.(2011)conducted study on Malaysia Electronic Industry to present amodel for supply chain performance by employing supply chain design, supply chain information sharing ,and flexibility and delivery components as independent variables influencing supply chain performance. The results from this study depicted that supply chain design influences supply chain performance through delivery and information sharing .Furthermore, information sharing and delivery have a direct influence on supply chain performance. The

findings also showed that flexibility influences supply chain performance through delivery .Information sharing affects supply chain performance directly and has also an indirect impact on supply chain performance through flexibility. This study elaborates the significant effect of the design of the supply chain on its performance while considering the impact of information sharing. Moslem (2013), conducted research on impact of supply chain management practices on competitive advantage in manufacturing companies of Khuzestan province(Iran) by using strategic partnerships with supplier, customer relationship, information sharing, Quality of information sharing and internal lean practices as independent variables affecting the competitive advantage .The result from this study was indicates as there is relationships between SCM practices and competitive advantage. Lenny*etal*.(2007) conducted study on the impact of supply chain management practices on performance of SMEs in Turkey. Based on exploratory factor analysis (EFA), researchers were grouped SCM practices in two factors: outsourcing and multi-suppliers (OMS),and strategic collaboration and lean practices (SCLP). The results indicate that both factors of SCLP and OMS have direct positive and significant impact on operational performance. In contrast, both SCLP and OMS do not have a significant and direct impact on SCM-related organizational performance. Also, as the direct relationship between the two performance-constructs was found significant ,both factors of SCM practices have an indirect and significant positive effect on organizational performance through operational. On the research topic Supply Chain Management measurement and it s influence on Operational Performance conducted by Priscila and Luiz (2011),SCM measurements were considered as consists of information sharing ,long term relations, cooperation and process integration as independent variables influences operational performance in case of Brazilian companies. The empirical results of this study provided evidence of appositive impact of SCM

measurements on operational performance. Supply Chain Management, Product Quality and Business Performance in case of Malaysian manufacturing companies conducted by Arawati (2011)and the study specifically investigates relationships between SCM, product quality and business performance and these associations are analyzed and the result demonstrates that SCM dimensions namely 'lean production', 'new-technology and innovation' ,'strategic supplier partnership 'and 'postponement concept 'appear to be of primary importance and exhibit significant effects on product quality and business performance .Adebayo(2012) conducted study on SCM Practices in Nigeria Today :Impact on SCM Performance. The SCM practices considered in this paper were namely strategic supplier partnership ,customer relations practices ,information sharing ,information quality and postponement. This paper provides empirical justification for five key dimensions of SCM practices identified and describes the relationship among SCM practices and SCM performance as well as the impact of these practices on SCM performance .The study thus showed that SCM practices definitely impacts SCM performance. Mahbubul (2013) conducted research on Effect s of Supply Chain Management Practices on Customer Satisfaction in the pharmaceutical industry of Bangladesh: Evidence from Pharmaceutical Industry of Bangladesh. The results of the study indicate that SCM practices as observed in the industry comprise three dimensions, namely, collaboration and information sharing, logistics design and IT infrastructure, and organizational culture (OC). However, while the first two exert their impact on customer satisfaction, OC does not have any influence on it. Generally, from above literature reviews it can be easily understandable that the work on supply chain management measurements/ practices and its influences on different perspectives of the organization and overall supply chain partners increasing and yields good backgrounds. However, the relationship of SCM with performance cannot be regarded as

conclusive (Cousins, et al., 2006). Despite the increase of empirical research in the last few years, important differences in research design undermine comparability: lack of consensus about the definition and dimensionality of the SCM construct, use of different units of an analysis, and different approaches to performance measurement. Abdelsalam Adam (Desember 2013) conducted research on Supply Chain Management practices of Manufacturing Companies and supply chain performance , moderating role of Relationship Quality in Sudan Manufacturing Sector : the results of indicate that supply chain integration ,information sharing , communication speed have significant effect on supply chain performance efficiency, suppliers management and integration have significant effect on supply chain performance differentiation . Results also indicated that adoption of communication and commitment are significant predictors of relationship between supply chain management practices and supply chain performance . Furthermore , a new dimension was developed in supply chain management practices .

MustefaMohammed(June, 2014) conducted research on Supply Chain Management practice and Firm Performance in Case of Awash Tannery Plc in (Addis appa.): This research conceptualizes and develops five dimensions of SCM practice (strategic supplier partnership, customer relationship, level of information sharing, quality of information sharing, and internal lean practices) and tests the relationships between SCM practices, operational performance, and organizational performance, . From the result of the analysis it is concluded that there is strong relationship between SCM practices, operational performance and organizational performance. Besides, SCM practices have an influence both on operational performance and organizational performance. On the other hand, operational performance has also an influence on organizational performance. Therefore, in order to achieve advancement in marketing and

financial performance in the long-run through enhancing organizational performance, it is better for the organization to give due emphasis to the constructs of SCM practices and the measures of operational performance.

2.5The relationship between SCM practice and market orientation:

According to Soonhong Min et al (2007) Despite the logical association between market orientation (MO) and the supply chain management concepts of supply chain orientation (SCO) and supply chain management (SCM), and the potential mediating role of SCO and SCM in the MO-firm business performance (PERF) relationship, there have been few, if any, attempts to investigate MO in a supply chain context. Thus, this study tests the relationships between MO, SCO, SCM, and PERF. Results indicate MO has a strong, positive impact on SCO and SCM. Interestingly, SCO was found to have the largest direct influence on PERF, followed by MO, followed by SCM. Managers should realize that SCO is critical to fulfilling customer requirements, i.e., a firm's efforts to work with supply chain partners will not pay off if the firm is not supply chain-oriented. Although overshadowed by SCO, MO is still a foundation for managing the supply chain and has a positive impact on performance. The study of Martin and Grbac (2001) indicted that Building supplier relationships and becoming more market oriented have similar building blocks and have similar effects. also Strong supplier relationships tend to impact the firm's performance, in part, because the firm can respond to customer needs in a more timely fashion. Supplier relationships tend to be stronger in firms where there is cross-functional sharing of supplier and customer information. also he Saied Market orientation is an organizational culture that focuses the company on generating market information, cross-functionally sharing that market information, and rapidly responding to that market information to positively impact the performance of the firm. This study indicated

whether the positive effects of strong supplier relationships are enhanced in market-oriented firms. Results support the notion that supplier relationships are one way of leveraging a firm's market orientation through improved customer responsiveness. Cross-functional sharing of information appears to be the link that ties market orientation and stronger supplier relationships together. Ku et al (2015) conducted study to investigate how supply chain partnerships and customer orientation affect the operational performance of food service companies by moderating flexibility Companies will redefine their business models by connecting suppliers' and customers' view, and by integrating customers' opinions and queries for the planning and development of new products .His study found the Linkage efficiency suppliers will reduce inventory and decrease perishable for food service companies based on the driving force to buy in the virtual environment. Product innovation and reduction of the time to market by supplier integration and customer integration are important to food service companies, and flexibility plays an important role in food service companies.,

2.6 The relationship between market orientation and operational performance:

Zhang Long et al (2016) conducted study on market orientation and firm performance in Chinese IT enterprises , The purpose of this study is to investigate the effects of market orientation on business performance among these Chinese firms. The focus is to determine the applicability of the MARKOR constructs among these firms in an emerging market context and to see if superior customer value and high level of market performance is achieved. The findings of this study do indicate that there is a statistically significant positive link between market orientation and firm performance. Several studies acknowledged the importance of market orientation on firm performance. Aminu and Mohd (2014) in their study mentioned that, several studies

acknowledged the importance of market orientation on firm performance. For instance ,Farrell and Oczkowski (2002) indicate that high firm performance is positively influence by market orientation of the firm.As well,Kara, Spillan and DeShields Jr (2005) report that market orientation is a significant predictor of small sized firm performance. Therefore, small enterprises that are involved in market orientation activities found to perform better than those that have not thought through this essential orientation (Dauda &Akingbade, 2010). Moreover , SMEs performance study in Ghana shows that there is a significant impact of market orientation on firm performance (Mahmoud, 2011). Equally, market orientation and performance relationship found to be significant in a study of 356 SMEs (Idar & Mahmood, 2011). Ii the other hand , some studies examined the influence of market orientation and the individual elements on the performance and reported that they have appositive influence on performance (Alam, 2010). Furthermore, some studies indicate that firm performance is positively affected by market orientation through other variables (Long, 2013; Wang, Chen, & Chen, 2012). Mohammad Hakkak (2014) conducted study on Assessing the Effectiveness of Market-Orientation on Business Performance, The results of this study show a positive relationship between market-orientation and business performance in Iran Khodro Company, asJaakkola, and Frosen (2009) the study show there is a positive relationship between market-orientation and business performance, market-orientation and improvement of employee attitudes as well as market orientation and customer sales force of Grater

2.7 The mediating effects of market orientation:

Soonhong Min et al (2007) Market orientation (MO) plays a central role in marketing management and strategy, with focus on creating superior customer value while pursuing profits. Ramayah et al (2016) mentioned that (Narver & Slater, 1990) define market orientation

as organization culture based on three components: customer orientation, competitor orientation, and inter functional coordination, and names this instrument as MKTOR. Defined as Customer orientation refers to firms ability in creating excellent value for customers and understanding the supply chain network (Deshpande & Farley, 2004; Narver & Slater, 1990; Narver, Slater, & MacLachlan, 2004; Tan, Bi, & Smyrnios, 2014). And Competitor orientation is defined as ability of firm in identifying strength, weaknesses, long-term capabilities and strategies in order to gain market competitiveness (Day & Wensley, 1988; Samat, Ramayah, & Saad, 2006). Interfunctional coordination refers to firms capabilities in creating greater value for target customers (Jimenez- Zarco, Pilar Martinez-Ruiz, & Izquierdo-Yusta, 2011; Narver et al., 2004). These three dimensions emphasize proactive and responsive market orientation to customers (Gonzalez-Benito et al., 2009; Narver et al., 2004), and will initiate efforts within organization, reflect in strategies, organization behavior and performance (Roach et al., 2014).So the previous studies have identified the effect of market orientation on business performance (Baker & Sinkula, 1999; Boso, Cadogan, & Story, 2013; Chen et al., 2015; Cheng & Krumwiede, 2012; Jaworski & Kohli, 1993; Lam et al., 2012; Matsuno et al., 2002; Merlo & Auh, 2009; Morgan, Vorhies, & Mason, 2009; Narver & Slater, 1990; Samat et al., 2006). For example, (Gaur et al., 2011) conducted a survey on SMEs performance in India and found that three dimensions of market orientation (Narver & Slater, 1990) have significant relationship with SMEs performance.

In the side of SCM and market orientation, the conceptualization and implications of MO to date have been mainly in the context of individual firms, in spite of the growing importance of supply chain management (SCM). Market oriented-firms aim to better serve customer requirements based on market information obtained and shared between the employees in a

coordinative manner (Kohli and Jaworski 1990). In a previous literature (Lee et al. 2004) suggests external networks with suppliers and other partners (a supply chain) provide a firm with information on new technological and market opportunities and collaboration to exploit opportunities. Thus, firms interact with supply chain partners to acquire external resources and the necessary information to offer products that attract and retain customers and, so obtain performance superior to competition (cf. Lee et al. 2004). However, the value of supply chain social ties is contingent on such firm internal capabilities as market sensing through a market orientation (Day 1994). That is, although SCM concepts as the source of additional resources may mediate the MO-performance relationship, MO as the impetus for SCM concepts may still have direct, positive impact on firm performance, Soonhong Min et al (2007).

CHAPTER Three

Theoretical frame work & Hypothesis Development

3.0 Introduction :

This chapter will present the research framework and hypotheses that will test , the section in methodology highlights the sampling procedures , the measurements of variables, the development of research instrument , the administration of data collection , and the statistical techniques that used to test the hypotheses are discussed.

3.1 Conceptual framework:

The conceptual frame of study is contains three variables, independent variable (SCM practice), dependent variable (operational performance) and mediator variable (market orientation) and stated the dimensions from the previous literature.

3.2 Resource –Based View:

The resources based view (RBV) paradigm has its origins in strategic management .RBV explains that the identification and possession of internal strategic resources contributes to a firm's ability to create and maintain a competitive advantage and improve performance (Barney 1991;Hart 1995;Crook et al .2008).

The under pinning theory for the research framework is the RBVs of firm .RBV emphasizes the role of the firm's internal and external resources for the performance (Barney ,1991). Firm resources include assets, capabilities, organizational processes, firm attributes, information, and knowledge (Barney ,1991). The unique bundle of resources owned by firm performance

(Penrose , 1959;Wernerfelt,1995) .these resources include organization capability (Preaest ,1998) as coordination of different types of knowledge and integration of multiple flow of technology (Parhalad and Hamel , 1991). One important from of capability is the SCM capability , i.e. SCMP (Sari, 2008;Trkman et al ,2007;Maheshwari et al ,2006; Sanchez-Rodriguez et al , 2005). Wu et al , (2006) stressed that supply chain capabilities as a unique set of organizational capabilities and proposed four such capabilities namely , information exchange, coordination with partners , integration ability and supply chain responsiveness. In this context , supply chain capabilities is viewed as ability of the firms in identifying , and assimilating information ,and resources to facilitate the SCP (Wu et al , 2006). (Barratt and Oke 2007; Ketchen and Hult 2007 ;Sirmon et al ,2007 Chen et al ,2009) has found firms that possess and employ combinations of strategic resources can use them in a way that improves firm performance above and beyond the impact of individual resources .

The research conceptual framework

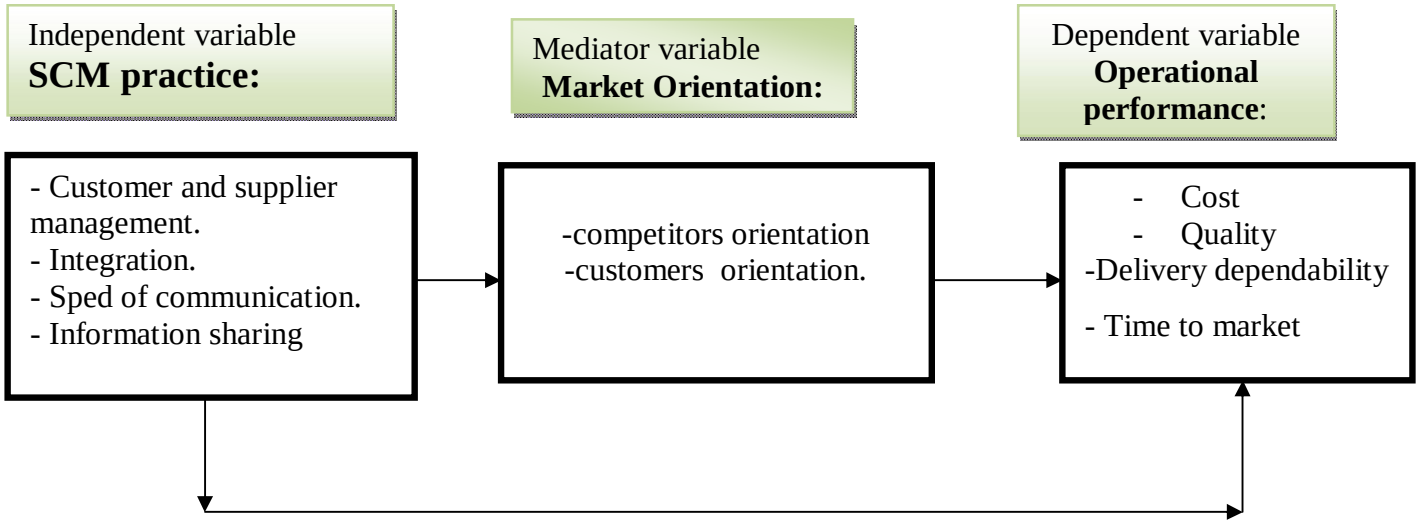


Figure (3.1) Conceptual framework of the study.(2017)

3.3 Hypothesis development:

As mentioned in the previous chapter of literature review or the previous studies we can develop the research hypothesis based on this studies and what they found.

Prior studies have indicated that the various components of SCM practices (suchas information sharing) have an impact on organizational performance .For example, Information sharing leads to high levels of supply chain integration (Li*etal.*,2006) by enabling organizations to make dependable delivery and introduce products to the market quickly. The higher level of information sharing is associated with the lower total cost, the higher-order fulfillment rate and the shorter-order cycle time(Moslem,2013). Based on these argument it is hypothesized that:

Hypothesis1: There is relationship between SCM practices and operational performance.

The dimensions of supply chain management strategy according to Wisner (2003) include, creating a greater level of trust throughout the supply chain, identifying and participating in additional supply chains, establishing more frequent contact with supply chain members, creating a compatible supply chain communication and involving all supply chain members in firm's product/service marketing plans. Mentzer et al. (2008) stipulated that supply chain strategies depend on a close interaction with in-company marketing and sales resources, processes and skills. Wisner (2003) established that supplier management and customer relationship strategy, which are consistent with the market orientation, have a positive impact on supply chain management strategy. Based on this arguments it is hypothesized that :

Hypothesis2 : There is relationship between SCM practice and market orientation .

Academic and practitioner attention towards the development of market orientation is explained and justified by a series of studies, which find strong evidence for the relationship between market orientation and organizational performance (Diamantopoulos and Hart, 1993).

There have been studies, which indicate that performance may be mediated (Greenley, 1995; Liu, 1995). However, Pitt et al. (1996) conclude that the relationship appears relatively stable and Jaworski and Kohli (1993) find that the linkage between market orientation and performance appears to be robust. Based on this arguments it is hypothesized that :

Hypothesis 3 : there is relationship between market orientation and operational performance .

Improving SCP needs a good understanding and commitment among all of the supply chain members. This is challenging since a supply chain, faces uncertainties from the market (customer) and the supply chain itself (Boon-Itt& Paul, 2008). The uncertainties then often lead to the distortion of the market information that will lead to phenomena termed bullwhip effect (Wisner, Tan & Leong, 2012). The Bullwhip Effect is defined as the "demand distortion" as it moves upstream in the supply chain due to the inconsistency of orders which may be bigger than that of sales (Lee, Kwon & Severance, 2007). The bullwhip effect will have adverse effects to the companies in the supply chain. For example, a manufacturer that only notices its immediate order will be misled by the bigger demand. Huge addition in cost will be incurred due to unplanned purchase of raw materials, improper capacity planning and utilization, inefficient over time, and additional transportation costs.

Hypothesis 4 : market orientation has mediating effect on the relationship between SCM practice and operational performance .

3.4 Research methodology:

3.4.0 Introduction:

This section contain research methodology , population and sample of the study ,measurement of variables and data analysis techniques

.

3.4.1ResearchDesign:

A Research design is the specification of method and procedures for acquiring information needed to structure or solve problem . it is the overall operational pattern on framework of the project that stipulates what information is to be collected ,from which sources and by what procedures . a research might be described as a series of advance decisions that taken together , from specific master plan or model for the conduct of the investigation (Green , Tull and Albaum,1988,p.97).

3.4.2 Methodology

Creswell (2005) asserted that quantitative research is a type of educational research in which the researcher decides what to study, asks specific, narrow questions, collects numeric (numbered) data from participants, analyzes these numbers using statistics, and conducts the inquiry in an unbiased, objective manner. Variables can be defined as attributes or characteristics of individuals, groups, or sub-groups of individuals (Creswell, 2009). Quantitative method is a study involving analysis of data and information that are descriptive in nature and qualified (Sekaran, 2003). Quantitative approach is one in which the investigator primarily uses postpositive claims for developing knowledge, i.e., cause and effect relationship between known variables of interest or it employs strategies of inquiry such as experiments and surveys, and collect data on predetermined instruments that yield statistics data (Creswell, 2009). Therefore, in terms of methods, this research employed quantitative method while conducting the study.

Consistent with purpose of this study to investigate the effects of supply chain management practices (SCMP) on operational performance in the manufacturing sector in Sudan the quantitative method is used.

3.4.3 Population and sample of the study:

Target population:

According to Hair et al. (2010), target population is said to be a specified group of people or object for which questions can be asked or observed made to develop required data structures and information. Therefore, for this study, the target populations are manufacturing companies in Sudan, there are several reasons why manufacturing industry was selected .it is an important and visible industry of the Sudan and world economies.

Target sample:

The target respondents of the survey will be the middle –level managers (supply chain mangers , logistics managers , procurement and their assistants) are in the best position to answer the questions of the survey because of their experience , expertise and access to operational and performance data .

The use sample was a convenience sample (sample size is 120) and the unit of analysis is a company.

3.4.4 Designing and developing questionnaire:

This questionnaire is build on the problem statement and objective and hypothesis o the research, Maylor and Blackmon ,(2005) said that survey is useful technique to capture the truth , opinion, behaviors from the respondents , there is various type of survey methods as follow :

First : there are two main stream of questionnaire , self and interviewer administrated , the main different between two method is the involvement of an interviewer , in the self administrated way the questionnaire is to be completed by the perspective respondent intervene from the interviewer .

Usually in the cases the interviewer –administrated is regarded as one of the most common techniques usually use in all type of business studies (mayor and Blackmon,2005).

This method enable researchers to get more freedom and flexibility to collect more data and information (May 2001;Bryman and Bell,2007). Although of this method is time and cost and effort but it insure the accuracy truth . the measurement questions (items) , which were essential for the study , were based on five point Likert-Scale .

This study questionnaire will contain four division as follow :

(1) Company profile.

(2) Supply chain management practice.

(3) Operational performance.

(4) Market orientation.

Step 2: formatting questionnaire :

This step involve the conversion of the research objectives into information required to obtain the necessary output of the questionnaire, it involves formatting the clearly statements. all the research questions in this study had been converted into the relevant questions and clearly stated . Most of the respondents were familiar with Arabic language. Therefore, the instrument required translation to Arabic language and to English again.

Step 3: questions warding

This step examines whether the question are clearly to all respondents .Thus , it is necessary to use simple terminologies to avoid unclear or elusiveness in the meaning . it is important to avoid double – barreled or misleading and confusing questions beside the phrasing and length of questions , it also designed to solicit idea and answers from

target respondents. Sample statement was used to that the questionnaire could be easily understood. Answering the questionnaire was estimated to take approximately ten to fifteen minutes.

Step 4: sequence and layout design

This step concerns the sequence and flow of the statements for achieving the respondents cooperation . the instrument should start with easy question flow containing from general to specific question . the sensitive or difficult question must be avoided or not placed at the beginning .Moreover , an attractive layout of the questionnaire is considered for clarity of the items presented .

Step 5 : pre- testing and correcting problems :

This step involves conducting a pilot test on the questionnaire to ensure that the questions meet the researchers expectations with no ambiguities, appropriateness in the length of the questions, and clearing the double-barreled questions . the objective of the pilot test is to eliminate confusing statements and checking the reliability of the variables . therefore , to determine reliability , the Cronbach's (1951) coefficient alpha will be used to separately assess the reliability of the adopted in this study .

Table (1.3) Reliability test for the pretest

Type of variable	Variables	Cronbach's alpha
Independent	Supply chain management practice:	
	-supplier management	.630
	Customer management	.743
	Integration	.865
	Communication and speed	,645
	Information sharing	.559
Dependent	Operational performance:	
	Cost	.771
	Quality	.674
	Delivery dependability	.647
	Time to market	.667
Mediator	Market orientation:	
	Competitor orientation	.636
	Customer orientation	.791

3.4.5 Administration of the filed works:

Personal questionnaire are the best way to collect data. the major advantage is that , the data can collect all the completed responses within a short period of time . Administration questionnaire to large numbers of individuals simultaneously is less expensive and less time consuming interview. the cover letter will attach to the questionnaire which explains the objective of the study and ensured the confidentiality of the information a total of (100) personal questionnaire will distributed to respondents .

3.4.6 Measurement of the variables:

3.4.6.1 Supply chain management practice

Customer management measurement:

Organizations depend on their customers and therefore should understand current and future customer needs, meet customer requirements, and strive to exceed customer expectations (ISO, 2010).

In 2001, they also offered the concept of CRM system to synthesize with functions of sales, customer service, and marketing activity, all based on customer orientation. Customer loyalty and customer satisfaction is the main goals of SCM.Gharakhani, et al. (2011) ,the measurement of customer management in this study will be five items evaluating on five-point Likert scale (where 1= strong disagree and 5 = strongly agree) adapted from Gharakhani, et al. (2011).

Table (2.3)

No.	Items	source
1	We frequently interact with customers to set reliability, responsiveness , and other standards for us.	Gharakhani, et al. (2011)
2	We frequently measure and evaluate customer satisfaction.	
3	We frequently determine future customer expectations.	
4	We facilitate customers' ability to seek assistance from us.	
5	We periodically evaluate the importance of our relationship with our customers.	

Supplier management measurement:

Strategic supplier partnership represents the long-term relationship between the organization and suppliers. An effective supplier partnership can be a critical component of a leading edge supply chain (Noble, 1997). Through strategic supplier partnerships, organizations can work closely with suppliers who can share responsibility for the success of the products (Li et al., 2005). Survey conducted by Radas and Bozˇic´ (2009) on Crotian companies from manufacturing and service sectors showed that collaboration with other firms or organizations, also include suppliers, has positive significant impact on process innovation and incremental product innovation. Such strategic supplier partnerships should enable successful SCM.Gharakhani, et al. (2011) the measurement of the supplier management in this study will be five items evaluating on five –point Likert scale (where 1 = strongly disagree and 5 = strongly agree) adapted from Gharakhani, et al. (2011).

Table(3.3)

No	Items	Source
1	We consider quality as our number one criterion in selecting suppliers.	Gharakhani, et al. (2011).
2	We regularly solve problems jointly with our suppliers.	
3	We have been helping our suppliers to improve their product quality.	
4	We have continuous improvement programs that include our key suppliers.	
5	We include our key suppliers in our planning and goal-setting activities.	
6	We actively involve our key suppliers in new product development processes.	

Information sharing measurement:

Information sharing is an important aspect in achieving integration strategy in a supply chain (Lee 2000 as cited in Sonja et al., 2007). Lack of information flow system between partners in a supply chain will result in poor coordination that will lead to many serious problems such as

high inventory level, inaccurate forecast, low utilization and high production cost (Lee and Whang, 2000). Effective information sharing system enhances the operation and market performance of an organization (Mohammed et al., 2012), (Bayode, et al. 2016).

the measurement of the information sharing in this study will be four items evaluating on five –point Likert scale (where 1 = strongly disagree and 5 = strongly agree) adapted from Chow, et al (2008).

Table (4.3)

No	Items	Source
1	Creating SCM teams to include different companies .	Chow,et al (2008)
2	Use of informal information sharing .	
3	Determining customer's future needs .	
4	Segmenting customers based on service needs .	

Communication and speed measurement :

Technology enhances communication between the buyer and seller. Since the transfer of information can be done in real-time, the vendor can check the buyer's inventory to determine whether new shipments are needed and the buyer can instantly submit orders over the Internet without reducing his overall productivity. The implementation of IT allows companies to enhance communication and coordination of various value adding activities with their partners and between functions within their own operations (Simchi-Levi et al., 2000; Sonja et al., 2007). Bayode ,et al .(2106). the measurement of the communication and speed in this study will be four items evaluating on five –point Likert scale (where 1 = strongly disagree and 5 = strongly agree) adapted from Chow, et al (2008).

Table (5.3)

No	Items	source
1	Communicating customers future strategic needs	Chow, et al (2008)
2	Identifying additional supply chain need	
3	Reducing response time across the supply chain.	
4	Communicating your firm 's future strategic needs.	

Supply chain integration measurement:

Lummus et al. (2008) and Pagell (2004), who define SCI as the integration and coordination of different process (for example, manufacturing, purchasing and logistics) by letting them work together within and across the firm to improve performance. Previous studies (for example, Frohlich& Westbrook, 2001; Narasimhan& Kim, 2002; Rosenzweig et al., 2003; Cagliano et al., 2006; Kim, 2006b) have asserted that the implementation of SCI is significant to the development of a firm, as it will have a positive effect on performance..the measurement of the integration of supply chain in this study will be three items evaluating on five – point Likert scale (where 1 = strongly disagree and 5 = strongly agree) adapted from Chow, et al (2008).

Table (6.3)

No	item	source
1	Searching for new way to integrate supply chain activates	(Narasimhan and Kim ,2002)
2	Improving the integration activates across yours supply chain	
3	Establishing more frequent contact with supply chain members.	

3.4.6.2 Operational performance measurement:

Cost measurement (price):

Price charged received the highest ranking among the 32 customer service attributes included in Innis and LaLonde's 1994 study. A manufacturer's ability to offer competitive prices and/or command premium prices is influenced by the costs it incurs across the supply chain as well as the level of accompanying service it is able to offer Bresticker, 1992; Davis, 1993 . Price affects both profits and market share. The price and value trade-off is one of the key determinants of customer satisfaction. Bergman, 1995. the measurement of the cost in this

study will be three items evaluating on five –point Likert scale (where 1 = strongly disagree and 5 = strongly agree)adapted from Suhong Lia.et al (2006)

Table (7.3)

No	Items	Source
1	We are able to offer prices as low or lower than our competitors.	Suhong Lia.et al (2006)
2	Our capacity utilization is very good.	
3	Our Inventory turnover is high.	
4	We run operation with less Production cost.	
5	We offer competitive prices	

Quality measurement:

Quality has become a key competitive issue in the global marketplace, both domestically and internationally Garvin, 1988; Flynn et al., 1994; Anderson et al., 1995 . Quality is defined as fitness for use and includes product performance, reliability, and durability. Quality is influenced by product design, manufacturing performance, incoming quality from suppliers, and delivery performance Novack et al., 1992 . Quality can affect the number of units sold and it is a key element of value-to-customer. the measurement of the quality in this study will be four items evaluating on five –point Likert scale (where 1 = strongly disagree and 5 = strongly agree)adapted from Suhong Lia.et al (2006)

Table (8.3)

No	Items	source
1	We are able compete based on quality.	Suhong Lia.et al (2006)
2	We offer products that are highly reliable.	
3	We offer products that are very durable.	
4	We offer high quality products to our customer.	

