

**CHAPTER III:**  
**THEORETICAL FRAMEWORK**  
**AND HYPOTHESIS**  
**DEVELOPMENT**

## **CAPTER: III**

### **THEORETICAL FRAMEWORK AND HYPOTHESIS DEVELOPMENT**

#### **3.0 Introduction**

This chapter will present the research framework and the 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.

#### **3.1 CONCEPTUAL FRAMEWORK**

##### **3.1.0 Theoretical Background**

Bacharach (1989) defines theory as a “statement of relationships between units observed or approximated in the empirical world The primary goal for a theory is to answer “how”, “when” and “why” questions. The theory expression can be contrasted to a description, which primarily aims at answering “what” questions (Sandberg ,2007) theory is the building blocks of hypotheses. Hypotheses and their tests are the foundation of understanding (Schmenner et al., 2009 p. 339).

##### **3.1.1 RESOURCE-BASED VIEW**

Resource-based view RBV seeks the sources of competitive advantage from within the organization, analyzing its strengths and weaknesses. According to this view, companies can gain competitive advantage if they able to achieve superior resources and capabilities and these are valuable, rare, inimitable and non- substitutable. Thus the objective is to identify, develop and deploying key resources to maximize returns, the relational view finds the source of competitive advantage in the collaboration between firms and more specific, it identifies four sources of inter-organizational competitive advantage: relation specific assets, knowledge sharing routines, complementary resources / abilities and effective governance (Dyer and Hatch, 2006).

As organizations face continuous uncertainty, ambiguity and strategic discontinuities in this volatile and turbulent context, responsiveness to environmental changes has become a vital success factor for companies (Homburg, Grozdanovic & Klarmann,

2007). Thus, in the twenty-first century, adaptability has become a key factor in achieving competitive advantage (Reeves and Deimler, 2011). Adaptive capability or adaptability is considered as a new competitive capability in response to the uncertainty of the new century.

Morgan, Richey, Autry,(2016) RBV further suggests that the value of SCO as a strategic capability lies in its ability to create organizational processes that drive firms to prioritize supply chain relationships. SCO as an intangible capability allows managers to use both formal and informal relationship mechanisms among supply chain members to facilitate a long-term approach to SCM (Kozlenkova *et al.*, 2014). Organizational capability (Praest,1998), the firms' basic competence and dynamic capability, such as coordination of different types of knowledge and integration of multiple flow of technology (Prahalad and Hamel, 1990). One important form of capability is the SCM capability, i.e. SCMP capability (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.

The resource-based view (RBV) has also been used in value cocreation and coproduction studies (Zhang, et al., 2015). The RBV seems promising way to at least partially inform researchers to study the resources and capabilities needed for value co-creation. For instance, Zhang et al. (2015) demonstrated how innovation, marketing and networking capabilities contribute to value co-creation.(Hertog, Der Aa, and de Jong ,2010; Kohtamäki and Partanen ,2016) utilized the same view to conceptualize. used relationship to study coproduction in supplier-customer relationships.

SCO can enhance the organization's ability to pair resource deployments with customer demands, achieving better fit between supply chain operations and market demands. In addition, SCO can enable better decision making and faster response to changes in the competitive landscape. Therefore, consistent with the past research, SCO should have a direct positive effect on Adaptiveness . (Davis, Monge and Gonzalez, 2014).

### **3.1.2 Resource Dependence Theory**

However, the RBV is not able to provide explanations as to how some successful firms demonstrated timely responsiveness and rapid and flexible innovation in situations of rapid change (Teece et al.,1997). Building on the previous dominant strategic management paradigms, Dynamic Capabilities view (DCV) offers considerable value by explaining how certain firms achieve sustainable competitive advantage through continually adapting and reconfiguring resources.

The resource dependence model portrays the organization as active, and capable of changing, as well as responding to the environment”(Aldrich and Pfeffer, 1976, p. 83). Early studies such as Aldrich and Pfeffer’s assumed that organisations initially sought survival dependent on the variations of internal structures and actions of employees (Lynch, 2015)

RDT provides a useful theoretical background to explain that suppliers’ end-user orientation and innovativeness increase the chance of adequate responses to customer demands. RDT typically looks beyond the boundaries of an individual firm for explaining firm success (Christensen and Bower, 1996; Salancik and Pfeffer, 1978).

The central proposition of the RDT is that firms change as well as negotiate with their environment, i.e., stakeholders, in order to access the resources they need to survive (Pfeffer and Salancik, 1978). First, survival depends on the ability of the firm to satisfy its customers (Christensen and Bower, 1996; Pfeffer and Salancik,1978). as well as the firm’s innovativeness, its continuous attitude toward change. Second, the RDT acknowledges that firms are not self-contained in responding to market developments and therefore establish linkages with suppliers to create access to resources and capabilities required to create customer value (Stock, 2006; Ulrich and Barney, 1984). Thus, in adapting and anticipating the developments in the customer market, firms depend on the resources of suppliers, in particular their key suppliers, to assure that those critical customer demands are satisfied (Pfeffer and Salancik, 1978; Ulrich and Barney, 1984).

### **3.1.3 Strategic Choice Theory**

Manu and Sriram (1996, p. 79) note that strategic orientation refers to “how an organization uses strategy to adapt and/or change aspects of its environment for a more favorable alignment.” Extended versions focus on customer or technology orientations, Hsu and Tan (2015) According to strategic choice theory (Child, 1972), strategic decisions

also have a determining role in a firm's business survival, and the fundamental issue is the strategic orientation, with a foundational assumption that firms can enact and actively shape their environments. Strategic choice theory centers on decision making in organizations designed to achieve well-defined goals. Thus, managerial discretion, interpretation, and perspective have great influence in strategic decision making, over the span of shared organizational actions. To achieve organizational effectiveness, firms must make appropriate strategic choices that "represent the competitive strategy implemented by a firm to create continuing performance improvements" (Morgan and Strong, 1998,p. 1055). Ultimately a strategic orientation is a firm's overall direction and objectives,oriented toward an external business environment and driven by top management (Voss and Voss, 2000). Strategic choice theory focusses on managers' strategic choices when their firms face external challenges (Child, 1972). If they have a strategic orientation, firms choose to leverage their strategy to adapt or change aspects of their external environment to ensure more favorable alignment. It also helps explain why firms take proactive and committed actions to address urgent issues such as sustainability.

Firms do not interact with their operating environments in identical ways. For example, in the same industry, some firms focus on a narrow, limited, product-market domains, in an effort to protect their market share. Others search continuously for new market opportunities through innovation and new product development. Responses to the operating environment reflect firms' strategic orientations; strategic orientations largely their choices, establish their strategic positioning, affect their performance, involve multiple functions, are highly complex and ambiguous, and demand substantial resource commitments. In addition, a strategic orientation choice refers to the process of choosing one course of action rather than another. Thus a strategic orientation offers a means to comprehend the actions that firms take to enhance their profitability and competitive advantage. This pattern of past, or intended, decisions guides a firm's ongoing alignment with its external environment and shapes strategic policies and procedures (Hill and Cuthbertson, 2011; Minarro-Viseras et al., 2005).

From a sustainable supply chain perspective, firms' strategic orientations are critical, because sustainable business practices demand substantial firm resources and are technically complex, such that they require diverse skills contributed by technical experts, organizational experts, and top management (Saeed et al., 2014). From a strategic choice theory perspective, (Sharma ,2000) examines how firms use freedom of choice (discretion, interpretation, and perspective) to create strategies that influence firms' orientation toward adopting sustainability initiatives. Ketchen and Hult (2011) cite strategic choice theory as appropriate for studying strategic

supply chain management. With its focus on the best value, strategic choice theory seeks to identify supply chain models that can affect organizational outcomes and enact the environment. Strategic choice theory centers on the intra-organizational level and the provision of certain strategic capabilities (Ketchen and Hult, 2011).

Finally, a strategic orientation toward sustainable business practices is influenced by various external agents, including suppliers, governments, regulatory organizations, green social groups, and rapidly changing technology (Shrivastava and Grant, 1985).

