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## The Influence of Social Capital on Sustainable Performance: A Context of Sustainable Supply Chain Management

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### Abstract

Lately, an increase in demand for green initiatives and matters of sustainability has required a paradigm shift in the way firms, especially those in the manufacturing industry to conduct their operations. Consequently, the importance of studying sustainable performance has grown and sustainable supply chain management was introduced to integrate suppliers, manufacturers, and customers. The sustainable supply chain and social capital can be understood to be essentially correlated in which social capital is required through collaboration in ongoing networks. However, the number of sustainable supply chain studies considering social capital approach, in particular empirical studies, remain limited. Therefore, this study was conducted to identify the relationship between social capital and sustainable performance. A survey was conducted on manufacturing firms in Malaysia. A total of 106 questionnaires was completed by the respondents and considered to be appropriate for data analysis. The data was analysed using Partial Least Squares-Structural Equation Modelling (PLS-SEM). Further investigation has shown that structural social capital significantly influences all sustainable performance dimensions namely economic, environmental, and social performance. Apart from contribution to theoretical knowledge, the results would also be valuable in providing new insights to management in their environmental goals and sustaining successful performance within the pressures of stakeholders, customers, and environmental regulations. The value of R Square in this study also indicates that other variables or external factors can be included in future studies to improve the prediction on sustainable performance such as company ownership, type of industry, company age, technology advancement, or even enforcement on environmental regulations as moderating variables.

**Keywords:** Supply Chain, Management, Social Capital, Sustainable Performance, Manufacturing

### Introduction

Recently, a growth in demand for green initiatives and sustainability-related issues has necessitated a paradigm shift in how businesses, particularly those in the industrial sector, conduct their operations (Buffa et al., 2018). Environmental, climate change, and green

consumerism-related global regulations have prompted businesses to re-evaluate their supply chain strategies. In addition to these concerns, there is a substantial possibility that enterprises may be penalized for their supply chain operations from an environmental standpoint (Handfield et al., 2005). In addition, governments and environmental organizations are exerting pressure on businesses to adopt green practices and promote their sustainability (Vijayvargy et al., 2017).

Over time, the importance of studying sustainable performance has grown. The concept of sustainable performance is founded on three crucial pillars: economic, environmental, and social performance (Abdul-Rashid et al., 2017). It guarantees that businesses balance their economic, environmental, and social performance holistically (Afum et al., 2020). In the context of sustainable supply chain management, the integration of the supplier, the manufacturer, and the customer is crucial for assuring enhanced sustainable performance. In fact, coordination is required throughout the entire supply chain and can be characterized as 'second hand' regulations (Lee & Klassen, 2008).

The social capital and sustainable supply chain can be viewed as fundamentally correlated in that social capital is accumulated by enterprises constructing social interactions in continuing networks (Lee, 2015). Social capital is a concept of community activity that strives to improve the efficacy, quality, and longevity of operations. The interaction and collaboration between supplier, manufacturer, and customer is the focus of this research. The uses of theory in sustainable supply chain studies are very new; therefore, there is a significant opportunity to extend these studies using organizational theories (Lee, 2015). Social capital is regarded to be promising for advancing sustainable supply chain management studies (Sarkis et al., 2011). However, the number of sustainable supply chain studies including a social capital approach, especially empirical studies, remain limited (Lee, 2015). In addition, past research tends to concentrate on certain components of sustainable performance, and fewer of these studies give a simultaneous approach that includes the economic, environmental, and social dimensions (Abdul-Rashid et al., 2017).

This research is also inspired by the dynamic character of Malaysia's manufacturing industry. According to Abdul-Rashid et al. (2017), the manufacturing sector is mostly responsible for the consumption of vast quantities of resources and the production of waste. This is reinforced by Gyasi-Mensah and Xuhua (2018), who noted that manufacturers are releasing more harmful and hazardous compounds that negatively impact quality of life, worker health, and the environment. Moreover, it is obvious that most sustainable supply chain studies (e.g., Menzel et al., 2010; Cankaya & Sezen, 2019) have been conducted in developed and quickly emerging nations, leaving a contextual study gap in developing nations such as Malaysia.

Considering this, an investigation into sustainable performance is crucial for managers and industrial practitioners in the manufacturing industry. Although empirical studies such as Abdullah et al (2014); Abdul Rashid et al (2017) have previously been undertaken on the manufacturing sector in Malaysia, this study presents social capital as a crucial predictor of sustainable performance. This study tries to analyse the direct effect of social capital on sustainable performance considering the gaps.

