

# The mediating Role of Value Co-creation on the Relationship between Structural supply chain orientation and Marketing Adaptiveness: A Structural Equitation Model

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**Abstract -** *The success of the supply chain depends upon the ability to adjust the interests of various stakeholders of the supply chain members, which is has become a necessity to maintain a competitive advantage in a dynamic environment. SCO affects not only the single firm performance within the supply chain but also the overall performance of the supply chain. Drawing on RBV this study seek to investigate the mediating effect of value co-creation on the relationship between Structural Supply chain orientation and marketing adaptiveness of industrial firms in sudan. the study collected a data from non probability sample of 180 manufacturing firms, This study applies structural equation modelling (SEM) method for data analysis using The result indicates. That both Cooperative Norms and value co-creation significantly contribute to the marketing adaptiveness , also credibility have significance effect on value co-creation . The finding also suggests that value co-creation partially mediates the relationship between structural supply chain orientation(credibility) and marketing adaptiveness. Moreover industrial firms can more adaptability in marketing by maintaining and developing cooperative norms and participating partners in the process of creating value.*

**Key Words -** *Supply chain orientation, Structural SCO, Value co-creation, marketing adaptiveness*

## 1. Introduction

The phenomenon of change is dominating the proceedings of industries with its intensity been further

aggravated by progressive globalization and accelerated technology development. In fact, such has been the intensity of change in today's business environment that it can be best described as being in a chronic state of flux [1],[ 2].

Consequently, firms face ever more complexity and increased in their competition fields. As such, managers are facing considerable challenges when leading and responding to external change. Influential early work on strategic flexibility [3] emphasised the need for flexibility within high technology settings because managers were facing relatively unique challenges of dealing with continuous dynamic change at the time. [4] noted that there is a gap between organizations and the market in which increasing the complexity, the burden of information, and speed of change. Due to the , organizations limited capacity to understand and overcome these realities in place [5] hence, for keeping competitive positioning, beside observing and responding efficiently and quickly customer needs, marketing adaptability is more crucial for success and survival of organization in rapidly changing business environment[6].

[7] Announce that One of the most significant drivers for current management practice is the need to better understand adaptability, for Achieving this critical role it requires a close and collaborative relationship between a buyer and supplier. In other words, the higher the degree of dependence, the higher the firm's motivation to maintain collaboration [8], [9]on other hand the internal behaviors, patterns and culture which is Represented in Supply chain orientation (Structural orientation) as a strategic capability that enable firms to create socially complex, difficult to imitate networks which allow firms the opportunity to involve members of their supply chain in collaborative relationships [10]. These have greater potential to improve performance [11], [12]; [13],[14]. In addition [7] explained that achieving adaptability

including the internal environment, external environment; and are balanced with both the internal and external environment. Thus commitment and cooperative norms in buyer-supplier relationships lead to build long-term goals for joint business interest [15] also organizational compatibility resulting in ensure successful joint efforts [16] SCO and consequently develop the level of flexibility needed to respond to their customers' unique requirements. [17] supply oriented companies show the best results on performance and they should invest in adaptability of (marketing, product, delivery flexibility) [18]

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 the firm's ability to align with change [19] in addition [20] contend that strategic Supply chain orientation work as trigger of reconfigurations which considered as a dynamic capability describing the process of changing existing configurations of resources into new ones that match the changing environment.

The area of relationship between Structural supply chain orientation and marketing adaptiveness have very limited empirical work, but Empirical work on effects of SCO on performance generally announced by several authors [17], [21], [22],[23], [24] beside that there is a little previous studies investigates the supply chain orientation and symptoms of marketing adaptiveness, such as (product delivery) [25].

[26] argue that the benefit from implementing an SCM philosophy through strategic SCO and structural SCO has not been empirically tested. Moreover, the effects of SCO on different dimensions of performance have not been investigated, thus this relationship suffers from a "black box" challenge. Therefore value co-creation introduced as mediator in past work [27], [28] [29] value co-creation has been used as mediator and significant effect was founded. The findings confirm that joint value creation with customers is a critical mediator enabling the conversion of firm's capabilities into superior outcome in terms of customer value

Moreover the relationship between value co-creation and marketing adaptiveness, slightly been tested most of previous investigation focused on the effect of value co-creation on different variables (e.g. customer satisfaction, sales performance, customer perception, brand community...) [30], [31]; [32] [33] although of these rareness there are many evidence for the significance role of value co-creation on response to the marketing change where the studies indicate that value co-creation increase the intensity of communication between the focal firm and its network partners with particular emphasis on the frequency and depth of communication reduces the complexity and uncertainty; thereby enhancing responsiveness. While responsiveness, Satisfaction and sales performance/growth are critical dimensions for marketing adaptability [34],[35] therefore based and the fewness of the empirical evidence in this relationship this study aim to fill the by investigate the mediating effect of

Value co-creation on the relationship between Structural SCO and Marketing adaptiveness.