### **The Research Conceptual Framework**

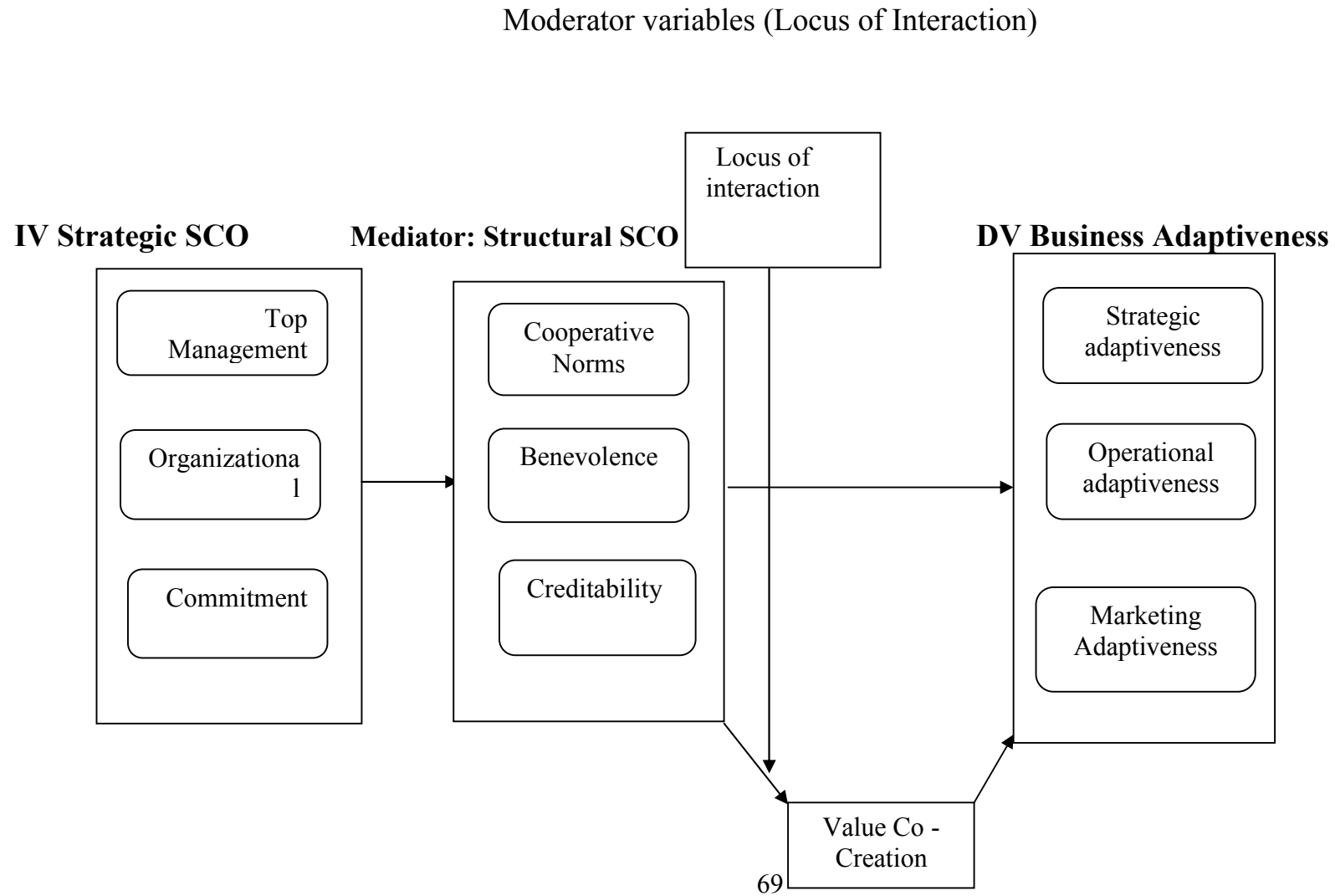
Based on the theoretical foundation study, the conceptual framework of this study designed and proposed the difference links between the variables such as of strategic supply chain orientation and business adaptiveness.

Structural supply chain orientation and business adaptiveness. the framework also proposes the mediating role of structural supply chain orientation on the relationship between strategic supply chain orientation and business adaptiveness

Also the study proposes that value co-creation mediate the effect of a supply chain orientation on business adaptiveness.

The theoretical framework suggest locus of interaction as as moderating variables between structural supply chain orientation and value co-creation

Figure 3.1 study conceptual framework



### **3.2 Development of Hypotheses**

To identify the association and significance relationship of the variables, Depend on the research framework there is a Hypotheses

#### **3.2.1 The relationship between supply chain orientation and business adaptiveness**

The relationship between supply chain orientation and business adaptiveness is not clear enough in previous empirical evidence because a little investigations conducted in close or similar relationship(Lynch,2015; Patel, Panaj Azadegan, and. Ellram,2013; Tucker,2011) These critical contingencies are the underlying causes that determine the formation of interorga- nizational relationships (Oliver, 1990), which refer to the specific reasons that organizations make strategic choices to establish relationships with other organizations, even if those choices are par- tially motivated by pressures to conform (Provan and Sydow, 2008). Interorganizational relationships can be understood as a response to environmental pressures (Laimer, 2014)

Strempek (1997) Adaptability is inextricably linked to the concept of strategy and appears to be more complex than a simple set of cultural values. The ability to adapt to changing conditions is an underlying premise of the strategic choice perspective (Child, 1972).

Review of the previous studies clear that a few numbers of studies linked between supply chain orientation and business adaptiveness. (Eunni. 2003) SCO is positively associated with operational performance and customer-focused performance (Patel et al. 2013). Firms that recognize the strategic importance of managing their supply chains can achieve superior operational efficiencies by integrating their operations with those of their supply chain members, Such integration can facilitate the identification of redundant aspects of their interfirm operations. Further, supply chain oriented firms can be more effective at meeting their customers' expectations by orchestrating a unified, coordinated response at the supply chain level The outcome of strategic SCO, through top management support, commitment, and compatibility is improved firm performance (Cooper et al., 1997).

Through top management support, strategic SCO implies better-informed strategic decisions, which can improve the leverage of the firm's supply chain capabilities, lead to more efficient use of the firm's assets and production capacity, and improve



flexibility in its use of resources. Through commitment, strategic SCO augments the firm's affinity toward collaboration with supply chain members to develop consistent objectives (Min & Mentzer, 2004). Commitment to supply chain members enhances relationships among the supply chain members (Kim, Yamada, & Kim, 2008; Anand, Ram, & Elliot, 2011). Instead of directing resources to address conflicts among supply chain members, firms can better leverage their internal resources to meet the expectations of the ultimate customer.

Through compatibility strategic SCO ensures that there are consistent objectives among supply chain members and a unified focus on providing value to the ultimate customer, thereby improving each firm's customer-focused performance (Roethlien & Ackerson, 2004). Moreover Sethi and Sethi (1990) argue that these flexibilities cannot achieve their full potential without the support of an organizational structure, and sophisticated computer and information technologies. Thereby, the study hypothesizes that:

**H1. There is a positive relationship between Strategic Supply chain orientation and Business adaptiveness**

**H1.1 There is a positive relationship between Strategic Supply chain orientation and strategic adaptiveness**

Developed sub hypotheses from first hypothesis as follows:

*H1.1a There is positive relationship between Top management support and strategic adaptiveness*

*H1.1b There is positive relationship between Organizational Compatibility and strategic adaptiveness*

*H1.1c there is positive relationship between the commitment and strategic adaptiveness*

**H1.2 There is a positive relationship between Strategic Supply chain orientation and marketing adaptiveness**

*H1.2a There is positive relationship between Top management support and marketing adaptiveness*

*H1.2b There is positive relationship between Organizational Compatibility and marketing adaptiveness*

*H1.2c there is positive relationship between the commitment and marketing adaptiveness*

**H1.3 There is a positive relationship between Strategic Supply chain orientation and operational adaptiveness.**

*H1.3a There is positive relationship between Top management support and operational adaptiveness.*

*H1.3b There is positive relationship between Organizational Compatibility and operational adaptiveness.*

*H1.3c there is positive relationship between the commitment and operational adaptiveness.*

**3.2.2 The relationship between Structural Supply chain orientation and Business adaptiveness**

Corporate culture has been found to have significant impact on the result of the company overall (Flammholtz, 2001; Koller, 2016) and its innovative capacity in particular. Therefore, the type of culture that leads to higher innovative capabilities will surely be the one leading to greater adaptability and ultimately adaptive advantage. In order to develop this “innovation culture,” managers will have to understand its composition and foundation. It has been shown that this culture is measurable and hence can be intentionally managed (Berg and Wilderom, 2004; Koller, 2014; Rao and Weintraub, 2013), making it possible to acquire an innovation culture, which, in turn, could help in conquering an adaptive advantage.

