



The Impact of Social Commerce Determinants on Social Capital for Energy Sectors

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Abstract

This study investigates the constructs and related theories that drive social capital in energy sector from the intention perspectives. This research uses theories of 'social support' and 'planned behaviour' alongside satisfaction and perceived value to propose a research model that drives social capital for energy sectors in Malaysia. The model reveals that the Theories of Planned Behaviour (TPB) and Social Support Theory (SST) alongside satisfaction and perceived value factors promote social capital development in energy sectors. Using PLS-SEM to analyse data gathered from energy sector employees in Malaysia, this research demonstrates that social capital is present when there is trust and loyalty among the users and positively effects energy sectors in terms of the productivity, effectiveness, efficiency and profitability. The study also contributes to the understanding of individuals' use of social capital in energy sector. A survey is adapted and distributed to 100 respondents as a mean to study on the validity and reliability of the research factors. Results indicate that all seven hypotheses proposed significantly influence social capital.

Keywords: Social Commerce; Social Capital, Energy Sector; Theory of Planned Behaviour (TPB); Social Support Theory (SST).

Introduction

The theory of social capital is a sociological theory that relates to the value of social relations merged with cooperation and coordination terms to achieve goals. This theory appeared in the late 1990s in public health, and now the theory has become popular in various field due to high positive outcome (Halpern, 2001) in terms of business growth, market efficiency and effectiveness as well as economy growth and profitability (Aldridge, Stephen, Halpern, & Fitzpatrick, 2002; Halpern, 2001; Kawachi, Ichiro, Bruce, & Glass, 1999; Putnam, 1995).

In this developing and modernization era, social capital plays an important role in growth of economy and business (Thompson, 2018). Past research has reported that presence of social capital will improve efficiency and effectiveness of a company or business process by enabling cooperation and coordination among the employees (Fukuyama., 2001). Moreover, social capital focuses more in social networking sites and communities. Literature has reported that the presence of social capital makes a company or business an effective network by bridging and bonding cultures through social influences with the aim on knowledge exchange communication (Bouzdine & Bourakova, 2004).

With the increase and popularity of online social networking sites, online social media became as a communication platform for people to interact and share their knowledge, feelings, opinion and problems with others. There is a wide range of social networking sites and technologies that can be used to promote and support social capital in industries, particularly energy sector. Past research show that social capital theory is positively and strongly defined and conceptualized in online social networking sites in term of the accuracy of information shared and trustworthiness among online communities (Cho, Alsmadi, & Xu, 2017; Xu & Du, 2018). In order to obtain more accurate outcomes from social capital, it is central to apply and investigate social construct in a huge industry such as energy sectors to observe the growth of social capital.

The energy industry is a good entity of study due to its presence of social capital and also because it is known as a high-technology industry where the rate of growth can be easily obtained (Yli-renko, Autio, & Sapienza, 2001). Past research has reported that there is a difficulty to measure customer's satisfaction and loyalty due to unavailable of information, loss of data and lack of services from energy sector (Mutua, Ngui, Osiola, Aligula, & Gachanja, 2012). It is therefore necessary to exploit and develop components necessary for the accumulation of social capital from a social commerce perspective to improve product and service quality, as well as maintain customers' loyalty in energy sectors.

Theoretical Foundation of Research

Social Capital

Social capital theory comes from sociological and political discussion around the formation and survival of communities (Gleasure, 2017). This social capital theory is used in the health domain (Shiell, Hawe, & Kavanagh, 2018) and lately been used in other domains such as management, sports, and economics (Yang, Lee, & Kurnia, 2009). Social capital is defined as the quality of social organization such as network, norms, and loyalty that build cooperation and coordination for mutual benefits (Putnam, 1995). Social capital theory is able to fulfil user's satisfaction level (Huang, Chen, Ou, Davison, & Hua, 2017) and indirectly makes user to stay loyal (X. Y. Chen, Huang, & Davison, 2017). According to past research, social capital is stated as a multidimensional term that consists of user's trust, loyalty, emotional support, informational support (Cho et al., 2017) and cooperation (Teng, 2017). Presence of these criteria makes social capital bond stronger.