## 2.0 Literature Review

During the past decade Supply chain orientation SCO has become an area of [36] interest as a result of considering SCO a prerequisite to firm's effectiveness and performance. and the implementation of SCO by any supply chain member leads to organisational changes of the upstream and downstream players, influencing the whole performance that connects various supply chain activities. [24] Supply chain orientation (SCO) refers to the implementation by an organization of the systemic, strategic implications of the tactical activities involved in the management of goods, services and information flow in a supply chain" [37, p. 63].

From the structural perspective, SCO can be cited as building and maintaining internal behavioural elements that facilitate relational exchange [39]. In this regard many authors, [37], Patel, [26], [38] shed light on the behavioural dimensions, organizational compatibility, cooperative norms and credibility of SCO. In a similar vein, [10] suggest that supply chain-oriented organizations should exhibit the attributes of trust, cooperation, and compatibility with supply chain. This type of inter-organizational trust, cooperation and benevolence helps the supply chain members to reduce uncertainty in the network ([40],[41], [42]) the following section present the literature of Structural supply chain in term of :

### 2.1 Benevolence

Benevolence, which reflects one party's concerns for the outcomes received by another party in the relationship. [43]. [44] Benevolence is described in a number of research studies as the belief that a firm's supply chain partners are involved in and responsible for the actions necessary to create a successfully-run organization [43]. A supply chain partner's willingness to accept the possibility of short-run risks is another aspect of a firm's belief of a supply chain partner's benevolence [45]. In addition, according to [43], a supply chain partner "will not take unexpected actions that would have a negative impact on the firm." Benevolence can also be attained by grading the past performance of a supply chain partner. According to [47] a firm's satisfaction with past outcomes is positively related to the perception of a supply chain partner's benevolence.

A review of benevolence definitions indicates that there are two different types of benevolence depending on the underlying motive, namely, mutualistic and altruistic benevolence.

**2.1.1 Mutualistic** benevolence: defined the degree to which one party is genuinely interested in the other's well being and seeks joint gain" [48. p. 36].

**2.1.2 Altruistic** benevolence: defined the extent to which a trustee is believed to want to do good to the trustor, aside from an egocentric motive" [48]. Another point of view reveal that components of benevolence – affective, calculative, and normative benevolence – each having different antecedents arising from the other firm's behaviors and having different impacts on attitudes

towards the other firm. The categorization of benevolence into three components arises from distinct reasons for benevolence. Benevolence may be based on emotions, cognitive evaluations, or institutions [43].

### **2.2 Cooperative Norms**

Cooperative norms refer to the perception of joint efforts of supply chain members to work toward mutual goals [49]. [50] describe cooperative norms as “the reflection of expectations between two parties when working together to achieve mutual and individual goals jointly in other word its shared beliefs and expectations of cooperation between two parties. Such norms essentially prescribe stewardship behaviors that serve to enhance the well-being of the relationship. Also The concept of cooperative norms is another behavioral element discussed by ([44]. These expected patterns of behavior provide a framework for procedural guidelines for how the organizations will work together toward a common goal in the future [51]. Cooperative norms are integral in creating working procedures for how organizations will manage problems as well as how they will share rewards. Establishing these cooperative norms relieves the potential for risk when building a relationship between supply chain partners.

Another perspective by [52] discussed cooperative norms from perspective of The ability to easily share information due to modern technology fostered the thought that organizations could work collaboratively. [53] However cooperative norms has been considered, as a major component of relational capital, could foster cooperative behaviors, such as flexibility, solidarity, and information exchange. In other words, cooperative norms help to establish inter-organizational mechanisms that promote resource exchanges [54].

### **2.3 Credibility**

credibility as a multidimensional concept and some authors argue that credibility is overlapped with of trust when total view and may be regarded as a “subclass of trust because it comprising the perceiver’s assessment of the communicator’s relevant knowledge, honesty and positive intentions towards the perceiver [55] Credibility reflects the extent to which a firm believes their relationship partner has the expertise to perform effectively.

[56 p.7] contend that credibility is the “believability of an organisation’s intentions at a particular moment in time”. [47] in other hand firm’s belief that its partner stands by its word, fulfills promised role obligations, and is sincere [37]

### **2.4 Marketing adaptiveness**

Adaptability has been broadly accepted as a main factor to respond to environmental change, which provides contribution to achievement and survival of organizations when they face marketing competition [57]. adaptability is related to several functional areas such as operations, management-maintaining excess capacity, flexible manufacturing equipment processes, management having a decentralized decision-making system, -strategic adaptability, overcoming inertia, marketing-participation in multiple product markets . [58]. This marketing

adaptability is ability of firms responds to the changing of the environment in current markets that are hypercompetitive and fast-moving [59]. [60] indicate that marketing adaptability also enhances the ability of an organization to rearrange resources quickly in response to change in Customer needs that continually growing and changing in excessive competitive environment. Firms should sense and respond these market changes much more quickly than competitors to create competitive advantage [61].

