INTERNATIONAL JOURNAL OF SUSTAINABLE CONSTRUCTION ENGINEERING AND TECHNOLOGY
Vol. 10 No. 2 (2019) 74-84

IJSCET

http://penerbit.uthm.edu.my/ojs/index.php/ijscet
ISSN : 2180-3242 e-ISSN : 2600-7959

International Journal of Sustainable Construction Engineering and Technology

Triad of Supply Chain Orientation, Strategies and Competencies in Construction Industry

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DOI: https://doi.org/10.30880/ijscet.2019.10.02.007
Received 28 April 2019; Accepted 01 December 2019; Available online 31 December 2019

Abstract: Construction sector is considered as the pillar of Pakistan economy development. Numerous researchers have emphasized the role of supply chain orientation and supply chain strategies to uplift the sustainability within supply chains of construction industries. However lack of studies focused on the impact on supply chain orientation in Pakistan. Hence, this article examines the impact of supply chain orientation, supply chain competencies and supply chain competence of Pakistani construction sector. The study adopted the non-probability sampling approach and 183 questionnaires survey data is collected from 75 construction firms in Sindh. The study is applied Partial Least Square-Structural Equation Modelling technique to analysis the collected data. The findings of the study revealed that all the relationships are positive and significant. The supply chain orientation (SCO) with supply chain strategy (SCS) with $p<0.000$, $\beta=0.11$, supply chain orientation (SCO) and supply chain competence (SCC) with $p<0.000$, $\beta=0.34$, SCO having a positive significant effect on SCC with $p<0.000$, $\beta=0.22$, SCS is playing a mediating role between SCO and SCC. It means that SCO improves SCS as result $p<0.000$, $\beta=0.15$ and the relationship of SCS further improves SCC with $p<0.000$, $\beta=0.11$. The result shows that SCO is an important and significant tool in order to increase SCS and SCC. Hence, this study can help to device certain policies to cope up the issues that are the reasons for declining the construction performance.

Keywords: Construction industry, supply chain competency, supply chain orientation, partial least square modelling

1. Introduction

Digitalization and disruptive technologies are changing the business landscape. History demonstrates the truth that nothing is immortal, and even all the competitive advantages are temporary. Despite the fact the world is moving at high speed, each industry has its own pace and moving with different clock speeds (Mubarak, M.F. *et al*., 2019). Likewise, within the boundaries of the organization, resources or capacities are almost always changing; an adjustment plan always exists at different ratios (Mubarik *et al*. 2016). The construction sector is among the growing sectors of Pakistan's economy and plays a pivotal role in the economy of Pakistan (Sohu *et al*., 2017). The strength of this sector depends upon various factors like stable business atmosphere, labor cost advantage, skilled workforce, abundant natural resources, and political stability. Additionally, innovation, productivity, competition, and energy are significant factors to attain a

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sustainable advantage in the construction sector. Among these factors, effectively and efficiently managed supply chain plays a pivotal role in the attainment of sustainable competitive advantage (Shujaat *et al*., 2019). Construction is even more efficient owing to the usage of modern machinery that has made it more productive and profitable. Owing to the above realities, it is indispensable to give supply chain management a central role in the firm's performance. The road to success for business lies in competitive advantage and that can be attained by the help of an efficient supply chain management (SCM). This is a concept that helps firms to develop a highly integrated system in order to get a competitive advantage through segmentation, customization, differentiation and decreasing in cost. Foundation of solid theories and designed strategies are the difference between profit and loss. Most of the time, the discussion focused on defining supply chain management, overshadowing the associated theories liable to maintain the discipline in the entire process. A theory that comes into this group is Supply chain orientation (SCO) and an absolute understanding of SCO leads to the Supply chain competency (SCC).

Researchers' claims that inefficiently managed supply chains and lack of awareness regarding the benefit of a well-managed supply chain are the main reasons for firms to lose their competitive advantage (Mubarik, 2017; Rasiah *et al*., 2017). Lack of Supply Chain Orientation followed by supply chain competency is a foremost concern in order to manage the whole supply chain. It raises a question such as "is there any role of Supply chain strategy (SCS) in the relationship between Supply chain orientation (SCO) and Supply chain competencies". This study is an attempt to address this question and it contributes to the literature in the following ways.

2. Literature review

2.1 Supply Chain Orientation

Sustainable competitive advantage can be achieved only by the help of synchronization at all levels in supply chain management. Best practices in Supply Chain Management (SCM) lead to the up-gradation in quality, customer service and better working of supply chain tiers (Hojung *et al*, 1999). Supply Chain is a cluster of firms that are dependable on each other and working closely for the improvement of the entire supply chain. Supply Chain Management (SCM) defined as an integrated dogma that aligns the flow of channels from top to bottom in order to accomplish a common goal (Cooper and Ellram, 1993). According to the scholars, SCM is a seamless and strategically synchronized operation based on conventional business processes within the boundaries of firms or businesses in order to improve the long-term performance of the sole firms and the entire supply chain (Mentzer, 2001).

Under the umbrella of supply chain management (SCM), Supply chain orientation (SCO) and Supply chain competency (SCC) are the theories that are more focused to get the unique competitive advantage of the target market which is a construction sector. This research focuses on defining the relationship between SCO and SCC on the basis of the literature review. Supply chain orientation (SCO) is defined as the systematic and strategic result of the entities and processes related to the management of different flows in SCM (Mentzer, 2001). Thus, SCM manages the flow within and across the stakeholders, whereas SCO focuses on processes awareness in a Supply chain organization. SCO is an important tool that can help to improve the effectiveness of SCM. A firm must focus on its internal processes before it steps into the management of SCM. (Min and Mentzer, 2004).

