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Supply Chain Management practices: Competitive Advantage and Organizational Performance in Sri Lankan Construction Industry

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ABSTRACT

In the construction industry supply chain management (SCM) is a vital tool in controlling business processes in a defined and a systematic way to improve quality, time management and increase profit. Effective supply chain management has become a potentially valuable method of securing and improving competitive advantage and organizational performance since competition no longer between organizations, but between global organizations and among supply chains. This paper aims to investigate the impact of supply chain management practices on competitive advantage and organizational performance in the construction industry, Sri Lanka, due to the lack of application of supply chain management practices to determine the organizational performance in the competitive environment. Further, this study focuses five SCM practices: strategic supplier partnership, customer relationship, level of information sharing, quality of information sharing, and postponement to investigate what supply chain management is, how it works in increase competitive advantage and what are its dynamics. Six hypotheses were developed based on the constructed conceptual framework derived from the supply chain management literature. The data were collected over the survey technique by randomly administering structured questionnaires from 198 respondents of construction management teams and different sub-contractors. First Multiple regression analysis was performed to explore the impact of five supply chain management practices on competitive advantage and organizational performance in the construction industry and the analysis was carried out the factor analysis to explore the significance of supply chain management dimensions. The results of the regression analysis indicated that all SCM variables have a positive impact on competitive advantages and organizational performance of the construction industry in Sri Lanka. Moreover, it suggested that the strategic supplier partnership was the most significant SCM variable which determines the competitive advantage and level of information sharing variable was the less significant variable towards competitive advantage. The results of this study provide new insights to the construction companies to better understand the significant role that SCM variables play in respect to the competitive advantages and organizational performance in Sri Lanka. The study has outlined to examine the five SCM variables in construction industry. Hence future study can be outlined to further examine the

impact of SCM on competitive advantages in other industries. Moreover, the future study can be outlined to further examine the impact of SCM variables in different dimensions especially including customer perspective in respect to human variables. Besides, this study was based on the limited large-scale construction companies operated in Sri Lanka and ignore the small and medium scale supermarkets.

Keywords: *Competitive Advantage, Organizational Performance, Supply Chain Management Practices*

1. INTRODUCTION:

Linearization of world trade and capital markets led by globalization has created a new and challenging competitive arena for all firms (Abdel-Baset et al., 2019; Cousins et al., 2019). With global competition continues to intensify, firms will be required to achieve and maintain their advantage through a more competitive strategy (Hains & Sharif, 2006; Lori, Cook & Sengupta, 2011). As mentioned in Nolan and Zhang (2003) and Dasanayaka (2011), globalization impacts organizations including the Si Lankan construction sector firms and have to face this intensified competition therefore organizations need to use more competitive strategy to survive in the market. This requirement has become essential to be competitive locally and across the borders (Lambert *et al.*, 1998; Oliver & Webber, 1982).

Considering about supply chain management literature, the concept of supply chain management has received increasing attention from academicians, consultants and business managers, organizations alike (Feldmann & Muller, 2003; Tan, Lyman & Wisner, 2002). Therefore, understanding and practicing of supply chain management have become an essential prerequisite for staying competitive in the global race and for enhancing profitability (Childhouse & Towil, 2003; Moberg, Cutler & Gross, 2002; Tan, Lyman & Wisner, 2002; Power, Sohal & Rahman, 2001). The concept of supply chain management has been considered from different points of view in different literature Croom, Romano & Giannakis (2000), such as purchasing and supply management, logistics and transportation, operations management, marketing, organizational theory, management information systems. Moreover, various theories have offered insights on specific aspects or perspectives of supply chain management, such as individual organizations and associated transaction cost analysis (Ellram, 1990; Williamson, 1975), resource base and resource dependency theory (Stern & Reve, 1980), competitive strategy (Porter, 1985), and social-political perspective (Stern & Reve, 1980).