Structural development for firms is to determine how to allocate resources to create capabilities and how sets of capabilities should be coordinated and organized (Stank et al. 2005). SCO guides the development and deployment of the flexible capability. The firm’s SCO determines how the firm approaches all aspects of its supply chain management (Mentzer et al. 2001). As such, the firm’s SCO provides the blueprint for the responsiveness the firm needs to develop.

**H2. There is a positive relationship between Structural Supply chain orientation and Business adaptiveness**

**H2.2 There is a positive relationship between Structural Supply chain orientation and strategic adaptiveness**

Developed sub hypotheses from first hypothesis as follows:

*H2.1a There is positive relationship between Cooperative Norms and strategic adaptiveness H2.1b There is positive relationship between benevolence and strategic adaptiveness*

*H2.1c there is positive relationship between the creditability and strategic adaptiveness.*

The relationship between supply chain orientation marketing generally, it has been rarely tested. There are some authors who provide evidence that can justify this relationship (Ballou, et al., 2000), mentioned that To create a competitive advantage, SCM is more emphasizing, cross-functional, and interorganizational coordination of the business practices. The competitive advantage created by SCM includes the creation of efficiencies in the supply chain oriented toward providing better customer value than competitors. Within the supply chain domain, customer value is created through two mechanisms: reducing costs and increasing responsiveness to customers' needs. The creation of customer value through SCM results in a positive impact on the firm's profitability and customer loyalty (Lambert and Cooper, 2000). From another perspective, Value networks share the SCO's system view because they emphasize the interaction of social and economic actors' value propositions (Jaworski, and Kohli, 2006) in this study SCO represents an internal culture that seeks to align the SCM and marketing.

## **H2.2 There is a positive relationship between Structural Supply chain orientation and Marketing adaptiveness**

*H2.2a There is positive relationship between Cooperative Norms and Marketing adaptiveness H2.2b There is positive relationship between benevolence and Marketing adaptiveness*

*H2.2c there is positive relationship between the creditability and Marketing adaptiveness*

Collaboration links structural aspects to business processes (Vlajic et al., 2012). On the one hand, structural decisions regarding how to technically and logistically integrate the partners in the supply chain and the quality of shared information are made (Vachon and Klassen, 2008). Joint development aims to

collaboratively develop new technologies, processes, and products. On the other hand, the more operational organization can be linked to the processes level of SSCM. Sustainable supply chains face high risks due to high pressure group demands or a relatively small supplier base and the related disruption risk (Walker et al., 2008; Seuring and Müller, 2008)

### **H2.3 There is a positive relationship between Structural Supply chain orientation and Operational adaptiveness**

*H2.3a There is positive relationship between Cooperative Norms and Operational adaptiveness*    *H2.3b There is positive relationship between benevolence and Operational adaptiveness*

*H2.3c there is positive relationship between the creditability and Operational adaptiveness*

### **3.2.3 The relationship between Strategic Supply chain orientation and Value Co-creation**

The previous empirical evidences about the relationship of structural SCO and business adaptiveness indicate that it has a significance effect (Mio Čević and Dedi ,2012) Supply chain can be defined as a set of organizations directly and indirectly involved in the value creation process for ultimate customer. Value creation processes are both downstream and upstream, involving direct and indirect flows of products, services, finances and information. also Supply chain can be viewed as a system of organizations that have a goal of developing the value proposition for customers.

Mentzer, Stank and Esper (2008) suggest that contemporary firm has a goal to integrate all external relationships it has with its business partners. However, it must be noted that not all relationships should be treated equal. The importance of relationship is equal to the amount of value each partner provides (supplier) and for how much value added revenue it is responsible (customer) Thus it is justified to valorize both the supplier's and customer's efforts in the value creation for ultimate consumer MIO (Čević and Dedi Č, 2012)

Noordhoff, et al (2011) have presented evidence and results suggest that without structures and relational, social embeddedness may weaken a supplier's ability to use customer knowledge for innovation. In terms of the hierarchical structures of value

creation, we notice that the power-dependence perspective is missing from the co-creation literature, perhaps because of contradictory assumptions about the nature of exchange (Defee and fugate, 2010)SCO firm builds and maintains several behavioral elements that enhance relations with strategic supply chain partners, including trust,commitment, cooperative norms, dependence, organizational compatibility, and top management support The best-performing supply chains are built on a foundation of interorganizationally shared values and goals (Defee and Stank, 2005; Gadde and Ford, 2008). stressed that SCO should be assessed as a strategic organizational capability. Besides the key organizational processes (SRM and CRM), SCO creates a mindset which acknowledges the importance of other members in the value creation process for customers.

(thereby the hypotheses can be formulated as follow:

**H3.1 There is a positive relationship between Strategic Supply chain orientation and Value Co-creation**

*Developed sub hypotheses from firs hypothesis as follows:*

*H3.1a There is positive relationship between Top management support and Value Co-creation*

*H3.1b There is positive relationship between Organizational Compatibility and Value Co-creation*

*H3.1c there is positive relationship between the commitment and Value Co-creation*

**3.2.4 The relationship between Structural Supply chain orientation and Value Co-creation**

Ulaga, Wolfgang, 2001. In business relationships and networks value co-creation, allowing organisations to access new knowledge, sharing risk and resources, joining complementary skills and capacities, which allow them to focus on their core competencies. The value-creating process has been always considered the key to firms' long-term survival and success of businesses and the source of competitive advantage of firms (Anderson, James, and. Narus.1998) (Guenzi, Paolo, and Troilo,2006),( O'Cass, Aron, and Sok, 2012) that the capacity to create superior customer value as marketing capability construct from bundle of interrelated processes to facilitate successful interaction with customer which is lead firm bring their products to the

marketplace faster and serve the customers better than their rivals (Vorhies, Douglas and Morgan,2005). In the same way (Ahen, Frederick, and Peter Zettinig, 2015) contend that The strategic interaction of the firm and a network of business and non-business actors creates the basis for learning and adaptation to market.

### **H3.2 There is a positive relationship between Structural Supply chain orientation and Value Co-creation**

*H4. 1a There is positive relationship between Cooperative Norms and Value Co-creation*

*H3.1b There is positive relationship between benevolence and Value Co-creation*

*H3. 1c there is positive relationship between the creditability and Value Co-creation*

### **3.2.5 The relationship between Value co-creation and Business adaptiveness**

According to (Yusoff, Ashari and Salleh, 2016) the close relationship between customer and supplier relationship will facilitate an understanding on the changes on the business environment. This will lead to a better customer service and improved supplier relationship (Whitten, K.W.J & Zelbst.,2012). (Urde, Baumgarth, & Merrilees,2013; Deshpande, 2012) Relating to this study, these study finds that the alignment ( SCO) are able to leverage closer relationships between the parties in the chain to accelerate cash flow through time compression and shorter end-to-end pipeline time. This will lead to a better quality, flexibility of the product, time and could minimize the cost involved.

(Gelhard, Kotmann, and Leker.2014 ;Fang, 2008; Lee et al., 2012) point out that customers are increasingly integrated into value creation processes to jointly develop new solutions. By means of customer co-creation firms integrate internal (developers) and external (customers) knowledge resources in the innovation process and achieve a higher degree of product and service innovativeness

(Song et al, 2016; J. Zhang et al. 2015; Gelhard,Kotmann, Leker.2014) The findings confirm that joint value creation with customers is a critical enabling the conversion of firm's capabilities into superior outcome in terms of customer value . ( Lundkvist & Yakhlef, 2004;Nambisan, 2002) point out that customer participation in early stages of NPD is important, both in theory and practice. When customers participate in co-creation activities their efforts can translate into new capabilities for an enterprise

(Zhang & Chen, 2006). (Song, Song, & Benedetto, 2011) reveal that stronger involvement of customers in NPD brings greater the enterprise's competitive advantage. Gelhard, (2014) Hence, argue that co-creating value with customers directly supports the development of innovative products and services (e.g., Gelhard, 2014; Fang, 2008; Witell et al., 2011).