Since its inception, SCO philosophy has been the focus of small literature and conceptual gaps can easily find after vetting the foundation of literature. There are two different phenomena regarding the SCO, first and most important is invoking the basic gap in the definition of the phenomenon. Secondly, the non-availability of a strategic framework and it's difficult to show off managerial skills due to this research work. Third, SCO is not ideally synchronized with other related research flow that may help in the further improvement of SCO. The strategic significance of SCO is a need for an efficient SCM and the basic aim of this script is to highlight the research gaps with the help of a literature review. The whole literature aiming to build a synchronized SCO framework based on literature. The proposed SCO framework enables managers for efficient work and provides a solid platform for research scholars. SC managers must be well-oriented about business intelligence, supply chain techniques and their management to attain firm performance. There are multiple SC techniques that are defining the way to success for businesses, but adoption of modern techniques and effective utilization matters through the SC upstream to downstream (Carter, 2011; Rao and Holt, 2005; Wu and Pagell, 2011; Golicic and Smith, 2013). The upheaval of business through financial growth is manageable once firms adopted with green environmentally friendly concepts and their compliance in true spirit (Bell *et al*., 2013) in order to get higher value of the business (Hart and Dowell, 2011). In essence, SCO help to understand that how can an organization manage its SC and the required organization equipped with SCO having a different approach regarding SCM as compare to the other firms.

Supply Chain Orientation comprising of Market Orientation (Customer Orientation and Competitor Orientation), Inter-Functional Coordination, Management of Inter-Firm Relationship, Personal Selling Orientation, Research and Development Orientation, Production Orientation, and Purchasing Orientation. Market orientation deals with marketing concepts and enables firms to respond quickly in accordance with the available information. Market learning is not a concept that is only limited to the organization's boundaries but, included the external business environment and this made easy for firms to keep align with global needs with focusing customer needs. Narver and Slater (1990) explained market orientation as a culture prevailing in an organization and all the employees are focused to generate the superior

value for the customers via behavioral component: Customer Orientation, Competitor Orientation, and Inter-Functional Coordination. Customer satisfaction is the primary goal of market orientation; it is the measurement of customer value created by a firm influenced by internal and external marketing related factors (Kotler, 1997).

Market orientation offers an atmosphere that helps to build relations. A relationship develops trust, commitment, and values among firms. Simpson and Baker (2001) describe that supplier's orientation help themselves to fulfill their commitments. Market orientation opens the way of effective communication and timely response to the customer wants. Business norms tend to the accomplishment of mutual goals for success. It's necessary for both suppliers and distributors to be market-oriented and follow business rules to fulfill the objective (Siguaw *et al*, 1998). Businesses are mutually dependent on each other and that very reason insists to develop a sustainable relationship (Frazier, 1983). Another important aspect within the supply chain orientation is the purchasing in SCM that is totally relying on strategy and approach being used by a firm to facilitate its supply chain. Bhakar, Mishra and Davar (2001) describe that if the objectives of any firm supply chain are to improve efficiency and decrease inventory, lead time and cost, then the role of the purchasing team should be to streamline the chain. The bottom line of this study that the collaborative relationship philosophy with the supplier is much more important when the supplier's competence is important for the buyer (Bhakar, Mishra and Davar, 2001). Supply Management Orientation (SMO) is a concept that helps both supplier and buyer to work in an efficient way to improve their performance. Undoubtedly, said the concept is a win-win situation for the stakeholders (Hojung Shin *et al*, 1999). It is important for stakeholders to get into considerable planning for a strong relationship. Planning is an important aspect of SMO and in a long-term relationship; partners are not only the shareholder of reward but also in failure (Landeros and Monczka 1989; Cooper and Ellram, 1993; Stuart, 1993).

Learning orientation impacts the type of information collected and how it defines and shared (Calantone, Cavusgil, and Zhao 2002; Sinkula and Baker 1997). It also contains various concepts like collection and sharing of information, change in the market, innovation, and processes that make it greater among competitors. Reviewing the literature, there are six indicators of SCO that can be found in strategic management, marketing, supply management, Logistics and operations management areas. These six indicators are customer orientation, competitor orientation, value chain coordination, Supplier orientation, Logistics orientation, and operations orientation. These indicators are focused because of their significant impact and linkage with supply chain function and overall systematic role within a firm. (Boyer *et al*; 2014 and Mollenkof, 2014). Each of the indicators has individual characteristics that collectively form SCO and suggests that SCO is an important tool for a firm to achieve the unique competitive advantage of the market (Porter, 2004). A customer orientation defined as enough understanding about target customers and fulfills their satisfaction level on a regular basis. A competitor orientation is viewed as an understanding of short-term strengths and weaknesses and long-term capabilities of rivals. Competitor orientation enables the firm to get a competitive advantage in the market. Value chain coordination can be defined as the synchronized flow of resources in order to add value to the supply chain process (Porter, 2004). Supplier orientation is a key that adds value in the early stages from the purchase of raw material to finished products (Institute of Supply Management, 2007).