## **Literature Review**

### **Sustainable Performance**

The importance of investigating sustainable performance has grown in popularity among scholars over the last decade. Elkington (1994) came up with the term "sustainability" and characterized it as an extension of the corporate perspective that considers economic,

environmental, and social factors. According to Guan, Cheng, and Ye (2010), sustainability in the context of supply chain management is "a modern management pattern emphasizing the integration of the economy, environment, and society through all processes including procurement, producing, packaging, transportation, storage, consumption, and disposal of the end-of-life product, supported by supply chain management technology, and its ultimate goal is to achieve the sustainable development of the economy." The triple bottom line concept holds that firms should consider environmental and social concerns in addition to economic value (Elkington, 1998).

Economic, environmental, and social performance are the three main components of gauging sustainable performance (Chen et al., 2010; Abdul-Rashid et al., 2017). Currently, most businesses are targeting sustainable performance by incorporating green initiatives into their operations (Teixeira & Jabbour, 2012). This study's use of economic performance, environmental performance, and social performance to measure sustainable performance is consistent with past research (e.g., Chen et al., 2010; Abdul-Rashid et al., 2017; Cankaya & Sezen, 2019).

### **Economic Performance**

Economic performance is continuing to be one of major goals for business firms. According to Green et al (2012); Liu et al (2012), economic performance refers to "evaluation of organizational cost reduction, promotes market shares, return on assets, improve income, and profits regarding the economic goals of performance". Later, Younis et al (2016) defined economic performance as "the financial and marketing performance improvements resulted from implementing sustainable practices that lead to enhancing the firm's position compared to the industry average." They further explained that economic performance means financial improvements as decreased cost of environmental accidents, decreased waste discharge costs, decreased cost of energy consumed, and decreased cost of raw material purchased. Economic performance is usually measured from both financial and operational perspectives (Afum et al., 2020). Similarly, economic performance relates strongly with manufacturer's ability to decrease fines for environmental accidents, cost related to waste treatment, and purchased inputs (Abdul Rashid et al., 2017). This includes finance-based constructs like profits, sales growth, and return on investment. Measurement of economic performance applied is consistent with previous works by (Rao and Holt, 2005; Chung and Tsai, 2007; Abdul-Rashid et al., 2017).

### **Environmental Performance**

Concerns about the environment and a desire to be environmentally conscious are driving businesses to re-examine their operational impacts. Brent' and Labuschagne' (2004) defined environmental performance as "achievements in reducing the resource usage, pollution emitted, and waste generated resulting from the undertaken efforts." Referring to Junquera, Brio, and Fernandez (2012), environmental performance is defined as "the evaluation of organizational reduction for emissions, decrease of consumption for hazardous or harmful materials, and efficient energy or resources use." It is achieved when manufacturing firms reduce their carbon emissions, minimize water and solid waste, reduce the use of harmful inputs, lower the frequency of environmental accidents, and minimize the environmental impact of a firm's activity (Cankaya & Sezen, 2019). Environmental performance is also closely linked to organizational environmental goals, such as reducing the frequency of environmental accidents and developing solutions to improve an enterprise's environmental

situation (Chien & Shih, 2007). Environmental performance can also be used to reduce environmental risks, as well as to aid in external communication and policymaking for both public and private sectors (Mazzi et al., 2012). In conclusion, environmental performance indicates the efforts and responsibilities taken by manufacturing firms to minimize environmental accidents or negative impacts through their operational activities toward environment and society.

### **Social Performance**

Taking care of employees and societies welfare has become a huge social responsibility for every business firms globally. To achieve that, social sustainability should not only be measured by profits made, but also on how industrial activities reduce social degradation (Tsai et al., 2009). Earlier work by Brent' and Labuschagne (2004) described social performance as "achievements in creating social welfare (for various stakeholders including supplier, employee, customer, and society) resulting from the undertaken operational efforts." Precisely, the management bears complete responsibility for the implementation of human resource management, social participation and commitment, social administrative policies, and a conducive working environment. Teraji (2009) later defined social performance as "evaluation of organization on healthy work environment, social commitment, participation, education, training, and human resources development". Yusuf et al (2013) refers social performance as organization's real achievement to maintain and improve quality of life without abandoning environmental aspects. There are several domains namely human resources, corporate governance, human rights, and environment that should be properly assessed (Bessire & Onnee, 2010). Exposure to social performance would ensure that the organization achieves its mission and vision while remaining competitive in the market.

