

ENHANCING THE INNOVATION PERFORMANCE OF SMALL AND MEDIUM-SIZED ENTERPRISES THROUGH NETWORK EMBEDDEDNESS

- *Wisdom Wise Kwabla Pomegbe, Wenyuan Li**, Courage Simon Kofi Dogbe, Charles Oduro Acheampong Otoo

Abstract

Based on Resource Based Theory (RBT), the competitiveness of Small and Medium-sized Enterprises (SMEs) depends on the uniqueness of resources used in the production and delivering of goods and services. Moreover, the innovation capability of SMEs is critical in enhancing their uniqueness. Various factors, however, could potentially influence SME innovation performance. This present study thus focuses on how SME innovation performance could be enhanced through the three dimensions of network embeddedness (relational, structural and cognitive). Founded on Resource Dependency Theory (RDT), the study seeks to demonstrate how SMEs could tap into the rich external resources within the networks they are embedded in. The study was based on 388 SMEs selected using a purposive sampling technique. A structured questionnaire was used for the data collection, with the data analyzed by structural equation modeling performed in Amos (v.20). The findings revealed that relational, structural and cognitive embeddedness had a positive effect on innovation performance, while structural embeddedness had the greatest impact on SME innovation performance. As such, SMEs seeking to improve their innovation performance through networks should pay critical attention to the network tie and density. Past studies on network embeddedness and innovation performance have shown conflicting results, and therefore this present study makes a notable contribution to the ongoing debate. Past studies have indicated a positive, negative, inverted u-shape, and even no significant relationship at all between the various dimensions of network embeddedness and innovation performance.

Keywords: competitiveness, innovation performance, network embeddedness, relational embeddedness, structural embeddedness, cognitive embeddedness

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1. INTRODUCTION

Globally, the contribution of Small and Medium-sized Enterprises (SMEs) to the economic development of nations cannot be overemphasized due to their pervasiveness and the resultant job creation (Müller et al., 2018). Over the years, scholarly discussions have centered on the scarcity of resources needed for SMEs to fully develop their potentials and innovate successfully (Woschke et al., 2017). SMEs are simply expected to find creative ways of securing the needed resources for their innovation activities (Wu et al., 2017). In overcoming the challenge of resource inadequacy, SMEs thus engage in various network collaborations (inter-firm cooperation) to meet their innovation needs (Love & Roper, 2015). The current study, therefore, has sought to explore the influence of relational, structural and cognitive embeddedness on SME innovation performance.

The structure of a firm's connectedness with other firms is described as network embeddedness (Dogbe et al., 2020). Nahapiet & Ghoshal (1998) have proposed three dimensions of network embeddedness: relational, structural and cognitive. While relational embeddedness represents the degree of cohesiveness in terms of the social interaction among network members, structural embeddedness represents the extent to which the focal firm's operations are influenced by the network in which it is embedded (Song et al., 2020; Swierczek, 2019). In other words, relational embeddedness focuses on trust among members, while structural embeddedness focuses on network ties (Lin et al., 2009). Cognitive embeddedness also represents the shared norms, goals, collective recognition and experience among network members (Stevens & van Schaik, 2020).

As indicated earlier, the essence for network embeddedness is resource dependency (Emerson, 1962). Based on resource dependency theory (RDT), network embeddedness exists to share resources among partners, attend to the needs of the other partners who have also contributed other resources, and to discretionarily deploy resources among members (Pfeffer & Salancik, 2003; Newbert & Tornikoski, 2013). Embeddedness leads to shared understanding, exchange of confidential and sensitive information, as well as joint planning and problem solving (Kang, 2016; Jayachandran et al., 2005). Embeddedness thus places resourcing at the disposal of SMEs which hitherto they had not had. Being embedded makes it easier for SMEs to secure the resources needed for their innovation activities.