Social capital can be categorized into two terms, namely bridging social capital and bonding social capital (Ellison, Steinfield, & Lampe, 2007). Bridging social capital is known as a weak connection among individuals or organizations which is related to lower crime rates while bonding social capital encompasses strong connection among individuals or organizations which is created through trust of close groups of people (Portes & Landolt, 1996). Social capital comes up with deep understanding of an issue and provides accurate information that can gain individual's trust and loyalty, which describes the differences between weak performances and strong performances in an organization (Burt, 2000). In this study, social capital is indicated as values of trust, norm of reciprocity and network among the employees that can improve their performance, improve effectiveness and efficiency as well as gain profit in energy sectors.

Social Support

Social support is described as an individual's feelings where their needs are gratified through interaction with others (Thoits, 1982). In other words, social support means to be helpful, being loved and being cared with others to help them cope with variety of problems (Dehghani, 2018). Support can be gained from personal relationship, family, friends, relatives, neighbours and in fact strangers via social networking sites where people always share their problems and feelings (Zeitouni & Milstein, 2017). Social support can be categorized into three dimensions, namely emotional support, informational support and tangible support (Schaefer, Coyne, & Lazarus, 1981). Emotional support refers to a person's personal attachment or feeling such as love and care on others to help them improve their self-concept. Tangible support also known as instrument support involves material resource or physical provision to fulfil their needs (Zeitouni & Milstein, 2017). Informational support refers to providing advices, idea, suggestion and solution to help solve problems (Coulsan, 2004). In this study, emotional support and

informational support are used as these two are more suitable and relevant to measure presence of social capital.

Theory of Planned Behaviour

Theory of planned behaviour (TPB) is the extension of Theory of reasoned action (TRA) (Ajzen, 1991). The presence of perceived behavioural control (PBC) shows the differences between TPB and TRA where PBC is present in TPB while not in TRA (Chang, 1998). This theory is introduced to investigate and prove the differences between behavioural intention and actual behaviour behavioural (Hajli, Mohana, Powell, & Love, 2015). In other words, TPB can also be described as a theoretical framework for predicting human behaviour (Ajzen, 2002) where it is influenced by three main factors which are attitude, subjective norms and perceived behavioural control. These factors are merged to predict human behaviour (Brown & Venkatesh, 2005).

Attitude refers to a person's action or thinking that individuals show on performing or involving a task or situation (Ajzen & Fishbein, 1980). Subjective norms on the other hand refers to social pressure from people to decide whether or not to perform a task (Hau, Kim, & Lee, 2016). Perceived behavioural control refers to people's knowledge, experience and opinion about the task or situation they have performed or involved (Hajli et al., 2015).

Research Model and Hypothesis Development

Attitude

Attitude is a construct of the TPB that refers to individual's opinion or thinking in performing or involving any task or situation. Past research has reported that attitude positively influences behavioural intention (Hajli et al., 2015; Hsu, 2013). The more positive an individual's attitude towards behaviour, the greater their intention to engage in behaviour (Dewberry & Jackson, 2018). In this study, attitude relates to the opinion of an employee of energy sector on continuing the usage of their favourite social networking sites. Past research has proven that attitude positively influences behavioural intention (Hajli et al., 2015) (Dewberry & Jackson, 2018). This study therefore proposes the following hypothesis:

H 1: User's attitude influences behavioural intention.

Subjective Norms

Subjective norms is a construct of the TPB that refers to social pressure from a group of people or an individual to decide whether to perform or involve in any tasks or situations (Hsu, 2013). It can also be represented as individual's normative belief which is the expectations of others (Wu & Chen, 2005). Previous study has proven that subjective norms positively influences behavioural intention (Dewberry & Jackson, 2018; Hajli et al., 2015; Jenmott III, Jenmott, Hines, & Fong, 2001). However, some studies have stated that subjective norms is a weaker predictor of behavioural intention compared with attitude (Al-Debei, Al-Lozi, & Papazafeiropoulou, 2013; Hajli et al., 2015). In this study, employees of energy sector are influenced by information

provided by their peers on social networking sites. This therefore posits that subjective norms positively influence behavioural intention. This study therefore proposes the following hypothesis:

H 2: User's subjective norms influence behavioural intention.

Social Support

In this study, both dimensions of social support construct consisting of informational and emotional support positively influences behavioural intention and social capital through social networking sites. Past research has identified the benefits of social networking sites in providing social support which includes broad reach, 24-hr availability, fast feedback and various information from heterogeneous network (Cho et al., 2017). Social networking sites are stronger compared to heterogeneous network because social networking sites afford to respond faster (Vitak & Ellison, 2013). Most of people share their knowledge, problem and feelings through social networking sites where they can receive some suggestions, solutions or even advises from other people in social networking sites. Through this, it will increase the intention of people to share in social networking sites. Accordingly, by receiving all those advices, suggestions and solutions through social networking sites trust increases (Hajli et al., 2015) among social networking communities where they feel secure sharing through social sites. Therefore, social support positively influences behavioural intention (Hajli et al., 2015) and social capital (Yahia, Al-Neama, & Kerbache, 2018). This study therefore proposes the following hypotheses:

H 3. User's social support drives behavioral intentions.