Delivery dependability measurement:

This is the percent of orders that are filled on-time. Holcomb, 1994 . Providing a large number of product offerings and achieving a high order fill rate requires a manufacturing system that can react quickly to changing customer demand Davis and Gibson, 1993 . When orders are filled completely and correctly the first time, operating costs decline and customers are not dissatisfied. The ability to gather and transmit accurate data to

customers is dependent on the level of real-time, computer-based, manufacturing flexibility present in the firm. the measurement of the delivery dependability in this study will be five items evaluating on five –point Likert scale (where 1 = strongly disagree and 5 = strongly agree) adapted from Suhong Lia.et al (2006)**.**

Table (9.3)

No	Items	source
1	We deliver the kind of products needed.	Suhong Lia.et al (2006)
2	We deliver customer order on time.	
3	We provide dependable delivery.	
4	Time to solve customer complaints is short.	
5	Customer order processing time is short.	

Time to market measurement:

The order cycle is defined by Lambert and Stock. 1993 pp. 116 as ‘‘the total elapsed time from the initiation of the order by the customer until delivery to the customer.’’ Lowering cycle time is a primary issue in the current business environment for manufacturers of industrial and consumer products Stark, 1989; Goldhar and Lei, 1991; LaLonde and Powers, 1993; Holcomb, 1994 . Shortening the time it takes. To bring a product from concept to production to market requires a manufacturing system that can respond quickly Bockerstette and Shell, 1993; Mc- Cutcheon et al., 1994. Rapid response to orders. Reduces operating costs and enables customers to enjoy the product’s benefits immediately Stalk and Ž Hout, 1990; Blackburn, 1991 . the measurement of time to market in this study will be four items evaluating on five –point Likert scale (where 1 = strongly disagree and 5 = strongly agree) adapted from Suhong Lia.et al (2006)

Table (10.3)

No	Items	source
1	We deliver product to market quickly.	Suhong Lia.et al (2006)
2	We have time-to-market lower than industry average	
3	We are first in the market in introducing new products.	
4	We have fast product development.	

3.4.6.3 Market Orientation:

Competitor Orientation Measurement:

Competitor orientation stands as organizational culture that considers the short-range fortes and flaws and long-range abilities and tactics of existing and possible main rivals (Grawe, Chen, & Daugherty, 2009; Narver& Slater, 1990). Competitor-oriented firms develop a comprehensive evaluation of targeted and possible rivals and utilize the substantial awareness to beat the rivals as well as achieve sustainable competitive advantage and performance (Lopez, Peon, &Ordas, 2005; Olson, Slater, &Hult, 2005). Strategically, the organization shares the information about its rivals and this could assist to build a sustainable competitive advantage (Frambach, Prabhu, &Verhallen, 2003; Grinstein, 2008). Therefore, the significance of competitor orientation is monitoring the organization's current and predicted future competitors to develop awareness of their information and strategies (Kai & Fan, 2010; Kaliappen&Hilman, 2013). the measurement of competitor orientation in this study will be five items evaluating on five –point Likert scale (where 1 = strongly disagree and 5 = strongly agree) adapted from Haim andNarentheren (2014)

Table (11.3)

No	Items	source
1	Regulatory collect information concerning competitors action.	
2	Frequently evaluation the strength of key competitors.	
3	Attempt to identify competitor's strategies.	
4	Objective driven by customers satisfaction.	
5	Frequently track market performance of key competitors.	

Customer Orientation Measurement:

Customer orientation is an organizational culture that considers the present and potential customers' needs and wants, constantly producing value (Narver& Slater, 1990;Taleghani, Gilaninia, &Talab, 2013). This means that customer-oriented organizations found information

about customers' needs and wants for the present and future to providesuperior value-added offerings (Hilman&Kaliappen, 2014; Narver, Slater, &MacLachlan, 2004). This will allow theorganization to share the information about their customers with all the staff, with the aim of continuously getting chances to serve their customers well (Grawe et al., 2009; Singh, 2009). the measurement of customer orientation in this study will be four items evaluating on five –point Likert scale (where 1 = strongly disagree and 5 = strongly agree) adapted from Haim andNarentheren (2014).

Table (12.3)

No	Items	source
1	Communicate information about customer experience across all business function.	Haim andNarentheren (2014)
2	Gaining competitive advantage is based on understanding of customer needs.	
3	Measure customer satisfaction regularly	
4	Frequently survey end customer to assess the quality of service .	

CHAPTER FOUR

DATA ANALYSIS AND FINDINGS

4.0 Chapter overview

This chapter shows the process through which the data that was collected from firms represents various industries in Sudan was analyzed to presents the findings. The chapter was organized into four sections. The first section concerns with data cleaning, response rate, and the characteristics of both firms and respondents, followed by the goodness of measures which discusses the validity and reliability of the measurement. The third section shows the descriptive analysis of the study variables. The last section focuses on the results of path analysis and hypotheses testing.

4.1 Data Cleaning

Data cleaning deals with detecting and removing errors and inconsistencies from data in order to improve the quality of data. The need for data cleaning is centered on improving the quality of data to make them “fit for use” by users through reducing errors in the data and improving their documentation and presentation (Chapman, 2005).

Data quality problems are present in single data collections due to misspellings during data entry, missing information or other invalid data. When multiple data sources need to be integrated, or analysis programs need to be used, the need for data cleaning increases significantly. Thus in this study data cleaning is used to manipulates missing data, unengaged responses, and outliers.

4.1.1 Missing Data

Missing data is common and always expected in the process of collecting and entering data due to lack of concentration and/or the misunderstanding among respondents, and missing information or other invalid data during the entry of data. Missing data can cause several problems. The most apparent problem is that there simply won't be enough data points to run the analysis and particularly in structural equation model (SEM).

Both exploratory and confirmatory factor analysis and path models require a certain number of data points in order to compute estimates. Additionally, missing data might represent bias issues. Some people may not have answered particular questions in survey because of some common issue. If missing data is more than 10% of the responses on a particular variable, or from a particular respondent, that variable or respondent may be problematic. In this study the proportion of missing data is lower than 10% therefore there no need to remove any of responses.

4.1.2 Unengaged responses

Unengaged responses means some responses giving same answer for all the questionnaire it seems to be random answers , in this case we use standard deviation to find out any unengaged response this means that any standard deviation of responses less than 0.5 when Likert's five point scale is used just deleted. Therefore in this study have not questionnaires was found to have standard deviation less than 0.5 and they were excluded from data analysis. Table 5.1 shows the unengaged response.

Table 4.1Unengaged responses

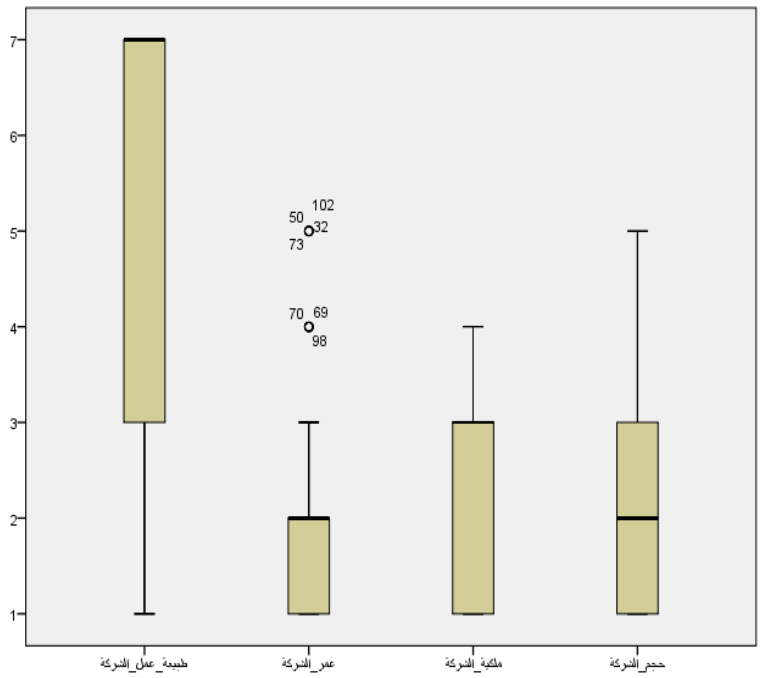
Total Questionnaires	118
Unengaged responses	0
Unengaged responses Rate	0%

Source: prepared by researcher 2016

4.1.3 Outliers

It's very important to check outliers in the dataset. Outliers can influence the results of analysis. If there is a really high sample size, the need for removing the outliers is wanted. If the analysis running with a smaller dataset, you may want to be less liberal about deleting records However, outliers will influence smaller datasets more than largest ones. However in this dataset outliers were checked as showed in figure 5.1 but no change was made because it is seemed logic to find some of the employees are extreme in their ages and gender among all the respondents of the study.

Figure 4.1 Outliers



4.2 Response rate

It was well known that most of the firms in Sudan are located in three towns represents the capital of the country (Khartoum, Bahri, and Omdurman) therefore, the population of this study was the firms located in these areas. The researcher employed convenient sample where self-administrated survey was used to distribute 200 questionnaires to the firms across the three towns, given that top and middle managers were asked to fill the questionnaire. The survey started on the 1rst of March 2016 and by the end of April 2016 a total of 118 out of 200 questionnaires received from respondents, the overall response rate was 84% this was considered as high rate due to questionnaires given one by one to respondents and in researches used a self–administrated survey (Sekaran, 2003). Those who didn't responded to fill the questionnaire some were mentioned that they were not authorized to fill the questionnaires while others were not transparent in their justifications. Bellow is Table (4.2) to shows the summary of questionnaire response rate.

Table (4.2) Response rate of questionnaire

Total distributed questionnaires	
Total questionnaires received from respondents	118
Valid questionnaires received from respondents	118
Partially filled questionnaires	0
Invalid questionnaires	0
Not filled-up questionnaires	0
Questionnaires not received	2
Overall response rate	98%
Useable response rate	0%

Source: prepared by researcher from data (2016)

4.3 Profile of the responded firms and respondents

Based on the descriptive statistics using the frequency analysis this part investigates the profiles of firms that participated in the survey on the light of four characteristics, these are the nature of work, firm's number of employees, age of the firm and the firm's ownership finally . The SPSS output presented shows that (53.4%) of the responded firms were food sector, where (21.2%) were classified as chemical sector, and (16.9%) of these firms works in services such as logistics and handling as a business, (4.2%) of engineering sector while (2.5%) of printing sector Finally these firms represents (1.7%) has construction concern. In term of firm's number of employees almost (1.7%) of the responded firms are large firms with more than 200 employees, while the small one's with less than 10 employees are (31.3%). The responded firms' number of employees ranged 11 – 50 is (22.9%), where others ranged 51 – 100 is (33.9%) and (10.2%) are range from 101 to 200.

Concerning the ages of the firms almost half of responded firms are well-established firms (4.2%) with more than 20 years, where the newly established firms are (42.4%) with less than 5 years, and those ranged their time from 5 to 10 years is (37.3%) and those ranged their time from10 to15 years is (11.0%) and finally those ranges their time from 15 to 20 years is (5.1%). The majority of the responded firms are private company (55.1%) while Joint venture (9.3%) of the responded firms, and distributorship firms (32.1%) finally Franchising (3.4%) the responded firms.

Below is table (5.3) to presents the general characteristics of responded firms.

Table (4.3) profile of responded firms

Variable	Category	Frequency	%
The nature of work	Contractures	2	1.7
	Chemical	25	21.2
	Engineering	5	4.2
	Printing	3	2.5
	Service	20	16.9
	Food	63	53.4
Number of employees	Less than 10	37	31.4
	from 11 to 50	27	22.9
	from 51 to 100	40	33.9
	From 101 to 200	12	10.2
	More than 200	2	1.7
Firm's age	Less than 5 years	50	42.4
	5 to 10 years	44	37.3
	10 to 15 years	13	11.0
	15 to 20 years	6	5.1
	More Than 20 years	5	4.2
The firm's ownership	Private Company	65	55.1
	Joint venture	11	9.3
	Distributorship	38	32.1
	Franchising	4	3.4

Source: prepared by researcher from data (2016)

4.4 Goodness of measures

This section, reports the results of validity and reliability tests as a means to assess the goodness of measure in this study constructs (Sekaran, 2003). The study used exploratory factor analysis (EFA) and (CFA) confirmatory factor analysis. The following are the detailed information of each

4.4.1 Exploratory factor analysis (EFA)

Exploratory Factor Analysis (EFA) is a statistical approach for determining the correlation among the variables in a dataset. This type of analysis provides a factor structure (a grouping of variables based on strong correlations). In general, an (EFA) prepares the variables to be used for cleaner structural equation modeling (SEM). This means the (EFA) will be able to

spot problematic variables much more easily than the (CFA). Therefore this study used exploratory factor analysis for testing the validity and uni-dimensionality of measures to all variables under study, followed the assumptions recommended by (Lowry & Gaskin, 2014)as follow:

- There must be a clean pattern matrix.
- Adequacy.
- Convergent validity.
- Discriminante validity.
- Reliability.

Fifty five items was used to measure the model variables were subjected to exploratory factor analysis using principal component, the summary of results was showed in Table (4.5)and the SPSS output. As shown in Table (4.5)belowall the remaining items has more than recommended value of at least 0.45 in measure of sample adequacy (MSA) with (KMO) value of 0.903 (above the recommended minimum level of 0.60), and Bartlett's test of sphericity is significant ($p<.01$). Thus, the items are appropriate for factor analysis

	1	2	3	4
We consider quality as our number one criterion ins electing suppliers.			.978	
We regularly solve problems jointly with our suppliers.			.778	
We include our key suppliers in our planning and goal-setting activities		.786		
We actively involve our key suppliers in new product development processes		.912		
We frequently interact with customers to set reliability, responsiveness, and other standards for us.		.895		
We frequently measure and evaluate customer satisfaction.		.679		
Creating SCM teams to include different companies.				.642
Use of informal information sharing .				.665
Determining customer's future needs .				.778
Segmenting customers based on service needs .	.736			

Improving the integration activities across yours supply chain	.789			
Establishing more frequent contact with supply chain members	.763			
Communicating customers future strategic needs	.822			
Identifying additional supply chain need	.873			
Reducing response time across the supply chain.	.810			
Kaiser-Meyer-Olkin Measure of Sampling Adequacy				.577
Bartlett's Test of Sphericity				962.837
Total Variance Explained				68.367

Source: prepared by researcher from data analysis (2016)

	1	2	3	4	5
We run operation with less Production cost.				.975	
We offer competitive prices				.879	
We are able compete based on quality.			.651		
We offer products that are highly reliable.			.920		
We offer products that are very durable.			.896		
We deliver the kind of products needed.		.868			
We deliver customer order on time.		.930			
We provide dependable delivery.		.738			
Time to solve customer complaints is short.					.879
Customer order processing time is short.					.803
We have time-to-market lower than industry average	.893				
We are first in the market in introducing new products.	.747				
We are able to offer prices as low or lower than our competitors	.896				
Kaiser-Meyer-Olkin Measure of Sampling Adequacy					.722
Bartlett's Test of Sphericity					832.901
Total Variance Explained					81.424

	1	2
Regulatory collect information concerning competitors action.		.645
Attempt to identify competitor's strategies.		.766
Objective driven by customers satisfaction		.658
Communicate information about customer experience across all business function	.862	
Measure customer satisfaction regularly	.831	
Frequently survey end customer to assess the quality of service	.826	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.729
Bartlett's Test of Sphericity		144.721
Total Variance Explained		60.797

4.4.2 Convergent validity for mediator variable: -

Convergent validity means that the variables within a single factor are highly correlated. This is evident by the factor loadings. Sufficient/significant loadings depend on the sample size of dataset.

The table below (4.6) outlines the thresholds for sufficient/significant factor loadings. Generally, the smaller the sample size, the higher the required loading.

Table (4.6) thresholds for sufficient/significant factor loadings

Sample size	Significant factor loadings
50	0.75
60	0.70
70	0.65
85	0.60
100	0.55
120	0.50
150	0.45
200	0.40
250	0.35
350	0.30

Source: adopted from (Gaskin, 2016)

Since the sample size used in analysis for this study was 118, therefore the sufficient factor loading was 0.50 as shown above in Table (4.5) of the factor structure for (EFA) indicating sufficient convergent validity of the measurement instrument

4.4.3 Discriminate validity

Discriminate validity refers to the extent to which factors are distinct and uncorrelated. The rule is that variables should relate more strongly to their own factor than to another factor. Two primary methods exist for determining discriminate validity during an (EFA). The first method is to examine the rotated component matrix instate of pattern matrix when principle component used. Variables should load significantly only on one factor. If cross loading do exist (variable loads on multiple factors) then the cross loading should differ by more than 0.2.

The second method is to examine the factor correlation matrix. The correlation between factors should not exceed o.7. The following **Table (4.7)** shows the Discriminate validity.

- Mediator

Component Correlation Matrix		
Component	1	2
1	1.000	.313
2	.313	1.000

- Dependent variable

Component Correlation Matrix					
Component	1	2	3	4	5
1	1.000	.291	.241	.364	.357
2	.291	1.000	.167	.002	.207
3	.241	.167	1.000	.389	.310
4	.364	.002	.389	1.000	.318
5	.357	.207	.310	.318	1.000

Extraction Method: Principal Component Analysis.
Rotation Method: Promax with Kaiser Normalization.

- Independent variable

Component Correlation Matrix				
Component	1	2	3	4
1	1.000	-.070	.049	.185
2	-.070	1.000	.352	-.069
3	.049	.352	1.000	-.136
4	.185	-.069	-.136	1.000

Extraction Method: Principal Component Analysis.
Rotation Method: Promax with Kaiser Normalization.
Source: prepared by researcher from data analysis (2016)

4.4.4Reliability Analysis

This study used Cronbach's alpha as diagnostic tool to assess the degree of internal consistency between multiple measurements of variables. (Hair et al, 2010) stated that the lower limit for Cronbach's alpha is 0.70, although it may decrease to 0.60 in exploratory research. While Nunnally (1978) considered Cronbach's alpha values greater than 0.60 are taken as reliable. Given that Cronbach's alpha has being the most widely used measure (Sharma, 2000).

Table (4.8) presents the summary of the results for reliability analysis. Confirmed that all the scales display the satisfactory level of reliability (Cronbach's alpha exceed the minimum value of 0.60). Therefore it can be concluded that the measures have acceptable level of reliability.

Table (4.8)
Reliability for study variables after EFA

Construct	Variable	No of items	Cronbach's alpha
SCMP	Information Sharing	6	.887
	Customer Management	4	.845
	Supplier Management	2	.769
	Integration	3	.466
Market orientation	Competitor orientation	3	.471
	Customer orientation	3	.791
O P	Time to market	4	.873
	Conformance	3	.795
	Cost	3	.832
	Reliability	3	.835

Source: prepared by researcher from data analysis (2016)

4.4.5 Confirmatory factor analysis

Confirmatory Factor Analysis (CFA) is the next step after exploratory factor analysis to determine the factor structure of dataset. In the (EFA) we explore the factor structure (how the variables relate and group based on inter-variable correlations); in the (CFA) we confirm the factor structure we extracted in the (EFA). All the items in Table (4.5) were used to conduct confirmatory factor analysis with maximum likelihood and promax. Thus, the clean pattern matrix showed that items (Sca1, Cp4, Cp5, Inn4, IG4, IG5) were deleted because of their low standardized regression weight (less than .650), as a result of deleting these items the correlation between factor four and five, factor nine and seven, and factor seven and eight which presented in Table (4.7) are decreased to less than 0.7. Given that the composite

reliability was improved. Figure 4.2 presents the result of confirmatory factor analysis represented by path diagram.

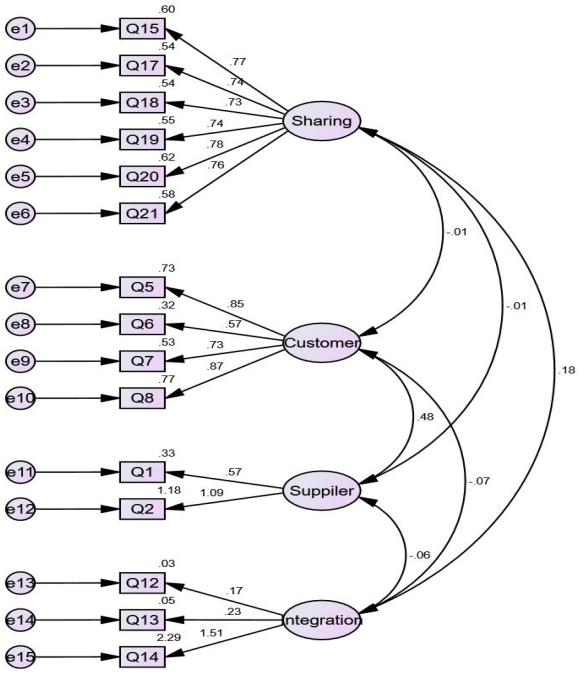
4.4.6 Model fit

Model fit refers to how well the proposed model accounts for the correlations between variables in the dataset. If the accounting for all the major correlations inherent in the dataset (with regards to the variables in the model), then the model will have a good fit. If not, then there is a significant "discrepancy" between the correlations proposed and the correlations observed, and thus have poor model fit. There are specific measures that can be calculated to determine goodness of fit. The thresholds listed in the table (4.9)below are simply a guideline.

Confirmatory factor analysis

Confirmatory Factor Analysis (CFA) is the next step after exploratory factor analysis to determine the factor structure of dataset in this section i provided CFA to ***SCM practice***.

Figure 4.2 Path diagram for independent variable



Source: prepared by researcher from data analysis (2016)

Table (4.9) measures to determine goodness of model fit

Measure	Threshold
Chi-square/degree of freedom(cmin/df)	< 3 good; < 5 sometimes permissible
P-value for model	>.o5
CFI	>.95 great; >.90 traditional; >.80 sometimes permissible
GFI	>.95
AGFI	>.80
SRMR	<.09
RMSEA	<.5 good; .05-.10 moderate;> 10 bad
P Close	>.05

Source: Adopted from (Gaskin, 2016)

Based on the thresholds listed in Table (4.9) above and Table (4.11) the confirmatory factor analysis (CFA) was run to check the validation of the measurements, including unidimensionality and convergent validity. Table (4.10) presents the measures and the (CFA) results. The (CFA) fit indices show that the measurements model fits the data well: Chi-square/degree of freedom (cmin/df) = 1.562; incremental fit index (IF) = .931; comparative fit index (CFI) = .930; goodness of fit index (GFI) = .826; adjusted goodness of fit index (AGFI) = .786; square root mean of residual (SRMR) = .060; root mean square error of approximation (RMSEA) = .056; and P Close = .115. All items loaded on their respective constructs, and each had large coefficients and significance at the 0.001 level. Table (4.11) presents the cut off criteria of the model fit.

Table (4.10) Model Fit Measures

Measure	Estimate	Threshold	Interpretation
CMIN	346.912	--	--
DF	84	--	--
CMIN/DF	4.130	Between 1 and 3	Acceptable
CFI	0.711	>0.95	Need More DF

SRMR	0.100	<0.08	Terrible
RMSEA	0.164	<0.06	Terrible
PClose	0.000	>0.05	Terrible

Source: prepared by researcher from data analysis (2016)

Table (4.11) Cutoff Criteria

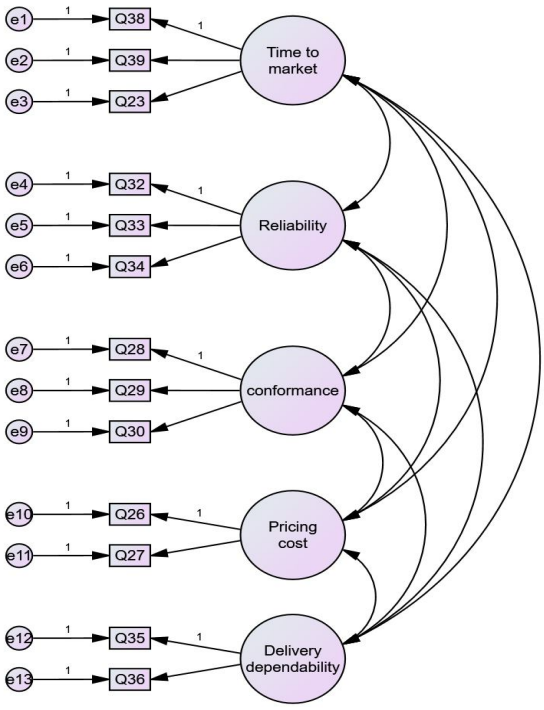
Measure	Terrible	Acceptable	Excellent
CMIN/DF	> 5	> 3	> 1
CFI	<0.90	<0.95	>0.95
SRMR	>0.10	>0.08	<0.08
RMSEA	>0.08	>0.06	<0.06
PClose	<0.01	<0.05	>0.05

Source: prepared by researcher from data analysis (2016)

Confirmatory factor analysis

Confirmatory Factor Analysis (CFA) is the next step after exploratory factor analysis to determine the factor structure of dataset in this section i provided CFA to ***operational performance.***

Figure 4.3 Path diagram for independent variable



Source: prepared by researcher from data analysis (2016)

Table (4.9) measures to determine goodness of model fit

Measure	**Threshold**
Chi-square/degree of freedom(cmin/df)	< 3 good; < 5 sometimes permissible
P-value for model	>.o5
CFI	>.95 great; >.90 traditional; >.80 sometimes permissible
GFI	>.95
AGFI	>.80
SRMR	<.09
RMSEA	<.5 good; .05-.10 moderate;> 10 bad
P Close	>.05

Source: Adopted from (Gaskin, 2016)

Based on the thresholds listed in Table (4.9) above and Table (4.11) the confirmatory factor analysis (CFA) was run to check the validation of the measurements, including unidimensionality and convergent validity. Table (4.10) presents the measures and the (CFA) results. The (CFA) fit indices show that the measurements model fits the data well: Chi-square/degree of freedom (cmin/df) = 1.562; incremental fit index (IF) = .931; comparative fit index (CFI) = .930; goodness of fit index (GFI) = .826; adjusted goodness of fit index (AGFI) = .786; square root mean of residual (SRMR) = .060; root mean square error of approximation (RMSEA) = .056; and P Close = .115. All items loaded on their respective constructs, and each had large coefficients and significance at the 0.001 level. Table (4.11) presents the cut off criteria of the model fit.

Table (4.10) Model Fit Measures

Measure	Estimate	Threshold	Interpretation
CMIN	201.989	--	--
DF	55	--	--
CMIN/DF	3.673	Between 1 and 3	Acceptable
CFI	0.815	>0.95	Need More DF

SRMR	0.140	<0.08	Terrible
RMSEA	0.151	<0.06	Terrible
PClose	0.000	>0.05	Terrible

Source: prepared by researcher from data analysis (2016)

Table (4.11) Cutoff Criteria

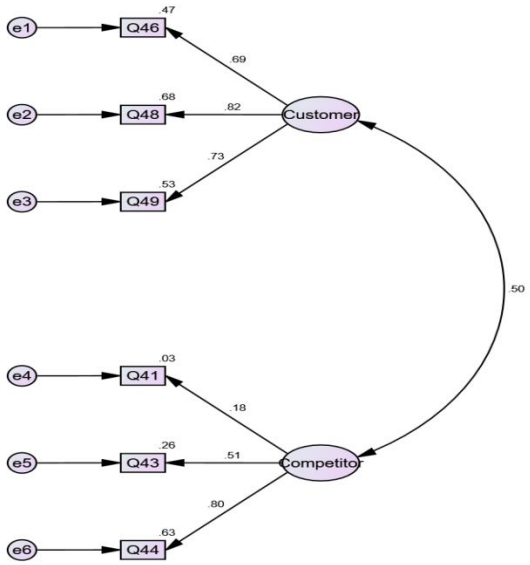
Measure	Terrible	Acceptable	Excellent
CMIN/DF	> 5	> 3	> 1
CFI	<0.90	<0.95	>0.95
SRMR	>0.10	>0.08	<0.08
RMSEA	>0.08	>0.06	<0.06
PClose	<0.01	<0.05	>0.05

Source: prepared by researcher from data analysis (2016)

Confirmatory factor analysis

Confirmatory Factor Analysis (CFA) is the next step after exploratory factor analysis to determine the factor structure of dataset in this section i provided CFA to ***market orientation.***

Figure 4.4 Path diagram for mediator variable



Source: prepared by researcher from data analysis (2016)

Table (4.9) measures to determine goodness of model fit

Measure	Threshold
Chi-square/degree of freedom(cmin/df)	< 3 good; < 5 sometimes permissible
P-value for model	>.o5
CFI	>.95 great; >.90 traditional; >.80 sometimes permissible
GFI	>.95
AGFI	>.80
SRMR	<.09
RMSEA	<.5 good; .05-.10 moderate;> 10 bad
P Close	>.05

Source: Adopted from (Gaskin, 2016)

Based on the thresholds listed in Table (4.9) above and Table (4.11) the confirmatory factor analysis (CFA) was run to check the validation of the measurements, including unidimensionality and convergent validity. Table (4.10) presents the measures and the (CFA) results. The (CFA) fit indices show that the measurements model fits the data well: Chi-square/degree of freedom (cmin/df) = 1.562; incremental fit index (IF) = .931; comparative fit index (CFI) = .930; goodness of fit index (GFI) = .826; adjusted goodness of fit index (AGFI) = .786; square root mean of residual (SRMR) = .060; root mean square error of approximation (RMSEA) = .056; and P Close = .115. All items loaded on their respective constructs, and each had large coefficients and significance at the 0.001 level. Table (4.11) presents the cut off criteria of the model fit.

Table (4.10) Model Fit Measures

Measure	Estimate	Threshold	Interpretation
CMIN	2.682	--	--
DF	8	--	--
CMIN/DF	0.335	Between 1 and 3	Excellent
CFI	1.000	>0.95	Excellent
SRMR	0.027	<0.08	Excellent
RMSEA	0.000	<0.06	Excellent
PClose	0.980	>0.05	Excellent

Source: prepared by researcher from data analysis (2016)

Table (4.11) Cutoff Criteria

Measure	Terrible	Acceptable	Excellent
CMIN/DF	> 5	> 3	> 1
CFI	<0.90	<0.95	>0.95
SRMR	>0.10	>0.08	<0.08
RMSEA	>0.08	>0.06	<0.06
PClose	<0.01	<0.05	>0.05

Source: prepared by researcher from data analysis (2016)

4.4.7 Reliability and Validity (IV)

To evaluate the reliability and validity of the measurement instrument, several statistical analyses were conducted. To verify scale reliability, Composite Reliability (CR) and Cronbach's alpha were engaged. Table (4.12) shows that all CR and Cronbach's alpha values have exceeded the minimum requirement of 0.70 Therefore, the measurement instrument has a high level of reliability (Lee, Foo, Leong, & Ooi, 2016). In terms of convergent validity, the Average Variance Extracted (AVE) for all scales is greater than the suggested threshold 0.5 as recommended by (Fornell & Larcker, 1981) indicating sufficient convergent validity of the measurement instrument. To evaluate discriminate validity the calculation of (AVE) showed that the correlation of the construct with its measurement items is greater than its correlation with the other constructs (Lowry & Gaskin, 2014) the diagonal boldface of Table (4.12) showed that all square root of AVE is greater than their respective correlation coefficients. Hence, the measurement instrument has a high level of discriminate validity. Table (4.12) shows the details of the above mentioned.