Existing literature related to supply chain management in a construction context is looking at the issues of relationships between contractor, subcontractor and supplier (Greenwood, 2005; Kadeforsi, 1999; Kale & Arditi, 2001), subcontractor and supplier selection (Kumaraswami & Mathews, 2000), Organizational perspectives/network alliances in Supply chain management (Love et al, 2002; London, 2001), Just in time practice (Tommeilein & Weissenberger, 1999; Akintoye, 1995), Construction

processes (Nicolini et al., 2001; Roy et al., 2003), industrial/economic perspective of supply chain management (Edum-Fortway et al., 2001; Marsh & Finch, 1999; O'brien, 2001), risks in supply chain management (Tah & Carr, 2001), Patterning (Bresnan & Marshall,1999; Briscoe, et al., 2001; Greenwood, 2005; Larson, 1995; Peckham et al., 2003) Costs (O'brien, 1997) and the roles of clients in supply chain management (Briscoe et al., 2004), etc. According to the aforementioned studies, the researcher identifies that there are very little studies done on the impact of SCM on the construction industry and how it can be affected by the competitive advantage and organizations performance.

Further, comparing existing literature of SCM practices on Sri Lankan context to the Western context. The existing literature available in the Western context related to SCM practices is supply chain performance and organizational performance integrated framework (Anant, 2012), Green SCM practices impact on performance (Kenneth, Pamela & Jeromy, 2012), supply chain innovation and organization performance (Sang, Donhee & Marc, 2011), Impact of SCM practices on performance of SME (Lenny et al., 2007), etc. To the Western context, the current studies about SCM practices in Sri Lankan Context are the importance of supply chain management in SME (Herath & Renuka, 2014), Sustainable supply chain management (Pradeepa et al., 2011), IOT embedded future supply chains (Aabid & Thashika, 2017), Quality Management & SCM practices towards operational performance (Ushantha, Samarasinghe & Kuruppu, 2017), etc. Therefore, comparing the Western context of the SCM practices studies with Sri Lankan context the researcher derives there are lesser studies done towards it and there is a clear research gap for studies towards the integration of SCM practices to competitive advantage and organizational performance in Sri Lankan context. Therefore, this study attempts to fill the above research gaps by studying the impact of supply chain management practices on competitive advantage and organizational performance in Sri Lankan construction industry.

2. LITERATURE REVIEW:

2.1. Supply Chain Management Practices:

SCM practices are defined as a set of practices undertaken by an organization to promote effective supply chain management (Tan, 2001). Many studies have done about SCM practices in different aspects. Li et al., (2006) reviewed SCM practices literature and identified five distinctive elements. They are strategic supplier partnership, customer relationship, level of information sharing, quality of information sharing and postponement. Afande et al., (2015) studied about these elements and according to him these five constructs cover upstream (strategic supplier partnership) and downstream (customer relationship) sides of supply chain, information sharing of a supply chain (level of information sharing and quality of information sharing), and internal supply chain process (postponement). Studying the literature above clarifies that there are five distinctive dimensions and

those can be used to measure the SCM practices. Also, these five elements cover the upstream, downstream and internal supply chain process.

2.1.1.Strategic Partnership with Suppliers:

Strategic supplier partnership is defined as the long-term relationship between an organization and its suppliers (Li et al., 2006). The partnership is explained as an ongoing collaborative relationship between two legally separate organizations, based upon a commitment to the equal sharing of the costs, risks and rewards derived from working together (Chicksand, 2015). Sharing benefits is the core factor of partnership. Strategic partnership with suppliers increases the efficiency or productivity since they are willing to share the success of the products (Li et al., 2006). Supplier participating at the early stages in the product design process can offer more cost-effective designs, help to select best technologies and components, and help in design assessment (Tan, Lymann & Wisner, 2002). Strategically aligned organizations can work closely together and eliminate wasteful time and effort (Balsmeier & Voisin, 1996). An effective supplier partnership can be a critical component of a leading-edge supply chain (Noble, 1997).

2.1.2 Level of Information Sharing:

Level of information sharing has defined as the willingness to share strategic and tactical data with other members of the supply chain by Global logistic research team (Mentzer et al., 2001). Information sharing refers to the ability of enterprises to share knowledge and information with supply chain partners with an effective and efficient manner. Companies share demand related information with their upstream and downstream partners with the purpose of improving planning and coordination of logistics and production-related activities (Glenn, Chen, Fawcett & Adams 2009; Cooper et al., 1997). Together supply chain partners can understand the needs of the end customer better and hence can respond to market change quicker (Stein & Sweat, 1998). It can be considered that effective use of relevant and timely information by all functional elements within a supply chain as a key competitive and distinguishing factor (Tompkins & Ang, 1999). Many types of research in the field focuses on the effect of information sharing on supply chain members (Huang & Wang, 2017). Simplified material flow, including streamlining and making highly visible all information flow throughout the chain, is the key to an integrated and effective supply chain (Childhouse & Towill, 2003).