2.2 Supply Chain Strategy

The strategy is the inevitable feature of an organization for two decades (Aitken *et al*., 2003; Christopher and Ryals, 1999; Kristal *et al*., 2010; Mckone-Sweet and Lee, 2009). Supply chain strategy is a choice of management and ultimate responsibility of competent management to choose the suitable one to achieve the object (Kristal *et al*., 2010). Past researches state the importance of strategies for the viable position of the organization (Kristal *et al*., 2010; Narasimhan *et al*., 2008; Qi *et al*., 2011) and for higher value attainment (Christopher and Ryals, 1999). A construction firm's Supply chain strategy (SCS) must be aligned with a business goal and flexible enough to handle uncertain situations.

Literature underscores some key SC strategies that are lean (efficient) and agile (response) (Naylor *et al*, 1999; Martin, 2000, Martin and Towell, 2000) and integration (Frolich and Westbrook, 2001, Steven 1989. Vicky *et al*, 2003). Martin, (2000), portrays a difference between lean and agile and discussed the suitable and economical application of each concept. The study also intimated that firms that need to survive for a long time must develop an efficient and responsive supply chain. Martin and Towell, (2000) implied that lean is more effective among upstream supply chain channels whereas Agile is effective for downstream supply chain channels. They also suggested that hybrid strategies may be designed with the combination of the best ideas out of both strategies. Stevens (1989) discovered that organizations survive more than treat SCM from a strategic point of view and used techniques to enhance value for the end-user (Mubarak *et al*., 2019). It has been proved that highly integrated organizations are more beneficial. Agility and dexterity are the most noticeable way of a strategy of the modern supply chain (Gligor and Holcomb, 2012). It is defined as an ability of a firm that how expeditiously a firm modifies its strategies and operational capabilities through the SC flexibility technique. Agility improves SCM effectiveness (Tiwari *et al.,* 2018; Ketchen and Hult, 2007; Lee, 2004; Li *et al*., 2008). Usually, products/services produced on the basis of estimated demand in the market economy, operational decisions are flexible and can be altered to achieve strategic fit in between economies of scale and economies of scope. Dynamic processes are organized to maximize the product utility and logistics process. In a market economy, sharing knowledge regarding IT and procedural know-how considered unsafe. In supply chain strategies, firms are forced to use their own resources to accomplish the task and synchronization among various departments, on the other hand, outsourcing / sub-contracting and strategic relationships between buyer and supplier discouraged.

2.3 Supply Chain Competency

Supply Chain Competency deals with a higher level of customer satisfaction and stakeholder value. SCC is the capability to fulfill customer demand with cost-effectiveness and quality enhancement (Bowersore, 2000). A competency is knowledge, ability, and dexterity that can be earned on the basis of experience and attentiveness. It is a concept of processes awareness, a bunch of skills aiming to achieve the organizational goal with the cost reduction and quality enhancement. This concept gained popularity in the 1990s as the market upraised its need for graduates and professionals for the competitive global economy (Evers *et al*, 1998). There is ample evidence that effective management is an art and not easy to get. In essence, this is a core skill and differentiates the winner from looser. Effective management is supply chain competency that can be achieved through continuous learning. Learning is a key concept in order to attain SCC. SCC is the ingredients to develop the relationship that helps to explore the value-adding capabilities of SC. Most prominent value-adding activities are a significant return on assets, market shares growth and maximum profit (Chon *et al*, 1998; Corbett *et al*., 1999; Tyndell *et al*., 1998). Effective management of knowledge sharing among all the stakeholders, especially across the firm is a core competency that will ultimately shape into the competitive advantage of the supply chain.

Business intelligence is considered as a competency that carries the business on the way to the highest level of growth. Business intelligence (BI) can be classified into five categories; stirring and dominant leadership, global vision, thinking behavior, skills and technical understanding (Mubarik, M., and Zuraidah, R., 2019; Dittmann, 2012). Information and knowledge is the asset for the firms in nowadays (Sangari and Razmi, 2015). Businesses have been done considerable investments in order to elevate their systems. Successful organizations are now based on contemporary systems, modern techniques and their compliance (Ghazanfari *et al*., 2011; Rouhani *et al*., 2012). Competition is not between the businesses now, but amongst the supply chains (Cabraletal, 2012). Supply chain development to competitiveness is critical to enterprise success. The idea of competencies has been extended since it was introduced by McClelland (1973) and Lawler (1994), starting from the HRM to several business categories. This terminology has been researched widely in both forms, individually and at the team level. With the background of HRM, the concept of supply chain competency is a composition of capabilities, knowledge and process orientation connected to individual job performance (Mirabile, 1997). It is clear that individual competency and way of interacting with other team members influenced at the team level.

Kauffeld (2006) described four individual-management team competencies comprising of process orientation, skill, and capability to interact in a way to design a collaborative learning atmosphere. Hence, technical competencies are playing an effective role but, social competency has a significant impact. Core competencies are the intellectual capital of the organizations, process/product orientation and competencies create the competitive advantage of organizations (Hamel and Prahalad, 1990). Athey and Orth (1999) proposed that business dynamics have been changed due to the technology, digitalization, and globalization, competencies comprising of abilities to handle the process and to enhance the firm performance. Precisely in supply chain management, the idea of supply chain competency has not been focused individually, but relationship management is more discussed supply chain. In this perspective, competency can be called as an internal activity of an organization that needs to be performed with ability and skill (Koufteros *et al*., 2010). Competencies can be defined as the process that acts promptly in accordance with the changing business needs (Athey and Orth, 1999). Miles and Snow (2007), remarked that researchers of modern-day are agreed there is a dire need of new business models if organizations are agreed for their economical and efficient use in order to produce goods and services and to generate new markets. Additionally, Lavie (2006) suggested that a unique organizational advantage based on the collective resources of organizations. Hence, it is indispensable to boost competencies and maintain relations inside and outside the organization. In an integrated and competent supply chain, Supply Chain Competency (SCC) leads to cost reduction, procedural improvement, and quality enhancement. Competitive advantage is all about end-user satisfaction that can be achieved by a unique competitive advantage.