### **Social Capital**

Social capital is a community action idea that strives to improve the effectiveness, quality, and sustainability of operations. The enthusiastic growth of social capital began in the 1990s. Nahapiet and Ghoshal (1998) defined social capital as "available or potentially available resources from an individual's or community's network of ties." Putnam (2000) defined social capital as "the network of interactions, activities, or associations that bind individuals together as a community through specific norms and psychological capacities, especially trust, that are needed for civil society and productive of future collective action or goods." While the idea of social capital is well-known, there is still much disagreement concerning its meaning and implications (Koka & Prescott, 2002).

Earlier researchers such as Coleman (1988); Putnam (1995); Nahapiet and Ghoshal (1998) believed that social capital is a multidimensional concept. Even though it contains many characteristics associated with a complex social setting, it also covers social components such as trusting relationships, social ties, and value systems that assist individual behaviours. The theory of social capital has highlighted the advantages and benefits those enterprises can obtain from their social network. As a result, it is critical to describe the characteristics of social capital (Tsai & Ghoshal, 1998). After that, Nahapiet and Ghoshal (1998) identified three aspects of social capital: cognitive, relational, and structural. These three aspects have frequently been utilized to investigate the relationship between social capital and inter-organizational phenomena (Nahapiet & Ghoshal, 1998; Tsai & Ghoshal, 1998; Bolino et al., 2002).

This study employs the Nahapiet and Ghoshal (1998) social capital model, which defined and advocated social capital through three dimensions of cognitive, structural, and relational to explain how these dimensions allow the generation and exchange of information. First, the social capital model developed by Nahapiet and Ghoshal (1998) has been included into numerous earlier research (e.g., Tsai & Ghoshal, 1998; Bolino et al., 2002; Abidin et al., 2013) that examine various aspects of social capital. Their model is useful and significant in studying social capital at the organizational level (Subramaniam et al., 2013). Second, previous studies have focused mostly on structural and relational factors when assessing social capital and performance, but Nahapiet and Ghoshal (1998) model includes a cognitive component of social capital. Finally, previous findings (e.g., Abidin et al., 2013) using this model have demonstrated the significance of the relationship between social capital and organizational performance. As a result, the purpose of this research is to investigate the direct effect of social capital on sustainable performance.

The cognitive dimension of social capital refers to shared interpretations, representations, and systems of meaning among parties in a social network (Tsai & Ghoshal, 1998). Cognitive social capital defines common language and narrative (Nahapiet & Ghoshal, 1998), providing appropriate strategies for partners to exchange resources. These are especially important for partner's information exchange and knowledge transfer (Lee, 2015). The cognitive dimension also aids in the construction and development of shared views and understanding among parties through the coordination of information exchange and sharing (De Carolis & Saporito, 2006). To summarize, both common language and common narratives have the potential to be useful in the context of sustainable supply chain management for the coordination of knowledge exchanges among partners and decision making.

The network of relations, the features of the social system, and the impersonal structure of linkages between people or units comprise structural social capital (Nahapiet & Ghoshal, 1998). It is defined as "the pattern of links between actors, i.e., who you reach and how you reach them" (Burt, 1992). This dimension is defined by network ties and network configuration; the most crucial aspects of this dimension are the presence of network ties between partners and network configuration (Nahapiet & Ghoshal, 1998). Network ties are links between organizational members that allow information to flow and serve as conduits for resource and knowledge exchange (Subramaniam et al., 2013). Nahapiet and Ghoshal (1998), for example, underlined that "network ties influence both access to parties for integrating and exchanging knowledge and anticipation of values through such exchange." Network configuration, on the other hand, refers to the configuration of the ties and the pattern of linkages. Previous research on structural social capital looked at a variety of factors, including network characteristics (Inkpen & Tsang, 2005), the strength of social connections (Krause et al., 2007), and information and knowledge sharing (Lawson et al., 2008).