Table (4.12) Model Validity Measures

	CR	AVE	MSV	MaxR(H)	Sharing	Customer	Supplier	Integration
Sharing	0.889	0.571	0.032	0.889	0.755			
Customer	0.847	0.586	0.227	0.883	-0.006	0.765		

Supplier	0.850	0.756	0.227	1.200	-0.012	0.476	0.870	
Integration	0.854	0.790	0.032	2.451	0.178	-0.075	-0.058	0.889

4.4.8 Reliability and Validity (DV)

To evaluate the reliability and validity of the measurement instrument, several statistical analyses were conducted. To verify scale reliability, Composite Reliability (CR) and Cronbach's alpha were engaged. Table (4.13) shows that all CR and Cronbach's alpha values have exceeded the minimum requirement of 0.70 Therefore, the measurement instrument has a high level of reliability (Lee, Foo, Leong, & Ooi, 2016). In terms of convergent validity, the Average Variance Extracted (AVE) for all scales is greater than the suggested threshold 0.5 as recommended by (Fornell & Larcker, 1981) indicating sufficient convergent validity of the measurement instrument. To evaluate discriminate validity the calculation of (AVE) showed that the correlation of the construct with its measurement items is greater than its correlation with the other constructs (Lowry & Gaskin, 2014) the diagonal boldface of Table (4.13 showed that all square root of AVE is greater than their respective correlation coefficients. Hence, the measurement instrument has a high level of discriminate validity. Table (4.13) shows the details of the above mentioned.

Table (4.13) Model Validity Measures

	CR	AVE	MSV	MaxR(H)	Access	Reliability	Quality	cost	Reliability2
Time to market	0.832	0.636	0.369	1.082	0.798				
Reliability	0.832	0.652	0.223	1.464	0.152	0.807			
Quality	0.800	0.574	0.223	0.815	0.377	0.472	0.757		
Pricing cost	NaN	NaN	0.000	0.000	0.607	0.135	0.458	NaN	
Reliability2	0.875	0.800	0.250	1.372	0.332	0.110	0.290	0.500	0.894

NaN= No validity concern.

4.4.9 Reliability and Validity (MM)

To evaluate the reliability and validity of the measurement instrument, several statistical analyses were conducted. To verify scale reliability, Composite Reliability (CR) and Cronbach's alpha were engaged. Table (4.14) shows that all CR and Cronbach's alpha values have exceeded the minimum requirement of 0.70 Therefore, the measurement instrument has a high level of reliability (Lee, Foo, Leong, & Ooi, 2016). In terms of convergent validity, the Average Variance Extracted (AVE) for all scales is greater than the suggested threshold 0.5 as recommended by (Fornell & Larcker, 1981) indicating sufficient convergent validity of the measurement instrument. To evaluate discriminate validity the calculation of (AVE) showed that the correlation of the construct with its measurement items is greater than its correlation with the other constructs (Lowry & Gaskin, 2014) the diagonal boldface of Table (4.14) showed that all square root of AVE is greater than their respective correlation coefficients. Hence, the measurement instrument has a high level of discriminate validity. Table (4.14) shows the details of the above mentioned.

Table (4.14) Model Validity Measures

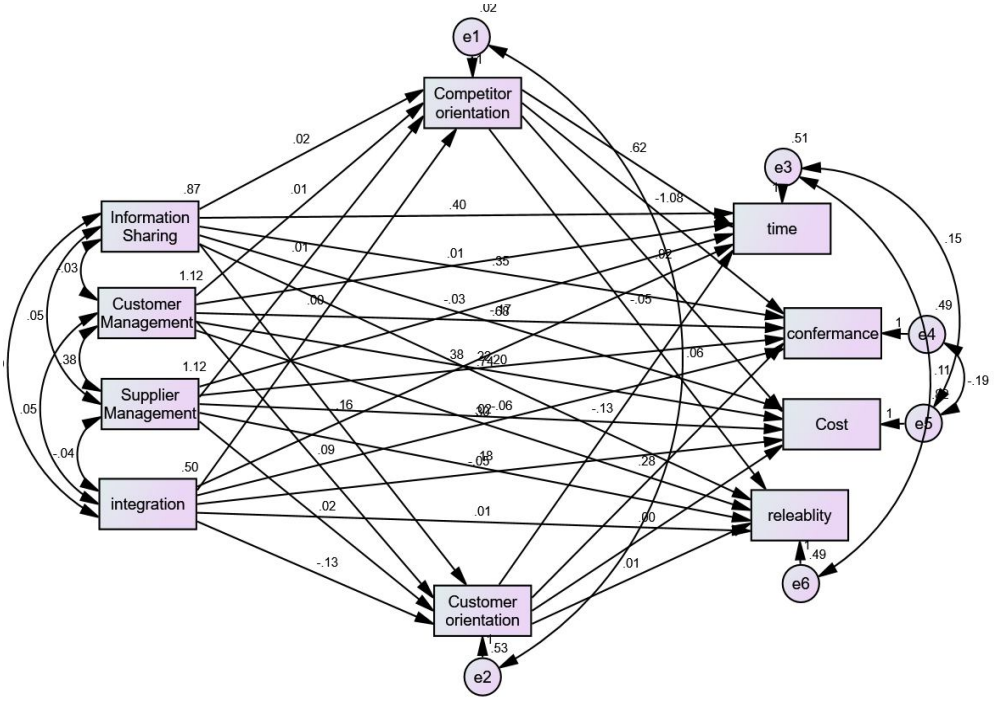
	CR	AVE	MSV	MaxR(H)	Customer	Competitor
Customer	0.792	0.561	0.245	0.806	0.749	
Competitor	0.517	0.310	0.245	0.680	0.495	0.556

4.5 Modification of Conceptual Framework and Hypotheses

As a result of factor analysis the initial Framework of this study had been changed, the variables of SCM practice had been changed to four variables, supplier management ,customer management ,information sharing and integration Therefore, one variable has been excluded from construct (speed of communication). However the variables related to operational performance had been changed to four variables, cost, time to market, conformance and

reliability therefore one variable has been excluded (delivery dependability) and the (quality) divided into (conformance and reliability) . While the items related to the Market orientation remained without change. Furthermore one dimension of MP construct was excluded (market performance) and the remaining dimension was (customer performance). Sequentially, the initial hypotheses presented with the proposed model will be restated. Figure (4.5) presents the modified conceptual framework, and the restated hypotheses are shown in table (4.13).

Figure (4.5): The Modified Conceptual Framework.



Source: prepared by researcher from data analysis (2016)

4.5.1 Model fit after modified the model

Model fit refers to how well the proposed model accounts for the correlations between variables in the dataset. If the accounting for all the major correlations inherent in the dataset

Table (4.15) Model Fit Measures

Measure	Estimate	Threshold	Interpretation
CMIN	2.857	--	--
DF	3	--	--
CMIN/DF	0.952	Between 1 and 3	Excellent

CFI	1.000	>0.95	Excellent
SRMR	0.013	<0.08	Excellent
RMSEA	0.000	<0.06	Excellent
PClose	0.537	>0.05	Excellent

4.6 Descriptive Analysis

Descriptive statistics such as mean and standard deviation was used to describe the characteristics of the firms and all the variables (supply chain management practices, operational performance and market orientation) under the study. Given that the study include some of firm characteristics such as firm age, type of industry, ownership status, and firm size as measured by number of employees as control variables. Firm size has been shown to influence organizational learning process and customer performance, while firm age is used as a surrogate for the firm's memory (Michael T. Krush, 2013). Therefore, t-test and one way ANOVA were used to test the differences.

4.6.1 Descriptive Analysis of internal market orientation

Table 5.14 shows the means and standard deviations of the two components of internal market orientation, information dissemination, and responsiveness. The table reveals that the firms operating in Sudan are emphasized more on information dissemination (mean=3.90, standard deviation=0.701), followed by responsiveness (mean=3.65, standard deviation=0.834. Given that the scale used a 5-point scale (1=strongly disagree, 5=strongly agree), it can be concluded that firms operating in Sudan are to some extend highly of information dissemination, while above average on responsiveness.

Table (4.16) Descriptive Statistics of all the model

	Variable name	Mean	Std. Deviation	important
Competitor	MM	.4091	.13479	8.18=2
Customer	MM	2.0212	.75376	40.42=1
Customer management	IV	2.3390	1.06394	46.78=2
Supplier management	IV	2.3983	1.06329	47.97=1

Integration	IV	2.2655	.70886	14.18=3
Time	DV	2.1610	.87460	17.5=3
Conformance	DV	2.1271	.86826	17.4=4
Cost	DV	2.1780	1.13515	22,703=1
Reliability	DV	2.1102	1.01303	20.26=2

Note: *All variables used a 5-point likert scale (1= strongly disagree, 5= strongly agree)*

4.7 Correlation Analysis

The zero-order correlation was conducted for all dimensions of the constructs operationalized in this study using bivariate correlations. These bivariate correlations allow for preliminary inspection of hypothesized relationships.

Table 4-17 presents that all the hypothesized relationships are in positive correlations. For example the relationship between all the four components of supply chain management practice which represents the independent variable and all the three dimensions of the operational performance are distinctively positive and statistically significant ($0.638 \leq r \leq 0.782$, $p<0.01$). The table also shows that all the two dimensions of supply chain management practice are significantly correlated with the operational performance ($0.633 \leq r \leq 0.707$, $p<0.01$). Regarding market orientation the table also reveals that the three factors of market orientation are significantly correlated with the operational performance ($0.559 \leq r \leq 0.644$, $p<0.01$). Based on the bivariate correlations there was some expectation that these coefficients would be significant.

Table (4.17) Person's correlation coefficient for all variables.

Correlations									
	MM	MM	IV	IV	IV	DV	DV	DV	DV
Competitor	1								
	118								
Customer	.608**	1							
Customer	.101	.125	1						
	.274	.179							
	118	118	118						
Supplier	.143	.086	.336**	1					
integration	-.008	-.087	.064	-.053	1				
	.929	.347	.493	.571					

	118	118	118	118	118				
Time	.077	-.003	-.001	-.028	.381**	1			
Conformance	.042	.185*	-.108	.195*	.247**	.317**	1		
Cost	.195*	.193*	.159	.051	.058	.384**	.046	1	
Reliability	.117	.149	.068	.233*	.090	.425**	.309**	.377**	1

Source: prepared by the researcher from data (2016). ** Correlation is significant at the 0.01 level (2-tailed)

As shown in table (4.20) above the correlation analysis provides strong indicators of associations, thus for more examination of the proposed relationships path analysis through structural equation model (SEM) was conducted to gives the best predictive model of the relationship present among the independent variables. In the following are hypotheses testing the last part of data analysis and findings.

4.8 Hypotheses Testing

This section discusses the results of hypotheses of the study. The hypotheses were tested with the path analysis that discloses the effect of independent variables on dependent variables and the effect of mediator and moderator in relationships between variables through the structural equation modeling (SEM) that grows out of and serves purposes similar to multiple regression, but in more powerful way which takes in account the modeling of interactions between variables, nonlinearities, correlated independents, measurement error, correlated error terms, multiple latent independents each measured by multiple indicators, and one or more latent dependents also each with multiple indicators (Gaskin, 2016). SEM may be used as a more powerful alternative to multiple regression, path analysis, factor analysis, time series analysis, and analysis of covariance. That is, these procedures may be seen as special cases of SEM, or, to put it another way, SEM is an extension of the general linear model (GLM) of which multiple regression is a part. Given that the variables appeared in confirmatory factor analysis encompasses 35 hypotheses in this study. The main effects as well as the mediating

effect were examined using path analysis, the statistical procedures of which had been explained in chapter 3.

In order to perform path analysis, it is generally agreed that there are at least the assumptions of model fit should be met. It's given that the model fit was done in (CFA), however the need to do it again in structural model is important in orderto demonstrate sufficient exploration of alternative models (Gaskin, 2016). Every time the model changes and a hypothesis are tested, model fit must be assessed. Thus the Absolute fit indices and Incremental fit indices assumptions are provided below:

4.8.1 Absolute fit indices

Absolute fit indices provide the most fundamental indication of how well the proposed theory fits the data, it includes indices like the Chi-Squared test, RMSEA, GFI, AGFI, the RMR and the SRMR the information about each are in the following sub sections.

1. The relative/normed chi-square/df(χ2/df)

Due to the restrictiveness of the Model Chi-Square (Hooper, Coughlan, & Mullen, 2008) indicates that researchers have sought alternative indices the relative/normed chi-square (χ2/df) which means (the model calculated value of chi-square divided by the degree of freedom), as one example of statistic that minimizes the impact of sample size on the Model Chi-Square. The recommendations regarding an acceptable ratio for this statistic range from as high as 5.0 to as low as 2.0 (Hooper et al, 2008).

2. Root Mean Square Error of Approximation (RMSEA)

The RMSEA is the second fit statistic reported in SEM to tell us how well the model, with unknown but optimally chosen parameter estimates would fit the populations' covariance matrix (Hooper et al, 2008). In recent years it has become regarded as one of the most

informative fit indices due to its sensitivity to the number of estimated parameters in the model. In other words, the RMSEA favours parsimony in that it will choose the model with the lesser number of parameters. Recommendations for RMSEA cut-off points have been reduced considerably in the last fifteen years. Up until the early nineties, an RMSEA in the range of 0.05 to 0.10 was considered an indication of fair fit and values above 0.10 indicated poor fit, and then it was thought that an RMSEA of between 0.08 to 0.10 provides average fit and below 0.08 shows a good fit (MacCallum et al, 1996, cited in Hooper et al, 2008). However, more recently, a cut-off value close to .06 (Hu and Bentler, 1999) or a stringent upper limit of 0.07 (Steiger, 2007) seems to be the general consensus amongst authorities in this area (Hooper et al, 2008). Finallyit is generally reported in conjunction with the RMSEA and in a well-fitting model the lower limit is close to 0 while the upper limit should be less than 0.08.

3. Goodness-of-fit statistic (GFI) and the adjusted goodness-of-fit statistic (AGFI)

According to Hooper et al, (2008) the (GFI) was created as an alternative to the Chi-Square test and calculates the proportion of variance that is accounted for by the estimated population covariance, this statistic ranges from 0 to 1 and with larger samples increasing its value and the cut-off point of 0.90 has been recommended for the GFI however, simulation studies have shown that when factor loadings and sample sizes are low a higher cut-off of 0.95 is more appropriate. On the other hand the value of AGFI which adjusts the GFI based upon degrees of freedom also ranges between 0 and 1 and it is generally accepted that values of 0.90 or greater indicate well-fitting models.

4. Root mean square residual (RMR) and standardized root mean square residual (SRMR)

The RMR and the SRMR are the square root of the difference between the residuals of the sample covariance matrix and the hypothesized covariance model. Values for the SRMR range

from zero to 1.0 with well-fitting models obtaining values less than .05, however values as high as 0.08 are deemed acceptable (Hooper et al, 2008). An SRMR of 0 indicates perfect fit but it must be noted that SRMR will be lower when there is a high number of parameters in the model and in models based on large sample sizes (Hooper et al, 2008).

4.8.2 Incremental fit indices

Incremental fit indices are a group of indices that do not use the chi-square in its raw form but compare the chi-square value to a baseline model this means it used to measure how well the model fits in comparison to no model at all. This category includes Normed-fit index (NFI), Non-Normed Fit Index (NNFI) and Comparative fit index (CFI) (Hooper et al, 2008). The following sub sections will discuss these indices.

1. Normed-fit index (NFI)

This statistic assesses the model by comparing the $\chi 2$ value of the model to the $\chi 2$ of the null model. Values for this statistic range between 0 and 1 with Bentler and Bonnet (1980) recommending values greater than 0.90 indicating a good fit. More recent suggestions state that the cut-off criteria should be NFI $\geq$ .95 (Hu and Bentler, 1999).

2. Non-Normed Fit Index (NNFI)

Non-Normed Fit Index (NNFI), also known as the Tucker-Lewis index (TLI), is an index that prefers simpler models. Recommendations as low as 0.80 as a cutoff have been preferred however Bentler and Hu (1999) have suggested NNFI $\geq$ 0.95 as the threshold.

3. Comparative fit index (CFI)

This statistic assumes that all latent variables are uncorrelated (null/independence model) and compares the sample covariance matrix with this null model. The values for this statistic range between 0.0 and 1.0 with values closer to 1.0 indicating good fit. A cut-off criterion of CFI $\geq$

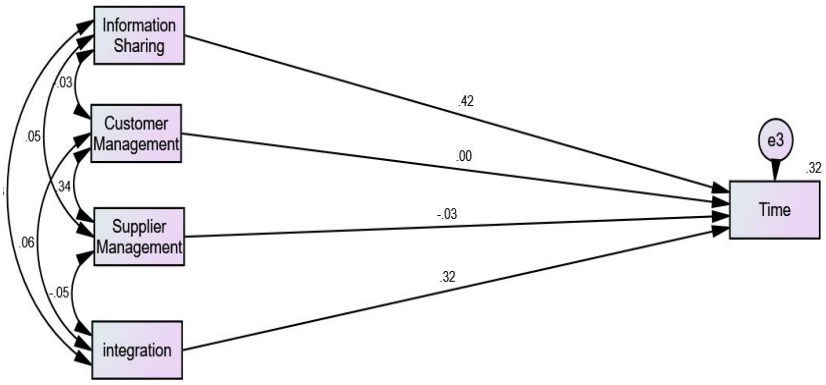
0.90 was initially advanced however, recent studies have shown that a value greater than 0.90 is needed in order to ensure that miss-specified models are not accepted (Hu & Bentler, 1999). From this, a value of CFI ≥ 0.95 is presently recognized as indicative of good fit (Hu & Bentler, 1999). Today this index is included in all SEM programs and is one of the most popularly reported fit indices due to being one of the measures least affected by sample size (Fan, Thompson, & Wang, 1999).

4.8.3 The relationship between SCM Practice and operational performance.

4.8.3.1 the relationship between SCM practice and time

This subsection aims to investigate the effect **SCM Practice** dimensions on the **operational performance** dimensions which represented by **time** as shown in figure (4.6)below.

figure (4.6): The Relationship between SCM Practice and time



Source: prepared by the researcher from data (2016).

From the above figure four hypotheses were developed to be tested. In order to test these hypotheses, path analysis in (SEM) using AMOS. Then to test the impacts of supply chain management practice dimensions on operational performance. The results of path analyses showing Model fit parameters consistent with recommendation for CMIN/DF<2, 0<RMSEA<1, 0<GFI<1, 0<AGFI<1, 0<RMR<1, 0<NFI<1, 0<CFI< 1, and PCLOSE>0.05. Table (4.18) presents the achieved model fit indices, which are quite reasonable values to indicate the model fit.

Table (4.18) the achieved model fit values

χ2/df	RMSEA	GFI	AGFI	RMR	NFI	NNFI	CFI	PCLOSE
_____	.213	1.000	1.000	.000	1.000	1.000	1.000	.000

Source: prepared by the researcher from data (2016).

Also Table 4.19 summarizes the results of regression analysis. The first control variables (firm size) shows significant effect (estimate=.113, p<0.01) on customer performance, while the second one (firm age) reveals without significant effect (estimate=-.030, p>0.05) on customer performance.

Further analysis of the results in table 4.19 showed that the two components of supply chain management practice have significant relationship with operational performance, though the results indicate a positive relationship between the four variables with values of (estimate=.394, p<0.001; estimate=.003, p>0.001; estimate=-.027 , p>0.001; estimate.398, p<0.001) respectively to (information sharing , customer management ,supplier and integration) on time. These results give support to hypotheses H1.1a (The information sharing and time) , H1.1b (customer management and time.), H1.1c (supplier management and time) and H1.1d (integration and time). Thus hypothesis H1.1 which states that there is a positive relationship between SCM practice and time was partial supported.

Table (4.19) Regression Weights: (Group number 1 - Default model)
Regression Weights: (Group number 1 - Default model)

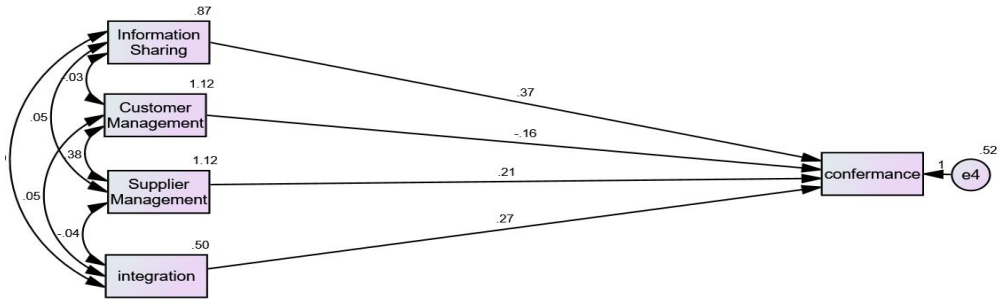
	Estimate	S.E.	C.R.	P	Label
Time <--- Sharing	.394	.072	5.476	***	
Time <--- customerIV	.003	.067	.046	.964	
Time <--- Supplier	-.027	.067	-.402	.688	
Time <--- integration	.398	.096	4.168	***	

Source: prepared by the researcher from data (2016).

4.8.3.2 The relationship between SCM Practice and conformance.

This subsection aims to investigate the effect **SCM Practice** dimensions on the **operational performance** dimensions which represented by **conformance** as shown in figure (4.7)below.

Figure(4.7) The relationship between the dimension of SCM practices and conformance:



Source: *prepared by the researcher from data (2016).*

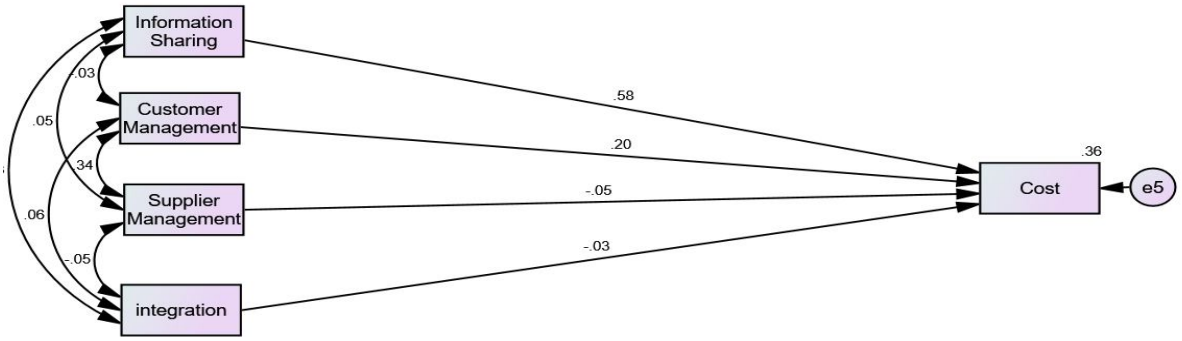
Table (4.20) Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
Conformance <--- customerIV	-.157	.067	-2.344	.019	
Conformance <--- Sharing	.374	.072	5.196	***	
Conformance <--- Supplier	.205	.067	3.059	.002	
Conformance <--- Integration	.268	.096	2.801	.005	

4.8.3.3 The relationship between SCM Practice and Cost.

This subsection aims to investigate the effect **SCM Practice** dimensions on the **operational performance** dimensions which represented by **cost** as shown in figure (4.7)below.

Figure (4.8) The relationship between the dimension of SCM practices and cost:



Source: prepared by the researcher from data (2016).

Table (4.21) Regression Weights: (Group number 1 - Default model)

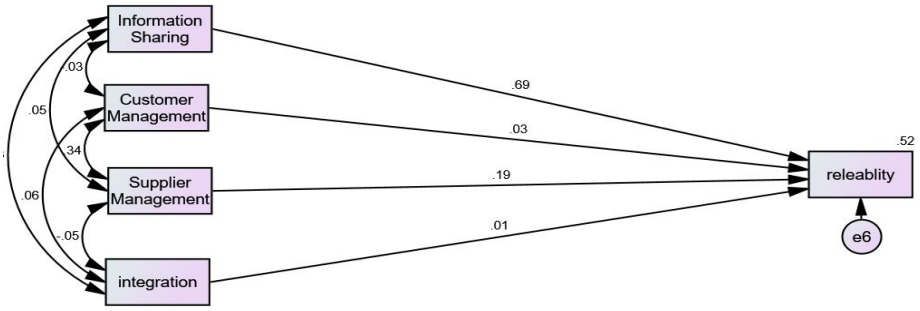
	Estimate	S.E.	C.R.	P	Label
Cost <--- Supplier	-.048	.085	-.569	.569	
Cost <--- Sharing	.702	.091	7.732	***	
Cost <--- customerIV	.209	.085	2.477	.013	
Cost <--- integration	-.055	.121	-.458	.647	

Source: prepared by the researcher from data (2016).

4.8.3.4 The relationship between SCM Practice and reliability

This subsection aims to investigate the effect **SCM Practice** dimensions on the **operational performance** dimensions which represented by **reliability** as shown in figure (4.8)below.

Figure(4.8)The relationship between the dimension of SCM practices and reliability :



Source: prepared by the researcher from data (2016).

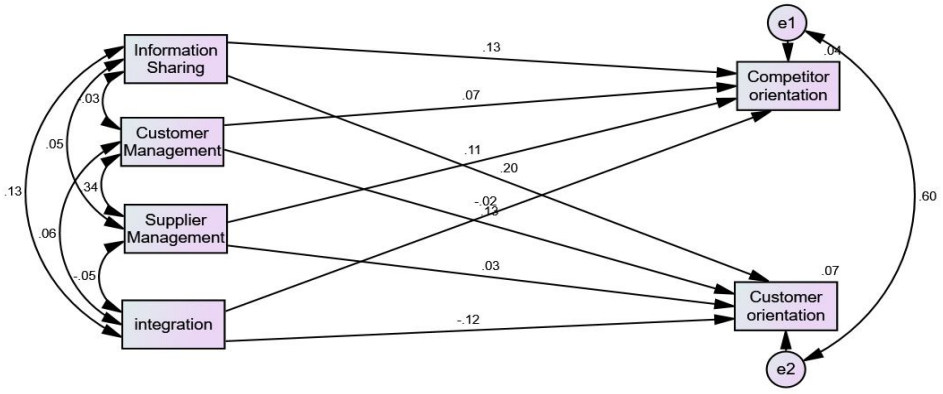
Table (4.22) Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
Reliability <--- integration	.010	.093	.110	.913	
Reliability <--- Sharing	.739	.070	10.605	***	
Reliability <--- customerIV	.025	.065	.391	.696	
Reliability <--- Supplier	.182	.065	2.804	.005	

4.8.5The relationship between SCM practice and Market orientation:

This subsection aims to investigate the effect **SCM Practice** dimensions on the **market orientation** dimensions which represented by **customer orientation and competitor orientation** as shown in figure (4.9)below.

Figure (4.9) the relationship between SCM practice and Market Orientation:



Source: prepared by the researcher from data (2016).

From the above figure four hypothesis were developed to be tested. In order to test these hypothesis, path analysis in (SEM) using AMOS. Then to test the impacts of social media marketing on brand equity. The results of path analysis showing Model fit parameters consistent with recommendation for CMIN/DF<2, 0<RMSEA<1, 0<GFI<1, 0<AGFI<1, 0<RMR<1, 0<NFI<1, 0<CFI< 1, and PCLOSE>0.05. Table (5.21) presents the achieved model fit indices, which are quite reasonable values to indicate the model fit. Based on the results show the in the figure (23) to test the impacts of social media marketing on brand equity. The results of path analysis and regression weighs attached to explain the estimate between the variables and P value to check our hypothesis.

Table (4.23) Regression Weights: (Group number 1 - Default model)

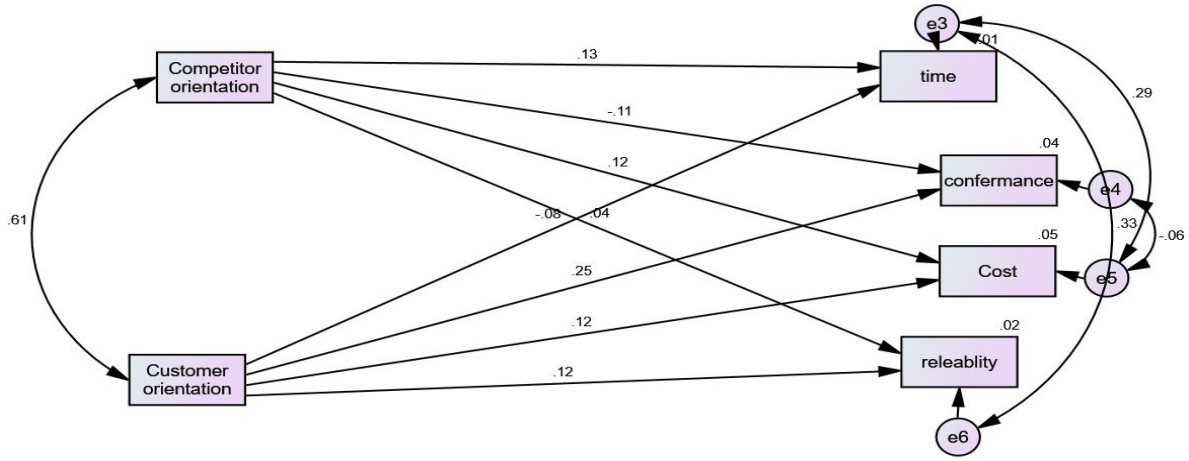
			Estimate	S.E.	C.R.	P	Label
Competitor	<---	sharing	.019	.013	1.413	.158	NS
Competitor	<---	customerIV	.009	.012	.719	.472	NS
Customer	<---	Supplier	.018	.068	.271	.786	NS

			Estimate	S.E.	C.R.	P	Label
Customer	<---	integration	-.129	.096	-1.335	.182	NS
Customer	<---	sharing	.162	.073	2.233	.026	S
Customer	<---	customerIV	.092	.068	1.367	.172	NS
Competitor	<---	Supplier	.014	.012	1.162	.245	NS
Competitor	<---	integration	-.005	.017	-.262	.794	NS

4.8.6The relationship between Market orientation and operational performance:

This subsection aims to investigate the effect **market orientation** dimensions on the **operational performance** dimensions which as shown in figure (4.9)below.