2.4 Role of Supply Chain Collaboration and Competency

Supply chain management (SCM) is a dynamic and multi-dimensional study that states how to run a business productively and is a fundamental tool for businesses to develop a long-lasting relationship in this competitive world. It is a seamless process that works in the tiers. SCM starts from obtaining raw material to the consumption by the end-user. This whole process requires close supervision and all the tiers must be integrated in a way that helps the organization to get a competitive advantage of the market. Channel integration is a concept that allows businesses to stand with best practices. The relationship among tiers is transactional that needs to be transformed and needs to be converted from transactional to relational.

Undoubtedly, globalization affects supply chain management through innovation and changes the entire business style and strategy; it decreases the product life cycle and also the business life cycle (Shahbaz, M. S. *et al.*, 2018). Industry clock speed is a well-known term related to the business atmosphere that tells what is actually going on and what steps and techniques are required to enhance the business value and to compete in the competitive market.

SCI or Channel integration is an important tool to align the business strategies and it is a need of time to establish the relations that mitigate the barriers of communication in order to improve the overall business. Long-term relations are

the source to set long-term goals and objectives. Companies can easily focus on its quality control through integration and no doubt quality control is must done process throughout the supply chain. Collaboration is a strategy among supply chain partners having the same goal that is to serve the customer through the synchronized system with the lowest cost and highest profit (Simatupang *et al*. 2004). Collaboration is a process of partnership between two or more independent firms working closely for the plan and its execution in order to achieve an organizational goal and joint benefit (Cao and Zhang, 2011). Simatupang and Sridharan (2002) aiming to point out the differences in supply chain collaboration and focused on coordination and compiling of coordination related concepts in the supply chain. Simatupang and Sridharan (2005) set a standard to measure the level of collaboration in the supply chain with the help of two stakeholders of the system, supplier and retailer. Crook *et al*. (2008) proposed that autonomous firms, those highly collaborate, oriented and offering related information sharing are getting more benefits as compared to firms not highly collaborated. Cai *et al*. (2010) find the success formula of Chinese firms as the companies developed their internal atmosphere on the basic trust enhancement and information incorporation between buyers and suppliers. Supply chain collaboration is a very much needed concept for the advancement of SCM, an increase in organizational success and leads to the supply chain competency.

2.5 Supply Chain Orientation: Role of Organizational Culture

Organizations are the places that bring humans from cradle to grave. Organizational culture in an active model known as a useful tool to enhance the overall environment through change, leadership, diversity, engagement, value, and ethics. Organizations are liable to offer a culture in order to groom the sense of moral values, ethics, recognition, and meaning of life. There are five key features to improve the organizational culture; relationship amongst stakeholders, pursuance of individual/organizational goals, structural alignment of organization and implanting of organization among others (Barbour and Lammers, 2015).

Organizational culture is based on social contact that can affect the organization's practices and coordination (McPhee and Zaug, 2009). Culture is defined as the “baggage of excellence” that earned for ourselves Geertz (1973). Organizational culture is a concept that exists since the 1980s (Hofstede, 1998), the number of definitions are available related to this concept (Chatmar and Jehn, 1994; Hofstede, 1980; Martin, 1992, 2002; O’reilly, 1989; Quinn, 1988; Schein, 1992; Trice and Beyer, 1983). After judiciously investigating the literature, it is discovered that the basic tone after these definitions is that organizational culture is a combination of hypothetical and realistic findings related to the organizational culture (Deshpande and Webster, 1989). Previous studies were focused that organizational culture is a way of thinking and action among departments in firms or at least among the top-level management (Leisen, Lilly, and Winsor, 2002). Organizational culture is a form of collective and constant theories established with the span of time in a firm (Gordon and Ditomaso, 1992). Organizational culture can be defined as the most common and constant behavior (Al-Khalifa and Aspinwall, 2001; Stock, 2007; Schein, 1992).

Organizational culture plays an important role to enhance Supply chain Competency and that competency helping to drive supply chain management. Earlier studies have shown that organizational efficiency can improve because of the collection practices within the firm that are called organizational culture. Denison (1990) described that culture is the fundamental principles, standards and moral values on which the organization management system is based. Hence, industries initiative in the way of supply chain management defines that established organizational culture is highly influential for supply chain integration in the firms and it has been proved that supply chain integration hit organizational performance (Frohlich and Westbrook, 2001; Vereecke and Muylle, 2006; Shahbaz, M. S. *et al*., 2018).

3. Methods

This study implemented the non-probability sampling approach and involved 75 construction firms in the province of Sindh. The study collected 183 data from supply chain professionals who are working in the construction sector as shown in Table 1. The collected data is assessed through Partial Least Square -Structural Equation Modelling technique to identify the path coefficient. This technique is appropriate for testing hypotheses or relationship prediction.