Furthermore, the study of the influence of the individual dimensions of network embeddedness on innovation performance is also of great importance due to the contradictory nature of past results. Coleman (1988), for example, considers the best-connected actor as the one located within a dense network, i.e. such networks are based on trust, encourages the exchange of innovative ideas, and discourages opportunistic behavior. Burt (2009), however, has argued that a dispersed network (low embeddedness) presents firms with access to non-redundant and more relevant information, as well as reduces the tendency of the sidelining which could occur in a dense network. Li et al. (2013) has also demonstrated that relational and structural embeddedness place a number of restrictions on the decision-making processes of the firm which could negatively affect its performance. This notwithstanding, results showing the effects of the various dimensions of network embeddedness on the innovation performance of SMEs, especially in the sub-Saharan Africa, are clearly lacking. We, therefore, have sought to assess how SMEs augment their resources by embedding in various networks, and how these networks affect their innovation performance.

The article is divided into five sections. The first section presents the overall background to the article, the second presents a literature and theoretical review, the third the research methodology, the fourth the data analysis and a discussion of results. The fifth section presents the conclusion of the study, theoretical implications, managerial implications, along with study limitations and suggestions for future studies.

2. THEORETICAL BACKGROUND

The theory of embeddedness describes how economic activity is motivated by interests and diverse systems in social relations (Johannisson, 1987; Uzzi, 1996). The theory is founded on exchange and communication networks. The exchange network focuses on the firm's commercial relations with partners, suppliers and customers, while the communication network also focuses on the individuals and organizations that provide the focal firms with needed contacts and business knowledge for their operations (Szarka, 1990; Le Breton-Miller and Miller, 2009). Embeddedness thus exposes firms to new ideas and knowledge which is facilitated through various collaborations among members. SMEs can thus overcome their resource limitations with regard to innovation through the depth and breadth of their embeddedness in the networks they participate in. We consider innovation performance as the firm's ability to develop innovative products, as well as increase the speed of the development process and the ability to introduce the product in the market within a propitious time frame. Figure 1 presents the theoretical framework for the study.

2.1. Relational Embeddedness and Innovation Performance

Relational embeddedness focuses on the quality of network interactions, which is largely based on trust (Lin et al., 2009). Relational embeddedness enhances member interaction at and across different levels. The collective interactions result in collection benefits, which are expected to be relatively devoid of self-interested and opportunistic behaviors (Swierczek, 2019). The higher the intensity of the firm's interactions, the higher the willingness of members to contribute and assist each other in the team. When network members identify with each other, they are more willing to share quality knowledge for the betterment of all involved (Kim, 2014). Thus, the exchange of valuable knowledge is facilitated by trust among members (Isaac et al., 2019). In a network with high relational embeddedness, SMEs are able to obtain valuable knowledge to improve innovation. High quality interactions among members make them more willing to support and aid each other's innovation efforts with the knowledge they will also receive a reciprocal benefit (Alinaghian et al., 2019). Based on this anticipated mutual advantage, we hypothesize that:

H1: Relational embeddedness has a positive effect on innovation performance of SMEs.

2.2. Structural Embeddedness and Innovation Performance

Structural embeddedness theory concerns itself with the macro-network characteristics and how they influence the operations of each member (Kao et al., 2019; Lin et al., 2009). It focuses on the desirable position of each individual firm, and the tie-weaving structure reinforcing each set of relationships. As indicated by Koka & Prescott (2008), occupying a desirable position in the

network exposes a firm to rich and diverse information. Structural embeddedness, therefore, stimulates knowledge flow and inter-firm learning, which enhances innovation activities. Increasing the number of focal firm's network ties thus increases the possibility of firm's actions being defined by the network it belongs to (Yan & Guan, 2018). Structural embeddedness thus exposes SMEs to new market knowledge and technologies, which enhances their innovation performance. We, therefore, hypothesize that;

H2: Structural embeddedness has a positive effect on innovation performance of SMEs.

2.3. Cognitive Embeddedness and Innovation Performance

Cognitive embeddedness refers to the extent to which members in a network are able to interpret and understand behaviors in a similar manner (Stevens & van Schaik, 2020). This is possible when members share a common vision, goals and norms. In 2008, for example, the Light Emitting Diode's (LED's) R&D development team in Taiwan shared a common vision of moving away from direct current LED to alternating current LED (Lin et al., 2009). With this common goal, the firms involved were willing to commit extra resources (human, financial and technological) to see to the success of the project. With a common goal, firms are willing to disclose their core technologies for the collective development of new technology. SMEs in a network with shared norms will have access to the needed technological and knowledge support for their innovation agenda. Cognitive embeddedness reduces communication barriers and opportunistic behaviors, but rather accelerates knowledge and resource sharing (Bonfim et al., 2017). The shared mental model that exists in and across SME's network, facilitates knowledge acquisition and technology transfer, which enhances SME's innovation (Aoki & Wilhelm, 2017). We finally hypothesize that;

H3: Cognitive embeddedness has a positive effect on innovation performance of SMEs.