Lundkvist & Yakhlef (2004) employ the lens of resource dependency and environmental contingency and find that co-creation benefits new adapted performance. Multiple criteria such as efficiency, effectiveness and innovativeness (Chen, Lee, Wang, & Tong, 2008). (Wang, Dou, Zhuc, & Zhou, 2015). innovativeness is the degree to which the product is adapted to the company and the market (Bonner, 2010). Therefore it can be hypothesized that

**H5. There is a positive relationship between Value co-creation and Business adaptiveness**

*H5.1 There is positive relationship between Value Co-creation and strategic adaptiveness*

*H5.2 There is positive relationship between Value Co-creation and Marketing adaptiveness*

*H5.3 there is positive relationship between the Value Co-creation and operational adaptiveness*

### **3.2.6 The mediating role of Value co-creation on the relationship between Supply chain orientation (Structural) and business adaptiveness**

Value co-creation has rarely used as mediator variables, (Griffin and Hauser, 1993) found that the positive influence of customer insights on innovation-related outcomes, the degree of company-customer interactions remains often limited to the mere listening to the 'voice of the customer. Moreover, customer co-creation is suggested to benefit from a proactive orientation approach (e.g., Blocker et al., 2011; Kristensson, et al., 2008; Witell et al., 2011). Since latent needs are neither in the consciousness of customers nor satisfied by existing product or service solutions, they designate significant opportunities for market developments, future businesses, and a firm's long term survival ( Narver et al., 2004).

Furthermore ( Ngo, L.V., and O'Cass ,2013) tested value co-creation as Creating value offerings via operant resource-based capabilities. Also (Gelhard, Kortmann and Leker,2014)reported that Value co-creation mediate the relationship between market orientation and innovativeness, innovativeness is function of adaptability ; thus the hypothesis it can be formulated as follow:

**H.6. Value co-creation mediate the relationship between Supply chain orientation (Structural) and business adaptiveness**

*H6.1a Value Co-creation Mediate the relationship between Cooperative norms and strategic adaptiveness*

*H6.1b Value Co-creation Mediate the relationship between benevolence and strategic adaptiveness*

*H6.1c Value Co-creation Mediate the relationship between creditability and strategic adaptiveness*

Value co-creation has rarely used as mediator variables, (Griffin and Hauser, 1993) found that the positive influence of customer insights on innovation-related outcomes, the degree of company-customer interactions remains often limited to the mere listening to the ‘voice of the customer. Moreover, customer co-creation is suggested to benefit from a proactive orientation approach (e.g., Blocker et al., 2011; Kristensson, et al., 2008; Witell et al., 2011). Since latent needs are neither in the consciousness of customers nor satisfied by existing product or service solutions, they designate significant opportunities for market developments, future businesses, and a firm’s long term survival (e.g., Narver et al., 2004).

Also Ngo, L.V., and O'Cass (2013) tested value co-creation as Creating value offerings via operant resource-based capabilities. Also Gelhard, Kortmann and Leker(2014)reported that Value co-creation mediat the relationship between market orientation and innovativeness, innovativeness is function of adaptability ; thus the hypothesis it can be formulated

H6.2Value Co-creation Mediate the relationship between structural supply chain orientation and marketing adaptiveness

H6.2a Value Co-creation Mediate the relationship between Cooperative norms and marketing adaptiveness



*H6.2b Value Co-creation Mediate the relationship between benevolence and marketing adaptiveness*

*H6.2c Value Co-creation Mediate the relationship between creditability and marketing adaptiveness*

value co-creation mediate the relationship between structural SCO and marketing adaptiveness. Previous works on the mediation effect of value co-creation in different context its very little narrow such as (Killa, Maklon Felipe, 2014) indicates a positive and significant effect of value co-creation on marketing performance, which means that the higher the level of value co-creation is done the firms in will increase its marketing performance, also (Gulati, et al., 2000), (Payne, et al., 2008) and (Lavie, and Dovev,2007.) that the value creation in the networking impact on enterprise performance improvement . on the other hand (Chisty, and Jainal,2012) The adoption of value creation practices leads to the need of "changing the very nature of engagement and relationship between the firms and co-creators of value -customers, stakeholders, partners or other employees" which is require from firm more believes in their relationship with partners because value co-creation mainly based on collaboration cultures between firms, their value networks therefore the possible outcome of consumer involvement in co-creation relates to innovation, specifically innovation cost, time-to-market, and product/service quality. Customers with positive interactive experiences may enhance their contributions to the innovation process, making an impact in cost, time, and quality of the innovation, and these outcome represent the marketing adaptiveness in different aspects (Chisty, and Jainal,2012).

H6.3 Value Co-creation Mediate the relationship between structural supply chain orientation and operational adaptiveness.

*H6.3a Value Co-creation Mediate the relationship between Cooperative norms and operational adaptiveness*

*H6.3b Value Co-creation Mediate the relationship between benevolence and operational adaptiveness*

*H6.3c Value Co-creation Mediate the relationship between creditability and operational adaptiveness.*

### **3.2.7 The is positive relationship between Strategic SCO and Structural SCO**

Strategic SCO is focused on the SC-directed motivation and objectives arising from executive strategic plans and decisions (Patel, 2013). This involves commitments, directives, and outcomes related to the supply chain. In contrast, structural SCO involves the firm's behaviors and actions related to SCM in the implementation of its strategic plan. While the distinct influence of organizational strategy and organizational structure on firm performance has been of interest in strategic management (Boschken, 1990; Harris & Ruefli, 2000; Galan & Sanchez-Bueno, 2009), the examination of the relationship between strategic SCO and structural SCO and their effects on firm performance is sparse in the literature.

The structural perspective of SCO emphasizes organizational artifacts that facilitate supply chain management (Min et al. 2007). (Gligor, 2014) reported that Strategic SCO effect on Structural SCO.

### **H7 Hence There is positive relationship between Strategic SCO and Structural SCO**

Developed sub hypotheses from firs hypothesis as follows:

#### **H1a There is a positive relationship between Strategic Supply chain orientation and Cooperative norms**

*H7.1.1a There is positive relationship between Top management support and Cooperative norms*

*H7.1.1b There is positive relationship between Organizational Compatibility and Cooperative norms*

*H7.1.1c there is positive relationship between the commitment and Cooperative norms*

#### **H7.2 There is a positive relationship between Strategic Supply chain orientation and benevolence**

*H7.2.1a There is positive relationship between Top management support and benevolence*

*H6.2.1b There is positive relationship between Organizational Compatibility and benevolence*

*H7.2.1c there is positive relationship between the commitment and benevolence*

### **H7.3 There is a positive relationship between Strategic Supply chain orientation and creditability**

*H7.3.1a There is positive relationship between Top management support and creditability*

*H7.3.1b There is positive relationship between Organizational Compatibility and creditability*

*H7.3.1c there is positive relationship between the commitment and creditability*

### **3.2.8 The moderating role of Locus of interaction on the Relation between Structural supply chain orientation and value Co-creation**

Relationship generally has been tested in different context as moderator or mediator interactions (Koza and Dant, 2007; Liu et al., 2009; Ryu et al., 2008) argue that In the realm of buyer–supplier relationship management, control mechanisms consisting of the use of coercive power, non-coercive power, contracts, and relational norms have received considerable attention because of their effective roles in governing the activities of participants in the relationship (Weitz and Jap, 1995). Previous research on general buyer supplier interactions has already identified several variables that moderate the influence of supplier development activities on the achievement of the supplier and the customer

(Arroyo-Lopez & de Boer, 2012) Research investigate the, also interactionsim model provide and more explanaiton on how interaction power and mechanism interaction mechanism or relationship antecedents neglects to investigate whether or not the use of control mechanisms changes under different contexts specially in supply chain context . Therefor

*H8. Locus of interaction **Moderate the Relation between Structural supply chain orientation and value Co-creation.***

*H8.1 The effect of cooperative norms on value co-creation is stronger when locus of interaction is higher.*

*H8.2 The effect of benevolence on value co-creation is stronger when locus of interaction is higher..*

*H.8.3 The effect of creditability on value co-creation is stronger when locus of interaction is higher.*

### **Control Variables**

The study uses four control variables that have been identified to have a significant impact on the effects on PERF. previously, research indicates that the size of the firm has an impact on the relationship between variable similar such MO and PERF (Liu 1995). Also, smaller firms might have fewer resources for the implementation of supply chain orientation (Cao and Zhang 2011). The size of the firm was measured by the number of employees (logarithmized). Second, (Ben Brik et al. 2011) the study controls for the age of the firm. Firm age can influence the implementation of supply chain orientation and therefore, impact adaptiveness. Firm age is calculated as the number of years since firm foundation (logarithmized) (White et al. 1999), also firm ownership has been considered as control variable because of the different types of ownership, and the kind of ownership related to the management orientation and availability of resource.

### **Summary of the Chapter**

This chapter was devoted to methodological issues of this thesis. Firstly, a general discussion on theory of the research, conceptual framework was presented with the result of the structured literature review, hypotheses development. the control variables were presented. Research Design and research philosophy, Research Methodology, population , samples, data collection , measurement, questionnaire design will be the next chapter.