In contrast, the relational component describes "the kinds of personal ties people have built with each other through time" (Granovetter, 1992; Nahapiet & Ghoshal, 1998). This notion focuses on the interactions that people have. The relational dimension, in other words, relates to "the interpersonal aspect of relationships built through time between people, including friendship, respect, acceptance, status, motivation for network participation, obligations, trust, and a feeling of identity with the network" (Subramaniam et al., 2013). These assets are produced through behavioural relationships. Trust and friendship built via repeated transactions improve behavioural transparency, stimulate frequent communication, and diminish opportunistic behaviour among partners (Dyer & Singh, 1998). Trust and trustworthiness (Inkpen & Tsang, 2005), norms and punishments (Coleman, 1990; Putnam,

1995), and obligations and expectations are the primary components of this dimension (Coleman, 1990; Burt, 1992).

### Social Capital and Sustainable Performance

The linkage between social capital and sustainable performance have been explained through several studies (e.g., Lee, 2015; Wu et al., 2012; Parmigiani et al., 2011), but still considered very limited in numbers. Recently, Lee (2015) has examined the direct effect of social capital on environmental performance. It was found that both structural and relational significantly influence environmental performance among supplying firms. He did not investigate the aspect of cognitive social capital and it was focused on environmental and operational performance, not the three dimensions of sustainable performance. However, his work has provided such significant implication about the positive correlation between social capital and environmental performance.

Sustainable performance among supply chain partners can happen through level of commitment given by suppliers, manufacturer, and customers at the same time to improve environmental capabilities. Trust and long term-based relationship with suppliers increase the supplier's commitment toward green initiatives (Lee, 2015). In conclusion, joint practices among these partners such as information sharing, frequent communication, and trust developed from a relationship (Krause et al., 2007) can offer improvements of environmental performance (Parmigiani et al., 2011; Lee, 2015), therefore may also possibly influence economic performance and social performance. Based on the findings and prior literatures, the correlation of social capital on sustainable performance are expected. The hypotheses that explain this relationship are as follows:

- H1 Cognitive social capital has significant positive influence on sustainable performance.  
 H2 Structural social capital has significant positive influence on sustainable performance.  
 H3 Relational social capital has significant positive influence on sustainable performance.

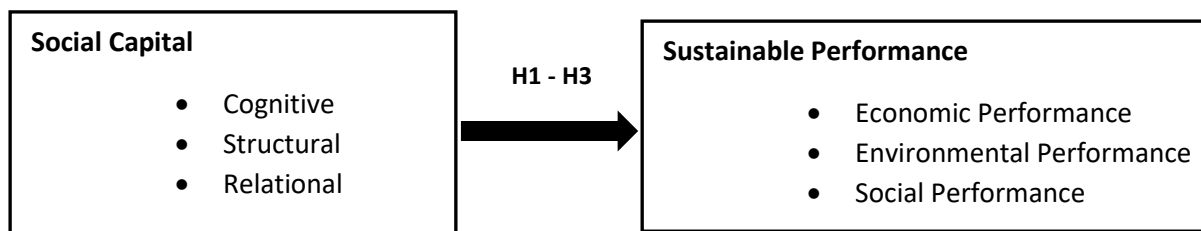


Figure 1: Research Framework

### Research Methodology

#### Development of Survey Questionnaire

The main research instrument in this study is questionnaire. A set of structured questionnaires was then designed to obtain empirical data which will be used to test the hypotheses. Survey data collection technique by using questionnaire is the most common method to collect data due to its ability to cover wide number of respondents and its inexpensiveness (Zikmund, 2000).

The measurement items used in the survey consist of existing measures taken from the literature which were validated by previous researchers (Lee, 2015; Abdul-Rashid et al., 2017). The respondents were requested to indicate the extent to which they perceive and agree with the level of social capital, and sustainable performance in their organizations. Hence, a five-point scale ranging from 1 (strongly disagree) to 5 (strongly disagree) and 1 (low) to 5 (high)

were used. The five-point scale is just as good as any, and an increase from five to seven or nine points on a rating scale does not improve the reliability of the ratings, where the anchors like unimportant to important and low to high are frequently used (Elmore & Beggs, 1975). The measurement items for social capital were adopted from Villena et al (2011); Lee (2015), and sustainable performance was adopted from (Abdul-Rashid et al., 2017; Eltayeb et al., 2011; Vachon and Klassen, 2006).