Table 1 - Respondents Demography

Position	Number of Respondents
Deputy General Manager	3
Senior Manager	12
Manager	23
Deputy Manager	59
Assistant Manager	71
Supply Chain Officer	15
Total	**183**

4. Results and Discussions

The respondents who are involved in this study are experienced at managerial level and all are from the construction industry. The three constructs and the sources are presented in Table 2.

Table 2 - Constructs and sources

Constructs	Number of Items	Source(s)
SCO	8	Esper (2010); Diniz (2007)
SCS	5	Hudnurkar, Jakhar and Rathod (2014)
SCC	5	Green Jr, *et. al*. (2013)

4.1 Reliability and Validity

Supply chain orientation (SCO) has eight items mentioned with SCO1 to SCO8 that comprising the different aspects that need to know in order to prove the model is reliable. The second construct is Supply chain strategy (SCS) comprising of items SCS1 to SCS5. The third construct is Supply chain competence (SCC) also having items SCC1 to SCC5. Each item in the construct is called a factor. The factor loading elaborates on the relationship strength between items and constructs that how much an item is related and explained the latent variable.

Reliability refers to the internal consistency of constructs. Internal consistency means reflects the extent to which items within an instrument measure various aspects of the same characteristic (Creswell, 2012). The study carried out three validity process it's comprised of content validity, construct validity and criterion validity. Content validity defines that the study contains all the content and focused on all the domains that are necessary to include for a better outcome. Construct validity refers to the measurement of the construct precisely. Criterion validity refers to the other tools that measure the same variables. Factor loading tells that how much a strong relationship is in between the item and construct, which means that how much a factor describes a variable. Average Variance Extracted (AVE) states the amount of exactly described variance inside the measured indicators by the construct related to the total variance included error variance, it is a swap between accuracy and error. Composite reliability demonstrates the overall reliability of the model, the more factors loading fluctuation rate will show the more difference between composite reliability (CR) coefficient value and Alpha coefficient value (α). Alpha (α) is the commonly used method to evaluate the internal consistency of the model.

Factor loading value must be greater than 0.7. The average variance extracted (AVE) tells about the overall variance of all the indicators and the variance is divided into two-halves, explained and unexplained, it can be figured by the help of AVE values that which part dominates. AVE value should be more than 0.5. Value more than 0.5 explains that part dominates and construct is valid. If the tabulated values observed, all the values are more than 0.5 which shows the reliability as well as the validity of the model. The composite reliability (CR) value limit is more than 0.7 in number for an accepted model. Therefore, the results showed in Table 3 indicate that all the values of AVE, CR and Alpha (α) are within the required level or acceptable threshold value. This proves the research constructs as valid and reliable.

Table 3 –Measurement Model Analysis

Constructs	Item	Loading	AVE	CR	Alpha (α)
Supply Chain Orientation (SCO)	SCO1	0.75	0.54	0.74	0.81
	SCO2	0.71			
	SCO3	0.84			
	SCO4	0.73			
	SCO5	0.71			
	SCO6	0.77			
	SCO7	0.84			
	SCO8	0.79			
Supply Chain Strategy (SCS)	SCS1	0.77	0.53	0.78	0.84
	SCS2	0.69			
	SCS3	0.71			
	SCS4	0.73			
	SCS5	0.78			
Supply Chain Competencies (SCC)	SCC1	0.77	0.52	0.76	0.79
	SCC2	0.87			
	SCC3	0.71			
	SCC4	0.68			
	SCC5	0.78			

4.2 Hypotheses Testing

This study hypothesizes the first proposition by undertaking the relationship of Supply Chain Orientation (SCO) with Supply Chain Strategy (SCS). The results of the p-value show that SCO has a positive significant [$p<0.000$, 0.11] impact on the supply chain strategy. An increase in SCO improves the SCS that helps the organization to develop its competencies. The most important is to define the role of Supply Chain Strategy (SCS) in between the Supply Chain Orientation (SCO) and Supply Chain Competence (SCC). Result [$p<0.000$, 0.34] defines that Supply Chain Orientation (SCO) enables management to formulate a fruitful strategy in order to enhance the Supply Chain Competence of the firm.

The third proposition result [$p<0.000$, 0.22] shows that Supply Chain Orientation (SCO) having a positive significant effect on Supply Chain Competency (SCC). SCO helps SCC to improve its efficiency. Firms that have better SCO, has better SCC as compared to those firms that have low SCO. Supply Chain Strategy (SCS) is playing a mediating role between Supply Chain Orientation (SCO) and Supply Chain Competence (SCC). It means that SCO improves SCS as result [$p<0.000$, 0.15] hypothesize the relationship and SCS further improves SCC [$p<0.000$, 0.11]. The result shows that SCO is an important and significant tool in order to increase SCS and SCC.

In this study, a conducive culture helps SCO to impact SCS more and in a non-conducive culture, it impacts less. The same happened with the Supply Chain Strategy (SCS) and Supply Chain Competence (SCC) relationship; in a conducive culture Supply Chain Strategy (SCS) impact factor is high as compare to the non-conducive culture. The tabulated result explains the credibility of the obtained data and the flow of results in the right way which are aligned with the previous studies performed by various reputed studies (Sunil and Peter, 2013; Rasiah, 2016 and Mubarik, 2018).