Figure (4.10) The relationship between Market Orientation and Operational Performance:



Source: prepared by the researcher from data (2016).

From the above figure four hypothesis were developed to be tested. In order to test these hypothesis, path analysis in (SEM) using AMOS. Then to test the impacts of social media marketing on brand equity. The results of path analysis showing Model fit parameters consistent with recommendation for CMIN/DF<2, 0<RMSEA<1, 0<GFI<1, 0<AGFI<1,

0<RMR<1, 0<NFI<1, 0<CFI< 1, and PCLOSE>0.05. Table (5.21) presents the achieved model fit indices, which are quite reasonable values to indicate the model fit.

Table (4.24) Regression Weights: (Group number 1 - Default model)

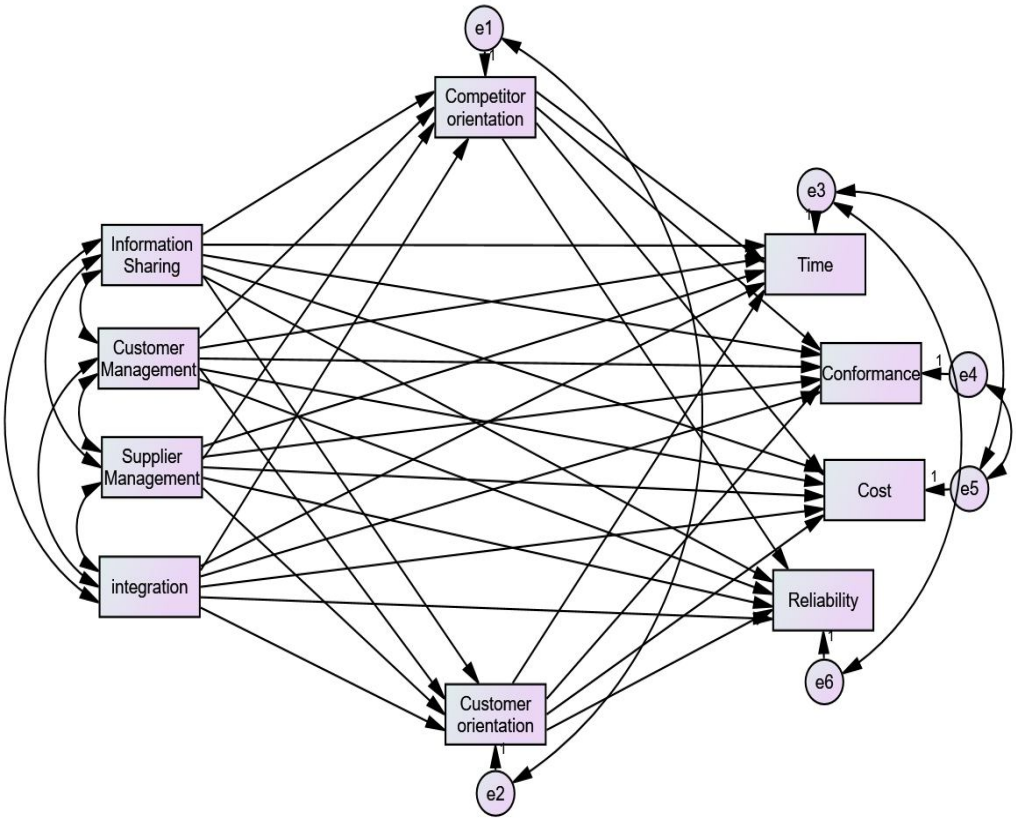
			Estimate	S.E.	C.R.	P	Label
Time	<---	Competitor	.811	.725	1.119	.263	
Conformance	<---	Competitor	-.712	.734	-.970	.332	
Cost	<---	Competitor	1.037	.962	1.078	.281	
Reliability	<---	Competitor	.320	.865	.370	.712	
Reliability	<---	Customer	.165	.155	1.069	.285	
Cost	<---	Customer	.179	.172	1.039	.299	
Conformance	<---	Customer	.290	.131	2.209	.027	
Time	<---	Customer	-.091	.130	-.703	.482	

4.8.7 The Mediating Effect of marketing orientation

The fourth part of hypotheses testing in this study deals with the mediating effect of market orientation witch included in H4. The support from the first three hypotheses provides the initial steps required to test the fourth hypothesis in the study which predicts whether market orientation (competitor orientation and customer orientation) may be a mediating variable between the supply chain management practice and operational performance. As shown in figure 4.11 below.

As recommended by Baron and Kenny (1986) in literature a three-step hierarchical regression must be conducted to test the hypotheses of mediator. First step, the independent variable must affect the dependent variable significantly (ß1must be significant). Second step, the independent variable should affect the mediating variable (ß2 must be significant). Third step, mediating variable must influence the dependent variable significantly (ß3 must be significant).

Figure (4.11): The Mediating Effect of marketing orientation



Source: prepared by the researcher from data (2016).

On the other hand, in order to found whether mediator is fully or partially mediating the relationship between the independent variable and dependent variable, the impact of independent variable on dependent variable controlling for mediating variable should be zero or ß4 is not significant in fully mediator, while partial mediator exists once ß4 is significant but reduced.

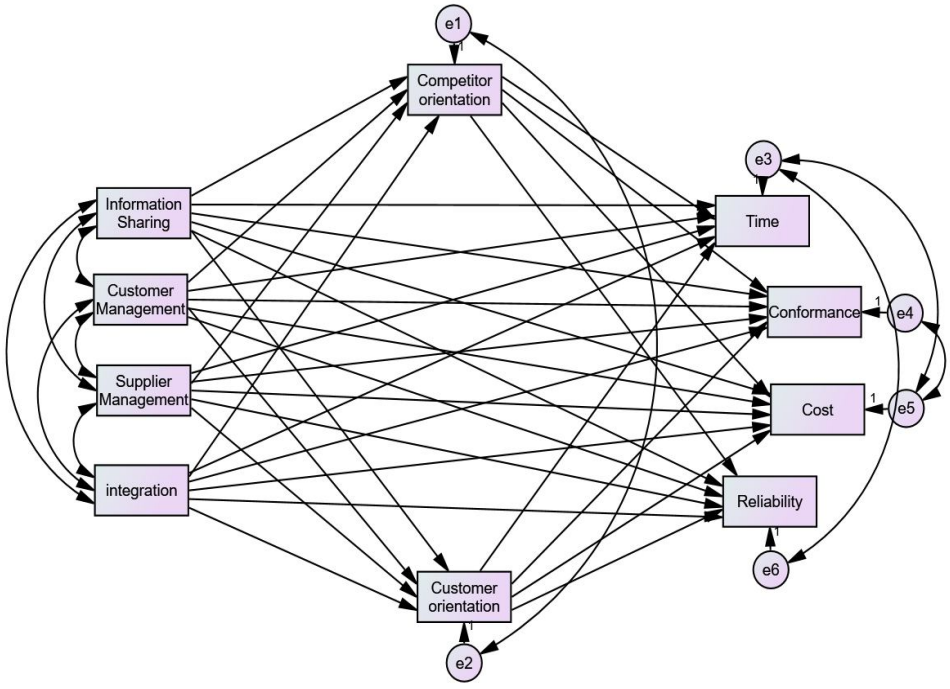
Despite the method outlined by Kenny (e.g., Baron & Kenny, 1986; Kenny et al., 1998) is the most commonly used approach in the literature (Patricia A. Frazier, 2004) however, to fulfill the condition for testing the mediation effect of marketing orientation in this study the direct and indirect effect was conducted to examine firstly, the direct effect between ***SCM*** Practice and operation performance then the indirect effect to this relation through the market

orientation. Given that the third assumption of Kenny approach was not satisfied in this study, in which the mediating variable must significantly influence the dependent variable (ß3 must be significant), this means that the relationship between the market orientation and operational performance is not significant. The results of the direct and indirect effect analyses were discussed in the next subsections.

4.8.7.1 The mediating effect of competitor orientation in the relationship between SCM Practice and operational performance

In this subsection the competitor orientation was hypothesized to mediate the relationship between SCM Practice and operations performance. However, to test this hypothesis an examination of whether competitor orientation mediates the relationship between SCM Practice and operations performance as shown in figure 4.11 below must be estimated firstly, then secondly, the examination of whether customer orientation mediates the relationship between SCM Practice and operations performance

Figure (4.11): The Mediating Effect of competitor orientation between SCM practice and operational performance relationship.



Source: prepared by the researcher from data (2016).

Concerning the model fit recommendation AMOS output showing Model fit indices as follow, CMIN/DF=.852, RMSEA=.000, GFI=.987, AGFI=.956, RMR=.008, NFI=.944, CFI=1, and PCLOSE=.853. Table (4.25) below presents the model fit measures and their interpretations.

Table (4.25) the model fit measures

Measure	Estimate	Threshold	Interpretation
CMIN	2.857	--	--
DF	3	--	--
CMIN/DF	0.952	Between 1 and 3	Excellent
CFI	1.000	>0.95	Excellent
SRMR	0.013	<0.08	Excellent
RMSEA	0.000	<0.06	Excellent
PClose	0.537	>0.05	Excellent

Source: prepared by the researcher from data (2016).

The result of regression weights presented in Table (4.26) which represents the direct effects shows iv significantly influence dv ($p<0.01$), iv significantly influence mediator ($p<0.05$), and MM significantly influence DV ($p<0.05$). Thus, the satisfaction of these three assumptions indicates that the MM has established mediating effect.

Table (4.26) Regression Weights for direct effect:
(Group number 1 - Default model)
Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
Competitor	<---	Sharing	.019	.013	1.413	.158	A
Time	<---	Competitor	.621	.627	.991	.322	B

Source: prepared by the researcher from data (2016).

On the other hand, Table (4.27) illustrates the indirect effect shows significant relationship between IV and DV through MM. This, result confirmed the mediating role of MM in the relationship between IV and DV. Thus, the summing up of the direct and indirect effect indicated a partial mediation MM with the above mentioned relationship.

Table (4.27) User-defined estimate for indirect effect:
(Group number 1 - Default model)

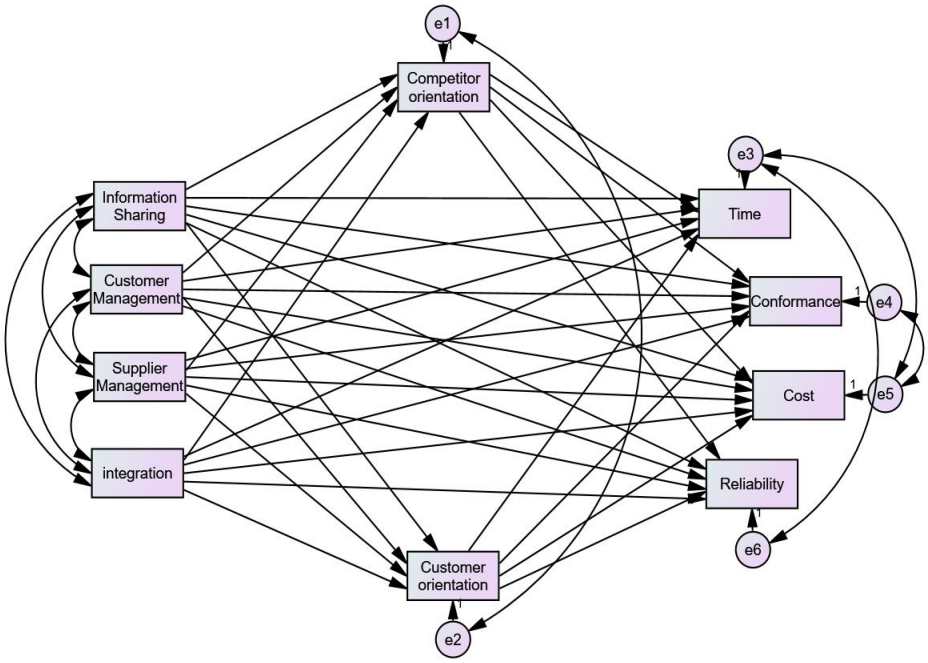
Parameter	Estimate	Lower	Upper	P
A x B	.012	-.005	.057	.261

Source: prepared by the researcher from data (2016).

4.8.7.2 The mediating effect of competitor orientation in the relationship between information sharing and conformance

In this subsection the competitor orientation was hypothesized to mediate the relationship between information sharing and conformance. However, to test this hypothesis an examination of whether competitor orientation mediates the relationship between SCM Practice and operations performance as shown in figure 4.12 below.

Figure (4.12): Competitor orientation mediator the positive effect between information sharing and conformance



Source: prepared by the researcher from data (2016).

The result of regression weights presented in Table (4.28) which represents the direct effects shows IV significantly influence DV ($p<0.01$), iv significantly influence mm ($p<0.05$), and MM significantly influence DV ($p<0.05$). Thus, the satisfaction of these three assumptions indicates that the mm has established mediating effect. The results of path analysis and regression weighs attached to explain the estimate between the variables and P value to check our hypothesis.

Table (28) Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
Competitor	<---	Sharing	.019	.013	1.413	.158	A
Conformance	<---	Competitor	-1.085	.613	-1.770	.077	B

Source: prepared by the researcher from data (2016).

On the other hand, Table (4.29) illustrates the indirect effect shows significant relationship between IV and DV through MM. This, result confirmed the mediating

role of MM in the relationship between IV and DV. Thus, the summing up of the direct and indirect effect indicated a partial mediation of MM with the above mentioned relationship. The results of path analysis and regression weighs attached to explain the (Parameter A*B) estimate between the variables and P value to check indirect effect.

Table (29) User-defined estimate: (Group number 1 - Default model)

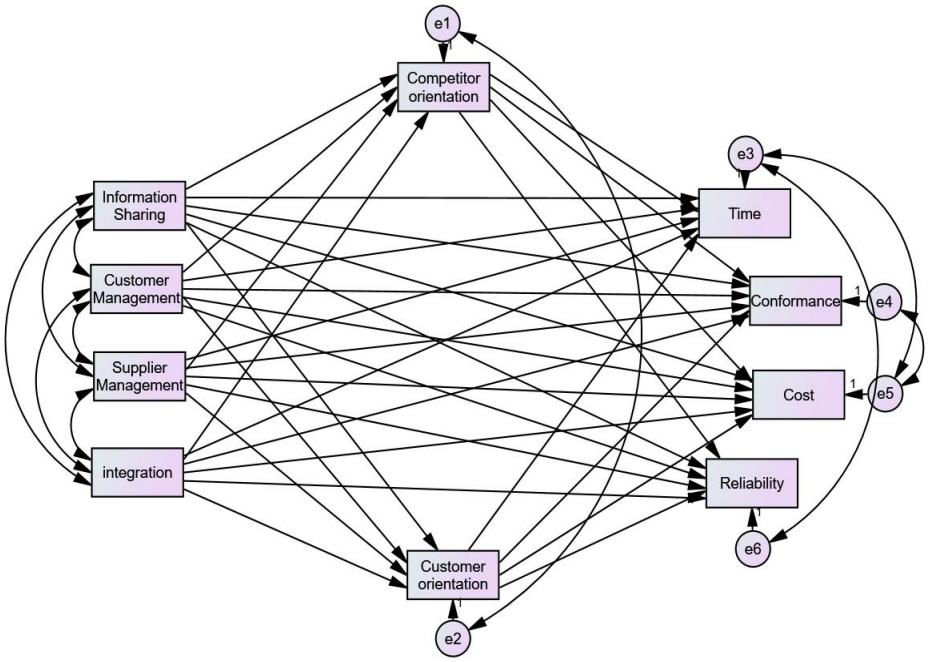
Parameter	Estimate	Lower	Upper	P
A x B	-.020	-.056	-.004	.047

Source: prepared by the researcher from data (2016).

4.8.7.3 The mediating effect of competitor orientation in the relationship between information sharing and conformance.

In this subsection the competitor orientation was hypothesized to mediate the relationship between information sharing and conformance. However, to test this hypothesis an examination of whether competitor orientation mediates the relationship between information sharing and conformance. as shown in figure 4.13 below

Figure (4.13): Competitor orientation mediator the positive effect between information sharing and cost



Source: prepared by the researcher from data (2016).

The result of regression weights presented in Table (4.30) which represents the direct effects shows IV significantly influence DV ($p<0.01$), IV significantly influence mm ($p<0.05$), and MM significantly influence DV ($p<0.05$). Thus, the satisfaction of these three assumptions indicates that the MM has established mediating effect. The results of path analysis and regression weighs attached to explain the estimate between the variables and P value to check our hypothesis.

Table(30) Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
Competitor	<---	sharing	.019	.013	1.413	.158	A
Cost	<---	Competitor	.922	.793	1.163	.245	B

Source: prepared by the researcher (2016)

On the other hand, Table (4.31) illustrates the indirect effect shows significant relationship between IV and DV through MM. This, result confirmed the mediating role of MM in the relationship between IV and DV. Thus, the summing up of the direct and indirect effect indicated a partial mediation of MM with the above

mentioned relationship**.** The results of path analysis and regression weighs attached to explain the (Parameter A*B) estimate between the variables and P value to check indirect effect.

Table (31) User-defined estimate: (Group number 1 - Default model)

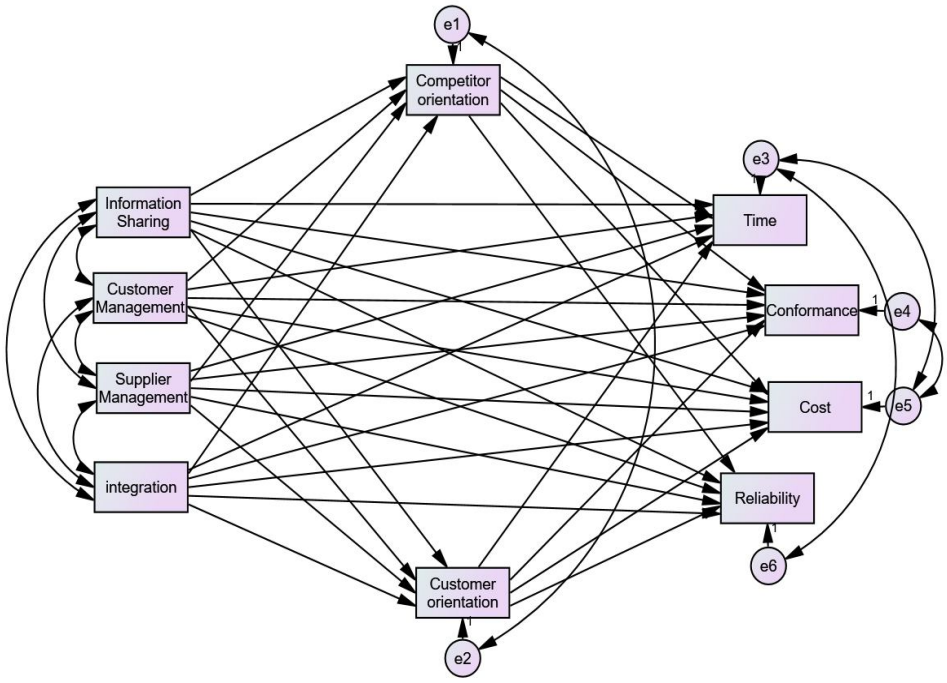
Parameter	Estimate	Lower	Upper	P
A x B	.017	.000	.059	.106

Source: prepared by the researcher from data (2016).

4.8.7.4 The mediating effect of competitor orientation in the relationship between information sharing and reliability.

In this subsection the competitor orientation was hypothesized to mediate the relationship between information sharing and reliability. However, to test this hypothesis an examination of whether competitor orientation mediates the relationship between information sharing and reliability. as shown in figure 4.14 below

Figure (4.14): Competitor orientation mediator the positive effect between information sharing and reliability



Source: prepared by the researcher from data (2016).

The result of regression weights presented in Table (4.32) which represents the direct effects shows IV significantly influence DV ($p<0.01$), IV significantly influence mm ($p<0.05$), and MM significantly influence DV ($p<0.05$). Thus, the satisfaction of these three assumptions indicates that the MM has established mediating effect. The results of path analysis and regression weighs attached to explain the estimate between the variables and P value to check our hypothesis.

Table (32) Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
Competitor <--- Sharing	.019	.013	1.413	.158	A
Reliability <--- Competitor	-.051	.609	-.084	.933	B

Source: prepared by the researcher from data (2016).

On the other hand, Table (4.33) illustrates the indirect effect shows significant relationship between IV and DV through MM. This, result confirmed the mediating role of MM in the relationship between IV and DV. Thus, the summing up of the

direct and indirect effect indicated a partial mediation of MM with the above mentioned relationship. The results of path analysis and regression weighs attached to explain the (Parameter A*B) estimate between the variables and P value to check indirect effect.

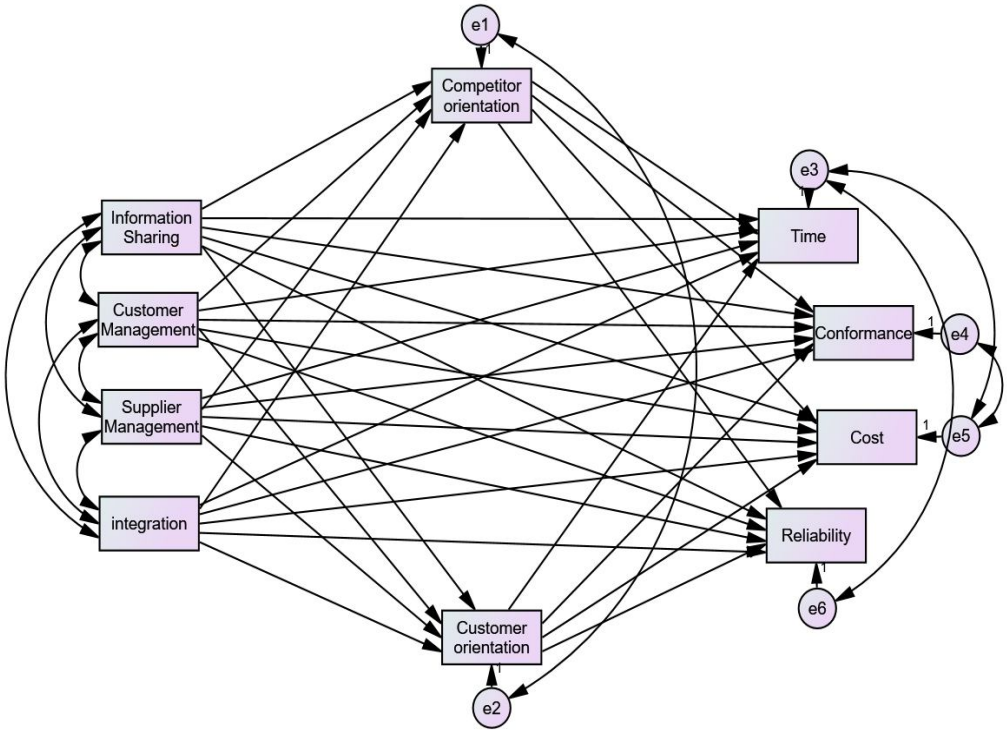
Table (33)User-defined estimate: (Group number 1 - Default model)

Parameter	Estimate	Lower	Upper	P
A x B	-.001	-.023	.012	.760

4.8.7.5 The mediating effect of competitor orientation in the relationship between customer management and time

In this subsection the competitor orientation was hypothesized to mediate the relationship between information sharing and reliability. However, to test this hypothesis an examination of whether competitor orientation mediates the relationship between information sharing and reliability. as shown in figure 4.15 below

Figure (4.15): Competitor orientation mediator the positive effect between customer management and time



Source: prepared by the researcher from data (2016).

The result of regression weights presented in Table (4.34) which represents the direct effects shows IV significantly influence DV ($p<0.01$), IV significantly influence mm ($p<0.05$), and MM significantly influence DV ($p<0.05$). Thus, the satisfaction of these three assumptions indicates that the MM has established mediating effect. The results of path analysis and regression weighs attached to explain the estimate between the variables and P value to check our hypothesis

Table(34) Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
Competitor	<---	customerIV	.009	.012	.719	.472	A
Time	<---	Competitor	.621	.627	.991	.322	B

Source: prepared by the researcher from data (2016).

On the other hand, Table (4.35) illustrates the indirect effect shows significant relationship between IV and DV through MM. This, result confirmed the mediating

role of MM in the relationship between IV and DV. Thus, the summing up of the direct and indirect effect indicated a partial mediation of MM with the above mentioned relationship. The results of path analysis and regression weighs attached to explain the (Parameter A*B) estimate between the variables and P value to check indirect effect.

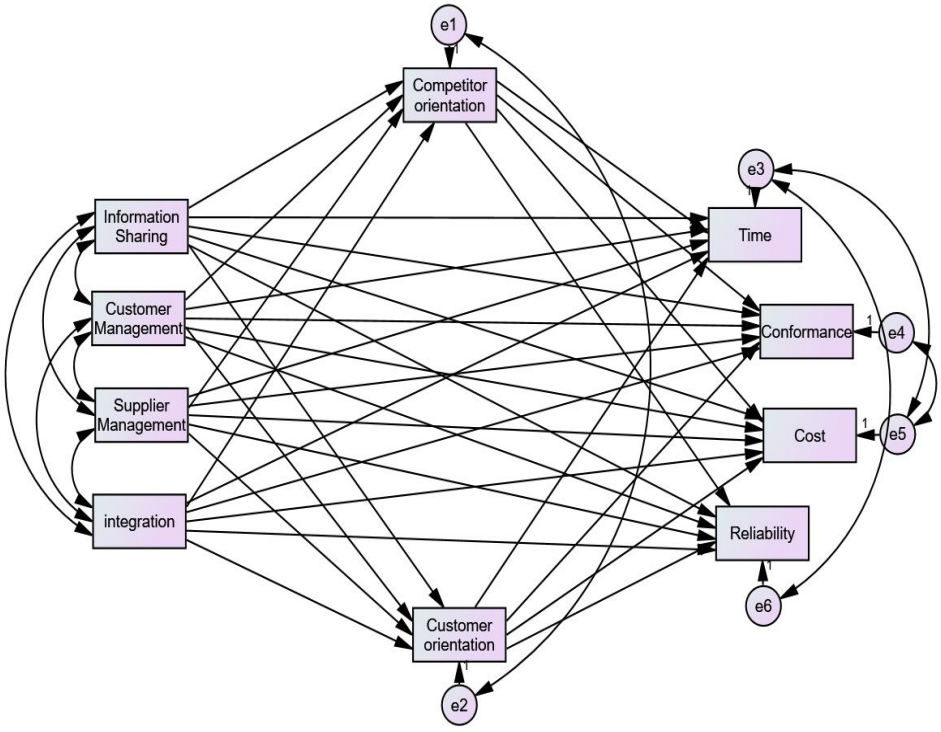
Table (35) User-defined estimate: (Group number 1 - Default model)

Parameter	Estimate	Lower	Upper	P
A x B	.005	-.003	.048	.318

4.8.7.6 The mediating effect of competitor orientation in the relationship between customer management and conformance

In this subsection the competitor orientation was hypothesized to mediate the relationship between customer management and conformance. However, to test this hypothesis an examination of whether competitor orientation mediates the relationship between customer management and conformance. as shown in figure 4.16 below

Figure (4.16): Competitor orientation mediator the positive effect between customer management and conformance



Source: prepared by the researcher from data (2016).

The result of regression weights presented in Table (4.36) which represents the direct effects shows IV significantly influence DV($p<0.01$), IV significantly influence mm ($p<0.05$), and MM significantly influence DV ($p<0.05$). Thus, the satisfaction of these three assumptions indicates that the MM has established mediating effect. The results of path analysis and regression weighs attached to explain the estimate between the variables and P value to check our hypothesis

Table (36)Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
Competitor <--- customerIV	.009	.012	.719	.472	A
Conformance <--- Competitor	-1.085	.613	-1.770	.077	B

Source: prepared by the researcher from data (2016).

On the other hand, Table (4.37) illustrates the indirect effect shows significant relationship between IV and DV through MM. This, result confirmed the mediating

role of MM inthe relationship between IV and DV. Thus, the summing up of the direct and indirect effect indicated a partial mediation of MM with the above mentioned relationship. The results of path analysis and regression weighs attached to explain the (Parameter A*B) estimate between the variables and P value to check indirect effect.

Table (37) User-defined estimate: (Group number 1 - Default model)

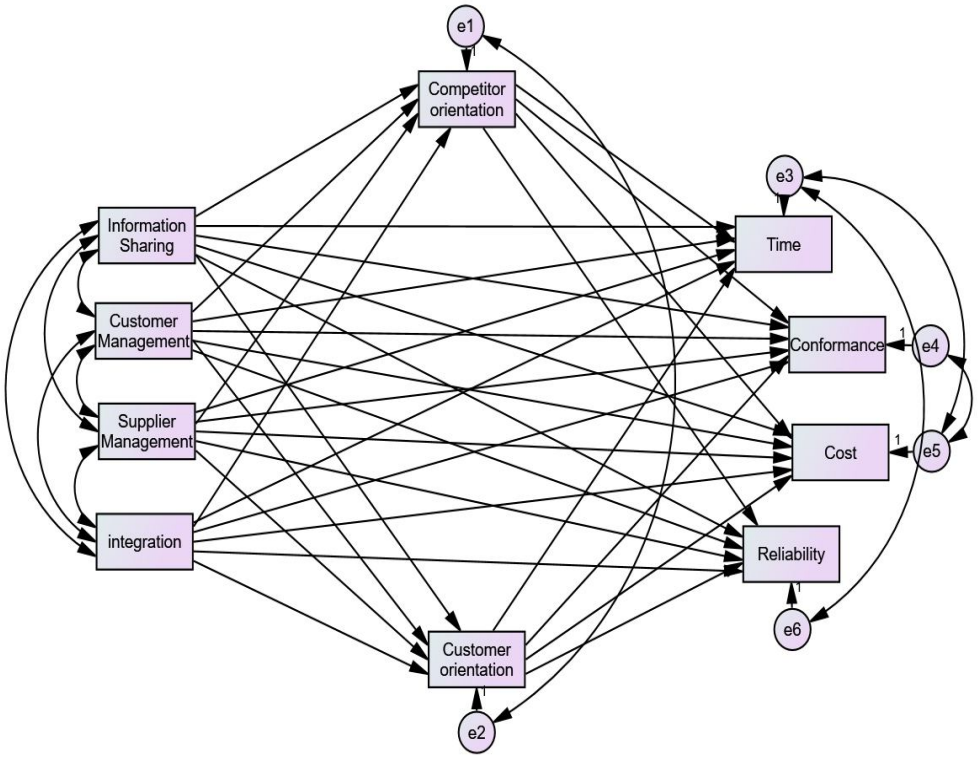
Parameter	Estimate	Lower	Upper	P
A x B	-.010	-.043	.003	.195

Source: prepared by the researcher from data (2016).