**CHAPTER IV:**  
**RESEARCH METHODOLOGY**

## **CHAPTER FOUR: RESEARCH METHODOLOGY**

### **4.0 Introduction:**

This chapter contains research methodology, Population and sample of the study, designing questionnaire, pretest and variables measurement and Data Analysis Techniques.

### **4.1. Research Design**

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

#### **4.1.1 Research Philosophy**

Research inquiry is conducted mainly within three broad paradigms namely *Positivist, Naturalistic* and *Pragmatic* (Creswell, 2003)

#### **4.1.2 The Research Methodology Options**

Here it is necessary to identify the most appropriate methodology for this study. It is essential to recognize the philosophical methodology function before choosing this research methodology. According to (Tsai and Chou, 2008) there are three points to be considered: the first, the methodology can assist in making the research design clear. The research design includes where and how to collect the evidence data for providing good interpreted to answer the research questions. Secondly, knowledge of the philosophy lets the researcher know how to avoid mistakes and points up the

limitations for their research. The third one is that the knowledge of philosophy can create the dissimilar subject or knowledge structures from the research design from researchers past experiences. That is to say the research method is significant in linking theory and data in the research. (Creswell, 2003, p.5). Generally, there are two main methodologies: quantitative and qualitative. Quantitative research focuses on statistical techniques Tsai. (2008). Qualitative research explores social constructs, such as: Human beliefs, behaviors, perceptions and values.

**4.1.3 Qualitative and quantitative research :** - **qualitative research** is a method based on small samples intend to provide insight and understanding of the problem setting which one is more focused on the analysis of data, such as words (Malhotra, 1996).

**4.1.4- Quantitative research** involves the collection of primary data from a large number of individuals, frequently with the intention of projecting the results to the larger population Martins *et al.* (1996). Therefore, Black (1999) referred to the two research methodologies' differences: Quantitative research is based on the collection of data from representative samples from large populations but qualitative research involves a more in-depth investigation of the topic.

Saunders *et al.* (2007) research approach is a useful tool in research for planning and explaining how the philosophical approach may be mapped out as a pathway for data collection and data analysis.

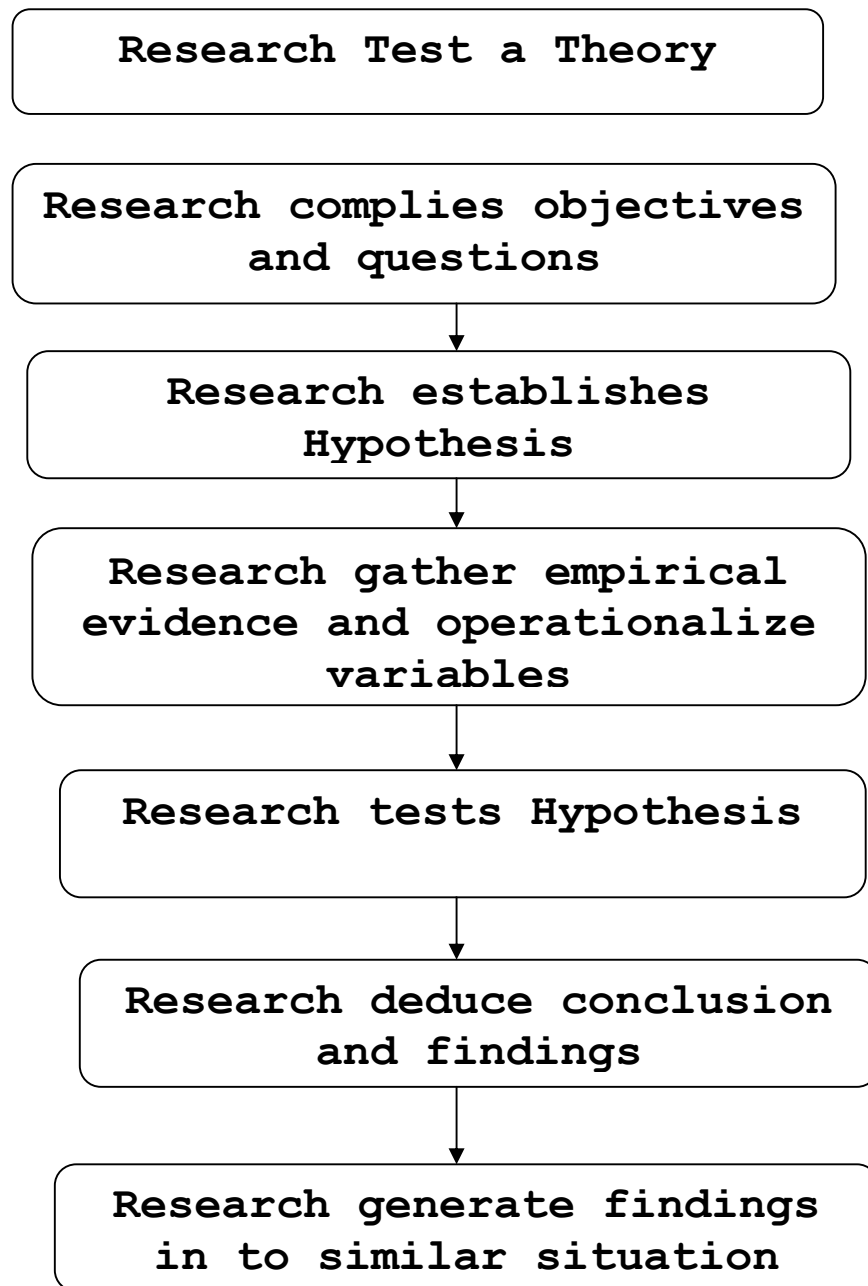
The **deductive approach** tests existing theory on real life observations and requires a positivist philosophy and quantitative research methods for theory testing (Dooley, 2009). Empirical studies and mathematical models can build and test theory using an inductive or deductive research approach therefor this study descriptive.

## 4.2. Methodology

When deciding upon the research approach for a study, the researcher can choose among several research approaches, all characterised by specific strengths and weaknesses. The most important condition for choosing an appropriate approach is to identify the type of research questions that should be answered. Yin (2003) presents five different types of questions: “who”, “what”, “where”, “how”, and “why”-questions, to which different approaches are suitable. Due to the nature of this dissertation, they are Three main characteristics distinguish a survey approach from other approaches such as case studies or experimental studies. First, the collection of information is done by asking people in a structured manner. Collection methods in a survey approach could be mailed questionnaires, interviews face to face, or telephone calls. Second, a survey approach is a quantitative method that demands standardised information from and/or about the studied subject, e.g. individuals, groups or organisations. Third, information is generally gathered from a sample, which is a fraction of a specific population. The sample should be chosen in such a manner that the answers from the sample can be generalised to the whole population. (Malhotra and Grover, 1998; Pinsonneault and Kraemer, 1993)

Consistent with the purpose of this study to investigate the effects of supply chain orientation (SCO) on business adaptiveness () in the manufacturing Sector in Sudan the quantitative method was used (quantitative involves the collection of primary data from a large number of individuals, frequently with the intention of projecting the results to the larger population Black (1999) for this purpose the study have used the descriptive method (use of survey)





*Figure 4.1: Deductive Process*  
*Adapted from Chalmers (1976) cited in*

#### **4.3 Population and sample of the study:**

The population for the sample are the manufacturing companies in the Sudan..

The manufacturing sector is considered as a leading sector in Sudan. It contributes actively in the GDP, employment of labor and training, the importance of this sector has increased after the adoption of state policies and programs of economic activation reflected

positively on the industry and led to increased investments and also the extracting of oil make a sound impact on the industry, has contributed to a significant role in solving the energy problem that challenge the development of the sector, in addition to the development of industries associated with the extraction of oil, such as oil refining and petrochemical industries. The following section

Sections of the industrial sector in Sudan:

- |   |   |
|---|---|
| 1 / Food industries.                        | 5 / Engineering industries.                         |
| 2 / Textile industry.                       | 6/ Building materials industry and refractoriness.  |
| 3 / leather industries.                     | 7 / Oils and soap industry.                         |
| 4 / Chemical and pharmaceutical industries. | 8 / Manufacture of packaging materials and printing |

From the table below, the largest manufacturing base in Khartoum State is 49%, then Al-Jazeera is 14%, followed by River Nile State by 8%. In terms of the number of stopped firms, the state of Khartoum comes first with 57% of the total and partially stopped establishments, followed by Al-Jazeera by 14% and River Nile by 7%. The state of Sinnar is in the first place with 52%, followed by White Nile by 42% and Khartoum by 41%.