2.1.3 Quality of Information Sharing:

Quality of Information sharing has defined as the accuracy, timeliness, adequacy and credibility of information sharing (Moberg, Cutler, Gross & Speh, 2002; Monczka, Peterson, Handfield & Ragatz, 1998). Besides the level of information sharing the quality of information sharing is also very important.

The high level of information with low quality shared among partners in the supply chain will limit the positive effect of general information sharing action. Marinagi, Trivellas and Reklitis (2015) implied that information sharing among partners along the supply chain facilitates higher overall performance as a result of enforced SCM practices elevating information reliability and quality. Efficiently and friendly information technology applications will improve information sharing as described (Yang & Maxwell, 2011). However main barriers and difficulties to discourage quality of information sharing is the cost and complexity of technological solutions (Brau, Fawcett & Morgan, 2007).

2.1.4 Customer Relationship:

Customer relationship is defined as the entire array of practices that are employed for the purpose of managing customer complaints, building a long-term relationship with the customer, and improving customer satisfaction (et al., 2006). Improving customer relationship can enhance the benefits by reducing coordination frictions and helping sellers learn about related buyers' utility (Shi, 2016). Having understood the importance of the customer relationship towards the long-term survival organizations are moving towards the customized products and personalized services (Moberg *et al.*, 2002). Success in market place demands going beyond satisfactory exchanges with customers, therefore firms should build a close relationship with their customers.

2.1.5 Postponement:

Postponement is defined as the practice of moving forward one or more operations or activities (making, sourcing and delivering) to a much later point in the supply chain (Beamon, 1998; Van Hoek, 1998). Two primary steps of developing a postponement strategy are determining how many steps to postpone and determining which steps to be postponed (Beamon, 1998). Postponement allows an organization to be flexible in developing different versions of the product to meet the changing customer needs and to differentiate a product or to modify a demand function (Waller, Dabholkar & Gentry, 2000). Keeping materials undifferentiated for as long as possible will increase an organization's flexibility in responding to changes in customer demand. Besides, an organization can reduce supply chain cost by keeping undifferentiated inventories (Lee & Billington, 1995; Van Hoek, Voss & Commandeur, 1999).

2.2. Competitive Advantage:

Competitive advantage (CA) has defined as the extent in which an organization can create a defensible position over its competitors (Mcginnis & Vallopra, 1999; Porter, 1985) and includes a feature that allows an organization to distinguish itself from its competitors (Li, Ragu-Nathan, Ragu-Nathan & Rao, 2006). CA is related to the unique resources and competencies. Where other competitors do not have, which leads to better performance over the competitors (Sadri & Lees, 2001). CA is based on the

competitive capabilities and the past literature suggests price/cost, quality, delivery and flexibility as important. The recent literature identifies time is also an important source of competitive advantage (Kessler & Chakrabarthi, 1996). According to Li et al., (2006) competitive advantage is based on the following capabilities; competitive pricing, premium pricing, value to customer, quality, dependable delivery and product innovation.

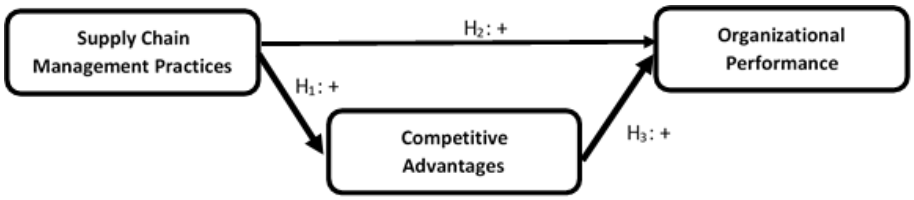
2.3. Organizational Performance:

Organizational performance refers to how well an organization achieves its market-oriented goals as well as its financial goals (Yamin & Gunasekruan 1999). Organizational performance is difficult to measure and there is no universally accepted definition. Many prior studies have measured organizational performance using both financial and market criteria, including return on investment (ROI), Market share in the industry. Profit margins on sales, the growth of ROI, the growth of sales, the growth of market share and overall competitive position in the industry (Vickery, Calantone & Droge, 1999). The short-term objectives SCM are primarily to increase productivity and reduce inventory and cycle time, while long term objectives are to increase market share and profits for all members of the supply chain (Tan, Kannan & Handfield, 1998). Any organizations initiative is to use SCM practices and other management techniques to improve organizations performance. As per the above literature, we will use Market share in the industry, Return on Investment, Profit Margins, Growth of Sales and Competitive position in the industry dimensions will consider measuring the organizational performance.