4.8.7.7 The mediating effect of competitor orientation in the relationship between customer management and cost

In this subsection the competitor orientation was hypothesized to mediate the relationship between **customer management and cost**. However, to test this hypothesis an examination of whether competitor orientation mediates the relationship between **customer management and cost**. as shown in figure 4.17 below

Figure (4.17): Competitor orientation mediator the positive effect between customer management and cost



Source: prepared by the researcher from data (2016).

The result of regression weights presented in Table (4.38) which represents the direct effects shows IV significantly influence DV ($p<0.01$), IV significantly influence mm ($p<0.05$), and mm significantly influence DV ($p<0.05$). Thus, the satisfaction of these three assumptions indicates that the MM has established mediating effect. The results of path analysis and regression weighs attached to explain the estimate between the variables and P value to check our hypothesis

Table(38) Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
Competitor	<---	customerIV	.009	.012	.719	.472	A
Cost	<---	Competitor	.922	.793	1.163	.245	B

Source: prepared by the researcher from data (2016).

On the other hand, Table (4.39) illustrates the indirect effect shows significant relationship between IV and DV through MM. This, result confirmed the mediating

role of MM in the relationship between IV and DV. Thus, the summing up of the direct and indirect effect indicated a partial mediation of MM with the above mentioned relationship. The results of path analysis and regression weighs attached to explain the (Parameter A*B) estimate between the variables and P value to check indirect effect.

Table (39) User-defined estimate: (Group number 1 - Default model)

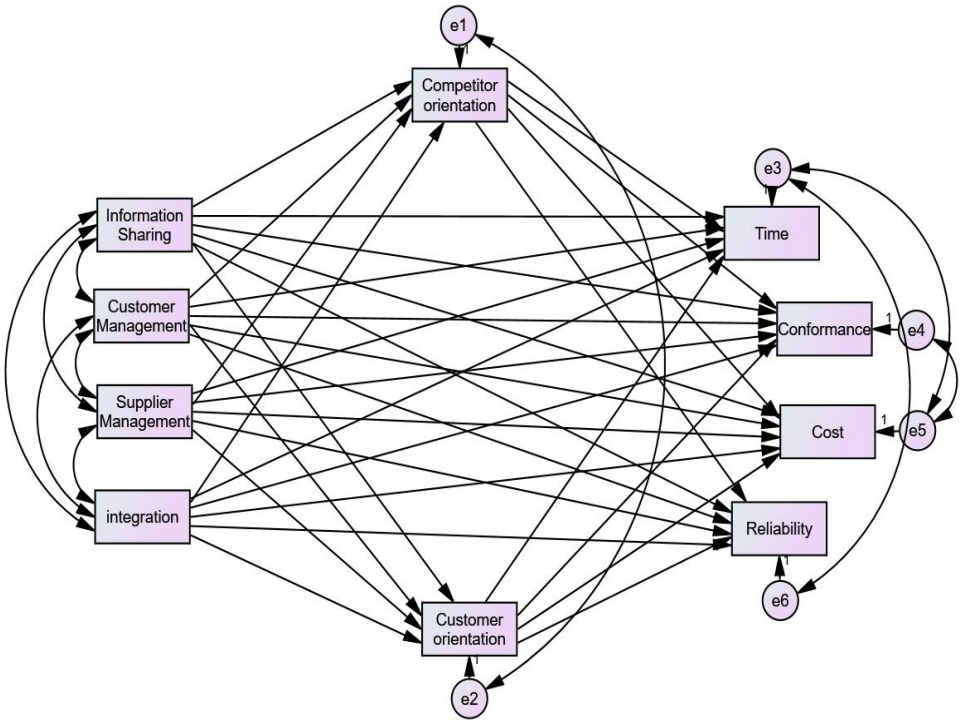
Parameter	Estimate	Lower	Upper	P
A x B	.008	-.003	.048	.220

Source: prepared by the researcher from data (2016).

4.8.7.8 The mediating effect of competitor orientation in the relationship between customer management and reliability

In this subsection the competitor orientation was hypothesized to mediate the relationship between customer management and reliability. However , to test this hypothesis an examination of whether competitor orientation mediates the relationship between customer management and reliability. as shown in figure 4.18 below

Figure (4.18): Competitor orientation mediator the positive effect between customer management and reliability



Source: prepared by the researcher from data (2016).

The result of regression weights presented in Table (4.40) which represents the direct effects shows IV significantly influence DV ($p<0.01$), IV significantly influence mm ($p<0.05$), and MM significantly influence DV ($p<0.05$). Thus, the satisfaction of these three assumptions indicates that the MM has established mediating effect. The results of path analysis and regression weighs attached to explain the estimate between the variables and P value to check our hypothesis

Table (40)Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
Competitor <--- customerIV	.009	.012	.719	.472	A
Reliability <--- Competitor	-.051	.609	-.084	.933	B

Source: prepared by the researcher from data (2016)

. On the other hand, Table (4.41) illustrates the indirect effect shows significant relationship between IV and DV through MM. This, result confirmed the mediating role of MM in the relationship between IV and DV. Thus, the summing up of the

direct and indirect effect indicated a partial mediation of MM with the above mentioned relationship**.** The results of path analysis and regression weighs attached to explain the (Parameter A*B) estimate between the variables and P value to check indirect effect.

Table (41)User-defined estimate: (Group number 1 - Default model)

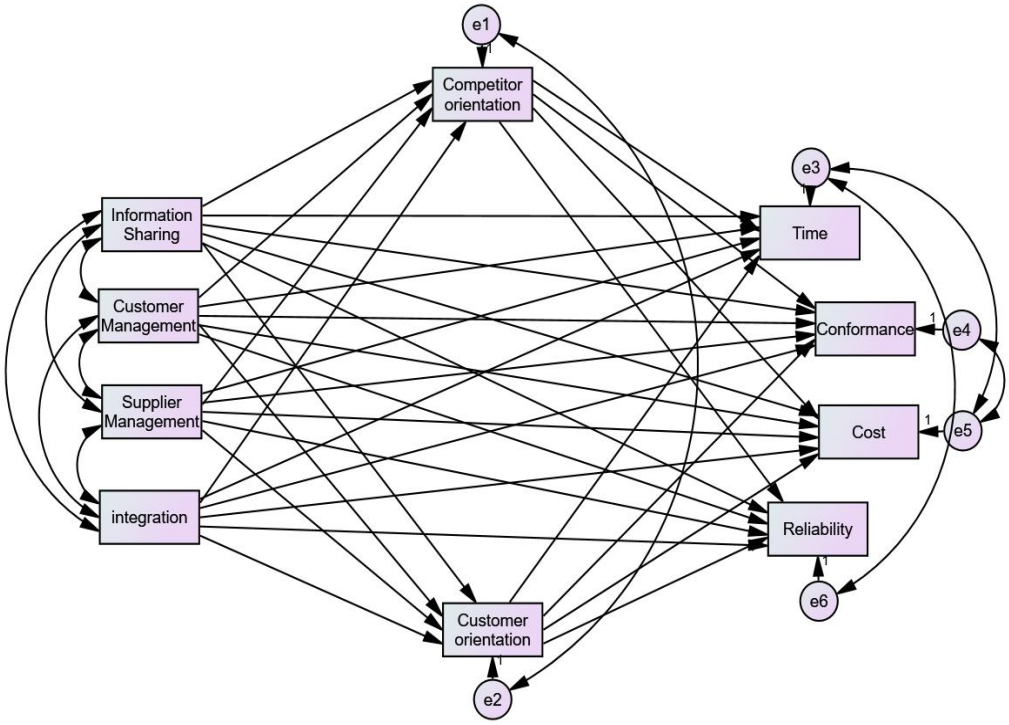
Parameter	Estimate	Lower	Upper	P
A x B	.000	-.017	.007	.651

Source: prepared by the researcher from data (2016).

4.8.7.9 The mediating effect of competitor orientation in the relationship between supplier management and time

In this subsection the competitor orientation was hypothesized to mediate the relationship between supplier management and time. However , to test this hypothesis an examination of whether competitor orientation mediates the relationship between supplier management and time and reliability. as shown in figure 4.19 below

Figure (4.19): Competitor orientation mediator the positive effect between supplier management and time



Source: prepared by the researcher from data (2016).

The result of regression weights presented in Table (4.42) which represents the direct effects shows iv significantly influence DV ($p<0.01$), iv significantly influence mm ($p<0.05$), and mm significantly influence DV ($p<0.05$). Thus, the satisfaction of these three assumptions indicates that the MM has established mediating effect. The results of path analysis and regression weighs attached to explain the estimate between the variables and P value to check our hypothesis

Table(42) Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
Competitor	<---	Supplier	.014	.012	1.162	.245	A
Time	<---	Competitor	.621	.627	.991	.322	B

Source: prepared by the researcher from data (2016).

On the other hand, Table (4.43) illustrates the indirect effect shows significant relationship between IV and DV through MM. This, result confirmed the mediating role of MM in the relationship between IV and DV. Thus, the summing up of the

direct and indirect effect indicated a partial mediation of MM with the above mentioned relationship. The results of path analysis and regression weighs attached to explain the (Parameter A*B) estimate between the variables and P value to check indirect effect.

Table (43)User-defined estimate: (Group number 1 - Default model)

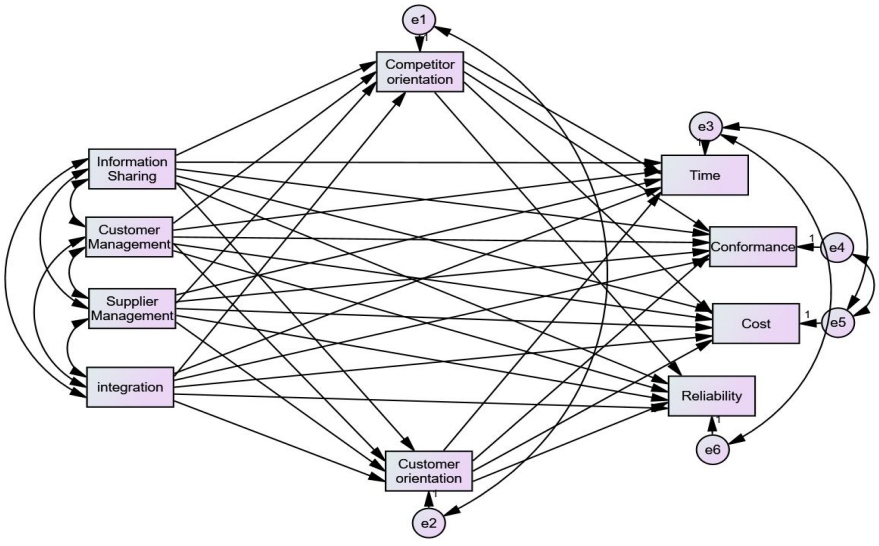
Parameter	Estimate	Lower	Upper	P
A x B	.009	-.003	.054	.273

Source: prepared by the researcher from data (2016).

4.8.7.10 The mediating effect of competitor orientation in the relationship between supplier management and conformance

In this subsection the competitor orientation was hypothesized to mediate the relationship between supplier management and conformance. However , to test this hypothesis an examination of whether competitor orientation mediates the relationship between supplier management and conformance. as shown in figure 4.20 below

Figure (4.20): Competitor orientation mediator the positive effect between supplier management and conformance



Source: prepared by the researcher from data (2016).

The result of regression weights presented in Table (4.44) which represents the direct effects shows IV significantly influence DV ($p<0.01$), IV significantly influence mm ($p<0.05$), and MM significantly influence DV ($p<0.05$). Thus, the satisfaction of these three assumptions indicates that the MM has established mediating effect. The results of path analysis and regression weighs attached to explain the estimate between the variables and P value to check our hypothesis

Table (44) Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
Competitor <--- Supplier	.014	.012	1.162	.245	A
Conformance <--- Competitor	-1.085	.613	-1.770	.077	B

Source: prepared by the researcher from data (2016).

On the other hand, Table (4.45) illustrates the indirect effect shows significant relationship between IV and DV through MM. This, result confirmed the mediating role of MM in the relationship between IV and DV. Thus, the summing up of the direct and indirect effect indicated a partial mediation of MM with the above mentioned relationship. The results of path analysis and regression weighs attached to explain the (Parameter A*B) estimate between the variables and P value to check indirect effect.

Table (45) User-defined estimate: (Group number 1 - Default model)

Parameter	Estimate	Lower	Upper	P
A x B	-.015	-.066	.002	.157

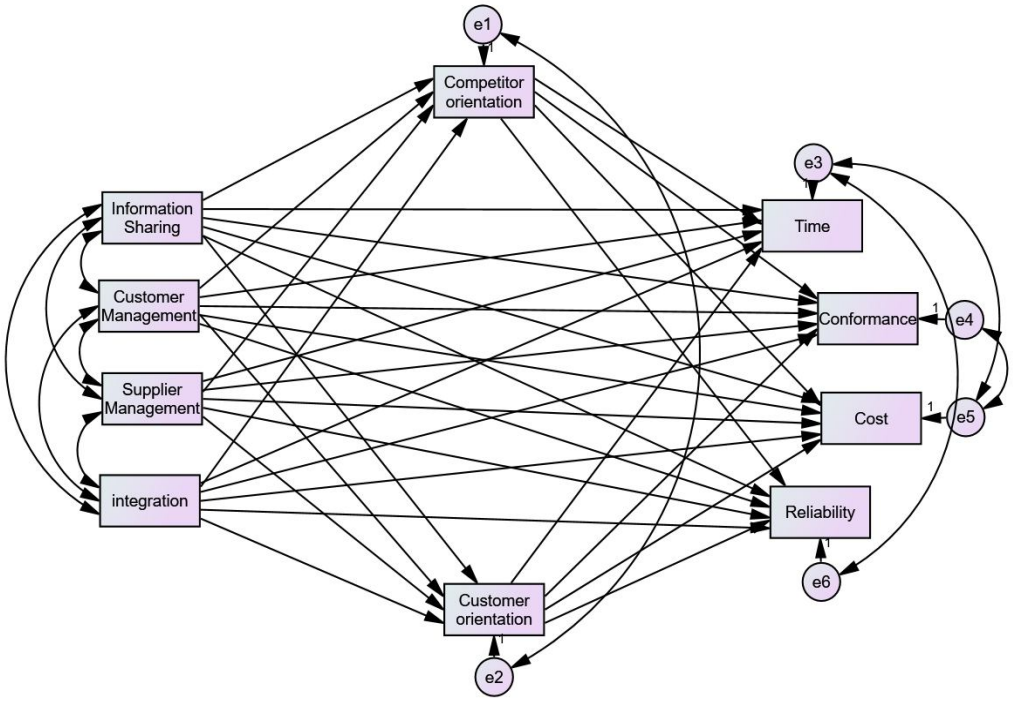
Source: prepared by the researcher from data (2016).

4.8.7.10 The mediating effect of competitor orientation in the relationship between supplier management and cost

In this subsection the competitor orientation was hypothesized to mediate the relationship between supplier management and **cost**. However , to test this hypothesis an examination of

whether competitor orientation mediates the relationship between supplier management and **cost**. as shown in figure 4.21 below

Figure (4.21): Competitor orientation mediator the positive effect between supplier management and cost



Source: prepared by the researcher from data (2016).

The result of regression weights presented in Table (4.56) which represents the direct effects shows IV significantly influence DV ($p<0.01$), IV significantly influence mm ($p<0.05$), and MM significantly influence DV ($p<0.05$). Thus, the satisfaction of these three assumptions indicates that the MM has established mediating effect. The results of path analysis and regression weighs attached to explain the estimate between the variables and P value to check our hypothesis

Table (46) Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
Competitor	<---	Supplier	.014	.012	1.162	.245	A
Cost	<---	Competitor	.922	.793	1.163	.245	B

Source: prepared by the researcher from data (2016).

On the other hand, Table (4.47) illustrates the indirect effect shows significant relationship between IV and DV through MM. This, result confirmed the mediating role of MM in the relationship between IV and DV. Thus, the summing up of the direct and indirect effect indicated a partial mediation of MM with the above mentioned relationship**.** The results of path analysis and regression weighs attached to explain the (Parameter A*B) estimate between the variables and P value to check indirect effect.

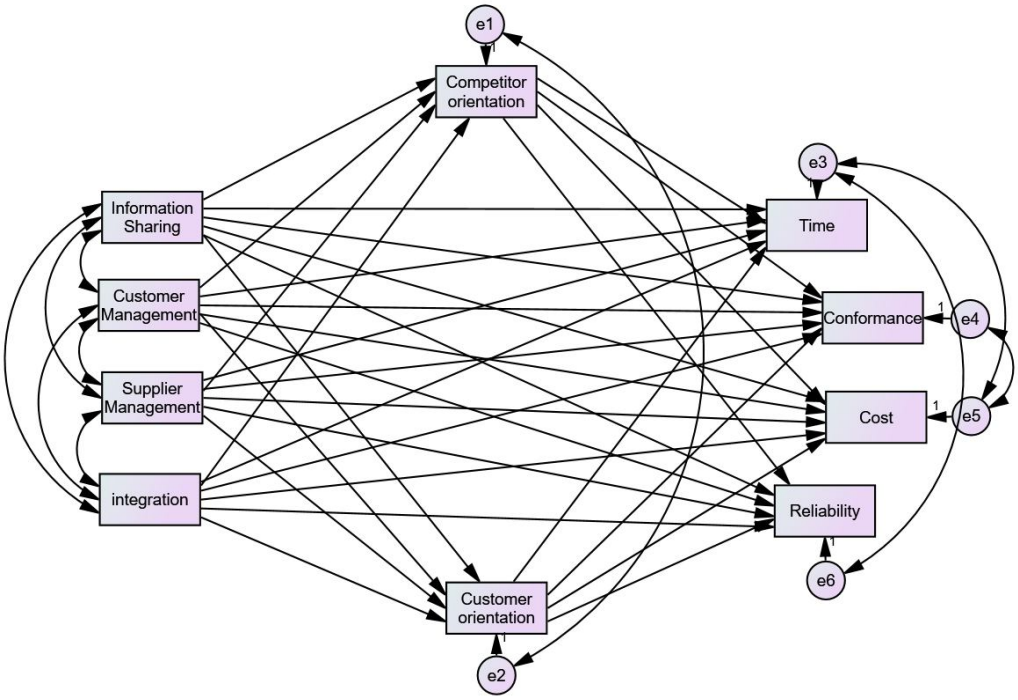
Table (47) User-defined estimate: (Group number 1 - Default model)

Parameter	Estimate	Lower	Upper	P
A x B	.013	-.003	.067	.199

4.8.7.11 The mediating effect of competitor orientation in the relationship between supplier management and Reliability

In this subsection the competitor orientation was hypothesized to mediate the relationship between supplier management and Reliability. However , to test this hypothesis an examination of whether competitor orientation mediates the relationship between supplier management and Reliability. as shown in figure 4.22 below

Figure (4.22): Competitor orientation mediator the positive effect between supplier management and Reliability



Source: prepared by the researcher from data (2016).

The result of regression weights presented in Table (4.48) which represents the direct effects shows IV significantly influence DV ($p<0.01$), IV significantly influence mm ($p<0.05$), and MM significantly influence DV ($p<0.05$). Thus, the satisfaction of these three assumptions indicates that the MM has established mediating effect. The results of path analysis and regression weighs attached to explain the estimate between the variables and P value to check our hypothesis

Table (48) Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
Competitor <--- Supplier	.014	.012	1.162	.245	A
Reliability <--- Competitor	-.051	.609	-.084	.933	B

On the other hand, Table (4.49) illustrates the indirect effect shows significant relationship between IV and DV through MM. This, result confirmed the mediating

role of MM in the relationship between IV and DV. Thus, the summing up of the direct and indirect effect indicated a partial mediation of MM with the above mentioned relationship**.** The results of path analysis and regression weighs attached to explain the (Parameter A*B) estimate between the variables and P value to check indirect effect.

Table (49) User-defined estimate: (Group number 1 - Default model)

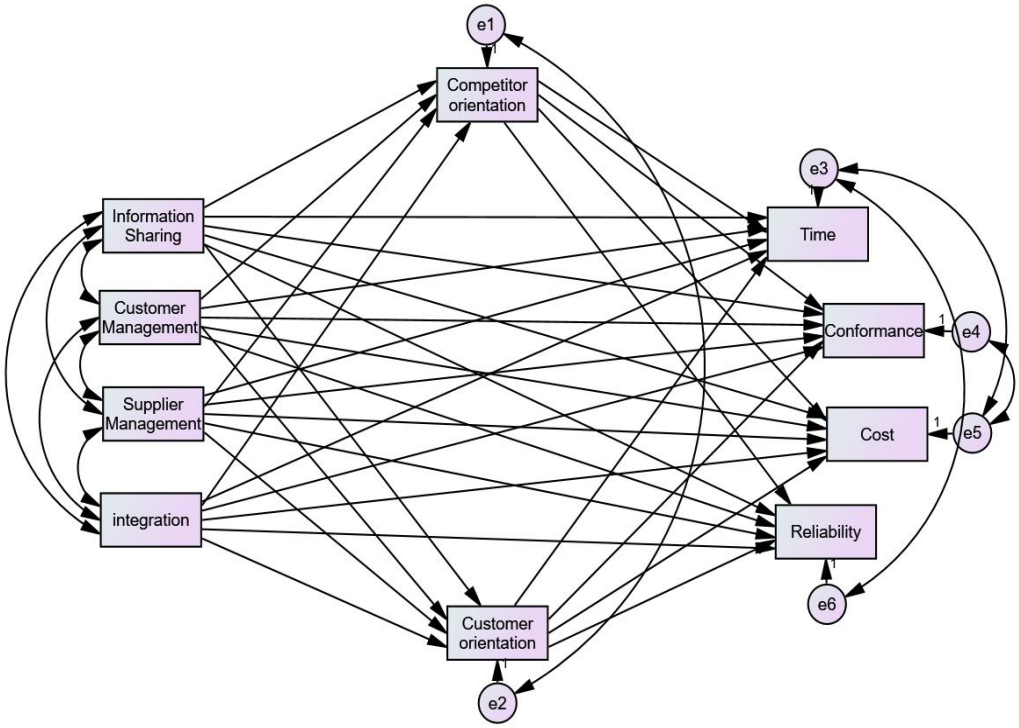
Parameter	Estimate	Lower	Upper	P
A x B	-.001	-.027	.009	.666

Source: prepared by the researcher from data (2016).

4.8.7.12 The mediating effect of competitor orientation in the relationship between integration and time

In this subsection the competitor orientation was hypothesized to mediate the relationship between integration and time. However , to test this hypothesis an examination of whether competitor orientation mediates the relationship between integration and time. as shown in figure 4.22 below

Figure (4.22): Competitor orientation mediator the positive effect between integration and time



Source: prepared by the researcher from data (2016).

The result of regression weights presented in Table (4.50) which represents the direct effects shows IV significantly influence DV ($p<0.01$), IV significantly influence mm ($p<0.05$), and MM significantly influence DV ($p<0.05$). Thus, the satisfaction of these three assumptions indicates that the MM has established mediating effect. The results of path analysis and regression weighs attached to explain the estimate between the variables and P value to check our hypothesis

Table (50) Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
Competitor	<---	integration	-.005	.017	-.262	.794	A
Time	<---	Competitor	.621	.627	.991	.322	B

Source: prepared by the researcher from data (2016).

On the other hand, Table (4.51) illustrates the indirect effect shows significant relationship between IV and DV through MM. This, result confirmed the mediating role of MM in the relationship between IV and DV. Thus, the summing up of the

direct and indirect effect indicated a partial mediation of MM with the above mentioned relationship**.** The results of path analysis and regression weighs attached to explain the (Parameter A*B) estimate between the variables and P value to check indirect effect.

Table (51) User-defined estimate: (Group number 1 - Default model)

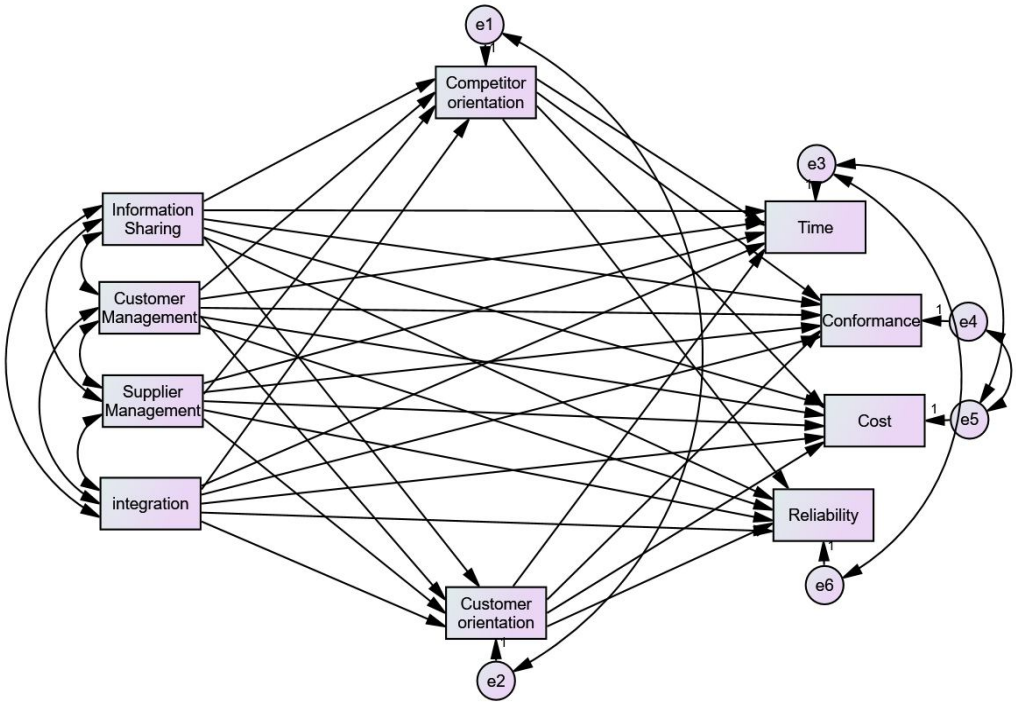
Parameter	Estimate	Lower	Upper	P
A x B	-.003	-.050	.016	.632

Source: prepared by the researcher from data (2016).

4.8.7.13 The mediating effect of competitor orientation in the relationship between integration and conformance

In this subsection the competitor orientation was hypothesized to mediate the relationship between integration and conformance. However , to test this hypothesis an examination of whether competitor orientation mediates the relationship between integration and conformance. as shown in figure 4.23 below

Figure (4.23): Competitor orientation mediator the positive effect between integration and conformance



Source: prepared by the researcher from data (2016)

The result of regression weights presented in Table (4.52) which represents the direct effects shows IV significantly influence DV ($p<0.01$), iv significantly influence mm ($p<0.05$), and mm significantly influence DV ($p<0.05$). Thus, the satisfaction of these three assumptions indicates that the MM has established mediating effect. The results of path analysis and regression weighs attached to explain the estimate between the variables and P value to check our hypothesis

Table (52) Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
Competitor <--- integration	-.005	.017	-.262	.794	A
Conformance <--- Competitor	-1.085	.613	-1.770	.077	B

Source: prepared by the researcher from data (2016).

On the other hand, Table (4.53) illustrates the indirect effect shows significant relationship between IV and DV through MM. This, result confirmed the mediating

role of MM in the relationship between IV and DV. Thus, the summing up of the direct and indirect effect indicated a partial mediation of MM with the above mentioned relationship. The results of path analysis and regression weighs attached to explain the (Parameter A*B) estimate between the variables and P value to check indirect effect.

Table (53) User-defined estimate: (Group number 1 - Default model)

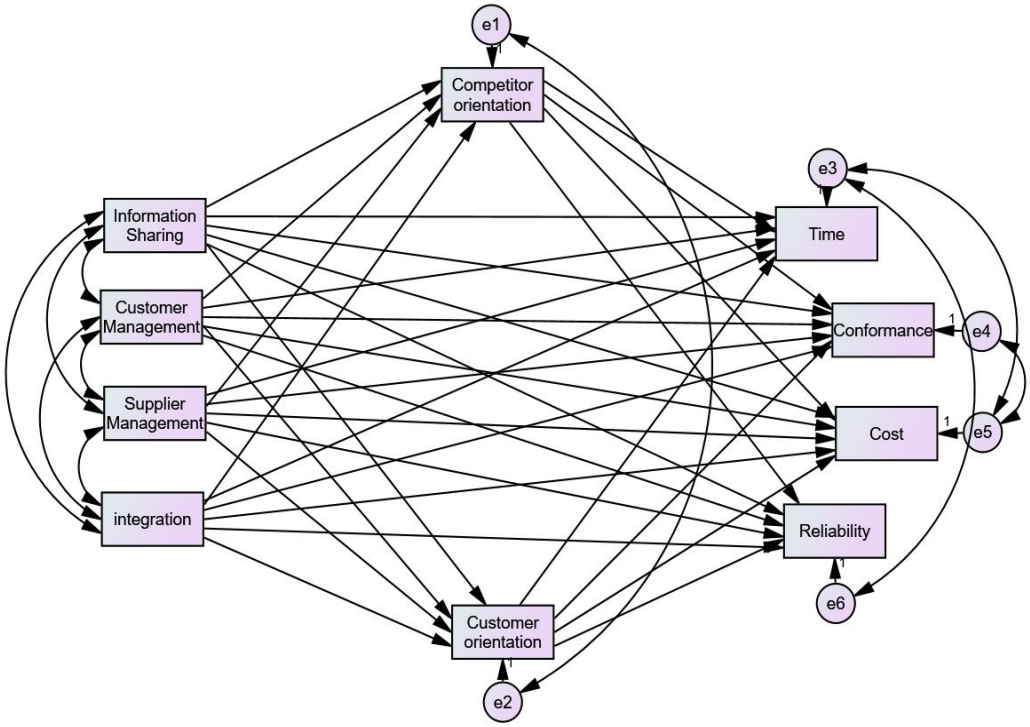
Parameter	Estimate	Lower	Upper	P
A x B	.005	-.026	.050	.653

Source: prepared by the researcher from data (2016)

4.8.7.14 The mediating effect of competitor orientation in the relationship between integration and cost

In this subsection the competitor orientation was hypothesized to mediate the relationship between integration and cost. However , to test this hypothesis an examination of whether competitor orientation mediates the relationship between integration and cost. as shown in figure 4.24 below

Figure (4.24): Competitor orientation mediator the positive effect between integration and cost



Source: prepared by the researcher from data (2016).