### **Research Sampling and Data Collection Method**

The main purpose of the sampling method is to attain representative cross-sectional sample of the total population (Cavana et al., 2001). Higher or bigger sample is helpful in improving statistical power; hence it would be easy to detect significant association or relation of the difference related to sample size (Loewenthal, 1996). The population of this study consists of all Malaysian manufacturing companies that are certified in MS ISO 14001. Referring to Federation of Malaysian Manufacturers (FMM) directory in August 2019, a total of 453 ISO 14001 certified manufacturing firms were identified and used as the sampling frame. Each firm or company selected as sample has been represented by personnel from management level who had been appointed as in dealing or taking care of EMS or ISO documentations in the company. The unit of analysis applied in this study is organization.

There are several reasons on why ISO 14001 certified manufacturing firms were selected as samples of this study. Firstly, they represent the largest sector in terms of employment, sales, and contribution toward the nation and global economy (Abdullah et al., 2014). Secondly, despite being the biggest sector, manufacturing firms have been identified as the main contributor of environmental decline in Malaysia such as enormous amounts of wastes, exploitation of natural resources, and overconsumption of energy (Rusli, Rahman, & Ho, 2012; Abdul-Rashid et al., 2017). Thirdly, certification in ISO 14001 proved that the companies were expected to be involved in the implementation of sustainable supply chain management practices and aware with the requirement of environmental procedures and standards (Sroufe, 2003; Zailani et al., 2012). Any efforts taken to improve environmental progress and performance of this sector can produce significant benefits. Therefore, the selection of manufacturing firms as the sample of the study is considered as appropriate and important to accomplish the research objectives.

The data collection was made through survey method. A total of 106 out of 453 distributed questionnaires were returned. The distribution of survey questionnaires was mainly conducted by using online survey, Google Forms. Such an online data collection methodology has been found to be effective in eliciting responses from manufacturing managers (Green et al., 2012). This study applied PLS-SEM to analyse the proposed research framework. The valid response rate at 23% is considered acceptable as supported by Hair et al (2014), who suggested that in the application of PLS-SEM, the minimum sample size should be ten times the maximum number of arrowheads pointing at the latent variables. Since three latent variables are used in this study, the sample size is deemed sufficient since it exceeds the minimum requirement. The collection and distribution processes of the questionnaire started from September 2019 until March 2020.

## **Results**

### **Measurement Model Assessment**

The measurement scales on this study were previously developed and assessed (e.g., Lee, 2015; Abdul-Rashid et al., 2017), therefore the scales are assumed to produce sufficient content validity. Convergent validity is evaluated by reviewing the standardized loadings for each of the



proposed constructs where if the loadings are greater than 0.70, thus the convergent validity is considered as sufficient (Chiang et al., 2012). The standardized factor loadings are presented in Table 1. All loadings exceed the minimum requirement of 0.70, with the lowest loading of 0.70 for the sixth item of structural social capital. The discriminant validity (Fornell-Larcker criterion) is shown in Table 2. The square root of the average variance extracted (AVE) for each construct as can be seen, is higher than its correlation with any other construct.

Then, scale reliability is assessed based on Cronbach's alpha, composite reliability, and average variance extracted values as shown in Table 3. All Cronbach's alpha, composite reliability, and average variance extracted values exceed the respective recommended minimums of 0.70, 0.70, and 0.50 as recommended by Garver and Mentzer (1999) to demonstrate sufficient scale reliability. The measurement scales exhibit sufficient validity and reliability to support assessment of the hypotheses.

Table 1

*Standardized Factor Loadings*

<b>Constructs</b>	<b>EP</b>	<b>ENP</b>	<b>SP</b>	<b>CSC</b>	<b>SCS</b>	<b>RSC</b>
economic1	0.887					
economic2	0.817					
economic3	0.848					
economic4	0.870					
economic5	0.859					
economic6	0.877					
economic7	0.863					
economic8	0.711					
environmental1		0.763				
environmental2		0.776				
environmental3		0.784				
environmental4		0.801				
environmental5		0.785				
environmental6		0.834				
social1			0.722			
social2			0.867			
social3			0.887			
social4			0.878			
social5			0.830			
social6			0.774			
cognitive1				0.791		
cognitive10				0.720		
cognitive2				0.789		
cognitive3				0.734		
cognitive4				0.771		
cognitive5				0.701		
cognitive8				0.714		
cognitive9				0.713		
structural1					0.794	

structural2	0.771
structural3	0.892
structural4	0.804
structural5	0.807
structural6	0.700
structural7	0.744
structural8	0.748
relational1	0.782
relational10	0.701
relational2	0.816
relational3	0.859
relational4	0.745
relational5	0.835
relational6	0.858
relational7	0.849