3. CONCEPTUAL FRAMEWORK AND HYPOTHESES:

In this section, the approach is taken to develop an initial research model and the hypotheses deduced from the research question and research is described. Much care has been exercised in order to satisfy the criterion of replicability (Kerlinger, 1986). The result is a fairly detailed measurement and data collection sections making it possible for others to reproduce the research, to reanalyze the data, and to judge the adequacy of the methods and the data collection. When developing the conceptual framework of the present study, based on the previous literature, measure the positive or negative impact on the dependent variable (i.e., organizational performance) by the independent variable (i.e., supply chain management practices).and the mediating variable (i.e., competitive advantage). As mentioned, observational data collected prior to this study were important as they led to a research idea and hence provided some direction to the investigation. The literature reviewed in the previous section examined the theoretical and empirical work conducted into the benefits of being supply chain management practices in support of the view that such practices lead to better organizational performance through competitive advantages as outlined in figure 1.

Figure 1: Conceptual Framework



3.1. Supply Chain Management Practices and Competitive Advantage:

SCM practices impact not only organizations performance but also CA of an organization over the other competitors. Existing literature has identified that elements of SCM practices have an impact on various elements of CA. For examples Strategic supplier partnership in SCM practices impacts on price and cost, supplier performance and reduce tie to market in competitive advantage (Handfield, 1997; Ragatz & Nicolini et al., 2001). Information sharing leads to a high level of supply chain integration (Jarrel, 1998) by enabling organizations to make dependable delivery and introduce products to the market quickly. Information sharing and information quality contribute positively to customer satisfaction (Spekman, Kamauff & Myhr, 1998). Postponement strategy not only increases the flexibility in the supply chain but also balances global efficiency and customer responsiveness (Van & Voss, 1999). As per the above literature, it is hypothesized that

Hypothesis 1 - Supply Chain management practices impact significantly on firm Competitive advantage

3.2. Supply Chain Management and Organizational Performance:

SCM practices framework developed in this study proposes that SCM practices have a direct impact on the overall performance by impacting financial and marketing performance of an organization (Prasad & Tata, 2000; Shin, Collier & Wilson, 2000). SCM practices are expected to increase an organizations market share, return on investment (Prasad & Tata, 2000; Shin, Collier & Wilson, 2000), and improve overall competitive position (Carr & Ng, 1995). For example, strategic supplier partnership has been reported to yield organization-specific benefits in terms of financial performance (Stuart, 1997; Tan, Kannan & Handfield, 1998). Advanced design and logistic links with suppliers are related to better performing plants (De Toni, 2000). Customer relation practices have also shown to lead to significant improvement in organizational performance (Tan, Kannan & Handfield, 1998). The higher level of information sharing is associated with the lower total cost, the higher-order fulfilment rate and the shorter order cycle time (Lin, Huang & Lin, 2002). Based on the above literature it is hypothesized that

Hypothesis 2 - Supply chain management practices impact significantly on Organization performance

3.3. Competitive Advantage and Organizational Performance:

Having a CA for an organization can have one or more of the capabilities such as lower prices, higher quality, higher dependability and shorter delivery time when it is compared with its competitors. These capabilities will in turn enhance the organizations' overall performance (Mentzer, Min & Zacharia, 2000). CA can lead to high levels of economic performance, customer satisfaction and loyalty. Brands with higher consumer loyalty face less competitive switching in their target segments thereby increasing sales and profitability (Moran, 1981). An organization that supplies high-quality products can charge a premium or higher price for their quality. That causes the organization to increase its profitability and the return on investment. An organization having a short time to market supply and with rapid product innovation can lead the market with a higher market share and sales volume. As per the above following the hypothesis can be created

Hypothesis 3 - Competitive advantage impact significantly on Organizational performance