The result of regression weights presented in Table (4.54) which represents the direct effects shows DV significantly influence DV ($p<0.01$), IV significantly influence mm ($p<0.05$), and MM significantly influence DV ($p<0.05$). Thus, the satisfaction of these three assumptions indicates that the MM has established mediating effect. The results of path analysis and regression weighs attached to explain the estimate between the variables and P value to check our hypothesis

Table (54) Table (Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
Competitor	<---	integration	-.005	.017	-.262	.794	A
Cost	<---	Competitor	.922	.793	1.163	.245	B

Source: prepared by the researcher from data (2016).

On the other hand, Table (4.55) illustrates the indirect effect shows significant relationship between IV and DV through MM. This, result confirmed the mediating

role of MM in the relationship between IV and DV. Thus, the summing up of the direct and indirect effect indicated a partial mediation of MM with the above mentioned relationship. The results of path analysis and regression weighs attached to explain the (Parameter A*B) estimate between the variables and P value to check indirect effect

Table (55) User-defined estimate: (Group number 1 - Default model)

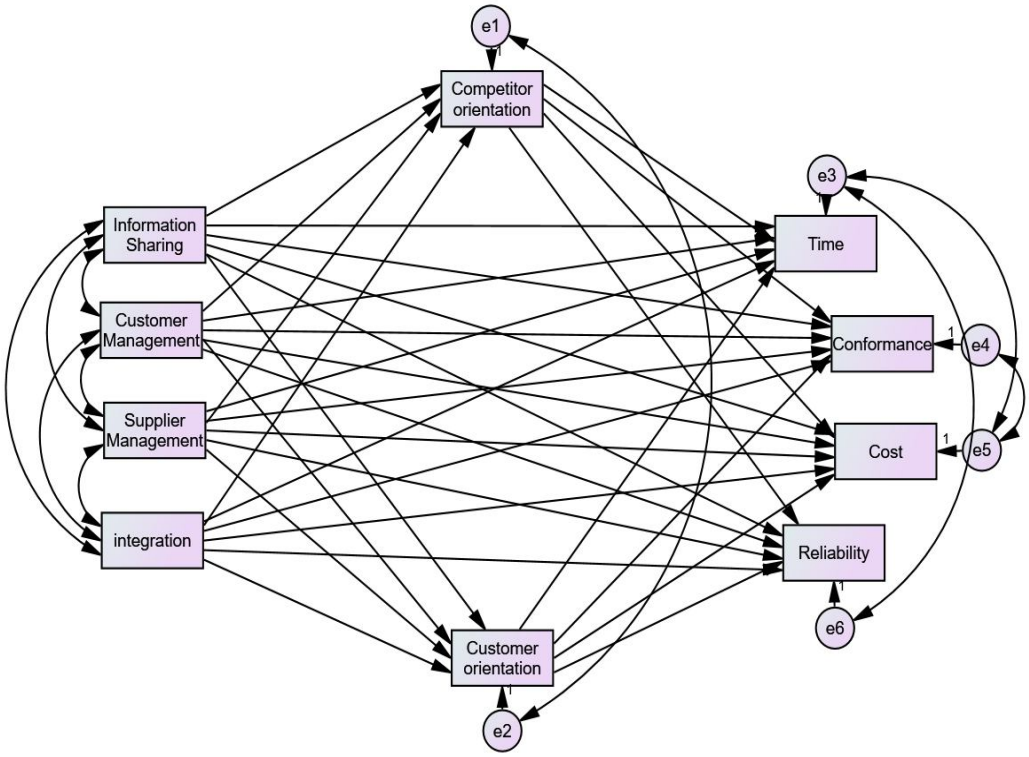
Parameter	Estimate	Lower	Upper	P
A x B	-.004	-.059	.021	.592

Source: prepared by the researcher from data (2016).

4.8.7.15 The mediating effect of competitor orientation in the relationship between integration and Reliability

In this subsection the competitor orientation was hypothesized to mediate the relationship between integration and Reliability. However , to test this hypothesis an examination of whether competitor orientation mediates the relationship between integration and Reliability. as shown in figure 4.25 below

Figure (4.25): Competitor orientation mediator the positive effect between integration and Reliability



Source: prepared by the researcher from data (2016).

The result of regression weights presented in Table (4.56) which represents the direct effects shows IV significantly influence DV ($p<0.01$), iv significantly influence mm ($p<0.05$), and MM significantly influence DV ($p<0.05$). Thus, the satisfaction of these three assumptions indicates that the MM has established mediating effect. The results of path analysis and regression weighs attached to explain the estimate between the variables and P value to check our hypothesis

Table (56)Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
Competitor <--- integration	-.005	.017	-.262	.794	A
Reliability <--- Competitor	-.051	.609	-.084	.933	B

Source: prepared by the researcher from data (2016).

On the other hand, Table (4.57) illustrates the indirect effect shows significant relationship between IV and DV through MM. This, result confirmed the mediating

role of MM in the relationship between IV and DV. Thus, the summing up of the direct and indirect effect indicated a partial mediation of MM with the above mentioned relationship. The results of path analysis and regression weighs attached to explain the (Parameter A*B) estimate between the variables and P value to check indirect effect.

Table (57) User-defined estimate: (Group number 1 - Default model)

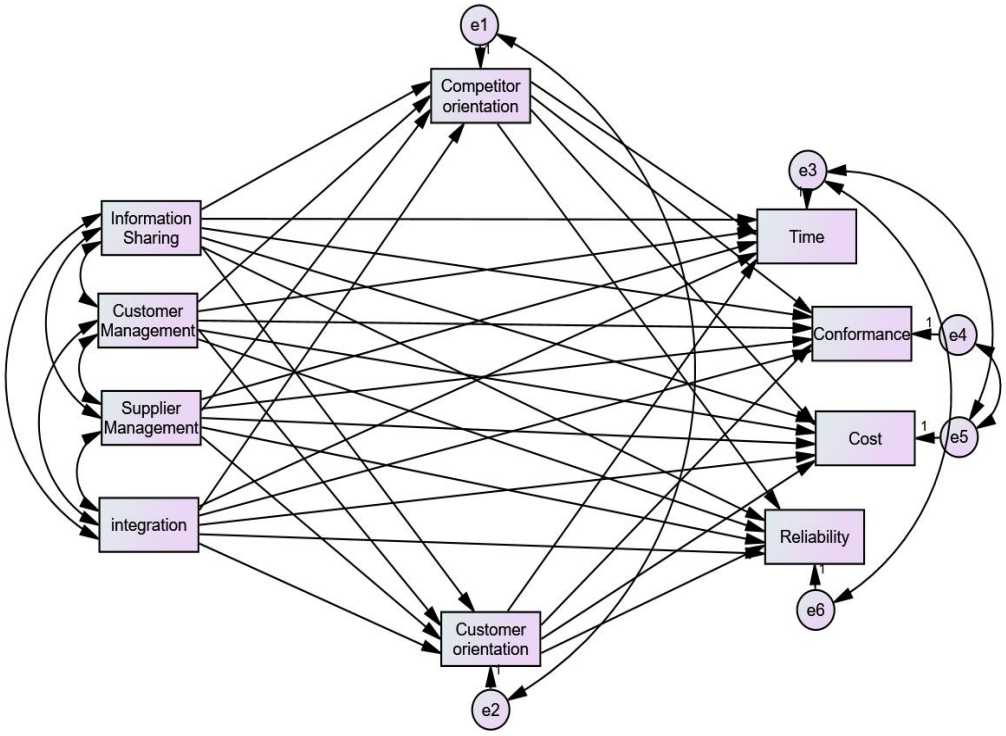
Parameter	Estimate	Lower	Upper	P
A x B	.000	-.015	.016	.996

4.8.8 The mediating effect of customer orientation in the relationship between SCM practice and operational performance.

4.8.8.1 The mediating effect of customer orientation in the relationship between information sharing and time

In this subsection the customer orientation was hypothesized to mediate the relationship between information sharing and time. However , to test this hypothesis an examination of whether customer orientation mediates the relationship between information sharing and time. as shown in figure 4.26 below

Figure (4.26): Customer orientation mediator the positive effect between information sharing and time



Source: prepared by the researcher from data (2016).

The result of regression weights presented in Table (4.58) which represents the direct effects shows IV significantly influence DV ($p<0.01$), IV significantly influence mm ($p<0.05$), and MM significantly influence DV ($p<0.05$). Thus, the satisfaction of these three assumptions indicates that the MM has established mediating effect. The results of path analysis and regression weighs attached to explain the estimate between the variables and P value to check our hypothesis

Table (58) Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
Customer	<---	sharing	.162	.073	2.233	.026	A
Time	<---	Customer	-.128	.114	-1.130	.259	B

On the other hand, Table (4.59) illustrates the indirect effect shows significant relationship between IV and DV through MM. This, result confirmed the mediating role of MM in the relationship between IV and DV. Thus, the summing up of the

direct and indirect effect indicated a partial mediation of MM with the above mentioned relationship. The results of path analysis and regression weighs attached to explain the (Parameter A*B) estimate between the variables and P value to check indirect effect.

Table (59) User-defined estimate: (Group number 1 - Default model)

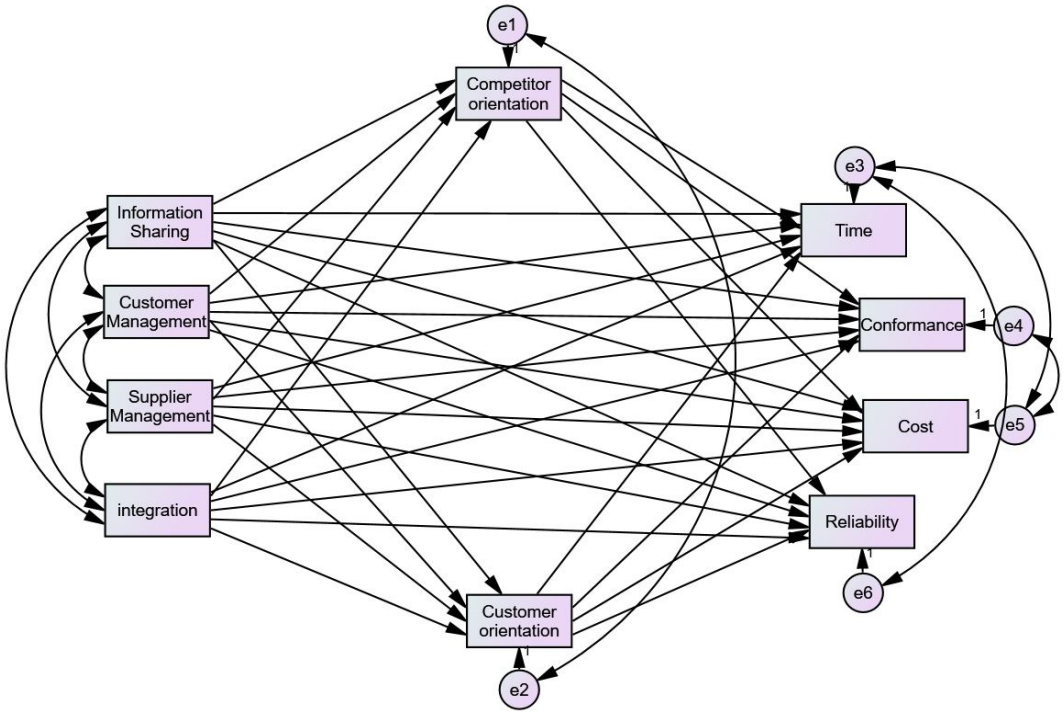
Parameter	Estimate	Lower	Upper	P
A x B	-.021	-.080	.007	.256

Source: prepared by the researcher from data (2016).

4.8.8.2 The mediating effect of customer orientation in the relationship between information sharing and conformance

In this subsection the customer orientation was hypothesized to mediate the relationship between information sharing and conformance. However, to test this hypothesis an examination of whether customer orientation mediates the relationship between information sharing and conformance as shown in figure 4.27 below

Figure (4.27): **Customer orientation mediator the positive effect between information sharing and conformance**



Source: prepared by the researcher from data (2016).

The result of regression weights presented in Table (4.60) which represents the direct effects shows IV significantly influence DV ($p<0.01$), IV significantly influence mm ($p<0.05$), and MM significantly influence DV ($p<0.05$). Thus, the satisfaction of these three assumptions indicates that the MM has established mediating effect. The results of path analysis and regression weighs attached to explain the estimate between the variables and P value to check our hypothesis

Table (60) Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
Customer	<---	sharing	.162	.073	2.233	.026	A
Conformance	<---	Customer	.280	.111	2.520	.012	B

On the other hand, Table (4.61) illustrates the indirect effect shows significant relationship between IV and DV through MM. This, result confirmed the mediating

role of MM in the relationship between IV and DV. Thus, the summing up of the direct and indirect effect indicated a partial mediation of MM with the above mentioned relationship. The results of path analysis and regression weighs attached to explain the (Parameter A*B) estimate between the variables and P value to check indirect effect.

Table (61) User-defined estimate: (Group number 1 - Default model)

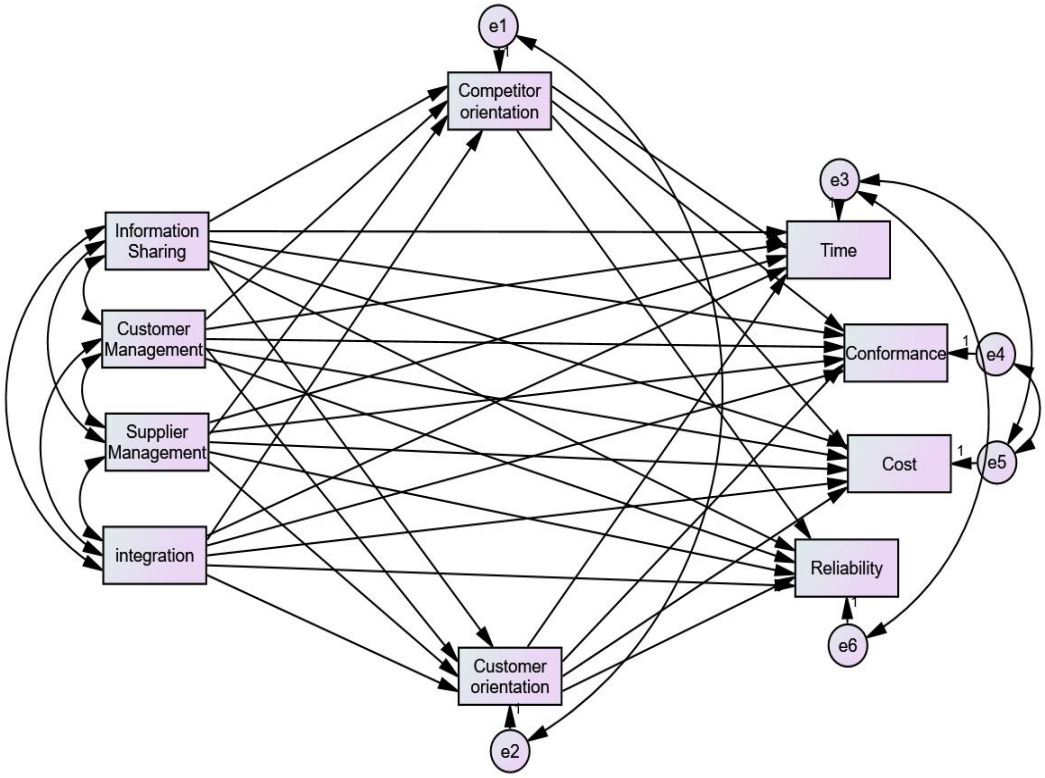
Parameter	Estimate	Lower	Upper	P
A x B	.045	.012	.105	.017

Source: prepared by the researcher from data (2016).

4.8.8.3 The mediating effect of customer orientation in the relationship between information sharing and cost

In this subsection the customer orientation was hypothesized to mediate the relationship between information sharing and cost. However, to test this hypothesis an examination of whether customer orientation mediates the relationship between information sharing and cost as shown in figure 4.28 below

Figure (4.28): Customer orientation mediator the positive effect between information sharing and cost



Source: prepared by the researcher from data (2016).

The result of regression weights presented in Table (4.62) which represents the direct effects shows DV significantly influence DV ($p<0.01$), IV significantly influence mm ($p<0.05$), and MM significantly influence DV ($p<0.05$). Thus, the satisfaction of these three assumptions indicates that the MM has established mediating effect. The results of path analysis and regression weighs attached to explain the estimate between the variables and P value to check our hypothesis

Table (62) Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
Customer <--- sharing	.162	.073	2.233	.026	A
Cost <--- Customer	.003	.144	.023	.982	B

On the other hand, Table (4.63) illustrates the indirect effect shows significant relationship between IV and DV through MM. This, result confirmed the mediating

role of MM in the relationship between IV and DV. Thus, the summing up of the direct and indirect effect indicated a partial mediation of MM with the above mentioned relationship. The results of path analysis and regression weighs attached to explain the (Parameter A*B) estimate between the variables and P value to check indirect effect

Table (63) User-defined estimate: (Group number 1 - Default model)

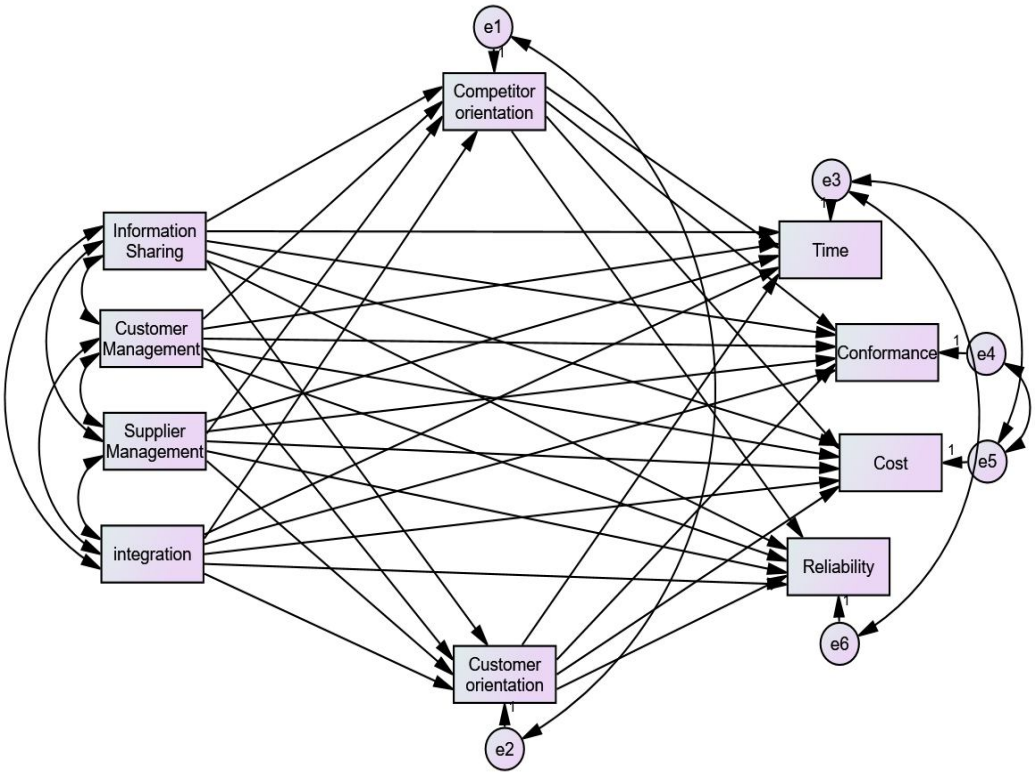
Parameter	Estimate	Lower	Upper	P
A x B	.001	-.051	.040	.955

Source: prepared by the researcher from data (2016).

4.8.8.4 The mediating effect of customer orientation in the relationship between information sharing and Reliability

In this subsection the customer orientation was hypothesized to mediate the relationship between information sharing and Reliability, However, to test this hypothesis an examination of whether customer orientation mediates the relationship between information sharing and Reliability as shown in figure 4.29 below

Figure (4.29): Customer orientation mediator the positive effect between information sharing and Reliability



Source: prepared by the researcher from data (2016).

The result of regression weights presented in Table (4.28) which represents the direct effects shows IV significantly influence DV ($p<0.01$), IV significantly influence mm ($p<0.05$), and MM significantly influence DV ($p<0.05$). Thus, the satisfaction of these three assumptions indicates that the MM has established mediating effect. The results of path analysis and regression weighs attached to explain the estimate between the variables and P value to check our hypothesis.

Table (64) Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
Customer <--- sharing	.162	.073	2.233	.026	A
Reliability <--- Customer	.012	.110	.107	.915	B

On the other hand, Table (4.65) illustrates the indirect effect shows significant relationship between IV and DV through MM. This, result confirmed the mediating

role of MM in the relationship between IV and DV. Thus, the summing up of the direct and indirect effect indicated a partial mediation of MM with the above mentioned relationship**.** The results of path analysis and regression weighs attached to explain the (Parameter A*B) estimate between the variables and P value to check indirect effect

Table (65) User-defined estimate: (Group number 1 - Default model)

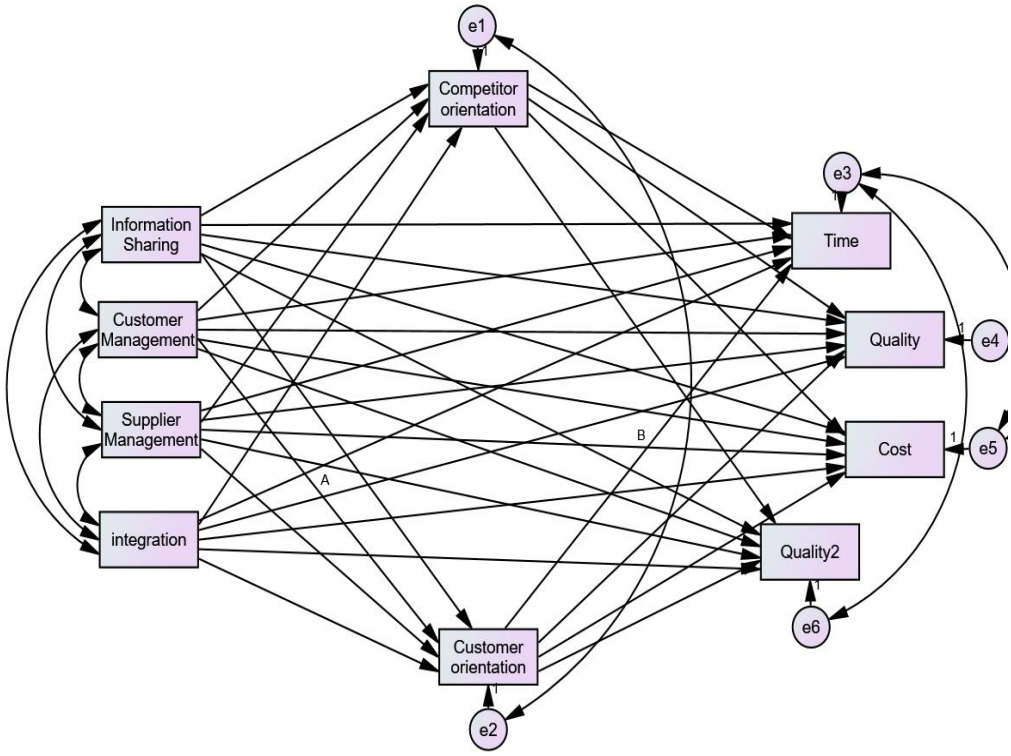
Parameter	Estimate	Lower	Upper	P
A x B	.002	-.026	.022	.848

Source: prepared by the researcher from data (2016).

4.8.8.5 The mediating effect of customer orientation in the relationship between customer management and time

In this subsection the customer orientation was hypothesized to mediate the relationship between customer management and time, However, to test this hypothesis an examination of whether customer orientation mediates the relationship between customer management and time as shown in figure 4.30 below

Figure (4.30): Customer orientation mediator the positive effect between customer management and time



Source: prepared by the researcher from data (2016).

The result of regression weights presented in Table (4.66) which represents the direct effects shows IV significantly influence DV ($p<0.01$), iv significantly influence mm ($p<0.05$), and MM significantly influence DV ($p<0.05$). Thus, the satisfaction of these three assumptions indicates that the MM has established mediating effect. The results of path analysis and regression weighs attached to explain the estimate between the variables and P value to check our hypothesis.

Table (66) Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
Customer	<---	customerIV	.092	.068	1.367	.172	A
Time	<---	Customer	-.128	.114	-1.130	.259	B

On the other hand, Table (4.67) illustrates the indirect effect shows significant relationship between IV and DV through MM. This, result confirmed the mediating role of MM in the relationship between IV and DV. Thus, the summing up of the

direct and indirect effect indicated a partial mediation of MM with the above mentioned relationship**.** The results of path analysis and regression weighs attached to explain the (Parameter A*B) estimate between the variables and P value to check indirect effect

Table (67) User-defined estimate: (Group number 1 - Default model)

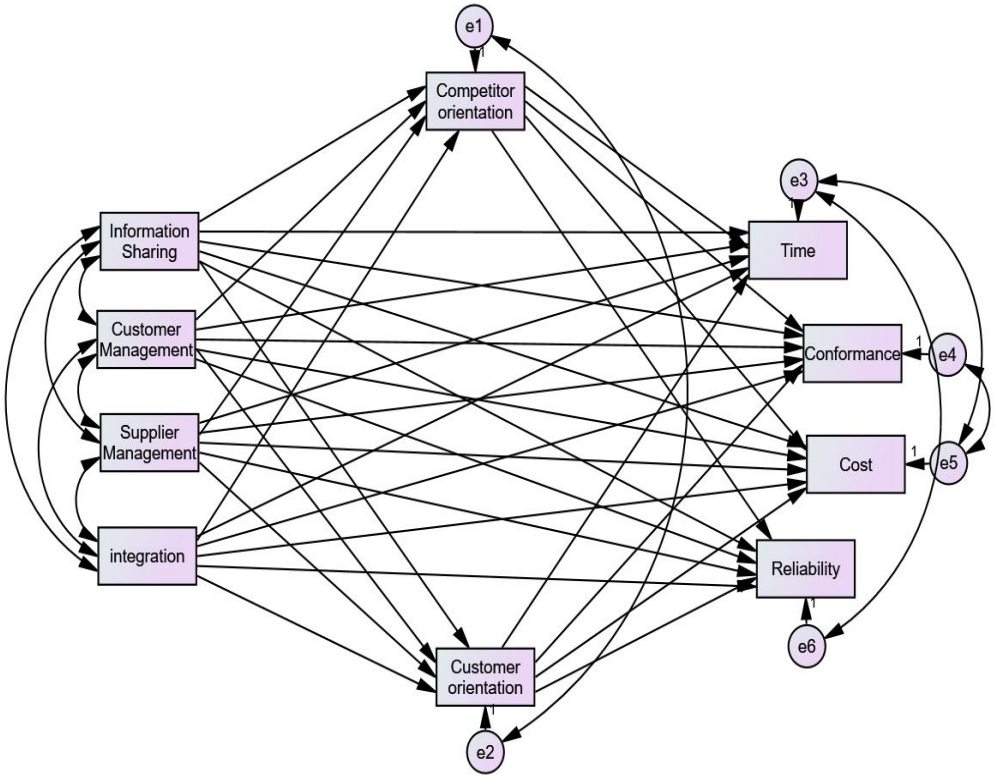
Parameter	Estimate	Lower	Upper	P
A x B	-.012	-.058	.003	.221

Source: prepared by the researcher from data (2016).

4.8.8.6 The mediating effect of customer orientation in the relationship between customer management and conformance

In this subsection the customer orientation was hypothesized to mediate the relationship between customer management and conformance, However, to test this hypothesis an examination of whether customer orientation mediates the relationship between customer management and conformance as shown in figure 4.31 below

Figure (4.31): **Customer orientation mediator the positive effect between customer management and conformance**



Source: prepared by the researcher from data (2016).

The result of regression weights presented in Table (4.68) which represents the direct effects shows IV significantly influence DV ($p<0.01$), IV significantly influence mm ($p<0.05$), and mm significantly influence DV ($p<0.05$). Thus, the satisfaction of these three assumptions indicates that the MM has established mediating effect. The results of path analysis and regression weighs attached to explain the estimate between the variables and P value to check our hypothesis

Table (68) Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
Customer	<---	CustomerIV	.092	.068	1.367	.172	A
Conformance	<---	Customer	.280	.111	2.520	.012	B

On the other hand, Table (4.69) illustrates the indirect effect shows significant relationship between IV and DV through MM. This, result confirmed the mediating

role of MM in the relationship between IV and DV. Thus, the summing up of the direct and indirect effect indicated a partial mediation of MM with the above mentioned relationship. The results of path analysis and regression weighs attached to explain the (Parameter A*B) estimate between the variables and P value to check indirect effect.