Since the current study embarks as one of the earlier researches undertaken in this area in the context of the Pakistani construction sector. The results of this study confirm a similar phenomenon as investigated in the previous researches. Consequently, it can be established that SCO helps the organization to design a Supply Chain Strategy (SCS) that improve Supply Chain Competence (SCC). This study was to examine the impact of Supply chain orientation (SCO) in order to improve Supply chain competence (SCC). The result of the study showed a very instrumental and significant role of Supply chain strategy (SCS) in between the relationship Supply chain orientation (SCO) and Supply chain competence (SCC). Results also revealed that SCO has a profound effect on SCC as well as on SCS. Our results also showed a significant moderating effect in between the relationship of SCO and SCS and likewise between SCS and SCC.

Table 4 - Structural Model Analysis (Hypothesis Testing)

Hypothesis	Coefficient	P-Value
H_1: Supply Chain Orientation→ Supply Chain Strategy	0.11	0.000
H_2: Supply Chain Orientation→Supply Chain Strategy →supply chain competence	0.34	0.000
H_3: Supply Chain Orientation→Supply Chain Competence	0.22	0.000
Mediating role		
H4: Supply Chain Orientation→ Supply Chain Strategy	0.15	0.000
H5: Supply Chain Strategy→ Supply Chain Competence	0.11	0.000

5. Conclusion, Recommendation and Limitation

Construction industry has lower relationship management and needs a redesigned model. A relationship-oriented approach is very much needed not only for supplier vis-a-vis with customers. The industry has to extend its relationship from transactional to collaborative and can be attained through supply chain strategy (SCS). The sustainable supply chain is based on good governance and on effective management that is trained about the concept of Lean and Six-Sigma; leading factors for process control. It is not a traditional way of working but, as must do concepts to mitigate the wastage, to enrich the quality of product followed by decreasing processing cost through process control. This recommendation can be achieved primarily through a supply chain orientation (SCO) technique. There are certain recommendations on the basis of this study that can help the construction industry to compete in the market.

The cost of doing business can be reduced through effective learning and empowerment of skilled labor, on job training sessions and awareness programs with the help of supply chain competence (SCC). The communication gap among levels of management and labor also required to be lessened. As a limitation of the study, the data was gathered from a limited number of supply chain respondents from a particular province, however, for future researchers, it is recommended to widen the scale of research and add some other variables in like absorptive capacity and organizational ambidexterity to holistically explore the issues in supply chain of construction sector.

Acknowledgement

The authors would like to thank all the respondents in providing the data for this study. The authors would like to acknowledge Kaunas University of Technology, University of Sindh and Quaid e-Awam University of Engineering and Technology for supporting this research.

References

Aitken, J., & Harrison, A. (2013). Supply governance structures for reverse logistics systems. International Journal of Operations & Production Management.

Al-Khalifa, K. N., & Aspinwall,E. M. (2001). Using the competing values framework to investigate the culture of Qatar industries. *Total Quality Management*, *12*(4), 417-428.

Athey, T. R., & Orth, M. S. (1999). Emerging competency methods for the future. Human Resource Management: Published in Cooperation with the School of Business Administration, The University of Michigan and in alliance with the Society of Human Resources Management, 38(3), 215-225.

Bhakar, V., Digalwar, A. K., & Sangwan, K. S. (2018). Sustainability assessment framework for manufacturing sector–a conceptual model. Procedia CIRP, 69, 248-253.

Bell, J. E., Autry, C. W., Mollenkopf, D. A., & Thornton, L. M. (2013). A natural resource scarcity typology: theoretical foundations and strategic implications for supply chain management. Journal of Business Logistics, 33(2), 158-166.

Boyer, K. K., & Hult, G. T. M. (2005). Extending the supply chain: integrating operations and marketing in the online grocery industry. Journal of Operations Management, 23(6), 642-661.

Barbour, J. B., & Lammers, J. C. (2015). Measuring professional identity: A review of the literature and a multilevel confirmatory factor analysis of professional identity constructs. Journal of Professions and Organization, 2(1), 38-60.

Cai, S., Jun, M., & Yang, Z. (2010). Implementing supply chain information integration in China: The role of institutional forces and trust. *Journal of Operations Management*, *28*(3), 257-268.

Cao, M., & Zhang, Q. (2011). Supply chain collaboration: Impact on collaborative advantage and firm performance. *Journal of operations management*, *29*(3), 163-180.

Carter, C. R., & Rogers, D. S. (2011). A framework of sustainable supply chain management: moving toward new theory. International journal of physical distribution & logistics management.

Chatman, J. A., & Jehn, K. A. (1994). Assessing the relationship between industry characteristics and organizational culture: how different can you be?. *Academy of management journal*, *37*(3), 522-553.

Christopher, M., & Ryals, L. (1999). Supply chain strategy: its impact on shareholder value. The international journal of logistics management, 10(1), 1-10.

Crook, T. R., Giunipero, L., Reus, T. H., Handfield, R., & Williams, S. K. (2008). Antecedents and outcomes of supply chain effectiveness: an exploratory investigation. Journal of Managerial Issues, 161-177.

Creswell, J. W. (2012). Educational research: planning. Conducting, and Evaluating.

Deshpande, R., & Webster Jr, F. E. (1989). Organizational culture and marketing: defining the research agenda. Journal of Marketing, 53(1), 3-15.

Denison, D. R. (1990). Corporate culture and organizational effectiveness. John Wiley & Sons.