Table 4.1 The distribution of manufacturing firms in sudan

	state	Numbers of firms	The situation			
			working	Under construct		Under construct
Totally	partially					
1	Khartoum	3293	1943	1179	171	-
2	Al-Gazeera	912	235	-	335	342
3	Kassala	121	83	1	27	10
4	Algadarif	444	158	-	117	169
5	Senara	89	43	8	38	
6	South Darfur	276	56	-	86	134
7	Red Sea	215	125	-	68	22
8	North kordofan	273	80	-	87	106
9	River Nile	528	118	-	160	250
10	White Nile	121	70	-	51	0
11	North Darfur	60	46	-	5	9
12	East Darfur	56	18	-	12	26

13	Northern	246	103	-	7	136
14	South Kordofan	34	28	-	5	1
15	Blue Nile	1				1
16	Middle Darfur	1				1
17	West Kordofan	1			1	
18	West Darfur	0				
	<b>Total</b>	6671	3106	1188	1170	1207

Source :Ministry of industry (2016)

### The industry in Khartoum State

The table below summarize the situation of industry in Khartoum state interm of : industry type, numbers of industrial companies, working and not working companies and under construct companies.

Table 4.2 the distribution of manufacturing firms in khartoum

	Type of industry	Numbers of firms	The situation			
			working			Under construct
				Totally	partially	
1	Food	459	395	36	-	890
2	Textile	17	36	3	-	56
3	Leather tanning and leather products	31	29	7	-	67
4	Printing and packing	84	89	6	-	179
5	Chemical	95	82	9	-	186
6	Engineering	580	215	55	-	850
7	Furniture	146	66	20	-	232
8	Petro chemical	357	125	25	-	507
9	Building materials industry	156	128	10	-	294
10	household appliances	18	14	-	-	32
	<b>Total</b>	<b>1,943</b>	<b>1,179</b>	<b>171</b>	<b>-</b>	<b>3,293</b>

Source: Ministry of industry (2016)

There are several reasons why manufacturing industry was selected. It is an important and visible industry of the Sudan and world economies. The industrial sector production is the largest manufacturing activity in the world industrial production is also one of the most complex and diverse manufacturing activities in the world. The target respondents for the survey will be the middle-level managers at the manufacturing level. Middle-level managers (supply chain managers, logistics managers, Procurement and Marketing, operations managers) are in the best position to answer the questions of this survey because of their experience, expertise, and access to operational and performance data would be the most appropriate to grasp the intent of the study, since the nature of the study requires knowledge about management policies, as well as detailed operational performances, the individuals in the middle-management are in the position. This study is focused on the large-sized companies. A large-sized company would have 50 or more employees (Ettlie and Stoll, 1990). It is assumed that large companies are more concerned with the awareness of supply chain management rather than smaller industries. In addition, the good performance of the large-sized organizations could be a model for the smaller ones. (Ismail, et al., 1998) found that from the perspective of competitive advantage, firms are better management being big rather than small. (Hatani, Zain, and Wirjodirjo, 2013) defined manufacturing industries are classified based on the number of persons. The number of persons engaged without considering the use of machine, as well as the value of capital owned by that particular industry. Industrial classification of Sudan is based on the International Standard Industrial Classification of all Economic Activities (ISIC). The ISIC has been modified according to the local condition to become (*Sudanese classification; foods, Chemical, Engineering, Constructors ' , Printing &packing , Leather )* Ministry of industry

publications(2012) .. Thus, this research is carried out according to the above classification.

#### **4.4 The Sample**

Sampling process involves selecting a sufficient number of the right elements that represent the population. (Bougie and Sekaran ,2010) Sampling techniques can be divided into two broad categories, that is, probability and non-probability sampling (Marsden and Wright ,2010). Probability sampling is distinguished by the fact that each population element has a known chance of being included in the sample. In contrast to non-probability sampling, the basic principle that distinguishes probability sampling from non-probability sampling is the condition that each element in the population is given a nonzero probability of being selected into the sample (Marsden and Wright, 2010).

Lavrakas (2008 a), acknowledges that non probability sampling is useful in situations where it is difficult to define the population, or in circumstances where little or no interest exists in making inferences of sample to the population. The most familiar motivation for make use of non-probability sampling is its cost effectiveness and timeliness, that is, it is less expensive and can be implemented quicker than the probability sampling.

Non probability sampling is frequently split into three major categories:

(1) quota sampling,

(2) purposive sampling, and

(3) convenience sampling. For the purpose of this research the researcher chose purposive sampling also known as judgement sampling or expert sampling. Purposive sampling is ideally used for small sample within a limited geographical area or when there are restrictions on population definition or at times when it is necessary to reach small but specialised group where making population inferences is not a priority.

**Step 1.** Defining the population – the researcher has chosen the large manufacturing companies in Khartoum the managers of the industrial companies as the population size because they are involved in the supply management and strategy and its

implementation. The research participants of this research were senior managerial staff(CEO,GM) and Supply Chain, procurement, logistic, distribution Management practitioners, who were working in different industries – by very nature they were suitable candidates for purposive sampling survey.

**Step 2.** Determining the sample frame – the sample was drawn from the published register of manufacturing companies..

**Step 3.** Determining the sample design – Probability and non-probability sampling. The researcher chose non probability sampling for this research because of inaccuracy of industrial companies data and major official sample surveys of businesses use convenience selection, because of severe problems in getting respondent cooperation. Doherty, M. (1994) also it is cost effective and for its timeliness i.e. it can be implemented quicker than the probability sampling.

**Step 4.** Determining the appropriate sample size – factors, such as, the research objectives, the precision desired, the acceptable level of risk in determining the level of precision, the variability of the population, the costs and the time constraints and the possible size of the population were taken into consideration when determining the sample size. (Bougie and Sekaran (2010) indicated that for generalizability the sample size and the sample design must be representative of the sample. Even if the sample size is large, inappropriate sample design does not compensate to allow generalisation of the population. This is also true, unless the sample size is large and satisfactory and meets the desired precision level it cannot be a useful tool for the research – i.e. meeting the objective of the research. Therefor the study select (289) respondents based the numbers of manufacturing through the equation  $(1166/\{(1943-1)(.05)^2\})$

#### **4.5 Quantitative data collection method**

Quantitative data collection involves gathering numerical data using structured questionnaires or observation guide to collect primary data from individuals. The collected data may be a combination of beliefs, opinions, attitudes and lifestyle to

general background information, such as, age, gender, education and income. Business researchers often refer to quantitative data collection as survey research. Hair et al. (2007) define the survey research methods as the research procedures used for gathering huge amount of unprocessed statistics by question and answer.

#### **4.6. Measurements of the Variables**

##### **4.6.1 Supply chain orientation**

SCO operationalized as to build and maintain a culture and philosophy that supports relationships with supply chain partners (Min & Mentzer, 2004). Mio Čević And Dedi Č (2012) a recognition by a company of systematic, strategic implications of the activities and processes involved in managing the various flows in supply chain SCO can also be considered as an organizational capability which aims to recognize the systemic and strategic implications of operative activities enrolled in managing various value flows in the supply chain (Mentzer et al, 2001) Supply chain orientation (SCO) is the implementation of the SCM philosophy (Min&Mentzer, 2004). SCO consists of two distinct, yet interdependent, elements (Esper, Defee, &Mentzer, 2010).