H 4. User's social support drives social capital.

Satisfaction

Satisfaction is referring to an individual's attraction or opinion towards products, services or activities (M. H. Chen, Wan, & Wang, 2018). Satisfaction can be achieved from people when the user's requirements are fulfilled (Mohana & Yusmadi Yah, 2015). In this research, satisfaction of users can be identified through the frequency of people using social networking sites. Simply put, satisfaction shows the loyalty of users when using their favourite social networking sites. Providing sufficient and accurate information in social networking sites will increase the trust level of user and indirectly increase their satisfaction level as well (Mohana, Yusmadi Yah, Rozi Nor, & Marzanah, 2015). This will also increase their intention level to continue using their favourite social networking sites. The higher the level of satisfaction, the more loyal users are in using their favourite social networking sites (Shankar, Smith, & Rangaswamy, 2003). Therefore, a positive relationship between satisfaction and perceived value for individuals using social networking is hypothesized as follow:

H 5. User's satisfaction influences perceived value.

Behavioural Intention

Behavioural intention can be referred to as individual's intention or opinion to perform an action (Ajzen & Fishbein, 1980; Hajli et al., 2015). According to TPB, behavioural intention is proven as an important construct in deciding whether to perform an action or not (Al-Debei et al., 2013). In this study, behavioural intention is referred as the opinion of users to continue using their favourite social networking sites in the future. Past research has reported that the level of intention increase if the trust level increase among the users of social networking sites (Hsu, 2013). Therefore, behavioural intention positively influences social capital. This study therefore proposes the following hypothesis:

H 6. Behavioral intentions of users drive social capital.

Perceived Value

Perceived value is defined as the overall evaluation of goods and benefits associated with products and services (Yuen, Wang, Wong, & Zhou, 2018; Zeithaml, 1988). Perceived value is considered as a factor to build long-term relationship between user and organization (Cronin., 2000; Parasuraman & Grewal, 2000). In this study, perceived value is present when users judge the advantages and goods of social networking sites where it will increase user's trust and promote continued use in future. Accordingly, gaining of trust and loyalty from social networking sites directly show a positive picture on social capital. Previous research also affirms that perceived value positively influences social capital (Yuen et al., 2018). The following hypothesis is therefore formulated:

H 7. User's perceived value drives social support.