Diniz, J. D., & Fabbe-Costes, N. (2007). Supply chain management and supply chain orientation: key factors for sustainable development projects in developing countries?. International Journal of Logistics Research and Applications, 10(3), 235-250.

Esper, T. L., Clifford Defee, C., & Mentzer, J. T. (2010). A framework of supply chain orientation. *The International Journal of Logistics Management*, *21*(2), 161-179.

Frazier, G. L. (1983). Interorganizational exchange behavior in marketing channels: a broadened perspective. Journal of Marketing, 47(4), 68-78.

Frohlich, M. T., & Westbrook, R. (2001). Arcs of integration: an international study of supply chain strategies. Journal of operations management, 19(2), 185-200.

Gligor, D. M., & Holcomb, M. C. (2012). Antecedents and consequences of supply chain agility: establishing the link to firm performance. Journal of Business Logistics, 33(4), 295-308.

Ghazanfari, M. J. S. R. M., Jafari, M., & Rouhani, S. (2011). A tool to evaluate the business intelligence of enterprise systems. Scientia Iranica, 18(6), 1579-1590.

Geertz, C. (1973). The interpretation of cultures (Vol. 5019). Basic books.

Gordon, G. G., & DiTomaso, N. (1992). Predicting corporate performance from organizational culture. Journal of management studies, 29(6), 783-798.

Green Jr, K. W., Inman, R. A., Birou, L. M., & Whitten, D. (2014). Total JIT (T-JIT) and its impact on supply chain competency and organizational performance. International Journal of Production Economics, 147, 125-135.

Hojung Shin, David A. Collier, Darryl D.Wilson (1999). Supply management Orientation and supplier/buyer performance.

Hamel, G., & Prahalad, C. K. (1990). The core competence of the corporation. Harvard business review, 68(3), 79-91.

Hofstede, G. (1998). Attitudes, values and organizational culture: Disentangling the concepts. Organization Studies, 19(3), 477-493.

Hofstede, G. (1980). Culture's Consequences: International differences in work-related values. Beverly Hill, CA, Sage.

Hudnurkar, M., Jakhar, S., & Rathod, U. (2014). Factors affecting collaboration in supply chain: a literature review. Procedia-Social and Behavioral Sciences, 133(1), 189-202.

Kristal, M. M., Huang, X., & Roth, A. V. (2010). The effect of an ambidextrous supply chain strategy on combinative competitive capabilities and business performance. Journal of Operations Management, 28(5), 415-429.

Naylor, J. B., Naim, M. M., & Berry, D. (1999). Leagility: Integrating the lean and agile manufacturing paradigms in the total supply chain. International Journal of production economics, 62(1-2), 107-118.

Kauffeld, S. (2006). Self-directed workgroups and team competence. Journal of Occupational and Organizational Psychology, 79(1), 1-21.

Koufteros, X. A., Rawski, G. E., & Rupak, R. (2010). Organizational integration for product development: the effects on glitches, on-time execution of engineering change orders, and market success. Decision Sciences, 41(1), 49-80.

Lee, H. & Christopher, M. (2004). Mitigating supply chain risk through improved confidence. *International journal of physical distribution & logistics management*, *34*(5), 388-396.

Lawler III, E. E. (1994). From job-based to competency-based organizations. Journal of organizational behavior, 15(1), 3-15.

Lavie, D. (2006). Capability reconfiguration: An analysis of incumbent responses to technological change. Academy of management review, 31(1), 153-174.

Leisen, B., Lilly, B., & Winsor, R. D. (2002). The effects of organizational culture and market orientation on the effectiveness of strategic marketing alliances. Journal of Services Marketing.

Mentzer, J. T., DeWitt, W., Keebler, J. S., Min, S., Nix, N. W., Smith, C. D., & Zacharia, Z. G. (2001). Defining supply chain management. Journal of Business Logistics, 22(2), 1-25.

Min, S., & Mentzer, J. T. (2004). Developing and measuring supply chain management concepts. Journal of business logistics, 25(1), 63-99.

Mubarik, M., & Zuraidah, R. (2019). Triad of Big Data Supply Chain Analytics, Supply Chain Integration, and Supply Chain Performance: Evidences from Oil and Gas Sector. Humanities, 7(4), 209-224.

Mubarik, S., Chandran, V. G. R., & Devadason, E. S. (2016). Relational capital quality and client loyalty: firm-level evidence from pharmaceuticals, Pakistan. The learning organization.

Mubarik S., Devadason, E. S., Chandran, V. G. R. (2017). Sino–LAC ties: Trade relationships, trade potentials, and asymmetric dependency. Emerging Markets Finance and Trade, 53(6), 1262-1277.

Mubarik, S., Warsi, A. Z., Nayaz, M., & Malik, T. (2012). Transportation outsourcing and supply chain performance: A study of Pakistan's pharmaceutical industry. South Asian Journal of Management, 6(2), 35-41.

Mubarik, M. S., Chandran, V. G. R., & Devadason, E. S. (2018). Measuring human capital in small and medium manufacturing enterprises: What matters?. Social Indicators Research, 137(2), 605-623.

Mubarak, M. F., Shaikh, F. A., Mubarik, M., Samo, K. A., & Mastoi, S. (2019). The Impact of Digital Transformation on Business Performance. Engineering, Technology & Applied Science Research, 9(6), 5056-5061.