Table (69) User-defined estimate: (Group number 1 - Default model)

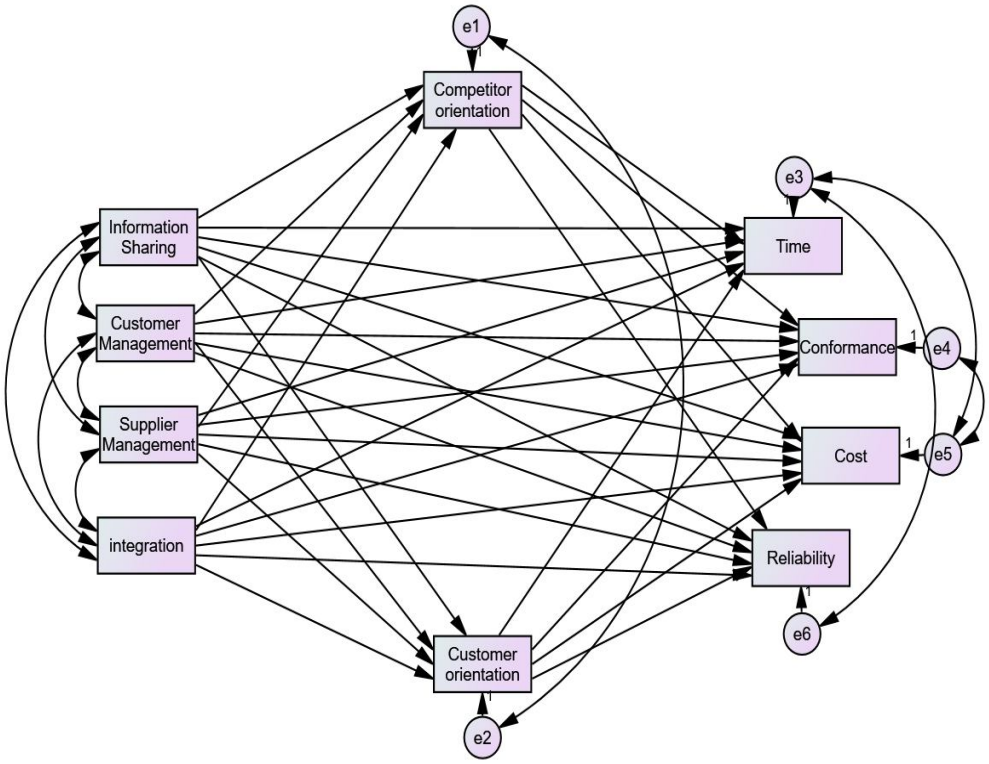
Parameter	Estimate	Lower	Upper	P
A x B	.026	.003	.069	.062

Source: prepared by the researcher from data (2016).

4.8.8.7 The mediating effect of customer orientation in the relationship between customer management and cost

In this subsection the customer orientation was hypothesized to mediate the relationship between customer management and cost However, to test this hypothesis an examination of whether customer orientation mediates the relationship between customer management and cost as shown in figure 4.32 below

Figure (4.32): Customer orientation mediator the positive effect between customer management and cost



Source: prepared by the researcher from data (2016).

The result of regression weights presented in Table (4.70) which represents the direct effects shows IV significantly influence DV ($p<0.01$), IV significantly influence mm ($p<0.05$), and MM significantly influence DV ($p<0.05$). Thus, the satisfaction of these three assumptions indicates that the MM has established mediating effect. The results of path analysis and regression weighs attached to explain the estimate between the variables and P value to check our hypothesis

Table (70) Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
Customer	<---	customerIV	.092	.068	1.367	.172	A
Cost	<---	Customer	.003	.144	.023	.982	B

On the other hand, Table (4.71) illustrates the indirect effect shows significant relationship between IV and DV through MM. This, result confirmed the mediating role of MM in the relationship between IV and DV. Thus, the summing up of the

direct and indirect effect indicated a partial mediation of MM with the above mentioned relationship**.** The results of path analysis and regression weighs attached to explain the (Parameter A*B) estimate between the variables and P value to check indirect effect

Table (71) User-defined estimate: (Group number 1 - Default model)

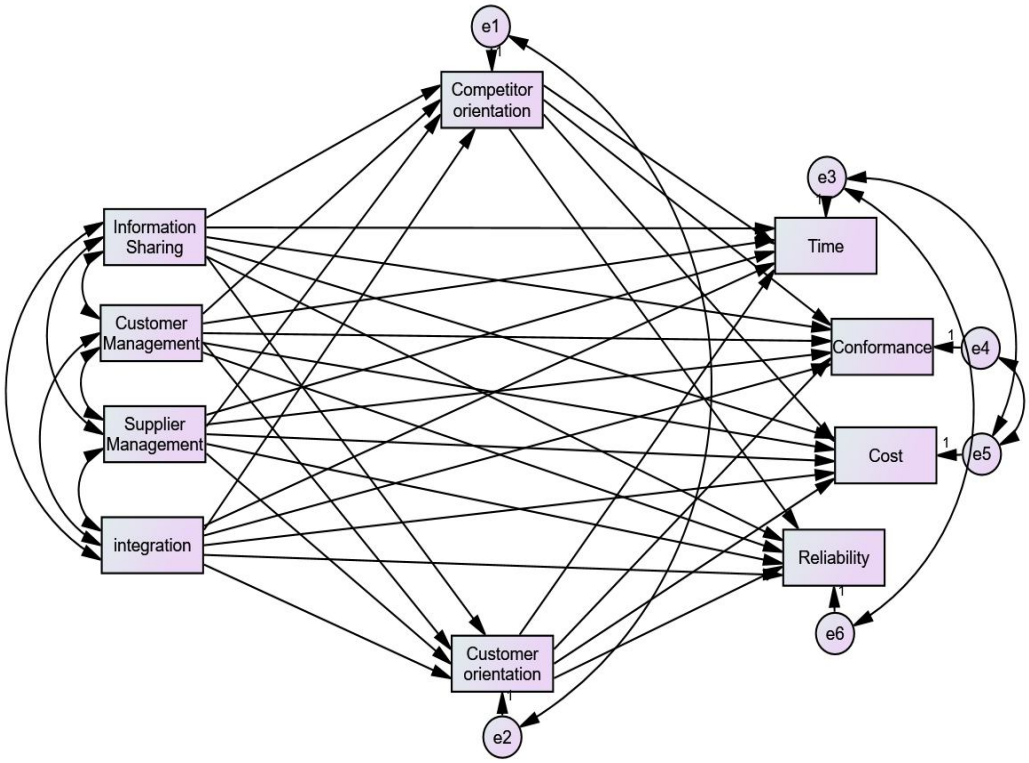
Parameter	Estimate	Lower	Upper	P
A x B	.000	-.026	.029	.963

Source: prepared by the researcher from data (2016).

4.8.8.8 The mediating effect of customer orientation in the relationship between customer management and Reliability

In this subsection the customer orientation was hypothesized to mediate the relationship between customer management and Reliability However, to test this hypothesis an examination of whether customer orientation mediates the relationship between customer management and Reliability as shown in figure 4.33 below

Figure (4.33): Customer orientation mediator the positive effect between customer management and Reliability



Source: prepared by the researcher from data (2016).

The result of regression weights presented in Table (4.72) which represents the direct effects shows IV significantly influence DV ($p<0.01$), IV significantly influence mm ($p<0.05$), and MM significantly influence DV ($p<0.05$). Thus, the satisfaction of these three assumptions indicates that the MM has established mediating effect. The results of path analysis and regression weighs attached to explain the estimate between the variables and P value to check our hypothesis

Table (72) Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
Customer <--- customerIV	.092	.068	1.367	.172	A
Reliability <--- Customer	.012	.110	.107	.915	B

On the other hand, Table (4.73) illustrates the indirect effect shows significant relationship between IV and DV through MM. This, result confirmed the mediating

role of MM in the relationship between IV and DV. Thus, the summing up of the direct and indirect effect indicated a partial mediation of MM with the above mentioned relationship**.** The results of path analysis and regression weighs attached to explain the (Parameter A*B) estimate between the variables and P value to check indirect effect

Table (73) User-defined estimate: (Group number 1 - Default model)

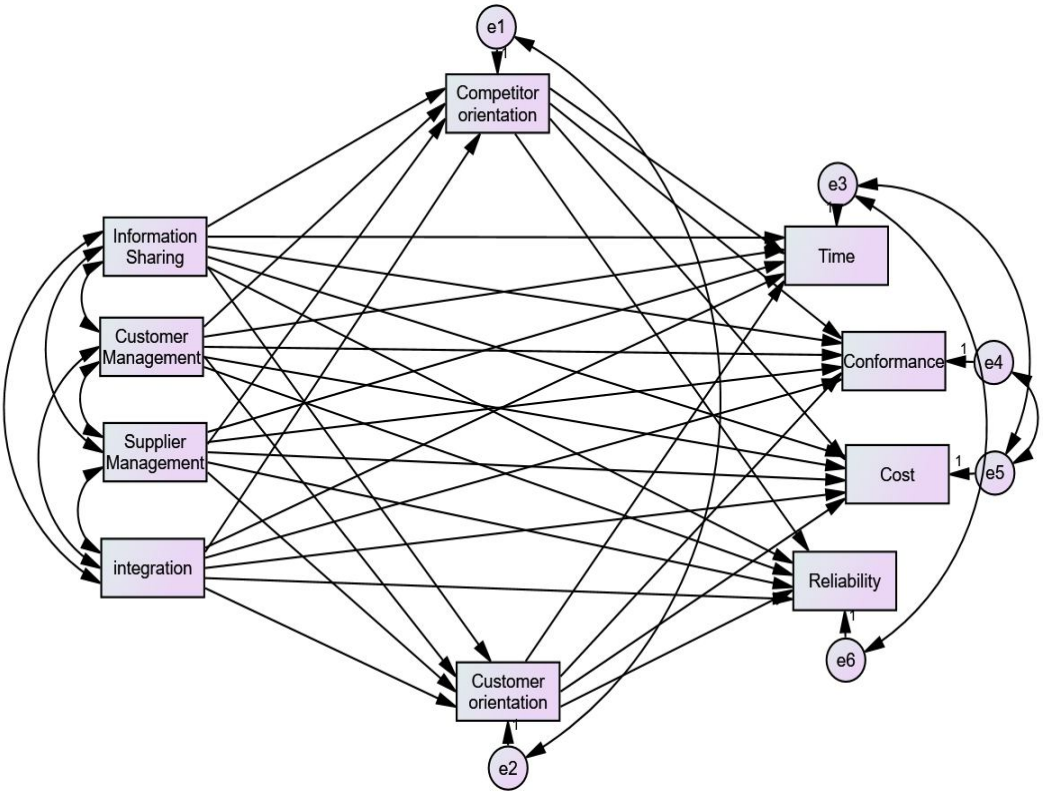
Parameter	Estimate	Lower	Upper	P
A x B	.001	-.009	.022	.740

Source: prepared by the researcher from data (2016).

4.8.8.9 The mediating effect of customer orientation in the relationship between supplier management and time

In this subsection the customer orientation was hypothesized to mediate the relationship between supplier management and time However, to test this hypothesis an examination of whether customer orientation mediates the relationship between supplier management and time as shown in figure 4.34 below

Figure (4.34): Customer orientation mediator the positive effect between supplier management and time



Source: prepared by the researcher from data (2016).

The result of regression weights presented in Table (4.74) which represents the direct effects shows IV significantly influence DV ($p<0.01$), IV significantly influence mm ($p<0.05$), and MM significantly influence DV ($p<0.05$). Thus, the satisfaction of these three assumptions indicates that the MM has established mediating effect. The results of path analysis and regression weighs attached to explain the estimate between the

Table (74) Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
Customer	<---	Supplier	.018	.068	.271	.786	A
Time	<---	Customer	-.128	.114	-1.130	.259	B

On the other hand, Table (4.75) illustrates the indirect effect shows significant relationship between IV and DV through MM. This, result confirmed the mediating role of MM in the relationship between IV and DV. Thus, the summing up of the direct and indirect effect indicated a partial mediation of MM with the above mentioned relationship**.** The results of path analysis and regression weighs attached to explain the (Parameter A*B) estimate between the variables and P value to check indirect effect

Table (75) User-defined estimate: (Group number 1 - Default model)

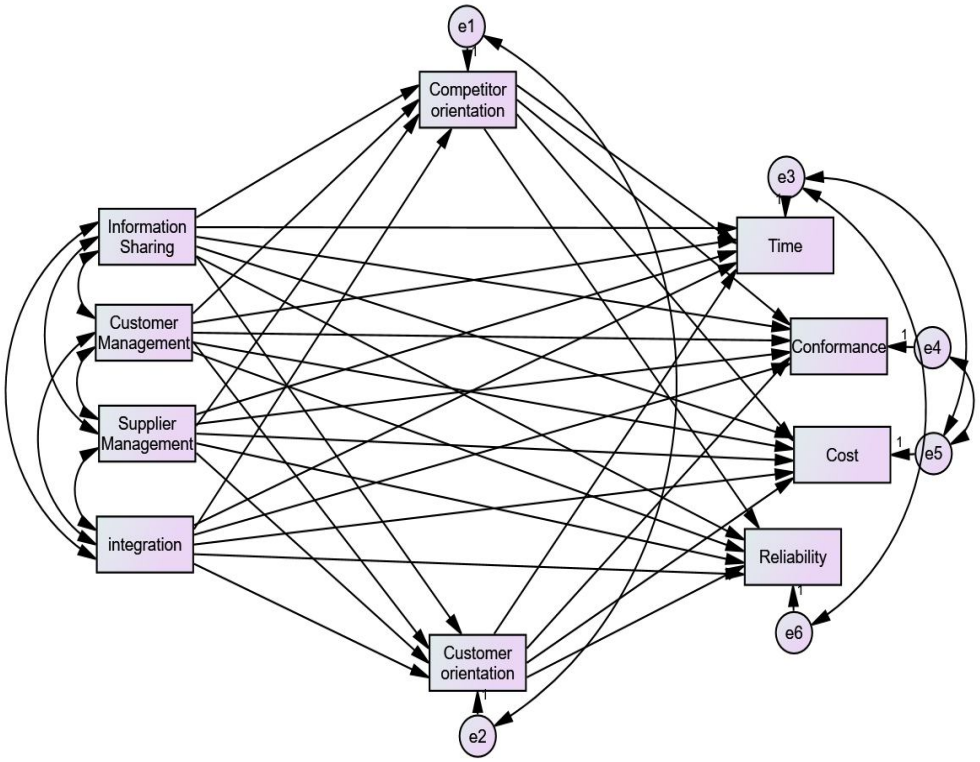
Parameter	Estimate	Lower	Upper	P
A x B	-.002	-.039	.007	.428

Source: prepared by the researcher from data (2016).

4.8.8.10 The mediating effect of customer orientation in the relationship between supplier management and conformance

In this subsection the customer orientation was hypothesized to mediate the relationship between supplier management and conformance However, to test this hypothesis an examination of whether customer orientation mediates the relationship between supplier management and conformance as shown in figure 4.35 below

Figure (4.35): Customer orientation mediator the positive effect between supplier management and conformance



Source: prepared by the researcher from data (2016).

The result of regression weights presented in Table (4.76) which represents the direct effects shows IV significantly influence DV ($p<0.01$), IV significantly influence mm ($p<0.05$), and MM significantly influence DV ($p<0.05$). Thus, the satisfaction of these three assumptions indicates that the MM has established mediating effect. The results of path analysis and regression weighs attached to explain the estimate between the variables and P value to check our hypothesis

Table (76) Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
Customer	<---	Supplier	.018	.068	.271	.786	A
Conformance	<---	Customer	.280	.111	2.520	.012	B

On the other hand, Table (4.77) illustrates the indirect effect shows significant relationship between IV and DV through MM. This, result confirmed the mediating

role of MM in the relationship between IV and DV. Thus, the summing up of the direct and indirect effect indicated a partial mediation of MM with the above mentioned relationship. The results of path analysis and regression weighs attached to explain the (Parameter A*B) estimate between the variables and P value to check indirect effect

Table (77) User-defined estimate: (Group number 1 - Default model)

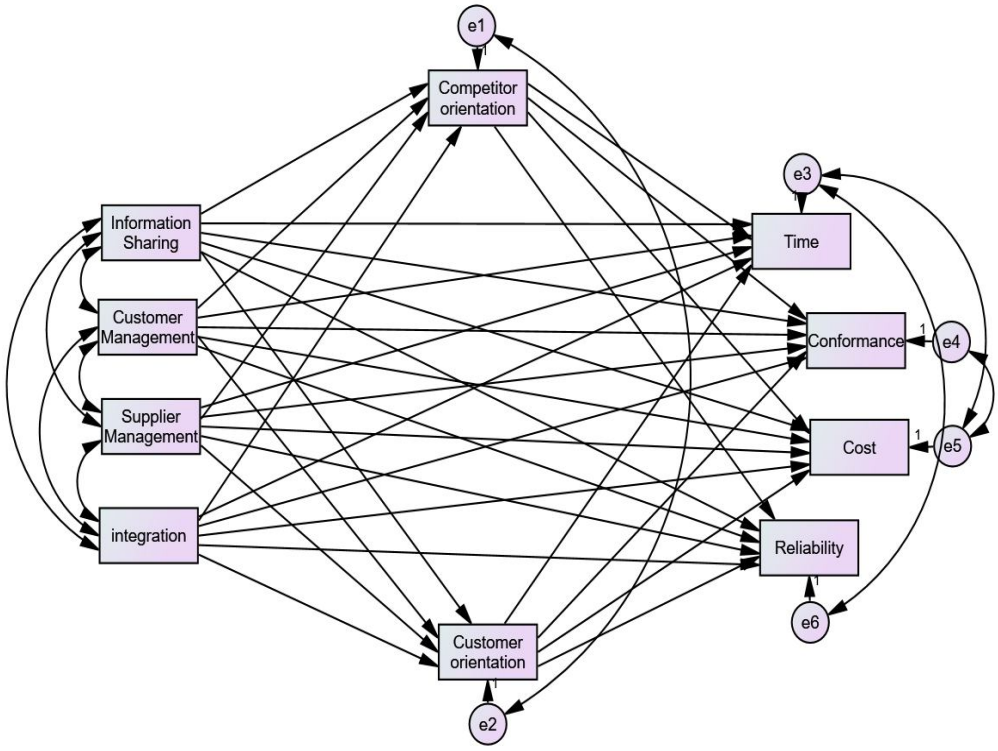
Parameter	Estimate	Lower	Upper	P
A x B	.005	-.020	.052	.583

Source: prepared by the researcher from data (2016).

4.8.8.11 The mediating effect of customer orientation in the relationship between supplier management and conformance

In this subsection the customer orientation was hypothesized to mediate the relationship between supplier management and **cost** However, to test this hypothesis an examination of whether customer orientation mediates the relationship between supplier management and **cost** as shown in figure 4.36 below

Figure (4.36): Customer orientation mediator the positive effect between supplier management and cost



Source: prepared by the researcher from data (2016).

The result of regression weights presented in Table (4.78) which represents the direct effects shows IV significantly influence DV ($p<0.01$), IV significantly influence mm ($p<0.05$), and MM significantly influence DV ($p<0.05$). Thus, the satisfaction of these three assumptions indicates that the MM has established mediating effect. The results of path analysis and regression weighs attached to explain the estimate between the variables and P value to check our hypothesis

Table (78) Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
Customer	<---	Supplier	.018	.068	.271	.786	A
Cost	<---	Customer	.003	.144	.023	.982	B

On the other hand, Table (4.79) illustrates the indirect effect shows significant relationship between IV and DV through MM. This, result confirmed the mediating role of MM in the relationship between IV and DV. Thus, the summing up of the direct and indirect effect indicated a partial mediation of MM with the above mentioned relationship. The results of path analysis and regression weighs attached to explain the (Parameter A*B) estimate between the variables and P value to check indirect effect

Table (79) User-defined estimate: (Group number 1 - Default model)

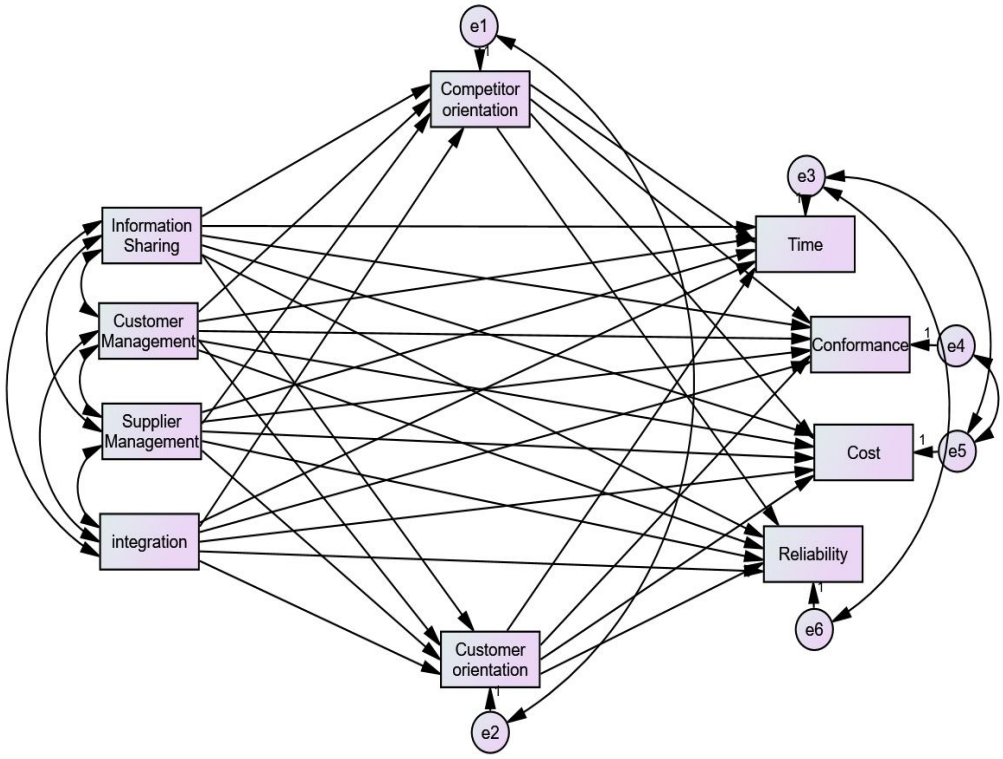
Parameter	Estimate	Lower	Upper	P
A x B	.000	-.017	.016	.953

Source: prepared by the researcher from data (2016).

4.8.8.12 The mediating effect of customer orientation in the relationship between supplier management and Reliability

In this subsection the customer orientation was hypothesized to mediate the relationship between supplier management and Reliability However, to test this hypothesis an examination of whether customer orientation mediates the relationship between supplier management and Reliability as shown in figure 4.37 below

Figure (4.37): Customer orientation mediator the positive effect between supplier management and Reliability



Source: prepared by the researcher from data (2016).

The result of regression weights presented in Table (4.80) which represents the direct effects shows IV significantly influence DV ($p<0.01$), IV significantly influence mm ($p<0.05$), and MM significantly influence DV ($p<0.05$). Thus, the satisfaction of these three assumptions indicates that the MM has established mediating effect. The results of path analysis and regression weighs attached to explain the estimate between the variables and P value to check our hypothesis.

Table (80) Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
Customer <--- Supplier	.018	.068	.271	.786	A
Reliability <--- Customer	.012	.110	.107	.915	B

On the other hand, Table (4.81) illustrates the indirect effect shows significant relationship between IV and DV through MM. This, result confirmed the mediating role of MM in the relationship between IV and DV. Thus, the summing up of the direct and indirect effect indicated a partial mediation of MM with the above mentioned relationship. The results of path analysis and regression weighs attached to explain the (Parameter A*B) estimate between the variables and P value to check indirect effect.

Table (81) User-defined estimate: (Group number 1 - Default model)

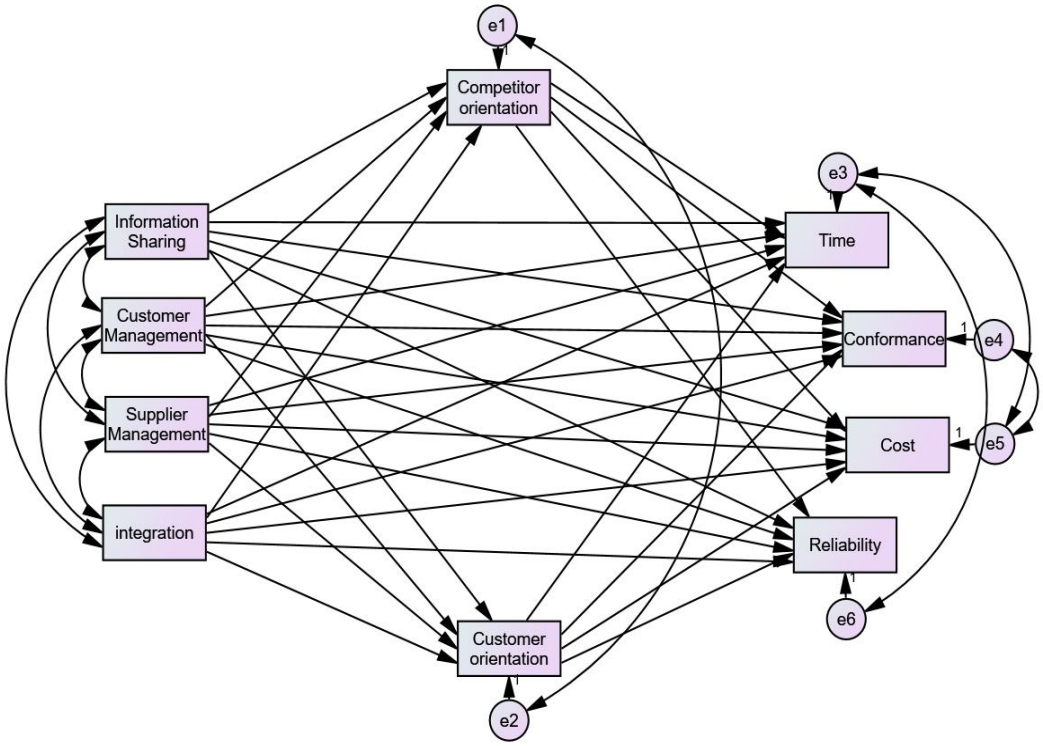
Parameter	Estimate	Lower	Upper	P
A x B	.000	-.006	.012	.804

Source: prepared by the researcher from data (2016).

4.8.8.13 The mediating effect of customer orientation in the relationship between integration and time

In this subsection the customer orientation was hypothesized to mediate the relationship between integration and time However, to test this hypothesis an examination of whether customer orientation mediates the relationship between integration and time as shown in figure 4.38 below

Figure (4.38): Customer orientation mediator the positive effect between integration and time



Source: prepared by the researcher from data (2016).

The result of regression weights presented in Table (4.82) which represents the direct effects shows IV significantly influence DV ($p<0.01$), IV significantly influence mm ($p<0.05$), and MM significantly influence DV ($p<0.05$). Thus, the satisfaction of these three assumptions indicates that the MM has established mediating effect. The results of path analysis and regression weighs attached to explain the estimate between the variables and P value to check our hypothesis

Table (82) Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
Customer <--- integration	-.129	.096	-1.335	.182	A
Time <--- Customer	-.128	.114	-1.130	.259	B

On the other hand, Table (4.83) illustrates the indirect effect shows significant relationship between IV and DV through MM. This, result confirmed the mediating

role of MM in the relationship between IV and DV. Thus, the summing up of the direct and indirect effect indicated a partial mediation of MM with the above mentioned relationship**.** The results of path analysis and regression weighs attached to explain the (Parameter A*B) estimate between the variables and P value to check indirect effect

Table (83) User-defined estimate: (Group number 1 - Default model)

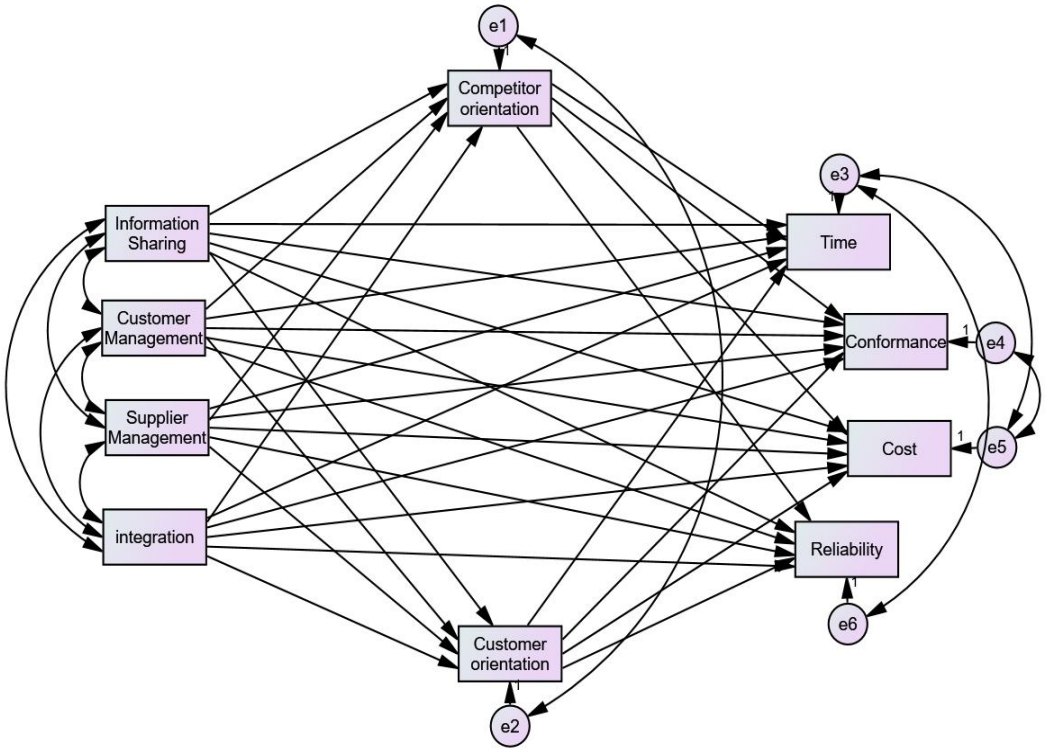
Parameter	Estimate	Lower	Upper	P
A x B	.017	-.005	.082	.210

Source: prepared by the researcher from data (2016).

4.8.8.14 The mediating effect of customer orientation in the relationship between integration and conformance

In this subsection the customer orientation was hypothesized to mediate the relationship between integration and conformance However, to test this hypothesis an examination of whether customer orientation mediates the relationship between integration and conformance as shown in figure 4.39 below

Figure (4.39): Customer orientation mediator the positive effect between integration and conformance



Source: prepared by the researcher from data (2016).

The result of regression weights presented in Table (4.84) which represents the direct effects shows IV significantly influence DV ($p<0.01$), IV significantly influence mm ($p<0.05$), and MM significantly influence DV ($p<0.05$). Thus, the satisfaction of these three assumptions indicates that the MM has established mediating effect. The results of path analysis and regression weighs attached to explain the estimate between the variables and P value to check our hypothesis.