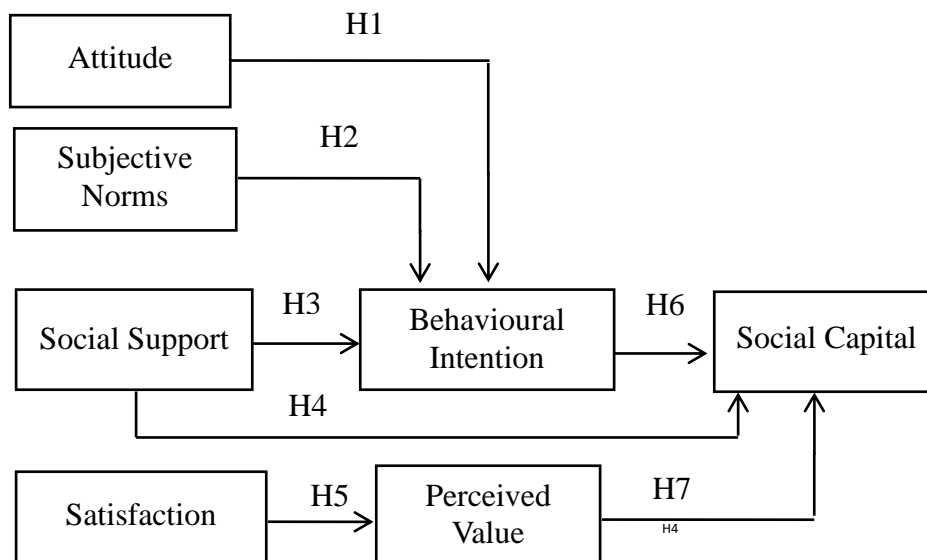


Figure 1. Research model

Research Methodology

Data Collection

For the purpose of this study, data were gathered from employees of energy sector in Malaysia who uses online networking sites. Online networking sites in this research include social media sites such as the Facebook, TripAdvisor and LinkedIn. A total of 150 questionnaires were distributed online to working professionals in Malaysia. The questionnaires were distributed from January 20, 2019 to April 20, 2019. A total of 102 questionnaires were returned. The exclusion of responses from incomplete questionnaires resulted in a total of 100 usable questionnaires which makes a net response rate of 66.7 percent. Summary of the respondents' demographic profile is as reported in Table 1. The study utilized a survey questionnaire as the main instrument for data collection. The questionnaire was developed based on previous literature but was modified to suit the nature of this research (Table 2). A pilot study was conducted on 5 respondents which included face validity testing and content validity testing.

Table 1. Demographic details of the respondents

Demographic	Group	Frequency	Percentage (%)
Gender	Male	48	48.0
	Female	52	52.0
Profession	Intern Student	11	11.00
	Professional	15	15.00
	Executive	53	53.00
	Other	21	21.00
Member of social networking sites	Yes	100	100
	No	0	0
Social networking sites used	Facebook	82	37.80
	LinkedIn	55	25.30
	Twitter	48	22.10
	Google+	32	14.80
	Other		
Year of experience	Less than 1 year	0	0
	1 - 2 years	0	0
	2 - 3 years	7	7.00
	3 - 4 years	28	28.0
	More than 4 years	65	65.0

Measures

The constructs of interest for this study are 'emotional support' and 'informational support' from 'social support', 'social capital', 'attitude', 'subjective norms', 'perceived value', 'satisfaction' and 'continuance participation intention'.

The measurements for the attitude (AT) construct were adopted from (Davis, 1989; Shanmugam, Yusmadi Yah, Marzanah, & Rozi Nor, 2017). Measurements for subjective norms (SN) were borrowed from the study on consumer participation in virtual communities (Dholakia, Bagozzi, & Pearo, 2004; Shanmugam et al., 2017). Measurements for continuance participation intention (CPI) were adopted from a study on understanding changes in belief and attitude towards information technology use (Bhattacharjee & Premkumar, 2004). The perceived value (PV) construct was adopted from past research on adoption of mobile internet from value perspective (Kim, Chan, & Gupta, 2007). The social support (SS) construct looks at both the emotional and informational dimensions of social support theory and was adopted from a study by (Hajli & Lin, 2014; Liang & Turban, 2011). The measurement for satisfaction (SAT) constructs were adopted from Bhattacharjee and Premkumar (2004) while social capital constructs were adopted from from their empirical study on understanding of social capital.

All items in the instrument are measured on a seven-point Likert-type scale with anchors from ‘strongly disagree’ to ‘strongly agree’. The items for SAT were measured on a seven-point Likert-type scale but with anchors from ‘very satisfied’ to ‘very dissatisfied’, ‘very pleased’ to ‘very displeased’ and ‘absolutely delighted’ and ‘absolutely terrible’ respectively.

To validate the survey instrument, a pilot test was conducted. Five respondents with at least two years of experience in energy sector were involved in the pilot study. This phase of study validated the face validity and content validity of the instrument. Based on the feedback and comments during the pilot study, questionnaire items were modified to ensure that the purpose of the study is made clear and appropriately validated.

Table 2. Summary of measurement scales

Construct	Item	Measure	Source
Social support	SS1	When faced with difficulties, some individuals on my favourite social media site comforted and encouraged me.	Liang et al. (2011); Hajli (2014); Mohana Shanmugam (2017)
	SS2	When faced with difficulties, some individuals on my favourite social media site expressed their interest in my well-being.	
	SS3	When faced with difficulties, some individual on my favourite social media site are on my side with me.	
	SS4	When faced with difficulties, some individuals on my favourite social media site talk about my opinion and personal feelings.	
	SS5	On my favourite social media site, some people will give their suggestions when I needed help	
	SS6	When facing a problem, some people in my favourite social media site provide me with solution by giving relevant information to overcome my problem.	
	SS7	When facing a problem, some individuals in my favourite social media site help me to discover the cause of problems and provide me with suggestions.	