Adaptive marketing encompassed many forms such as the implementing new ideas, modifying an existing product attributes to meet changes in customer demand, amending or developing existing products and services to enter new markets [62]. Adaptive marketing manifested as firm’s ability to identify and capitalize on emerging market opportunities, and the development of adaptive capability is often accompanied by the evolution of organizational forms [4],[63] Adaptive marketing not only allows organizations to meet current demand by using existing sources, it also lets them to quickly adapt to changing environment Adaptive marketing capabilities is based on marketing activities and speed for responding to product/market opportunities , moreover as marketing capabilities improve, firms require building more interaction with the outside environment in order to acquire significant information and employ it to offer unique value-added products, superior quality, and innovative features to the customer. In particular, the contact between an organization and its customers is a great opportunity to learn more about the need and behavior of customers and to build and maintain the relationship with them. As such, the firm’s contact with a customer tends to provide this information which is product and service quality for responding to customer needs.[64]

In sum the marketing adaptiveness represents the main feature of participative marketing model that link to three elements, including adaptability of participation, adaptability of interaction, and adaptability of execution. thus based on the previous research work marketing adaptiveness considered as one of business adaptiveness. Construct. the next section provide a insight literature about Value co-creation.

### **2.5 Value co-creation**

In current dynamic and customer-driven environments, value co-creation is particularly crucial for business success [65],the value co-creation describe by customers and businesses, as a new method businesses can rely on to create value for future competitiveness. Through shifting the innovation process from a firm-centric activity to an interactive process of mutual learning with customers, firms gain access to external knowledge resources that supplement the firm’s internal value creation capabilities and create benefits for both parties [66],[67] value co-creation have various perspectives and has been conceptualized according these perspectives(e.g. processes perspective, The actors’ perspective), a processes perspective on how customers engage in value creation, stressing the importance of interaction, The process of value co-creation is acomposed course of action such that

resources are used and activities are performed by the supplier, the customer and by both parties in interaction (supplier– customer).while actors' perspective calls for "re-casting customer and supplier roles in value co-creation." In analysing value co-creation,[68] thus value co-creation refers to 'a joint collaborative activity by parties involved in direct interactions, aiming to contribute to the value that emerges for one or both parties. [68] in a business relationship, an extended service offering is an interactive process include several sub-processes and resources supporting corresponding customer practices in a way that helps the customer create value in all its practices (operational efficiency), and through this ultimately has a value-creating impact on the (business effectiveness). In addition , value co-creation is a concern not only for the supplier but also for the customer. This process depends on their involvement and is related to the management of all processes in terms of resources and practices [69].

## 2.6 The relationship between Structural SCO and Marketing adaptiveness

Drawing on the resource-based view [70] mentioned that a culture as an intangible strategic resource that can be developed by interaction and cooperation among supply chain members consequently Culture provides supply chain members with a pattern of shared values and beliefs that assert the importance of certain elements (and omit others) and drive the chain's approach to the marketplace. on the other hand, In a level of supply chain operations when combining tangible and intangible resources to meet changing market demand [71]. [20] argues that reconfiguration as a capability has been connected to the appropriateness responsiveness [72] and efficiency by which existing resources are re-shaped by business and supply chain operatives into new operational competencies therefor Supply chains seeking to improve outcomes from innovating need to possess the ability to adopt and implement the innovation across key supply chain operatives and customers. thus structural SCO(Cooperative norms, Benevolence, Credibility) as an internal culture can contribute to market adaptability by supporting internal culture of partnership through different kind of response. Also with reference to the framework there is a positive *relationship between Structural SCO and value co-creation* :

The co-creation of value derived from a complex configurations of resources and competences and all participants contribute to the creation of value for themselves and for others [73]. [22] According to this perspective, SCO is considered as more emphasized on networking involved in various processes and activities that create value to the final client. co-create value effectively depends on the resources of others in terms of interdependence, between members contributes positively to both member and chain level innovate value in two

ways: it contributes to expansion of joint resources available to chain members engaged in innovating value, and it enhances the joint chain resources. [74].moreover the relationship between value co-creation and marketing adaptiveness.

As [75]argue that co-creating value helps customers to reduce uncertainty (by the interaction and availability of information about offers, to adapt their needs (e.g. customization of the product such as design, and other features) and to learn from other customers and the firm about its potential advantages (. based on this, it can be proposed that the effect of customer co-creation on a firm's competitive advantage is twofold. From another point of view value creation might help firm [76], on discovering uncovered new market opportunities, creating sustainable competitive barriers, [77], [78]. also the integration of customer into value creating processes support a firm's innovativeness and alignment with market changes .[79], finally the study proposes the mediating effect of value Co-creation on the relationship between Structural SCO and marketing adaptiveness.

in previous literature [27], [28], [29] value co-creation has been used as mediator and significant effect was founded The findings confirm that joint value creation with customers is a critical mediator enabling the conversion of firm's capabilities into superior outcome in terms of customer value , moreover ([28],[80], [81]) 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 alignment with customers.

## 3. RBV and RDT Theory

Resource-Based View, Resource Dependence Theory emphasizes the term "resource" as an important feature within the context of the formulation and implementation of corporate strategy in order to generate persistent competitive advantages [82]. However, unlike the Resource-Based View, Resource Dependence Theory looks at the company from an external perspective [82: 454]. Thus, the dependence of a company on external resources allows it to acquire new businesses, to create co-operations and strategic alliances, and merge with other companies Resource-based view 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 [83]. 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).