Table 2

*Discriminant Validity (Fornell-Larcker Criterion)*

Constructs	CSC	EP	ENP	RSC	SP	SCS
Cognitive	0.742					
Economic Performance	0.380	0.843				
Environmental Performance	0.469	0.568	0.791			
Relational	0.762	0.498	0.510	0.806		
Social Performance	0.643	0.597	0.772	0.674	0.829	
Structural	0.717	0.527	0.544	0.73	0.655	0.781

Table 3

*Scale Reliability*

Constructs	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Cognitive	0.884	0.907	0.550
Economic Performance	0.941	0.951	0.711
Environmental Performance	0.881	0.909	0.625
Relational	0.922	0.937	0.650
Social Performance	0.907	0.929	0.687
Structural	0.907	0.925	0.609

### Structural Model Assessment

The structural model presents the causal relationship between the constructs in the model. Following Hair et al. (2017) suggestions, the bootstrapping procedure with 5000 bootstrap samples and 106 cases were used to evaluate the significance of path coefficients to prompt beta values, t-values, and p-values in determining the precision of PLS model. This study evaluated the model's fit by computing the standardized root mean square residual (SRMR). From the analysis, the model has generated SRMR values of 0.07. According to Henseler,

Hubona and Ray (2016), the SRMR values should be obtained within the acceptable standards that are less than 0.08.

R-squared value specifies on how well the independent variables can predict the dependent variable. The  $R^2$  value validates the prediction power of the model (Hair et al., 2014). Table 4 indicates that independent variable (social capital) can explain 29.4%, 30.4%, and 51.2% of the variance on economic performance, environmental performance, and social performance respectively. Cohen (1988) proposed that the R-squared values should be evaluated as such; 0.26 as substantial, 0.13 as moderate, and 0.02 as weak, therefore, the current model presented an acceptable and substantial level of  $R^2$ . The hypothesis test results of this study are shown in Table 5.

Table 4

*Variance Explained (Coefficient of Determination)*

Constructs	R Square
Economic Performance	0.294
Environmental Performance	0.304
Social Performance	0.512

Table 5

*Results of Structural Model Assessment*

Hypothesis (Direct Effect)	Relationship	Coefficient	t-value	Result
H1a	CSC > EP	-0.153	0.989	Not Supported
H1b	CSC > ENP	0.060	0.486	Not Supported
H1c	CSC > SP	0.201	2.107	Supported
H2a	SCS > EP	0.404	2.840	Supported
H2b	SCS > ENP	0.348	2.738	Supported
H2c	SCS > SP	0.280	2.752	Supported
H3a	RSC > EP	0.319	2.283	Supported
H3b	RSC > ENP	0.211	1.433	Not Supported
H3c	RSC > SP	0.316	2.929	Supported

CSC- Cognitive Social Capital, SSC- Structural Social Capital, RSC- Relational Social Capital, EP- Economic Performance, ENP- Environmental Performance, SP- Social Performance

The results from Table 5 provide the relationship between social capital and sustainable performance. The direct effect of cognitive social capital on economic performance and environmental performance is found to be insignificant, however it has significant and positive association with social performance, H1c ( $\beta = 0.201$ ,  $p < 0.05$ ). The relationship between structural and all dimensions of sustainable performance are significant at significance level of 0.01, hence H2a, H2b, and H2c are supported. Lastly, for relational social capital, it is found to be significantly correlated to economic performance ( $\beta = 0.319$ ,  $p < 0.05$ ) and social performance ( $\beta = 0.316$ ,  $p < 0.01$ ), but it has no significant relationship with environmental performance. Conclusively, six out of nine hypotheses proposed in this study are supported.

**Conclusion**

The main objective of this study is to explore the relationship between social capital and sustainable performance. To date, there are very few studies investigating the direct effect of

social capital on three dimensions of sustainable performance; economic, environmental, and social. The findings of this study conclude that cognitive social capital is significantly correlated with social performance, but it does not significantly influence economic and environmental performance. These results emphasize that common values, shared goals, and common narrative significantly predict social performance, but not on economic and environmental performance. These outcomes provide evidence for the argument that social capital has the possibility to enhance the performance of sustainable supply chain partners (Sarkis et al., 2011). In this study, only social performance is found to be significant with cognitive social capital. The insignificance of cognitive on economic and environmental performance is assumed to be caused by the fact that collaboration among supply chain partners is focused through actual reciprocal practices like knowledge sharing, joint activities, mutual respect, and trust. These specifically involve the elements of structural and relational social capital (Inkpen & Tsang, 2005).