Mubarak, M. F., Yusoff, W. F. W., Mubarik, M., Tiwari, S., & Kaya, K. A. (2019). Nurturing Entrepreneurship Ecosystem in a Developing Economy: Myths and Realities. Journal of Technology Management and Business, 6(1).

McClelland, D. C. (1973). Testing for competence rather than for" intelligence.". American psychologist, 28(1), 1.

Mirabile, R. J. (1997). Everything you wanted to know about competency modeling. Training & Development, 51(8), 73-78.

Miles, R. E., & Snow, C. C. (2007). Organization theory and supply chain management: An evolving research perspective. Journal of operations management, 25(2), 459-463.

McPhee, R. D., & Zaug, P. (2009). The communicative constitution of organizations. Building theories of organization: The constitutive role of communication, 10(1-2), 21.

Martin, J. (1992). Cultures in organizations: Three perspectives. Oxford University Press.

Martin, S. A., & Brunnermeier, S. B., (2002). Interoperability costs in the US automotive supply chain. Supply Chain Management: An International Journal.

O'Reilly, E. P. (1989). Valence band engineering in strained-layer structures. Semiconductor Science and Technology, 4(3), 121.

Porter, J. D., Billo, R. E., & Mickle, M. H. (2004). A standard test protocol for evaluation of radio frequency identification systems for supply chain applications. Journal of Manufacturing Systems, 23(1), 46.

Rasiah, R., & Nazeer, N. (2016). Comparing Industrialization in Pakistan and the East Asian Economies.

Rasiah, R., Mubarik, S., & Yap, X. S. (2017). Financing Technological Upgrading in East Asia.

Rao, P., & Holt, D. (2005). Do green supply chains lead to competitiveness and economic performance? International journal of operations & production management.

Rouhani, S., Ghazanfari, M., & Jafari, M. (2012). Evaluation model of business intelligence for enterprise systems using fuzzy TOPSIS. Expert Systems with Applications, 39(3), 3764-3771.

Sohu, S., Abdullah, A. H., Nagapan, S., Fattah, A., Ullah, K., & Kumar, K. (2017, October). Contractor's perspective for critical factors of cost overrun in highway projects of Sindh, Pakistan. In AIP Conference Proceedings (Vol. 1892, No. 1, AIP Publishing LLC.

Shahbaz, M. S., Rasi, R. Z. R. M., Zulfakar, M. H., Ahmad, M. B., Abbas, Z., & Mubarak, M. F. (2018). A novel metric of measuring performance for supply chain risk management: drawbacks and qualities of good performance. Journal of Fundamental and Applied Sciences, 10(3S), 967-988.

Shahbaz, M. S., Rasi, R. Z. R., Ahmad, M. B., & Sohu, S. (2018). The impact of supply chain collaboration on operational performance: Empirical evidence from manufacturing of Malaysia. International Journal of Advanced and Applied Sciences, 5(8), 64-71.

Siguaw, J. A., Simpson, P. M., & Baker, T. L. (1998). Effects of supplier market orientation on distributor market orientation and the channel relationship: the distributor perspective. Journal of Marketing, 62(3), 99-111.

Sangari, M. S., Razmi, J., & Zolfaghari, S. (2015). Developing a practical evaluation framework for identifying critical factors to achieve supply chain agility. Measurement, 62, 205-214.

Simpson, P. M., Siguaw, J. A., & Baker, T. L. (2001). A model of value creation: Supplier behaviors and their impact on reseller-perceived value. Industrial Marketing Management, 30(2), 119-134.

Simatupang, T. M., & Sridharan, R. (2005). The collaboration index: a measure for supply chain collaboration. International Journal of Physical Distribution & Logistics Management.

Simatupang, T. M., Wright, A. C., & Sridharan, R. (2004). Applying the theory of constraints to supply chain collaboration. Supply chain Management: an international journal.

Simatupang, T. M., & Sridharan, R. (2002). The collaborative supply chain. The international journal of logistics management, 13(1), 15-30.

Shujaat, M., Naghavi, N., & Mubarak, F. (2019). Impact of supplier relational capital on supply chain performance in Pakistani textile industry. Asian Economic and Financial Review, 9(3), 318-328.

Stevens, G. C. (1989). Integrating the supply chain. International Journal of physical distribution & Materials Management.

Schein, E. H. (1992). How can organizations learn faster?: the problem of entering the Green Room.

Stock, C. F. (2007). Accented body and beyond: A model for practice-led research with multiple theory/practice outcomes.

Sunil, C., & Peter, M. (2013). Supply Chain Management: Strategy, Planning, And Operation, 5/e. Pearson India.

Tiwari, S. T. S., Chan, S. W., & Mubarak, M. F. (2018). Critical analysis of procurement techniques in construction management sectors. In IOP Conference Series: Materials Science and Engineering (Vol. 342, No. 1, p. 012100). IOP Publishing.

Trice, H., & Beyer, J. (1983). The routinization of charisma in two social movement organizations. Meet. Acad. Mgmt., Dal-las, Tex.

Vereecke, A., & Muylle, S. (2006). Performance improvement through supply chain collaboration in Europe. International journal of operations & production management.

Whitfield, G., & Landeros, R. (2006). Supplier diversity effectiveness: Does organizational culture really matter?. Journal of Supply Chain Management, 42(4), 16-28.

Landeros, R., & Monczka, R. M. (1989). Cooperative buyer/seller relationships and a firm's competitive posture. Journal of Purchasing and Materials Management, 25(3), 9-18.