[38] 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 [19].

more interactions or negotiations the company undertakes with its external environment, the more assured it will become in response to its access to resources, and the more dependent it becomes on the groups which own the resources it needs [84: 258]. The company is constantly being watched by the external groups which control its resources, and are therefore able to influence the entire resource allocation process [82]

based on the theoretical point of view, this study will develop a testable hypotheses as appear in Figure 4.

#### 4. *Development of Hypotheses*

Ref. [20] argues that reconfiguration as a capability has been connected to the appropriateness, timeliness [72] and efficiency by which existing resources are re-shaped by business and supply chain operatives into new operational competencies [85]. Complementary to this process, especially in changing markets, moreover The collaborative relationship which is considered as capability reflects in an organisational stance which refers to the coordination between units and departments. SCM with its cross-disciplinary nature can potentially be structured into different internal departments, such as distribution, logistics, manufacturing and/or procurement [86].

[87] discussed that Effective supply chain management (SCM) As a consequence of the supply chain orientation can improve a firm's performance through several means including building strong relationships that enhance a firm's ability to respond to its customers more effectively. Developing a stronger orientation can improve a firm's performance because the firm is focusing its efforts on responding and adapting to its market's needs more effectively than its competitors are adapting to the market's needs.

#### **H1. Supply chain orientation positively associate with marketing adaptiveness**

[88], [89] 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[90]. from another perspective Value networks share the SCO's system view because they emphasise the interaction of social and economic actors' value propositions [91] in this study SCO represents a internal culture that seek to align the SCM and marketing. Therefore, It can be hypothesized.

#### **H2. Supply chain orientation positively associate with value co-creation**

In business relationships and networks value co-creation [92], 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 [93] [94],[95] 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 [96]. In the same way [97] 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.

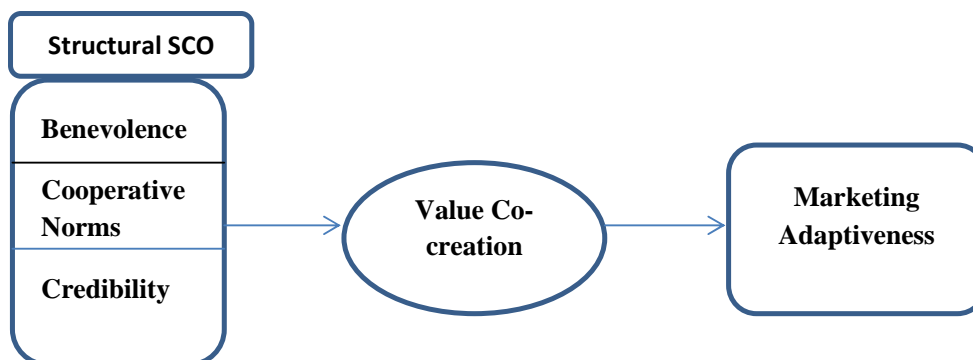


Fig. 1: Conceptual framework

### H3. Value Co-creation Associate with Marketing adaptiveness

Value co-creation in most studies has been tested as independent variable [98]; [99], [100] [101] and also as dependent variable [102];[103]. A little is known about the mediating role of Value co-creation a few studies tested the value co-creation as mediator such [29]; [66] in this study value co-creation proposed to be a mediator . Customer participation allows firms to interact with customers to design offerings that meet unique and changing needs. Further, via supporting systems firms can help customers get more value out of their consumption experiences thereby increasing product performance outcomes [66] Thus, this study hypothesizes that:

H4. Value Co-creation mediate the relationship between Structural SCO and Marketing adaptiveness

## 5. Methodology

### 6.1 Data Collection

A cross-sectional survey was used for data collection from non probability sample consisted of Sudanese manufacturing companies. A 7-point Likert scale

with end points of “strongly disagree” and “strongly agree” was used to measure the items. the questionnaire was developed, based on the measurement of the previous studies in marketing and supply chain, firstly developed in English then back to back translation from English to Arabic was conducted. This procedure guarantees that the English and the Arabic versions of the questionnaire have equal measures. Subsequently, a number of researchers in the same field assessed the correctness and the clearance of questions and measurement items A pilot test was performed on 30 industrial companies operating in Khartoum in various industries. After the pretest, the survey was changed slightly for clarification All constructs were initially operationalised by a set of four or more items the measurement items of SCO adopted from [26], [104] value co-creation adopted from [105] for increasing the response rate All questionnaires , attached with a cover letter, target respondents were executive/senior managers responsible for SCM or related position in their organisations, From the resulting sample size of 210, 195 responses were received, resulting in a response rate of 85.%. A total of 15 were discarded due to incomplete information The final sample included.