Satisfaction	SAT1	How do you feel of your overall experience on using social media platform? (Very satisfied/Very dissatisfied)	Spreng et al. (1996); Bhattacharjee (2001);
	SAT2	How do you feel of your overall experience on using social media platform? (Very pleased/Very displeased)	
	SAT3	How do you feel of your overall experience on using social media platform? (Absolutely delighted/Absolutely terrible)	
Attitude	ATT1	I have positive opinion on social media community.	Davis (1989);
	ATT2	I think using my favourite social media site is beneficial for me.	
	ATT3	I think using my favourite social media site is appropriate for me.	
Subjective Norms	SN1	People who influence my behaviour think I should use my favourite social media site.	Dholakia et al. (2004); Al-Debei et al.(2013);
	SN2	People who are important to me would think that I should use my favourite social media site.	
Perceived value	PV1	Compared to the effort I need to put in, using my favourite social media site is beneficial to me.	Kim et al. (2007);
	PV2	Compared to the time I need to spend, the usage of my favourite social media site is worthwhile to me.	
	PV3	Overall, the usage of my favourite social media site delivers me good value.	
Continuance participation intention	CPI1	I intend to use my favourite social media site in future.	Bhattacharjee and Premkumar (2004);
	CPI2	I will regularly use my favourite social media site in future.	
	CPI3	I will use my favourite social media site in future.	
Social capital	SC1	The usage of my favourite social media site improves productivity.	Jin-Hee Cho, Izzat Alsmadi, Dianxiang Xu (2007)
	SC2	The usage of my favourite social media site improves effectiveness.	
	CS3	The usage of my favourite social media site improves efficiency.	
	CS4	The usage of my favourite social media site increases profit.	

Results of Measurement Model Testing

Data Analysis

Structural equation modelling (SEM) was selected as the primary tool to test the hypotheses proposed. Essentially, SEM is a tool for analyzing multivariate data which is particularly appropriate for theory testing (Bagozzi, 1980). SEM is a powerful and versatile technique (Steenkamp & Baumgartner, 2000) and is used collectively with the Partial Least Square (PLS) method because PLS is a suitable for testing path models (George, Marcoulides, Wynne, & Saunders, 2009).

Construct reliability and validity of measurement items

The measurement model was assessed using PLS. The model was first evaluated in terms of reliability. Reliability was evaluated using the composite reliability, then Cronbach Alpha. As shown in Table 3, the composite reliability of the seven latent variables is all larger than 0.70.

This shows an acceptable composite reliability. For construct validity, both congruent validity and discriminant validity were examined. Congruent validity was accessed by average variance extracted (AVE) and indicator loadings. When AVE values are more than 0.50, a good internal quality of a model is presented (Jung, 2008). All the constructs show Cronbach alpha readings of more than 0.7 which indicates an acceptable level and ideal internal quality of a model for explanatory research. Discriminant validity arises when average variance extracted (AVE) is more than the correlation squared of the other constructs (Fornell & Larcker, 1981). Discriminant validity was assessed by the AVE values for each construct in which the value should be greater than the squared correlation estimates involving the construct (Fornell & Larcker, 1981). As shown in Table 3, all AVE values in diagonal are greater than the off-diagonal numbers showing acceptable discriminant validity. Therefore, we conclude that the measure for each construct satisfies construct validity.

Table 3. Correlations matrix with CR and AVE

	AVE	CR	Attitude	Behaviour intention	Perceived value	Satisfaction	Social capital	Subjective norms	Social support
Attitude	0.713	0.881	0.844						
Behaviour intention	0.838	0.939	0.840	0.915					
Perceived value	0.895	0.962	0.777	0.8333	0.946				
Satisfaction	0.928	0.975	-0.803	-0.805	-0.571	0.963			
Social capital	0.867	0.963	0.775	0.786	0.900	-0.589	0.930		
Subjective norms	0.801	0.890	0.658	0.645	0.829	-0.418	0.824	0.895	
Social support	0.755	0.956	0.694	0.716	0.862	-0.549	0.897	0.816	0.869
Cronbach's alpha			0.798	0.901	0.941	0.961	0.949	0.753	0.946

Results of Structural Model Testing

The research model was tested with the structural equation modelling (SEM) method. The resulting estimations from Fig. 2 structural model are * $p < 0.05$, ** $p < 0.01$ and *** $p < 0.001$. The results of PLS analysis is shown in Fig. 2. All tested paths are positively significant.