Table (84) Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
Customer	<---	integration	-.129	.096	-1.335	.182	A
Conformance	<---	Customer	.280	.111	2.520	.012	B

On the other hand, Table (4.85) illustrates the indirect effect shows significant relationship between IV and DV through MM. This, result confirmed the mediating role of MM in the relationship between IV and DV. Thus, the summing up of the

direct and indirect effect indicated a partial mediation of MM with the above mentioned relationship**.** The results of path analysis and regression weighs attached to explain the (Parameter A*B) estimate between the variables and P value to check indirect effect

Table (85) User-defined estimate: (Group number 1 - Default model)

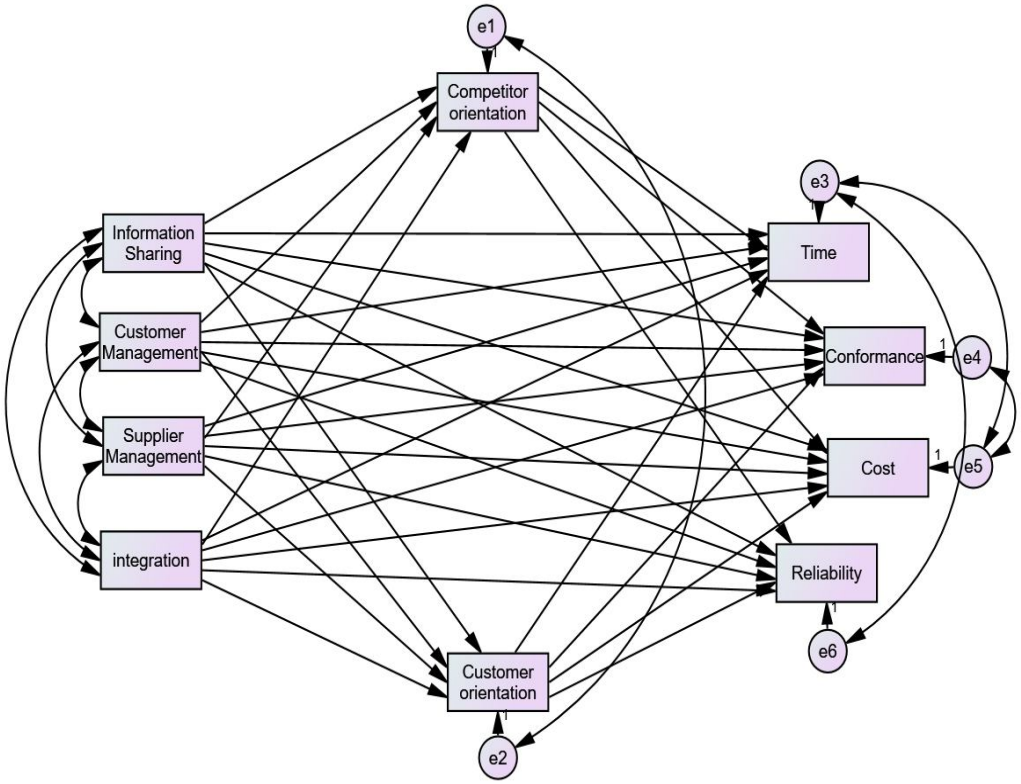
Parameter	Estimate	Lower	Upper	P
A x B	-.036	-.105	-.003	.080

Source: prepared by the researcher from data (2016).

4.8.8.15 The mediating effect of customer orientation in the relationship between integration and cost

In this subsection the customer orientation was hypothesized to mediate the relationship between integration and **cost** However, to test this hypothesis an examination of whether customer orientation mediates the relationship between integration and conformance as shown in figure 4.40 below

Figure (4.40): Customer orientation mediator the positive effect between integration and cost



Source: prepared by the researcher from data (2016).

The result of regression weights presented in Table (4.86) which represents the direct effects shows IV significantly influence DV ($p<0.01$), IV significantly influence mm ($p<0.05$), and MM significantly influence DV ($p<0.05$). Thus, the satisfaction of these three assumptions indicates that the MM has established mediating effect. The results of path analysis and regression weighs attached to explain the estimate between the variables and P value to check our hypothesis

Table (86) Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
Customer	<---	integration	-.129	.096	-1.335	.182	A
Cost	<---	Customer	.003	.144	.023	.982	B

On the other hand, Table (4.87) illustrates the indirect effect shows significant relationship between IV and DV through MM. This, result confirmed the mediating role of MM in the relationship between IV and DV. Thus, the summing up of the direct and indirect effect indicated a partial mediation of MM with the above mentioned relationship. The results of path analysis and regression weighs attached to explain the (Parameter A*B) estimate between the variables and P value to check indirect effect.

Table (87) User-defined estimate: (Group number 1 - Default model)

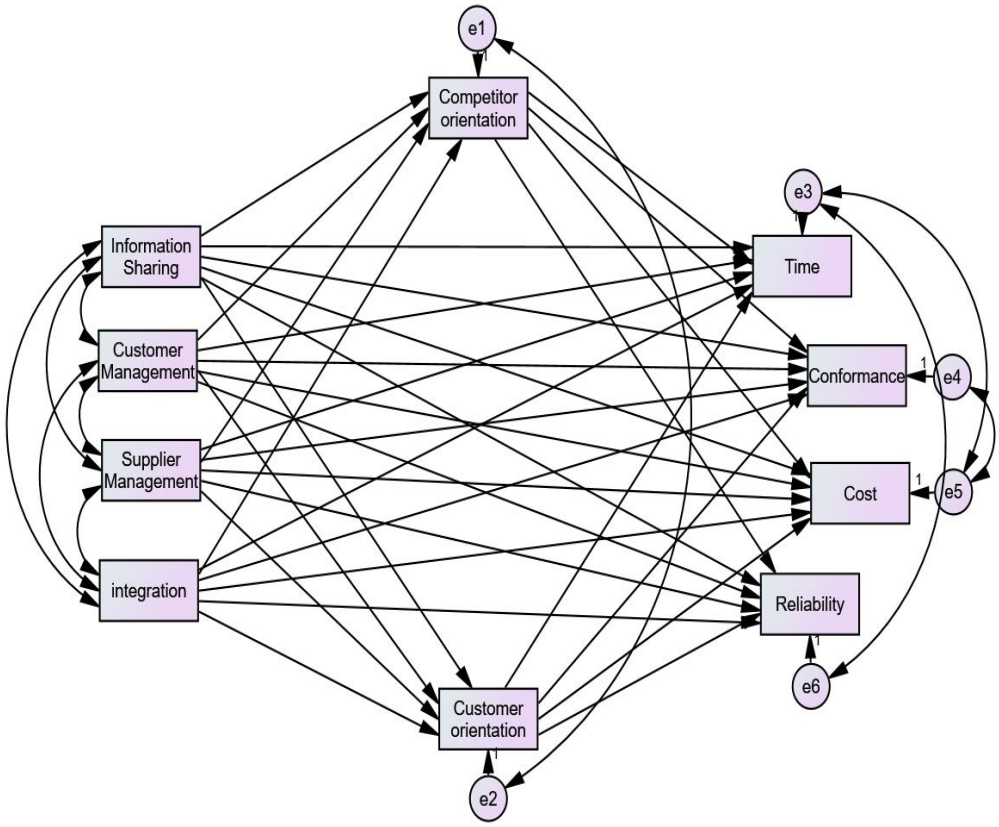
Parameter	Estimate	Lower	Upper	P
A x B	.000	-.043	.037	.991

Source: prepared by the researcher from data (2016).

4.8.8.16 The mediating effect of customer orientation in the relationship between integration and Reliability

In this subsection the customer orientation was hypothesized to mediate the relationship between integration and Reliability However, to test this hypothesis an examination of whether customer orientation mediates the relationship between integration and Reliability as shown in figure 4.41 below

Figure (4.41): Customer orientation mediator the positive effect between integration and Reliability



Source: prepared by the researcher from data (2016).

The result of regression weights presented in Table (4.88) which represents the direct effects shows IV significantly influence DV ($p<0.01$), IV significantly influence mm ($p<0.05$), and MM significantly influence DV ($p<0.05$). Thus, the satisfaction of these three assumptions indicates that the MM has established mediating effect. The results of path analysis and regression weighs attached to explain the estimate between the variables and P value to check our hypothesis

Table (88) Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
Customer <--- integration	-.129	.096	-1.335	.182	A
Reliability <--- Customer	.012	.110	.107	.915	B

On the other hand, Table (4.89) illustrates the indirect effect shows significant relationship between IV and DV through MM. This, result confirmed the mediating

role of MM in the relationship between IV and DV. Thus, the summing up of the direct and indirect effect indicated a partial mediation of MM with the above mentioned relationship**.** The results of path analysis and regression weighs attached to explain the (Parameter A*B) estimate between the variables and P value to check indirect effect

Table (89) User-defined estimate: (Group number 1 - Default model)

Parameter	Estimate	Lower	Upper	P
A x B	-.002	-.026	.015	.710

Source: prepared by the researcher from data (2016).

Table (90) Summary of hypotheses testing results for relationship between supply chain practice and operational performance

Item	**Statement of hypotheses: there is positive relationship between,**	**Remark**
H1	Supply chain management practice and operational performance	Partial supported
H1.1	Supply chain management practice and time to market .	Partial supported
H1.1a	Integration of supply chain and time to market	Full supported
H1.1b	Information sharing and time to market.	Full supported
H1.1c	Supplier management and time to market	Not supported
H1.1d	Customer management and time to market.	Not supported
H1.2	Supply chain management practice and conformance.	Supported
H1.2a	Integration of supply chain and conformance.	Supported
H1.2b	Information sharing and conformance.	Full supported
H1.2c	Supplier management and conformance	Supported
H1.2d	Customer management and conformance.	Supported
H1.3	Supply chain management practice and cost.	Partial supported
H3.1a	Integration of supply chain and cost.	Not supported
H1.3b	Information sharing and cost .	Full supported
H1.3c	Supplier management and cost	Not supported
H1.3d	Customer management and cost.	Supported
H1.4	Supply chain management practice and reliability .	Partial supported
H1.4a	Integration of supply chain and reliability.	Not supported
H1.4b	Information sharing and reliability.	Full supported
H1.4c	Supplier management and reliability	Supported
H1.4d	Customer management and reliability.	Not supported

Table (91) summary of hypotheses testing results for relationship between supply chain practice and market orientation

Item	Statement of hypotheses: there is positive relationship between,	Remark
H2	Supply chain management practice and market orientation	Partial supported
H2.1	Supply chain management practice and competitor orientation .	Not supported
H2.1a	Integration of supply chain and competitor orientation	Not supported
H2.1b	Information sharing and competitor orientation .	Not supported
H2.1c	Supplier management and competitor orientation	Not supported
H2.1d	Customer management and competitor orientation.	Not supported
H2.2	Supply chain management practice and customer orientation.	Partial supported
H2.2a	Integration of supply chain and customer orientation	Not supported
H2.2b	Information sharing and customer orientation .	Supported
H2.2c	Supplier management and customer orientation	Not supported
H2.2d	Customer management and customer orientation.	Not supported

Table (92) Summary of hypotheses testing results for relationship between market orientation and operational performance

Item	Statement of hypotheses: there is positive relationship between,	Remark
H3	Market orientation and operational performance	Partial supported
H3.1	Competitor orientation and operational performance	Not supported
H3.1a	Competitor orientation and time to market	Not supported
H3.1b	Competitor orientation and conformance.	Not supported
H3.1c	Competitor orientation and cost .	Not supported
H3.1d	Competitor orientation and reliability	Not supported
H3.2	Customer orientation and operational performance.	Partial supported
H3.2a	Customer orientation and time to market	Not supported
H3.2b	Customer orientation and conformance.	Supported
H3.2c	Customer orientation and cost .	Not supported
H3.2d	Customer orientation and reliability.	Not supported

Table (93) Summary the results of testing hypotheses concerning the mediating effect of market orientation variables between supply chain management and operational performance – relationship

Item	Statement of hypotheses: there is positive relationship between,	Remark
H4	The effect of supply chain practices on operational performance is stronger when market orientation variables are higher.	Partial supported
H4.1	The effect of supply chain practices on operational performance is stronger when competitor orientation variables are higher.	Partial supported
H4.1.1	The effect of supply chain practices on time to market is stronger when competitor orientation variables are higher.	Not supported
H4.1.1a	The effect of integration on time to market is stronger when competitor orientation variables are higher.	Not supported
H4.1.1b	The effect of information sharing on time to market is stronger	Not supported

	when competitor orientation variables are higher.	
H4.1.1c	The effect of customer management on time to market is stronger when competitor orientation variables are higher.	Not supported
H4.1.1d	The effect of supplier management on time to market is stronger when competitor orientation variables are higher.	Not supported
H4.1.2	The effect of supply chain practices on cost is stronger when competitor orientation variables are higher.	Not supported
H4.1.2a	The effect of integration on cost is stronger when competitor orientation variables are higher.	Not supported
H4.1.2b	The effect of information sharing on cost is stronger when competitor orientation variables are higher.	Not supported
H4.1.2c	The effect of customer management on cost is stronger when competitor orientation variables are higher.	Not supported
H4.1.2d	The effect of supplier management on cost is stronger when competitor orientation variables are higher.	Not supported
H4.1.3	The effect of supply chain practices on conformance is stronger when competitor orientation variables are higher.	Partial supported
H4.1.3a	The effect of integration on conformance is stronger when competitor orientation variables are higher.	Not supported
H4.1.3b	The effect of information sharing on conformance is stronger when competitor orientation variables are higher.	Supported
H4.1.3c	The effect of customer management onconformance is stronger when competitor orientation variables are higher.	Not supported
H4.1.3d	The effect of supplier management on conformance is stronger when competitor orientation variables are higher.	Not supported
H4.1.4	The effect of supply chain practices on reliability is stronger when competitor orientation variables are higher.	Not supported
H4.1.4a	The effect of integration on reliability is stronger when competitor orientation variables are higher.	Not supported
H4.1.4b	The effect of information sharing on reliability is stronger when competitor orientation variables are higher.	Not supported
H4.1.4c	The effect of customer management on reliability is stronger when competitor orientation variables are higher.	Not supported
H4.1.4d	The effect of supplier management on reliability is stronger when competitor orientation variables are higher.	Not supported
H4.2	The effect of supply chain practices on operational performance is stronger when customer orientation variables are higher.	Partial supported
H4.2.1	The effect of supply chain practices on time to market is stronger when customer orientation variables are higher.	Not supported
H4.2.1a	The effect of integration on time to market is stronger when customer orientation variables are higher.	Not supported

H4.2.1b	The effect of information sharing on time to market is stronger when customer orientation variables are higher.	Not supported
H4.2.1c	The effect of customer management on time to market is stronger when customer orientation variables are higher.	Not supported
H4.2.1d	The effect of supplier management on time to market is stronger when customer orientation variables are higher.	Not supported
H4.2.2	The effect of supply chain practices on cost is stronger when customer orientation variables are higher.	Not supported
H4.2.2a	The effect of integration on cost is stronger when customer orientation variables are higher.	Not supported
H4.2.2b	The effect of information sharing on cost is stronger when customer orientation variables are higher.	Not supported
H4.2.2c	The effect of customer management oncost is stronger when customer orientation variables are higher.	Not supported
H4.2.2d	The effect of supplier management on cost is stronger when customer orientation variables are higher.	Not supported
H4.2.3	The effect of supply chain practices on conformance is stronger when customer orientation variables are higher.	Partial supported
H4.2.3a	The effect of integration on conformance is stronger when customer orientation variables are higher.	Supported
H4.2.3b	The effect of information sharing on conformance is stronger when customer orientation variables are higher.	Supported
H4.2.3c	The effect of customer management on conformance is stronger when customer orientation variables are higher.	Not supported
H4.2.3d	The effect of supplier management on conformance is stronger when customer orientation variables are higher.	Not supported
H4.2.4	The effect of supply chain practices on reliability is stronger when customer orientation variables are higher.	Not supported
H4.2.4a	The effect of integration on reliability is stronger when customer orientation variables are higher.	Not supported
H4.2.4b	The effect of information sharing on reliability is stronger when customer orientation variables are higher.	Not supported
H4.2.4c	The effect of customer management on reliability is stronger when customer orientation variables are higher.	Not supported
H4.2.4d	The effect of supplier management on reliability is stronger when customer orientation variables are higher.	Not supported

4.9 Summary of the chapter

This chapter concerns with data analysis that was generated from firms operated in Sudan to show the findings for testing the hypotheses of the study. For analyzing data different statistical systems and techniques were used. For example, IBM (SPSS and AMOS) statistics version 23 were conducted in this study in addition to other techniques like data cleaning which used for detecting and removing errors and inconsistencies to improve the quality of data followed by the validity and reliability to insure the goodness of measures for the study variables. Then, to identify the characteristics of all variables under study beside, responding firms and respondents descriptive statistical techniques were used. Furthermore, Person's correlations were also implemented to identify the interrelationships among all the variables. Finally, path analysis in AMOS was used to test the direct and indirect effects for testing the hypotheses. The coming chapter presents discussion and conclusion which includes results, implications and limitations of the study.

CHAPTER FIVE

DISCSSION

5.1 introductions

This chapter explained the findings of this study which examined the supply chain management practices in industrial sector according to this five different dimensions suggested by the previous research. Basically four parts be discussed in this chapter for the purpose of the current study. First part will be discuss overall findings research, while the second and third will clarify the managerial implications and limitations of the study, and the next part will suggest some recommendations for future research.

5.2 Recapitulation of the Findings

For the purpose of testing the relationship among the SCM practices with supply chain performance and operational performance was done by using the AMOUS24 and SPSS24. SCM practices were used an independent variables and operational performance as dependent variable. The results indicate that:

5.2.1 From the results some changes occur in the model of the study :

Based on the literature review the dimensions of the independent variable supply chain management practice was, supplier management, customer management , integration of supply chain ,information sharing and speed of communication, after the statistical analysis this dimensions has become four dimensions which supplier management, customer management ,

integration of supply chain and information sharing. while the dimensions of the dependent variable was four dimensions time to the market ,cost ,delivery dependability and quality after

the statistical analysis this dimensions has become three dimensions which are time to the market ,cost and quality and it was divided in two dimensions, **reliability a**nd conformance depend on the dimension of quality from the literature by David Garvin(2008) eight dimensions can be summarized as follows:(Performance, Features, Reliability, Conformance, Durability, Serviceability, Aesthetics and Perceived Quality . Finally the mediator variable market orientation has remained the same dimensions before and after the statistical analysis which are competitor orientation, and customer ordination.

- In The relationship between supply chain management practice and operational performance, The results shows that supply chain management practice have partial positive impact on time to market, cost and quality2. While they did have a fully positive impact on quality.

- The relationship between supply chain management practice and market orientation, we find Supply chain management practices have a partial positive impact on dimension of the customer orientation and did not have impact on dimension of competitor orientation.

- The relationship between market orientation and operational performance ,We found that from the results the market orientation have a partial positive impact on conformance and did not have impact on time to market ,cost, reliability which represent the dimensions of operational performance.

- The mediating effect of market orientation between supply chain management practice and operational performance. Result show the dimension of market orientation (competitor

orientation and customer orientation) a mediate the relationship of supply chain management practice and operational performance partially.

5.2 Discussion :

This section presents the discussions related to research objectives and conclusions. The major findings presented in this section are that market orientation does mediate the relationship between SCM practice and operational performance, and quality dimension changed by reliability and conformance.

5.3.1The relationship between SCM practice and operational performance.

The literature has suggested that there is a relationship between SCM practices and operational performance, SCM practice and market orientation and market orientation and operational performance .But the dimensions used in expressing SCM practices and the measures of operational performance, are not directly the same with the framework used in the previous studies. This study makes contributions by exploring the relationship between SCM practices, operational performance and market orientation. The results of the study are discussed as follows:

The result show that the **customer management** have significant effect on **conformance** this result is aligned with (Kuei et al. 2001) In an effective supply chain network, members maintain and sustain a customer driven culture, offering the right product in the right place, at the right time and at the right price. Accordingly Gyaneshwar Singh (2012) Although customers may blame the final producer for quality problems, they were often part of a broader problem related to how the supply chain was managed. Moslem (2013) also indicate managers of manufacturing companies must measure and assess customer satisfaction continually In order to predict a

customer's future expectations and provide the conditions necessary for customers order to be accepted as their representative,

Chen and Paulraj(2004) the pressure to revitalize manufacturing over the last decade has been rooted in customers' demand for a greater variety of reliable products with short lead times.

According to the result the **supplier management** has significant effect on **conformance** accordingly Gyaneshwar Singh (2012) referred to as a super responsive supply chain In fact, this was a two-way relationship; in addition to helping a buyer compete on speed, the best suppliers can also provide quality and design insights to the buyer. Moslem (2013) Establishing training courses and learning supplier (eg statistical process control techniques to improve the quality and delivery JIT) and upgrade product and process technology to create value added for both parties.

Also the **information sharing** have significant effect on **conformance** the more effective companies are internally, the more effective their supply chain will be. Supply chain excellence required that all links work together and links work better when they were shared information. Visibility established the groundwork for information sharing (Attaran, 2007).Moslem (2013) indicated that level of information sharing between partners and manufacturing companies are offered: Managers of manufacturing companies make aware business partners any changes related to their business before making. Possible corporate managers are committed to share information and knowledge associated with business processes with business partners and make aware of issues that affect their business.

Finally **integration of supply chain** has significant effect with **conformance** Cousins et al., (2006) indicate that the level of investments to supply chain partners, the degree of dependence between supply chain partners, and the level of product salability of manufacturer would enhance commitment and, consequently, the integration of the SCM business process.

Another interesting finding **supplier management** has significant effect on **reliability**, as Chen and Paulraj, (2004) Poor quality of incoming parts adds significantly to buyer's cost in terms of inspection, rework and returns, purchasing, and overproduction. Therefore, quality-oriented organizations maintain a few reliable, competent, and cooperative suppliers on a long-term basis. Accordingly Ku .al.et (2015) the positive effect of supplier partnering in firm performance, and supplier relationship influences performance with respect to cost quality and cycle time.

Also the study finding **information sharing** have significant effect on **reliability** ,aligned with Li et.al,(2oo6) Supply chain partners that exchange information regularly able to work together as a single key. They are better able to understand the needs of the final consumer and hence are able to respond quickly to changing market.

Also the result show **integration of supply chain** and **customer management** has not significant effect on reliability

Other finding is **integration of supply chain** have significant effect on **time to market** as Frohlich and Westbrook (2001) The first type of integration involves coordinating and integrating the forward physical flow of deliveries between suppliers, manufacturers, and customers , Many of these proponents of supply chain integration fall under the banner of just-in-time.

The Study finding **information sharing** have significant effect on **time to market** as Chen and Paulraj(2004) Information technology also enhances supply chain efficiency by providing real-time information regarding product availability, inventory level, shipment status, and production requirements. Accordingly Towill et al (2000) opined that control of a smooth low lies at the best SCM design and practices and re-engineering of material flows can improve

supply chain performance . Moreover, the efficient flow of material ensures products are delivered to customers on time.

The result show **supplier and customer management** have not significant effect on **time to market .**

Also result indicate that **information sharing** have significant effect on **cost** accordingly Narasimhan and Kim,(2002) Due to the "explosion" of system–wide information and communication technologies, supply chain members can share rich information to lower costs more than ever before. In order to improve the effectiveness of SCM.Fredendall and Hill, (2001) mention that There are two operational issues to be addressed in this area, namely, reducing inventory levels and logistic network design. Reduction of inventors across the supply chain organization is one of the major driving forces to examine a critically various supply chains and the associated processes. Matching supply chain and demand accurately is a critical challenge as distorted information.

Also **customer management** have significant effect on **cost** this result aligned with Moslem al .et (2013) Customer relationship goals can be mentioned as follows : Identifying new business opportunities , Reduce missed opportunities , Reducing customer defection , creating customer loyalty , Improve customer service , Improve organization appearance and Reduce cost.

Also the finding shows **the integration of supply chain and supplier management** has not significant effect on **cost.**

In general this study revealed that there is significant positive relationship between SCM practices and operational performance. As seen from the results, supplier partnership, which is one of the construct of SCM practices have significant effect on operational performance. As Li

et.al (2006) describe, effective partnerships with suppliers can be critical factor to guide effective operational performance of organizations in the supply chain.

The finding shows customer management which is also another construct of SCM practices is

have significance effect on operational performance, As pointed out by Day (2000), devoted relationships with customers are the most sustainable advantage because of their essential barriers to competition. This statement indicates that customer relation plays vital role to enhance operational performance of the organization which enables to be competitive.

Also the integration of supply chain which is one of the dimension of SCM practice is have significant effect on operational performance, accordingly (Cristina Gimenez 2003) ,this level of

integration leads to a better absolute performance. A high level of collaboration among internal processes contributes to achieving cost ,stock-outs and lead-time reductions.

The last construct of SCM practices is level of information sharing which is significant effect on operational performance. As Alireza et al. (2011) stated, integration and coordination across supply chain can be well provided through information sharing. From Alirezas' statement, it is possible to conclude as there is positive relationship between information sharing and operational performance of the firm in the supply chain

5.3.2 The relationship between supply chain practice and market orientation:

The second hypothesis was tested to find out if there is relationship between SCM practice and market orientation. The results revealed that first there was support the relation between **information sharing** with **customer orientation** but not supported to the integration of supply chain, supplier management and customer management. Secondly the dimension of **supply chain**

practice (integration of supply chain, information sharing, supplier management and customer management) there was not support with **competitor orientation**, that was agree with studies of Soonhong Min &John T. Mentzer&Robert T. Ladd (2007) if firms in a supply chain feel strongly tied (SCO) and valuable information on customer needs is shared between them (SCM), it is possible for the firms to collect rich information about customer preferences and respond to customer requirements. A key component of SCM is information sharing between supply chain partners (Min et al. 2005).Information gathered via MO by individual firms can serve as the basis for shared information among supply chain partners, and thus, MO indirectly contributes to SCM. A firm with information about customers, suppliers, and sociopolitical and technological trends can answer such questions as which supply chain best serves its customers, with which firms to manage a supply chain, and what should be accomplished in the supply chain.

5.3.3 The relationship between market orientation and operational performance:

The third hypothesis was tested to find out if their relationship between market orientation and operational performance. This study also mention that customer orientation has partial positive relationship on operational performance, as (Pena et al. 2013) stated an enhanced sense of customer orientation within the firm is a key element leading to successful external marketing, enhanced customer satisfaction, and increased overall performance of the firm and the organization, this relationship supported by the dimension of quality because has significant impact on operational practice. The dimensions of competitor orientation have not significant effect on operational performance.

5.3.4 Market orientation mediate the relationship between the relationship between supply chain management practice and operational performance

The four hypnoses was tested Mediating effect of market orientation on the relationship between supply chain practice and operational performance,

The result show **customer orientation** is mediate relationship between **two dimension of SCM practice (information sharing and integration**) and **conformance** of the product as (Tan, annan, & Handfield,1998) indicated The modern evaluation of the SCM practices that comprises of partnership with the supplier, process of outsourcing, compression of cycle time, continuousness of process flow and sharing or technology and information by using purchasing the quality and relations with the customer .while the relationship between **SCM practic**e and the dimensions (**cost , time to market and reliability**) in presence of **customer orientation** as mediator was not supported .

Also the result finding the **competitor orientation** as mediator was supported the relationship between **SCM practice** and **conformance** of the product , also the dimension of SCM practice have not significant effect on the other three dimension of operational performance (time to market , cost and reliability) when competitor orientation was mediator. And this agree with

Finally From the result of study found market orientation mediate the relationship between SCM practice and operational performance, a line with the studies of (James H. Martin and Bruno Grbac 2003) the possibility that SCM effectiveness can be enhanced in firms with a strong market orientation and that SCM may be one way to leverage a well-developed market orientation to improve performance , and according to (Soonhong Min &John T. Mentzer&Robert T. Ladd 2007) Market orientation has a strong, positive impact on supply chain orientation and supply chain

management interestingly, supply chain orientation was found to have the largest direct influence on performance.

5.4 Theoretical Implication

Theoretical contributions of this study are mainly to the SCM field. In short, the study includes a more thorough explanation integration, information sharing, supplier management, customer management , communication and speed practices.

The study show that the most important SCM practice in terms of effecting operational performance are integration and information sharing.

This study contributes to the literature by empirically examining the relationships among SCM practice , market orientation and operational performance among the SCM practice in Sudanese industrial companies and performance , where as there is lack of literature in supply chain in Sudan.

The study also contributes to the literature by adding the new dimension of operational performance in Sudanese industrial company, such as appear tow dimension for quality (reliability and conformance).

5.5 Managerial Implication

This study has several implications, The main focus is referring to the dimensions of supply chain management practice that suggested by previous researchers and commonly used in different industries. First , the finding of this study will help decision makers in companies to know the importance of SCM and how SCM practice influences on operational performance , therefore decision makers should focus on improve their SCM practices.

The findings also indicate that the integration of supply chain and the level of information sharing are affects operational performance. Therefore, mangers should focus on improve collaboration and innovation.

Another managerial implication of this study indicate that information sharing and integration of supply chain and customer orientation are effects on reliability and conformance of the products .therefore , managers should focus on customer needs and expectation with in all the company .

Finally managers can improve the performance of their companies by recognizing the potential synergy between market orientation and supplier relationships and work to build both for a long-term competitive advantage.

5.6 Limitation of the study

This study has some limitations the first, the use of only one respondent per company , which might be a cause for possible bias .measurement tools used were adopted from previous studies and therefor any limitations that are embedded in them equally affected this study . This study concentrated on Sudanese manufacturing companies also , this study depend on questionnaire survey at one point in time and lacks trends or changes . the sample size was considered , furthermore , the proposed model reflects the lack of other practices.

5.7 Suggestion for future Research

1. In another way, the concept of SCM is complex and involves a network of companies in the effort of producing and delivering a final product, it is difficult to cover entire domain just in one study. Future research can expand the domain of SCM practice by considering additional dimensions

such as geographical proximity, cross-functional coordination, logistics integration, and agreed supply chain leadership, which have been ignored from this study.

2. Future studies can also examine the proposed relationships by bringing some contextual variables into the model, such as organizational size and supply chain structure. For example, it will be intriguing to investigate how SCM practice differs across organization size.
3. It will also be interesting to examine the impact of supply chain structure (supply chain length, organization's position in the supply chain, channel structure, and so on) on SCM practice and operational.

5.8 Conclusions

The present study has examined the impact of SCM practice on operational performance, mediating effect of market orientation. To meet the purpose of the study research objectives and hypothesis were developed. A model is found out the nature of relationship and their corresponding effect of the variables. Findings of this research reveal that, most significant factor that shows the impact of SCM practice on time to market, conformance ,reliability and cost and found that there is a significance relationship between SCM practice and market orientation , also there is a significance relationship between market orientation and operational performance, which leading to the last finding which is the mediating effect of orientation on the relationship between SCM practice and operational performance which was found to be partially significant.

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