Table 1. Respondents’ distribution industry.

| distribution industry |           | Respondents age |           | size (numbers employee) |           | Number of suppliers |           |
|-----------------------|-----------|-----------------|-----------|-------------------------|-----------|---------------------|-----------|
| Industry              | Frequency | Industry        | Frequency | Industry                | Frequency | Industry            | Frequency |
| Food                  | 53        | Less 5year      | 22        | Less 50                 | 54        | Less 5              | 33        |
| Chemicals             | 33        | 5-less10        | 36        | 51-100                  | 41        | 5-10                | 47        |
| Engineering           | 53        | 10 less15       | 40        | 101-200                 | 31        | 10-15               | 19        |
| Print and packaging   | 16        | 15-less20       | 31        | Above200                | 49        | 15-20               | 19        |
| Other                 | 23        | Above20         | 48        |                         |           |                     |           |

The response bias was assessed by comparing the means of the responses in the last quartile of respondents Using this design, a Chi-square and DF of all the variables used in the study revealed significant differences between the groups. So a control test is conducted for the variables (gender, age, job title, company ownership, company size) Employing structural equation modeling (SEM) conducted by using AMOS version 22 for testing the measurement and structural model requires large samples, [106] suggest that a minimum of 100 to 150 observations should be satisfactory. Based on these definitions, The sample of this study satisfy the requirement of using CFA to test the full measurement model simultaneously.

## 6. Analysis and results

The framework is tested by exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) in structural equation modeling (SEM) in order to evaluate the consistency among scale items [107]. In this study, the EFA and CFA are used to test the measurement model of the structural SCO and value co-creation and marketing adaptiveness. For validate the

constructed model the following tools used convergent and discriminant validity, reliability, and common method bias. moreover to test the inter-relationships between the variables , the direct relationship between Structural SCO and marketing adaptiveness, Structural SCO and value co-creation - marketing adaptiveness and the mediating impact of value co-creation on the relationship covariance-based structural equation modeling are investigated. all These tests in detail in the following sections.

### 6.1 Exploratory factor analysis

The results of Structural SCO factor analysis by a principal component analysis. The EFA with varimax rotation was performed for both constructs: SCO and value co-creation and marketing adaptiveness . First, this analysis was applied for SCO. There were 12 items related to SCO, and at the end of the steps 7 items were loaded on Two different factors. Based on the loadings, these factors were named credibility (CRE), cooperative norms (coo),,also . The Cronbach  $\alpha$  values are 0.792,



0.852, and 0.834 for value co-creation and 0.895 for marketing adaptiveness. These values are greater than the threshold value 0.7 [108], therefore all of them are used in this study.

### 6.2 Confirmatory factor analysis

CFA tests the measurement model of variables. Therefore, Structural SCO, Value co-creation and marketing adaptiveness were tested with a first-order confirmatory factor model to evaluate the construct validity. The confirmatory analysis results confirm that structures for SCO Value co-creation and marketing adaptiveness.

The values for the model fit indices  $\chi^2=1262.195$  with  $df=48$ ;  $CFI=0.953$ ;  $CMIN=102.024$ ;  $SRMR=0.051$ ;  $RMSEA=0.083$ .

Testing the correlation conducted by compared the squared correlation between the latent constructs to their average variance extracted (AVE) estimates. based on that discriminant validity exists if the items share more

common variance with their respective construct than any variance the construct shares with the other constructs. Therefore, the correlation between each couple of variables in the model construct have to be less than the AVE of each variable construct. Comparing the correlation coefficients given in Table 1, it can be concluded that none of the squared correlations is greater than the AVE for each variable construct. These output of the test totally indicate as strong evidence of discriminant validity between the theoretical constructs. Reliability was assessed using internal consistency method via Cronbach's alpha [109] All variables and dimensions have a Cronbach's alpha greater than 0.70 (see table 2). This result establishes the reliability of all the theoretical constructs.

Moreover, the AVE values for all dimensions exceed 0.50. Taken together, this results imply that the instrument constructs exhibit good psychometric properties

|                        | CR    | AVE   | MSV   | Max R(H) | Cooperativity | Credibility | Value co-creation | Marketing adaptiveness | Alpha | Mean  | St. deviation |
|------------------------|-------|-------|-------|----------|---------------|-------------|-------------------|------------------------|-------|-------|---------------|
| Cooperative Norms      | 0.688 | 0.735 | 0.332 | 0.258    | 1.0           |             |                   |                        | .792  | 4.537 | 1.135         |
| Credibility            | 0.685 | 0.562 | 0.387 | 0.363    | .504          | .1.0        |                   |                        | .852  | 4.264 | 1.269         |
| Value co-creation      | 0.804 | 0.687 | 0.513 | 0.358    | .587          | .574        | 1.0               |                        | .834  | 5.534 | 1.197         |
| Marketing adaptiveness | 0.700 | 0.747 | 0.513 | 0.384    | .447          | .636        | .588              | 1.0                    | .895  | 5.480 | 1.1354        |

Notes: Recommended thresholds: composite reliability (CR) > 0.7; convergent validity (CR) > average variance extracted (AVE) > 0.5. Discriminant validity: maximum shared squared variance (MSV) < AVE; average shared squared variance (ASV) < AVE

### 6.3 Hypothesis testing

The hypothesized structural equations model (Fig. 2) was tested using LISREL [110], with variance-covariance matrices for the latent variables and residuals used as input. Given the satisfactory measurement results, we used summated scores to measure the model's latent constructs. The use of summated scores reduces the model's complexity, identification problems, and the variable-to-sample ratio [110] In the hypothesized structural model, the measurement coefficients were constrained to one and the corresponding error coefficients were constrained to zero. The model parameters were estimated using the method of maximum likelihood [111].