Strategic SCO is integrating an SCM philosophy into the firm's strategy development, and reflects the extent to which top managers' decisions and strategic direction incorporate an SCM philosophy

##### **4.6.2 Top management support measurement**

The support from top managers of an organization, such as the chief executive officer (CEO) or chief operating officer (COO), has been shown to be important to the success of SCM initiatives (Mentzer et al., 2001; Min & Mentzer, 2004 Because top managers play a critical role in shaping the organization's values, orientations, resource allocation, and direction, Patel, Azadegan and Ellram, (2013) The company's top management must support the struggle towards SCM. To carry out the change needed for SCM, there is definitely a need for top management and senior management support the measurement of top management support in this study will be five items evaluating on seven-point Likert scale (where 1 = strongly disagree and 7 = strongly agree)

Table 4.3 Top management support measurement items

	Items	Source
1	Top managers repeatedly tell employees that this business unit's survival depends on its adapting to supply chain management	Patel, Azadegan and Ellram, 2013
2	Top managers repeatedly tell employees that building, maintaining, and enhancing long-term relationships with our supply chain members are critical to this business unit's success	
3	Top managers repeatedly tell employees that sharing valuable strategic /tactical information with our supply chain members is critical to this business unit's success	
4	Top managers repeatedly tell employees that sharing risk and rewards with our supply chain partners is critical to this business unit's success.	
5	Top management offers various education opportunities about supply chain management to line employees	

#### 4.6.3 Organizational Compatibility measurement

It is important that the cultures in the organisations are compatible. Cultural aspects are important for the collaboration Barratt, (2004) Supply chain partners must align regarding their business culture, operating philosophies, goals, and objectives in order to be effective (Bucklin & Sengupta,1989). As an example, Cooper et al. noted that it would be hard to align a firm with a top-down management philosophy with one that had a bottom-up management style. The measurement of the this study will be four items evaluating on seven-point Likert scale (where 1 = strongly disagree and 7 = strongly agree) adapted from

Table4.4 Organizational Compatibility measurement items

	Items	Source
1	Our business unit's goals and objectives are consistent with those of our supply chain members.	Tucker 2011
2	Our CEO and the CEOs of our supply chain members have similar operating philosophies	
3	Our executives have a management style similar to that of key supply chain members	
4	Our business with partner o facilitate the joint work	



#### 4.6.4 Commitment measurement

Relationships between buyers and major product suppliers seem particularly conducive to developing strong affective influences. Stanko, Bonner and Calantone(2007). Commitment operationalized as desire to continue the relationship, willingness to make short-term sacrifices, confidence in the stability of the relationship, and investments in the relationship Commitment leads to a long-term relationship among organizations. Commitment of resources is also needed in order to achieve goals The measurement of the this study will be four items evaluating on seven-point Likert scale (where 1 = strongly disagree and 7 = strongly agree)

Table 4.5 Commitment measurement items

	Items	Source
1	We work hard to preserve relationships with key supply chain members	Tucker, 2011
2	The continuity of our relationships with key supply chain members is very important to us	
3	We expect our relationships with key supply chain members to last for a long time	
4	It is important to maintain strong relationships with key supply chain members	

#### 4.6.5 Cooperative Norms measurement

Cooperative Norms Normally developed when relationship is forming, providing guidelines and standards of conduct and allowing trading partners to set ground rules for future exchange , therefor cooperative norms serve as inter organizational governance mechanism. Cai and Yang (2008). Cooperative norms refer to the attitude and behaviors parties have in working cooperatively to gather to achieve mutual goals, accordingly the parties must work co-operate in order to success.(Zuzel and Zabkar (2006) The measurement in this study will be six items evaluating on seven -point scale (where 1 = strongly disagree and 7 = strongly agree )

the measurement of cooperative Norms in this study will be four items evaluating on seven -point Likert scale (where 1 = strongly disagree and 7 = strongly agree)

Table 4.6 Cooperative Norms measurement items

		Source
1	Our business unit is willing to make cooperative changes with our supply chain members.	Woo,2011
2	We believe our supply chain members must work together to be successful.	
3	We view our supply chain as a value added piece of our business	
4	Belief in supply chain as a valuable part of the business	

**4.6.6 Benevolence measurement**

benevolence as extra contractual behaviors of a firm (giving party) that help another firm (receiving party) for the purpose of enhancing the well-being of the receiving party (Jin Lee, et al., 2004). Benevolence involves the giving party showing consideration and sensitivity to the needs and interests of the receiving party, acting in the way that protects these interests, and refraining from exploiting the receiving party (Atuahene-Gima and Li 2002).therefor Benevolent partners tend to take actions to enhance the well-being of their partners The measurement in this study will be four items evaluating on seven -point scale (where 1 = strongly disagree and 7 = strongly agree ) table 4.7 Benevolence measurement items

		Source
1	When making important decisions, our supply chain members are concerned about our welfare.	Woo.2011
2	When we share our problems with our supply chain members, we know they will respond with understanding.	
3	In the future we can count on our supply chain members to consider how their decisions and actions will affect us.	
4	When it comes to things that are important to us, we can depend on our supply chain members' support	

**4.6.7 Creditability measurement:**

A firms belief that its partner stands by its word, fulfills promised role obligations, and is sincere. In order for firms to truly trust their supply chain partners, that partner must demonstrate an expertise within their field and be a reliable source of knowledge to their upstream and downstream partners (Ganesan, 1994). The mutual

reliability of each partner in a relationship where each member may assume information provided is truthful and decisions and actions will not exploit the interests of the partner organizations for the member's own gain the measurement of this study will be seven items evaluating on seven-point scale (strongly disagree 1 = and 7 = strongly agree ) adapted from

Table 4.8 Creditability measurement items

	item	Source
1	Promises made to our supply chain members by our business unit are reliable.	Fugate et al. 2010
2	Our business unit is knowledgeable regarding our products and/or services when we are doing business with our supply chain members	
3	Our business unit does not make false claims to our supply chain members.	
4	Our business unit is open in dealing with our supply chain members.	

#### 4.6.8 Value Co-creation measurement

is a joint collaborative activity by parties involved in direct interactions, aiming to contribute to the value that emerges for one or both parties. (Gronroos, 2012, p.1523) Lengnick-Hall (1996) identified four roles of customers: resource, worker (co-producer), buyer and beneficiary (user). Customer relationships that co-create value by focusing on key seller–customer interactions as the locus of value creation. The measurement in this study will be six items evaluating on six -point scale (where 1 = strongly disagree and 7 = strongly agree )

Table 4.9 Value Co-creation measurement items

	item	Source
1	We interact with key customers to serve them better	Chuang 2016
2	We work together with key customer to produce offers that mobilize them	
3	We interact with key customers to design offers that meet their needs	
4	We provide products for and in conjunction with key customers	
5	We co-opt key customer involvement in providing products for them	
6	We help key customers to get more value	

#### 4.6.9 Locus of interaction measurement

facilitate exchange partners to engage in value creation initiatives to help the economic exchange (Chuang, 2016) imply that all points of specific customer–seller interactions are critical for creating value. Because multiple points of interaction can exist anywhere in the relationship ( Navarro et al., 2014) thus The relational perspective posits that high-volume exchange between partners increases the potential to yield additional relational rents through governance mechanisms,the locus of interaction measured through: sharing information, voluntary behavior, advices. The measurement in this study will be five items evaluating on five -point scale (where 1 = strongly disagree and 7 = strongly agree )

Table 4.10 Locus of interaction measurement

		Source
1	They have more useful information than us.	Zhang, 2010
2	The partner convinced us that it made sense to follow their suggestions	
3	The partner's business expertise enabled them to give us proper suggestions	
4	We usually got good advice from this partner.	
5	This partner did what we anticipated because we had largely congruent business philosophies	

#### 4.6.10 Business Adaptiveness

#### 4.6.11 Strategic Adaptiveness measurement:

Adaptability focuses on proactive behaviours, rather than simply being limited in a conceptual sense to reactive behaviours. Thus, strategic adaptability is regarded as a source of competitiveness and success (Tuominen, Rajala, & M€oller, 2004).

This approach measure the adaptability that an organization’s ability to adapt is essential for its survival and renewal process. Organizations are confronted with the question of how resources need to be configured for effective responses to strategic surprises (Ratanapomsiri, 2003)

in this study will use seven items evaluating on five-point Likert scale (where 1 = strongly disagree and 7 = strongly agree) .

Table 4.11 Strategic Adaptiveness measurement items

		Source
1	Adapting to changes in the business environment of your company	Homburg, p.workman ,Jensen 2002-
2	Adapting to changes in the	
3	Exploiting quickly the new opportunities	
4	Firm strategies cannot be predicted based on past actions	
5	Constantly work to create options for growth in multiple technological areas.	