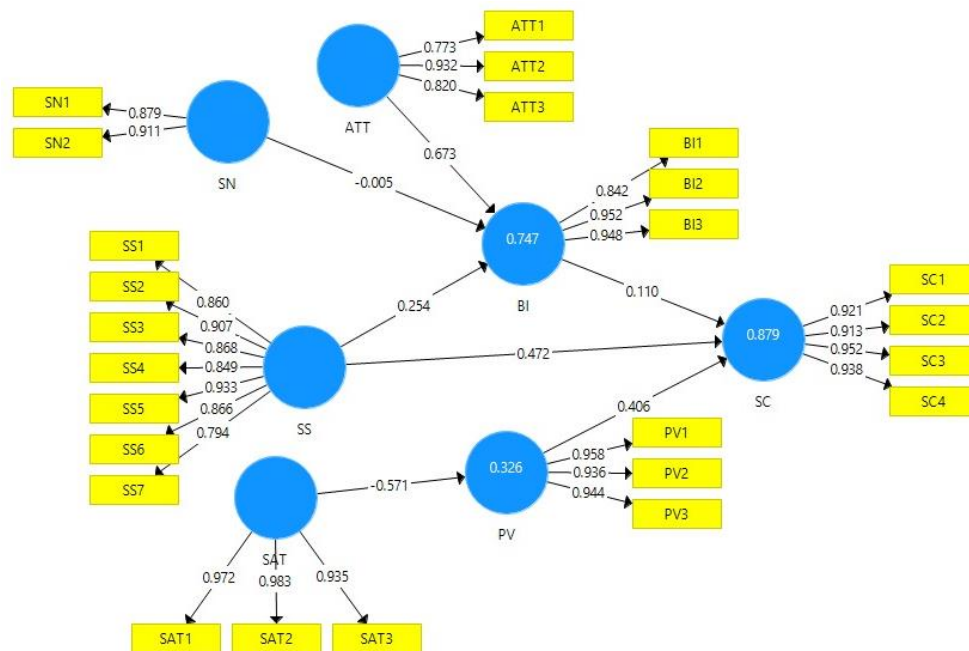


Figure 2. Structural Model Results

Discussion

This research extends TPB and social support constructs alongside satisfaction and perceived value to analyse how these constructs drive social capital in energy sector in Malaysia. This study attempts to address a research gap by examining the behavioural perspective or the social-related influences which have been ignored or underestimated in previous studies. A research framework that includes TPB, social support, satisfaction, perceived value, behavioural intention and social capital constructs are developed, proposed and evaluated in this study. The empirical evidences support that social capital positively drives energy sector through social commerce. As hypothesized, the finding shows that (1) social support positively influences social capital, (2) behavioural intention positively influences social capital and (3) perceived value positively influences social capital to be promoted in energy sector, Malaysia.

Social support construct measured by informational and emotional support positively drives social capital. These finding further affirms that both social support dimensions positively influence social capital due to the accuracy of information and knowledge that shared in social networking sites. Employees of energy sector who are engaged with social networking sites intent to share their knowledge, experience, information, feelings and opinions with others due to the support that other online communities provide in terms of suggestions, advices and solution for their problems. These make the employees of energy sector to continue using their favourite social networking sites in future. This is also because the level of trust among the online communities is higher. Trust is one of the important factors in measuring the presence of social capital. Once there is trust in online communities, loyalty is created directly where individuals

continue the usage of their favourite social networking sites. Through the sharing of information, knowledge and experience via social networking productivity, efficiency, effectiveness and profitability of the energy sector is improved. The higher the employee's ability to share knowledge, information and experience, the higher the cooperation and coordination among the employee therefore increasing the employee's productivity. Additionally, the ability to share and cooperate can be enhanced by the existence of trust and trust-based networks such as online community sites.

Conclusion

This study examines the constructs that drive social capital in energy sectors, Malaysia through social networking communities. An integrated social commerce framework is presented and evaluated to promote social capital in energy sector in Malaysia. The framework attempted to define the relationship between the TPB and social support theory alongside satisfaction and perceived value factors towards promoting social capital in energy sector. The Average Variance Extracted (AVE) is calculated from proposed framework using PLS-SEM. From the calculation, the entire construct have higher AVE which means all proposed hypotheses are positive significant. Results show that all proposed factors of the study have acceptable and good internal consistency.

This research like other studies is not without its limitations. Samples were dominantly from Energy sector in West Malaysia and therefore future work needs to expand the research model in similar domain but other areas such as East Malaysia or its neighbouring country, Singapore. The findings from different data sets can result in different findings due to the cultural differences. In addition, future research should also look into proposing other social commerce determinants that can positively influence social capital.

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