The hypotheses linking the Structural SCO to marketing adaptiveness were statistically significant and

in the expected directions. Specifically, the paths leading to marketing adaptiveness from: (1) cooperative norms ( $B = .203$ ;  $p < .01$ ); but the relationship between Credibility and marketing adaptiveness not significant (2) ( $b = .162$ ;  $p < .01$ ). Further, significant parameter estimates

The second hypotheses the positively links Structural SCO with Value Co-creation. The parameter estimate for the paths between Cooperative Norms and value co-creation not significant ( $b = .088$ ;  $p < .329$ ); while significant between credibility and value co-creation ( $b = .571$ ;  $p < .000$ ) the four paths linking the value co-creation variables and the marketing adaptiveness constructs, ( $b = .530$ ;  $p < .000$ ) and was found significant

Table (3)

| Hypothesis                | Standardized regression weight | Significance (p<) | Conclusion |
|---------------------------|--------------------------------|-------------------|------------|
| H1.Cop Norms → MR AD      | .203                           | .01               |            |
| H2.Credibility → MR AD    | .162                           | .129              |            |
| H3.Cop Norms → Value co   | .088                           | .329              |            |
| H4.Credibility → Value co | .571                           | ***               |            |
| H5.Value co → MR AD       | .530                           | ***               |            |

Testing indirect effects The result of path coefficient and hypotheses for the impact of mediation variable in Table 3 shows that the impact of structural SCO on marketing adaptiveness through Value co-creation is partial mediation. The mediating effect of value co-creation on the relationship between cooperative norms and

marketing adaptiveness is not significant as seen in table (3) while value co-creation mediate the relationship between credibility and marketing adaptiveness, This means that the relation between structural SCO can directly impact marketing adaptiveness and can also so through the mediation of value co-creation

Table 4:

| Path                           | Lower | Upper | Sig  | Nature of Mediation | Empirical Evidence |               |
|--------------------------------|-------|-------|------|---------------------|--------------------|---------------|
| Cop Norms → Value co → MR AD   | .056  | -.075 | .254 | .385                | full Mediation     | Not Supported |
| Credibility → Value co → MR AD | .149  | .065  | .268 | .001                | full Mediation     | Supported     |