According to the findings, structural social capital has a significant impact on economic, environmental, and social performance. It indicates that manufacturers view frequent contact, information exchange, and cooperative problem-solving with suppliers and customers as factors to sustainable performance. These findings are congruent with the findings of a previous study by Lee (2015), who discovered that structural social capital has a large direct effect on environmental performance. The importance of structural social capital is also strongly supported by the fact that social capital effects knowledge transfer and performance favourably (Krause et al., 2007). As a result, these findings should help manufacturers recognize the importance of social interaction relationships with their suppliers and customers. According to Zhu et al (2010), information and knowledge exchanges across supply chain partners through collaboration can greatly improve their sustainable performance.

The use of PLS bootstrapping has resulted in the significance of the relationship between relational social capital and sustainable performance aspects. The findings reveal that relational social capital has a considerable influence on economic and social performance, but not on environmental performance. These findings suggest that manufacturers value mutual trust and dependency with their supply chain partners to improve economic and social performance, which is consistent with earlier research on relational social capital in the supply chain by (Lawson et al., 2008; Carey et al., 2011). Nonetheless, it has been discovered that relational social capital has no significant influence on environmental performance. This finding contradicts a previous study by Lee (2015), which discovered that relational social capital was significantly and positively associated with environmental performance. The insignificance of relational and environmental performance relationship may be caused by one of those variables being predominant, thus lead to such result. In conclusion, in examining the relationship between social capital and sustainable performance, the findings agree with the notion that both structural and relational may facilitate environmental knowledge exchange and hence, lead to improved performance (Cheng et al., 2008).

### **Implications of the Study**

The study contributes to the integrated sustainable supply chain knowledge in several ways. The study was performed based on the underpinning theory of social capital. The unlimited organization theories are significant to apply in the context of sustainable supply chain management because they provide a valuable source of theoretical underpinning for furthering study in the literature (Sarkis et al., 2011). Prior studies (e.g., Abidin et al., 2014) have examined the relationship between social capital and performance, however the findings of social capital and sustainable performance' linkage remain limited. Moreover, the main contribution of this

study is through exploration on the direct effect of social capital elements (cognitive, structural, relational) on dimensions of sustainable performance simultaneously. Shortcoming in the findings can happen when all different dimensions are pulled altogether within one construct (Sobry, 2015).

The findings offer insights on the relationship between social capital and sustainable performance in developing country like Malaysia. The results suggest that structural social capital has significant influences on sustainable performance dimensions namely economic, environmental, and social. The improvement on firms' sustainable performance can be made based on these recommendations:

1. Continuous communication, information or knowledge exchange with supplier and customer lead to improved social network structure. Firms should integrate with supply chain members through information sharing as this reassures the openness of interaction and behavioural transparency regarding their environmental initiatives. These elements of structural social capital create stronger relationship between supply chain members, thus facilitate toward successful sustainable performance.
2. Firms should build trustful organizational culture with their supply chain members through repeated communication and cooperation. The relational social capital generates a mutual confidence based on long-term relationship that the partners would not exploit the other's vulnerability and develops reciprocity norms that help to transform supply chain partners into members of a relationship with common visions and goals (Villena et al., 2011). With a high level of trust toward the supply chain members, they are more willing to engage in social exchange and be cooperative.

### **Limitations of the Study**

There are several limitations of this empirical study. First, this study in which the purpose is to examine the influence of social capital on sustainable performance was conducted among ISO 14001 certified manufacturing firms in developing country like Malaysia, which may be different than those in developed countries. The sample is limited in that only Malaysian manufacturing managers are included.

Second, the response rate in this study should not be ignored, although it is considered acceptable and sufficient to be applied in PLS-SEM statistical methodology. According to De Beuckelaer and Wagner (2012), it should be noted that difficulty in getting response from manufacturing managers due to high workloads of those individuals. Hence, future study can be improved with a higher response rate.

### **Future Research**

The findings of this study through the value of R Square also indicate that although it provides a sufficient estimation of proposed model, other variables or external factors can be included to improve the prediction on sustainable performance such as company ownership, type of industry, company age, technology advancement, or even enforcement on environmental regulations as moderating variables.

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