#### 4.6.12 Marketing Adaptiveness measurement

Marketing adaptiveness is the firms' success in responding over time to changing conditions and opportunities in the environment. In the markets with high competition, it is impossible to find industries that can avoid periodical innovation and survive by not going in the flow of the market dynamics ( Polat, and Akgün, 2015). Those which can act fast and be flexible at the right time and also those are able to adapt marketing strategies are the leaders of the markets dynamics ( Polat, and Akgün, 2015). Those organizations can keep their market approach up to date and they use different tools each time. In this regard, examination (Akgün, Keskin, Byrne, and Ilhan, 2014; Pulakos )

Table 4.12 Marketing Adaptiveness measurement items

		Source
1	Adapting your marketing strategy adequately to changes in the business environment of your business unit	Brečić, Simintiras 2016 , Mohsen and Eng 2016
2	Adapting your marketing strategy adequately to changes in competitors' marketing strategies	
3	Adapting your products quickly to the changing needs of customers	
4	We react quickly to market threats	

### 3.6.13 Operational Adaptiveness measurement

Capability that facilitates a quicker reaction to changes in supply and demand (Merschmann and Thonemann 2011). It allows firms to meet their end customers' requirements speedily through. strategic adaptiveness is also associated with high investment- and opportunity costs (e.g., Bowman and Hurry, 1993). Organizations that overemphasize strategic flexibility may forego other opportunities, such as deriving benefits from economies of scale or operational excellence flexibility and efficiency, quality, delivery, flexibility, and costs (Kristal et al., 2010), Operational adaptiveness measures as speed of quickness (degree of responsiveness) in this study will use six items evaluating on five-point Likert scale (where 1 = strongly disagree and 7 = strongly agree).

Table 4.13 Operational Adaptiveness measurement items

		Source
1	Adapting your operation to Reduce manufacturing lead-times	Gligor,2014
2	Adapting your operation to Reduce product development cycle time	
3	Adapting your operation to Increase frequency of new product introductions	
4	Adapting your operation to Increase level of customization	
5	Adapting your operation to Adjust worldwide delivery capacity/capability	
6	Adapting your operation to Improve responsiveness to changing market needs.	

### 4.7. Designing and developing questionnaire

According to Tharenou et al., (2007 p164) a well-constructed and applied questionnaire should be able to gather data to enable the measurement of the relationship between variables. Three fundamental considerations need to be taken into account to have a properly designed and applied questionnaire. First, it should be clear what the scale (questionnaire) should measure. Secondly, the designing of the measuring instrument should be informed by the application of a theoretical basis to develop the items. Finally, the designed questionnaire should measure the developed model's criteria as the mechanism for eliciting respondents' views, beliefs and attitudes. Maylor and Blackmon, (2005) said that survey is useful technique to capture the truth, opinions, behaviors from the respondents. There are various types of survey methods as follow:

First: there are two main streams of questionnaire: self administrated and interviewer administrated the main different between two methods 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 most common techniques usually is used in all types of business studies (mayor and Blackmon.2005).

This method enable researchers to get more freedom and flexibility to collect more data and information ( Bryman and Bell, 2007). Although, this method consumes time and cost an effort but it ensure the accuracy truth .The measurement questions (items), which were essential for the study, were based on a seven point Likert-Scale

This study questionnaire will contain four divisions as follow:

- 1) Respondent data
- 2) company profile

- 3) supply chain orientation
- 4) value co-creation
- 5) business adaptiveness
- 6) locus of interaction

### **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 then to English language again.

The study questionnaires distributed to manufacturers. The English version was first developed and then translated into Arabic, and then back-translated into English. The back-translated English version was further checked against the original English version. Some questions were reworded accordingly to improve the accuracy of the translation.

Some final refinement of the questionnaire was made based on their feedback.

### **Step 3: question warding**

This step examines whether the questions are clearly understand 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 question beside the phrasing and length of question, it is also designed to solicit idea and answers from target respondents. Sample statement was used so that the



questionnaire could be easily understood. Answering the questionnaire was estimated to take approximately ten to fifteen minutes

#### **Step 4: Sequence and layout Designs**

This step concerns the sequence and flow of the statements for achieving the respondent's 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**

An obvious prerequisite for properly carried out survey research is that the respondents must understand and interpret the questionnaire in the same way as the researcher. Even if the researcher has a perfect understanding of the content and knows exactly how it should be analysed, the answers can be useless if the respondents interpret the questions in a different manner. To avoid this, the questionnaire was tested on senior colleagues at the logistics division.

This step involves conducting a pilot test on the questionnaire to ensure that the questions meet the researcher's 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 scales adopted in this study.

#### **4.8 The pilot**

Above all these colleagues looked for important questions that were not in the questionnaire and for readability, i.e. how difficult/easy it was to understand the questions. Thereafter the questionnaire was further developed using their opinions. As a final step before sending the questionnaire, three managers at Sudanese manufacturing firms (which is the chosen population for the study) were contacted as a final test. These people were asked for their opinions on the readability of the questions and how possible it would be to answer them.

30 supply, operations, marketing managers in selected large manufacturing firms working in Khartoum state were agreed to answer the questionnaire as pre-test sample. The answers to the questions given by the 30 respondents then were used to pre-test the questionnaire for reliability of the measures. Since the questionnaire of this study is contain many items and sophisticated, , this number of respondents is sufficient for pre-test of the questionnaire for reliability ( Aaker et al., 2007, p.247). Consequently, Cronbach's Alpha coefficient values were calculated for each of the variables of the study because is an adequate test of internal consistency reliability (Sekaran, 2003).

Table 4.1  
Reliability Test for the pilot sample

<b>Variables</b>	<b>Cronbach's alpha</b>
Top management Support	<b>0.852</b>
Organizational compatibility	<b>0.916</b>
Commitment	<b>0.872</b>
Cooperative Norms	<b>0.890</b>
Benevolence	<b>0.808</b>
credibility	<b>0.907</b>
Strategic Adaptiveness	<b>0.923</b>
Operational Adaptiveness	<b>0.901</b>
Marketing Adaptiveness	<b>0.932</b>
Value C-creation	<b>0.918</b>
Locus of interaction	<b>0.883</b>

#### **4.10. Survey Administration**

Personal questionnaire is the best way to collect data. The major advantage is that, 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 first part of the questionnaire which explains the objective of the study and ensured the confidentiality of the information a total of (290) personal questionnaires will distribute to respondents

#### **4.9 Data Analysis Techniques**

To analyze the data and test the hypotheses, several statistical tools were used. Statistical Package for Social Science (SPSS) AMOS Version 23 was used with the following techniques:

1. Exploratory Factor analysis EFA, “one seeks to describe and summarize data by grouping together variables that are correlated. The purpose of performing an EFA on the SCO measurement items is to determine if SCO is indeed made up of eight factors or if there is a more parsimonious way of establishing SCO. EFA will use traditional correlation-matrix derived statistics to find the underlying structure. As described in the previous section, factors form around correlated data. To measure the degree of intercorrelation between the data, two statistical techniques—Bartlett’s test of sphericity and Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy (MSA)—were applied to the correlation matrix of the data.
2. Confirmatory factor analysis: is concerned with the extent to which the observed variables are generated by the underlying latent constructs, and thus the strengths of the regression paths from the latent variables to the observed variables are of primary interest. CFA will use SEM-based methods to confirm the nature of the factors found. Additionally, CFA “is a much more sophisticated technique used in the advanced stages of the research process to test a theory about latent processes” and will allow for the testing of the hypotheses (Tabachnick and Fidell, 2007, p. 609). The CFA will begin with an examination of the unidimensionality of the components of the model. Once unidimensionality is established, the reliability of each factor will be tested using Cronbach’s alpha as its criteria. Reliability will be further tested through construct reliability (CR).
2. Cronbach alpha (1951) alpha which is the most commonly used technique. For the technique using Cronbach’s alpha, generally scales achieving an alpha score over 0.7 are considered reliable to measure the internal consistency.
3. Descriptive statistics was used to describe the respondent’s characteristics.

4. Person correlation was used to see the degree of correlation between the variables
5. Multiple Linear Regression was used to test the hypothesis.
6. Structural equation modeling SEM is a statistical methodology that takes a confirmatory approach to the analysis of a structural theory (Byrne 2001). Although SEM does not refer to a single statistical technique and has a variety of functions, this primarily enables a researcher to examine a complex model that comprises multiple causal relationships incorporating both unobserved and observed variables. Hair *et al.* (2010) demonstrate that the main characteristics of SEM are that it is able (1) to estimate the multiple and interrelated dependence relationships and (2) to represent unobserved concepts which are termed as constructs, latent variables and factors, in these relationships, and (3) to account for measurement error in the estimation process.

#### **4.10 Summary of the Chapter**

The present chapter contained the research design, philosophy, methodology( cross sectional) of the study, The population of the study was the large sudanese manufacturing companies. The measurement of the variables were adopted from previous studies used measurements. The data mainly gathered by questionnaire sent to supply chain, logistic procure, warehouse, marketing general manager, or director, or CEOS. The data were analyzed BY using a numbers of statistical techniques,Factor analysis, descriptive ,Reliability, SEM, Path analysis.

The next chapter presents the research findings