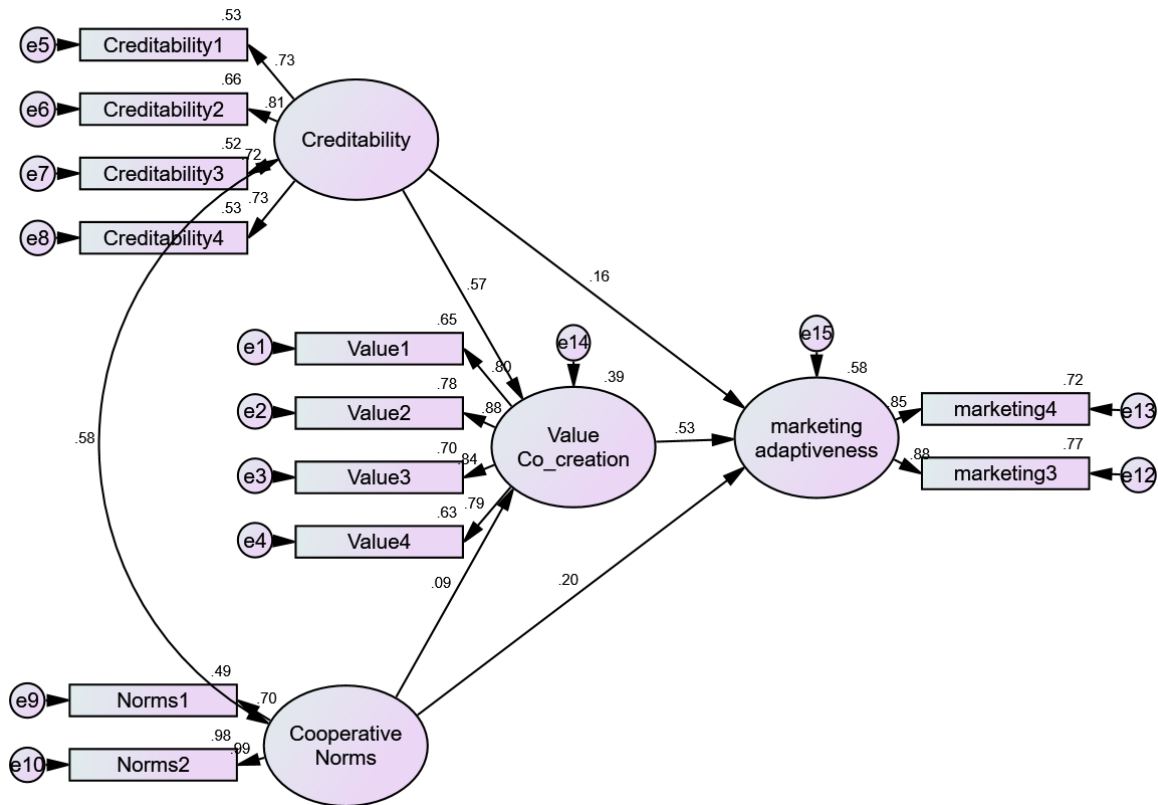


Fig.2



## 7. Discussion

this study focused on testing the mediation effect of Value Co-creation on the relationship between Structural SCO and marketing adaptiveness in Sudanese industrial companies . The overall model results support the conceptualized model.

The results reveal out that Structural SCO partially effect on operational adaptiveness, particularly Credibility not effect on Marketing adaptiveness Credibility is a result, of an organizations strategic choice to establish interorganizational relationships, where the choice is driven by environmental pressures[112]. Those inter-relationships can be understood as a response to environmental changes to obtain collective gains that would be difficult to achieve through individual action [113]. Thus difficulties of buyers to having close relationships with buyers , with a lack of trust in suppliers to keep buyers fully informed of developments that may affect them, with difficulty in making personal friends with salesmen and technicians, and with suppliers not having a good understanding of the problems of buyers. For technical skill, it is associated with lack of high technical competence, and necessary technical information not being readily available from suppliers. It is also associated with products characterized by consistent quality [114].all these Factor associate negatively with the firm marketing adaptability(response to customers, satisfying customers) , Sudanese manufacturing companies facing challenges related to the competencies of disseminating information to the customer and channel to access customers and customer participation which lead to lack of responsiveness to the market . in the same line The results indicate that Cooperative norms positively effect on marketing adaptiveness,

[26] noted that norms provide the partners with the flexibility to cope with inevitable [115] such norms act to institutionalize interorganizational experiences and facilitate efficient transfer of these experiences to new situations thereby enhancing the efficiency by which the firm responds to its environment [116], [117]. [17] Interfirm cooperation is the key to providing a flexible response to customers' needs . This requires members of the supply chain to be linked together as a network. Interfirm cooperation is at the very core of SCO. Supply chain oriented firms recognize the strategic implications of managing the upstream and downstream flows of

products, services, and information [44]. This provides the necessary platform for collaborating with supply chain partners and achieving the desired level of flexibility . also the results found that Credibility positively effect on value Co-creation: This finding shows that co-creation can be accomplished by creating dialog networks and institutionalizing of dialogic communication in corporate social responsibility programs. [118] argue that Value creation can be considered as results or impact of interfirm relationship which is includes (credibility..) also [119] indicate that highly credible sources more positively affect, attitudes, and behavioral intentions.

[120] As previous studies have indicated, the perception toward a medium of communication should be taken into a consideration when contacting partners Less credibility will lead to a lower perception of value,. A firm can acquire the element of credibility by earning a reputation of "fairness" as discussed by [47]. The reputation of fairness is gained by a firm when they engage in reliable and consistent behavior over a period of time. [47]. found that firms who are trusted and viewed as credible by their supply chain partners tend to maintain long-term and collaborated relationships with these partners. In addition the results indicate that Cooperative norms not effect on Value Co-creation: [21] illustrate that Cooperative norms are integral in creating working procedures for how organizations will manage problems as well as how they will share rewards. Establishing these cooperative norms relieves the potential for risk when building a relationship between supply chain partners. management can put directives and incentives to develop cooperative norms, these mainly emerge from complex social processes which the management cannot fully control [120]. Even though, in early relationships, the level of expected relational norms in an exchange can be the result of a calculative process facilitated by transaction attributes like joint transaction-specific investments and observability [120],Cooperation start with jointly planning activities., execution of the activities and ends with the evaluation of these activities so that the benefit of the partnership is realized [122], [123]. However, cooperation is not easily ascertained. According to Morgan and Hunt (1995), cooperation can only be built when firms trust their supply chain partners and are committed to the partnership. Firms with an SCO are more likely to

support business-related actions that promote the benefits of trusting and committed relationships. When cooperation is achieved within a supply chain, benefits such as reduced system-wide inventories and supply chain cost efficiencies can be obtained [123].

The result of empirical investigation found that Value Co-creation positively effect on marketing adaptiveness.

[30] mentioned that Co-creation increases the likelihood of having a higher percentage of new products acceptance and succession, the ability of company to know and meet their customers' needs is based on the working with customers in in one platform this can solve the gap between producers and customers [124]. Because the offer is co-created, it is certain to meet customer needs. Therefore, a rise in co-created offers is supposed to increase customer satisfaction [125]. In addition [126] articulate that the process of co-creation increases the tendency to repeat positive experience on the part of the customer because the firm produce a unique insights into co-creating customers' sources of value Therefore, co-creation represents a source of significant competitive advantage due to increased customer loyalty [127].