4. STUDY DESIGN AND METHODOLOGY:

4.1. Research Context:

The present study examines the impact of supply chain management practices on competitive advantages and organizational performance at the constructions industry in Sri Lanka. Kelinger (1986), describes research design as the structure of the research problem and the plan of investigation used to obtain empirical evidence on the relations of the problem. The research is not focused on testing resource-based theories, but to analyze static associations between variables, multiple period data collection through multiple cross-sectional or longitudinal designs is viewed as not necessary. A single time period data collection through a single cross-sectional design is regarded as more adequate. The research strategy used in the current research involves, in line with the arguments outlined above, the use of a conclusive research design in the form of descriptive research where the necessary data are collected through a single cross-sectional design. Chen and Paulraj (2004) defines context as environmental factors that may influence the research process and/or the instructional outcomes. The research context can be defined as the physical setting of the research and the natural or artificial properties of that setting. This research is carried out in the Sri Lankan construction industry context. In Sri Lankan construction industry is one of the largest incomes earning industry. In the construction industry, there are several organizations and construction sites. A construction company mainly depends on construction sites and most of the SCM is proceeding in construction sites. Different construction sites have different construction management teams and different sub-contractors. Therefore, there are different suppliers, supply chains and practices.

4.2. The Sample, Study Variables, Questionnaire Design and Data Collection:

The sampling frame was designed on the register list of Construction Industry Development Authority (CIDA). The members' list offered useful information such as the name and addresses of construction companies' location, and telephone and fax numbers, while simple random sampling method was applied in order to select the respondents from the population. The research conducts on 95% confidence. In conformity with this precedent, the level of analysis of the present study is the supply chains in constructions industry, while the unit of analysis is a staff who is responsible for the construction sites performance and mostly involved in the construction supply chain. The data collection had happened from December 2019 to March 2020 from the construction companies registered under the Construction Industry Development Authority (CIDA) in Sri Lanka, such as Kent Engineers, Softlogic, Maxair, SLTS, VSIS, Southern fire, New Royal, Yonsan Engineers, and Azonic Vidas. In this study, the researcher collected data from different construction sites such as Havelock City Phase III project, Havelock City Phase IV project, Galle Ocean Front Condos project, WAKANA Resort Ahungalla project, Pitipana Colombo University project, and Central Expressway site. The respondents were construction sites staff and the staff of the Head office who are responsible for the SCM process in construction firms, Sri Lanka. The achieved sample consists of 280 questioners. Out of 280 questioners, 198 were usable. Six questioners were unable to use. The overall response rate was 70.7%.

This study, therefore, uses PLS to process the data because of sample size is somewhat sufficient. Demographic data analysis has done through the SSPS and 130 respondents were executives or above grades and that was 65.7%, 68 were non-executive grades that was 34.3%. The experience of the respondents was as follows, 134 respondents have 5 years or less than 5 years' experience in the construction organization that was 67.68%, 64 respondents have more than 5 years' experience that was 33.32%.15 were having an only ordinary level that was 13.6%. Organization specialty was categorized into five groups as per CIDA standards. They were Building Construction, Highway construction, Electrical and Mechanical Services, Specialized construction contractors and Piling contractors. 63.6% of respondents were from Building construction sector. 17.7% were from Electrical and Mechanical services, 6.6% were from highway construction, 9.1% were from specialized construction contractors and 3% were from piling contractors. The questionnaire is composed of two parts. The first part of the questionnaire was designed to operationalize key variables under the supply chain management practices, competitive advantage and organizational performance. The second part of the questionnaire asks demographic information about respondents. The three study constructs of the study i.e., supply chain management practices, competitive advantage, and organizational performance were operationalized as multi-item constructs. To measure supply chain management practices under four dimensions (i.e., strategic supplier partnership, customer relationship, level of information sharing,

quality of information sharing, and postponement) twenty-five items from Li et al., (2006) were used. To measure competitive advantages under five dimensions (i.e., price/cost, quality, delivery dependability, product innovation, and time to market), sixteen items from Zhang & Lado, (2001) were used. Vickery, Calantone & Droge (1999) and Tan et al., (1998) identified organizational performance under market share, return on investment, profit margin, competitive position and growth of sales. Using these dimensions five items that measure organizational performance was developed by Zhang (2001) and constructs from Vickery, Calantone and Droge, (1999). The questions were developed by using a five-point scale ranging from "1= strongly disagree" to "5= strongly agree".