Moreover customer engagement in value co-creation and direct consumer interactions dependent on a primary value-creation driver and customer involvement/dialogue type: co-production, firm-driven product/service innovation, customer-driven customization and co-creation Thus co-creation create a continuum, and product/service innovation and the customization[128]. continuing in the same track the study found that value co-creation positively effect on the relationship between Structural SCO and marketing adaptiveness. The results reveal that value co-creation mediate the relationship between credibility and marketing adaptiveness. Previous works on the mediation effect of value co-creation in different context its very little narrow such as [129] 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 [130], [131] and [132] that the value creation in the networking impact on enterprise performance improvement. on the other hand [133] 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 ([133]. Finally the findings indicate that value co-creation have no meditation effect on the relationship between Cooperative norms and marketing adaptiveness. [134] elaborate that value creation in a relationship depends on relationship characteristics such as trust and commitment. [135] also confirm that value creation driven by adaptation, trust, and commitment on value-creating functions, on the other hand value for customer is not solely result of fruitful relationships with customers, but also with suppliers But repercussions of SCO are exceeding the single firm boundaries. If the firm focuses only on one side of the chain (upstream or downstream) the SCO will vanish and the value creation process will fail at some point [136].

Adaptability involves supply chain operatives sensing, or learning, what is required to meet new or changing consumer trends or market demands, the ability be more adapted required more information and participation and unified platform for sharing and creating value with partners [137].thus Sudanese manufacturing companies have less level of cooperative norms and value co-creation as discovered the mean indicators this low level of cooperative norms and value co-creation might resulted in lack of mediation effect.

## 8. Theoretical and Managerial Implication

### 8.1 Theoretical

Conceptually, in this study and based on the EFA, two factors(Credibility and cooperative norms) were found, It can be observed that the most visible factor of Structural SCO in Sudanese industrial companies Indeed, this suggests that the Structural SCO construct could be considered in the future operationalization of Structural SCO in Sudan context . the study extend existing research on the marketing and strategic supply chain and

relationship, In addition to the study contribution by proposing value co-creation in the context of supply chain orientation in. also the present study confirms the notion that Structural SCO will have a strong positive effect on value co-creation and marketing adaptiveness .

This study support call of earlier studies which emphasise on that value co-creation require higher level of cooperative internal culture [138], [139]. Thus, for a firm to support the participation of partners it must endeavour to create a suitable internal culture. Furthermore, the indirect effect of Structural SCO(Credibility ) with the mediating effect of Value co-creation is significant and stronger than its direct impact. Although much Studies has been interested in the effect of Structural SCO on business outcomes or any related kind of performance, this study indicated the importance of value co-creation to detect the impact on marketing adaptiveness.

Specifically, although the supply chain management concept is predicated on both SCO and integration [44]; [140], extant research has yet to explicitly consider the implications of SCO with regards to supply chain integration efforts. The overarching theoretical contribution relating to the role of SCO is demonstrating that SCO is responsible for external integrative behaviors that are unattainable via integrative mechanisms.

### 8.2 Managerial Implication

From a practical perspective, this study provides a number of insights into how firms can more strongly utilize the internal culture (SCO) to improve marketing adaptiveness. specifically, managers can use it to expand their understanding of the role of Structural SCO on value co-creation and marketing adaptiveness and develop specific culture and orientation that help to encourage customer participation in creating value to improve marketing to be more adaptive .

Structural SCO as Culture(in term of cooperative norms) that is fully supportive of participation and and the value they bestow on the firm should lead to high marketing adaptability which are difficult for competitors to replicate and can afford firms a competitive advantage.

Moreover the developed conceptual model of the study provide better highlights the interplay between Structural SCO and value co-creation on influencing marketing adaptiveness.

attaching more importance to value Co-creation, especially, is an important driving factor for marketing adaptiveness. And it is an important factor for firms to turn competitive advantage.

### 8.3 Limitation and Suggestion for future research

As previous studies there are some limitations in this work, which may encourage future research,the study was cross-sectional study

which is provides some evidences about the relationship between Structural SCO and value co-creation and marketing adaptiveness. therefore a longitudinal study would have to be undertaken to assure the effect of Structural SCO and marketing adaptiveness .furthermore this study mainly tested Structural SCO and marketing adaptiveness which may represent a less holistic view for supply chain orientation, future research may consider the other factor supply chain orientation,

The sample included a couple of firm types, a broad range of firm sizes and industries and often They are different in the level of adopting Structural SCO and different level of Co-creation thus future research can test these variables in such specific sector.

This study examined Structural SCO by three dimension (Credibility, Cooperative norm and benevolence) as constructs while some suggestion consider trust as one of dimension of Structural SCO therefor future research can measure trust as part of Structural SCO construct.

In this study, we used marketing adaptiveness measures as unidimensional variable and the level of adaptability of marketing has been measured totally a future research would have to expand the construct of marketing adaptiveness .

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