5. DATA ANALYSIS AND RESULTS:

The discriminant validity of the latent variables was tested using Fornell & Larcker (1981) approach. Table 1 shows the discriminant validity of each latent variable. The discriminant validity of the latent variables was tested using Fornell & Larcker's (1981) criterion, which requires that each latent variable's AVE is greater than the latent variable's squared correlation with any other construct in the model. The other entries in Table 1 show the square of correlations (R^2) between constructs. No non-diagonal entry exceeds the AVE of the specific construct.

Table 1: Discriminant validity of variable constructs

Latent Variables	1	2	3
SCM Practices	0.777		
Competitive Advantage	0.255	0.756	
Organizational performance	0.404	0.671	0.804

Source: Survey Data (2020)

There are two statistical methodologies for estimating SEM with latent variables, the covariance-based (CBSEM) approach and the variance-based partial least squares path modelling (PLS). CBSEM is the method of choice for theory testing, while PLS is appropriate for prediction-oriented applications (Wold 1982). Like any SEM, a PLS model consists of a structural part, which reflects the relationship between the latent variables, and a measurement component, which shows how the latent variables and their indicators are related (Haenlien & Kaplan 2004). PLS is particularly appropriate when the model is complex because it does not lead to estimation problems or non-convergent results (Henseler et al., 2009). Given the complexity of the research model, the PLS approach is appropriate. The software used for the analysis was Smart PLS (Lohmoller 1989). This method analyses high dimensional data in a low structure environment (Henseler et al. 2009). PLS path model classifies the main model in two parts: the inner model and the outer model. The inner model specifies the relationships between latent variables, whilst the outer model specifies the relationships between a latent variable and its manifest variables (Henseler et al., 2009). SEM does not only allow to analyze a set of latent factors like

dependent and independent variables in regression analysis (Segars & Grover, 1993) but also provides a comprehensive means to assess and modify theoretical models (Karahanna & Straub, 1999).

5.1. Regression Analysis:

Table 2 shows the summary of the coefficient of determination (R^2) the study measures the coefficient of determination (R^2) of the endogenous latent variable i.e., performance. The percentage of explained variance (R^2) is 0.63 for performance. In addition, table 2 summarizes these relationships and shows the values of standardized path coefficients (β), standard errors (se), t-values (t), and significance values (*p*) of path coefficients and table 3 illustrates the model goodness of fit statistics.

Table 2: Results of PLS Path Model Estimation

Path	**β**	**t**	**p**	**R^2**
SCM Practices → CA	0.28	5.80	0.05	0.40
SCM Practices → Organizational Performance	0.36	6.04	0.00	0.63
CA → Organizational Performance	0.21	4.94	0.05	0.66

Source: Survey Data (2020)

Table 3: Model Fit Indices

	Saturated Model	**Estimated Model**
SRMR	0.107	0.141
D_ULS	3.703	4.424
D_G	1.461	1.624
CHI-SQUARE	730.331	784.287
NFI	0.573	0.532

Source: Survey Data (2020)

The results reveal that SCM practices have a positive and statistically significant relationship with CA. This relationship is supported by data (β=0.28, t=5.80, p< 0.05) in harmony with postulated theory, results show that a firm's magnitude of SCM practices has a positive and statistically significant effect (R^2 = 0.40) upon CA. There is a positive and statistically positive relationship between SCM practices and organizational performance (β = 0.36, t = 6.04; $p < 0.000$). Moreover, the results show that SCM practices have a positive and statistically significant effect (R^2 = 0.63) upon organizational performance. There is a positive relationship between CA and organizational performance (β = 0.21, t = 4.94; $p < 0.05$). In addition, the results show that CA has a positive and statistically significant effect (R^2 = 0.66) upon organizational performance.

Each construct in the measurement model was measured using multiple items. Each manifest variable in a certain measurement model is assumed to be generated as a linear function of its latent variables and the residual. Table 4 presents an overview of the composite reliabilities and average variances extracted (AVEs). The analysis of the measurement model provides evidence of the robustness of the

measures as indicated by their reliabilities. This confirms that the indicator variables and their respective underlying constructs are acceptable. The composite reliability values of the study construct also reveal that the measurement model is reliable.

Table 4: Composite Reliabilities and AVEs of Latent Variables

Latent variable	Composite reliability	AVE
SCM Practices	0.903	0652
CA	0.772	0.570
Organizational Performance	0.802	0.556

Source: Survey Data (2020)

6. DISCUSSION:

The study mainly examines the impact of SCM practices on organizational performance through competitive advantage of the construction industry in Sri Lanka. Results of the study concluded that SCM practices have a significant positive impact on CA and Org. performance. Li, Ragu-nadan and Rao (2006) concluded that companies with high levels of SCM practices have high levels of Organizational performance and CA. Moreover, Duong and Nguyen (2018) concluded SCM practices impact positively significantly on firm performance and competitive advantage. Strategic supply chain management practices are very significant in enhancing the performance of the organizations (Hilda, 2012). Therefore, previous studies about SCM practices have verified the results of this study about the positive impact of SCM practices on CA & Org. performance. Studies also concluded, by strengthening strategic supplier partnership in SCM practices, improved performance will like to occur (Aravathi & Zafaran, 2008). Product innovation, process innovation, and organizational innovation have a positive impact on organization performance (Suhag, Solangi, Lakho & Tagar, 2017). Megat, Hadijah and Noraini (2015) concluded the significance of innovation influence organizational performance. Existing literature also proved the significant impacts of strategic supplier partnership and product innovation dimensions. Therefore, it can be concluded that the study findings can be proved by the existing literature.

Based on the results construction firms can understand the importance of SCM practices in their business. Firms can prioritize more towards the supply side of their operation to gain more performance and CA. Construction managers can use the study to improve the performance of their construction projects by improving SCM practices in the project. Results also concluded that strategic supplier partnership is a major component that significantly impacts on both Org. performance and the CA. Therefore, firms should give more priority to improve supplier partnership to gain higher CA and performance. Managers can use the study to improve the knowledge of employees in their firms highlight the areas to be prioritized. Results also concluded there is a significant impact of time to

market and product innovation components in Org. performance. This highlights the importance of product innovations within an organization for improvement. Organizations can improve their research and development facilities to improve innovations of their products. Firms can allocate revenue to product innovation based on these results. Construction firms should increase innovation in construction sites by promoting innovative activities, giving required appreciation for innovations to improve performance. Organizations can improve time to market of their products to get higher performance. Construction firms should give priority to complete construction projects within proper time limits which will improve the performance of the sites based on the results of the study. Targets and penalties should be introduced to employees to complete their products within the shortest time possible to introduce to the markets to get a better performance within the organization.

Based on the results policymakers can improve the strategic supplier partnership by introducing new regulations and guidelines to the supplier side as well. Also, they can improve innovations by providing guidelines for the compulsory requirements of research and development facilities in each organization. Policymakers also need to address project completions and product completions time within given targets or less time by adding more restrictions for delays. They also can encourage more studies towards SCM practices, CA and Org. performance to gain more knowledge of the impact in the construction industry. Therefore, the application of new policies and new guidelines based on this study finding will help to improve performance in the construction firms and local firms will able to compete with multinational organizations by improving these factors.

7. FUTURE RESEARCH DIRECTIONS

The findings of the study and application are limited to the construction industry organizations in Sri Lanka. They may not be applying to construction organizations operating outside the country. Therefore, it is important to note that they can only be used for competitive purposes and not any direct application in another country. To overcome this limitation future studies, need to be conducted involving construction firms outside the country. Some multinational construction firms are operating in Sri Lanka. Another major limitation of the study was this study carried out using twelve construction sector organizations. But as per the CIDA records, there are more than two thousand registered construction companies in Sri Lanka. If the samples and population could have expanded more than this, more vigorous results could have been obtained, which could have generalized in a much broader manner. Therefore, future studies should be done involving more construction companies registered in the CIDA to overcome this limitation. In this study researcher used only five dimensions in each SCM Practices, CA & Org. Performance variables. As per the literature, there are more dimensions to measure each of these variables which haven't used in this study. Therefore, there is a limitation on the dimensions of study variables. Future research can expand on the domain of SCM practices by

considering additional dimensions such as geographical proximity, cross-functional coordination, logistic integration and agreed supply chain leadership has ignored in this study. Similarly, more dimensions should be considered to measure CA and Org. Performance. Therefore, academicians can use more reference literature to conclude results in a much broader perspective and to overcome this limitation.

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