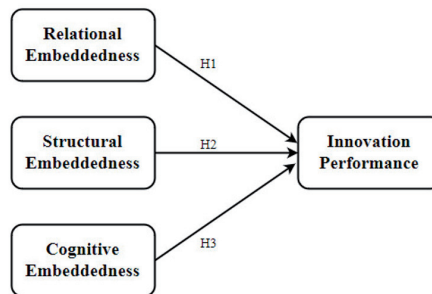


Fig. 1 – Theoretical framework. Source: own research

3. RESEARCH OBJECTIVE, METHODOLOGY AND DATA

3.1. Sample and Data Collection

There are various definitions of SME, depending on the context of the study. Since this current study was conducted in Ghana, we adopted the definition of SME by the National Board for

Small Scale Industries (NBSSI). This definition has two criteria in measuring firm size, which are, assets and number of employees. We adopted the definition using number of employees, since that was easier to access. NBSSI (1990) defined a Small Enterprise as having 6 – 29 employees, Medium Enterprise as having 30 – 99 employees. Based on this criterion, the enterprises sampled for the study had had employees ranging from 6 to 99 (Table 1). The firms sampled were grouped into two broad industries, manufacturing and service. The firms selected also had at least 5 years of operational experience. In sum, the SMEs sampled were dominated by firms from the manufacturing industry, largely medium firms (30-99 employees), and dominated by firms aged 11-15 years (Table 1).

To reliably sample the SMEs, researchers requested the list of registered SMEs from NBSSI. The list provided the name of firms, period of registration, location, business contact and address, and the nature of business. The study used two main criteria for drawing SMEs into the target sample, that is, firms with full contact details (phone, email and postal address) and firms with at least 5 years of operational experience. The study, therefore, adopted a purposive sampling technique, drawing 1,000 SMEs into the sample group. The study used both printed questionnaires and e-questionnaires for the data collection. Firstly, a printed questionnaire including a covering letter and a postage-paid return envelope were posted to the general managers of the selected SMEs. Lastly, a covering letter and the web link to the e-questionnaire were also emailed to the SMEs. The firms had the option of replying through any of the two means. Call reminders were sent to some firms during the fourth week of data collection. We ended the data collection process after the sixth week, and had gathered 388 valid questionnaires at that time. Although there are a lot of SMEs in Ghana, many of them are not duly registered (Dogbe et al., 2020), making it difficult to obtain the actual SME population for the sample size calculation. According to Kirby et al. (2002), however, with a population of 10,000,000, with 95% confidence level and a 5% margin of error, a sample size of 384 is enough. Our sample of 388 is thus considered as reliable enough for statistical analysis.

Tab. 1 – Firms and respondent background. Source: own research

Firms and Respondent Background	Frequency	Percentages (%)
Industry	388	100%
Manufacturing	236	60.82
Service	152	39.18
Size	388	100%
6-29 employees	156	40.21
30-99 employees	232	59.79
Age of firm	388	100%
5-10 years	97	25.00
11-15 years	136	35.05
15-20 years	93	23.97
Above 20 years	62	15.98



3.2. Survey Questionnaire and Measures

The data was collected using a structured questionnaire, which was pretested using 20 SMEs from Ghana, as it was done by past studies and as Dogbe et al. (2020). Pretesting helps to eliminate any ambiguity in the questions set. The study had four main constructs, which were, relational embeddedness (RE), structural embeddedness (SE), cognitive embeddedness (CE) and innovation performance (IP). The measurement items for all the three dimensions of network embeddedness were adapted from Lin et al. (2009), while the items for innovation performance were also adapted from Abdallah et al. (2019). Four (4) measurement items measured relational embeddedness, structural embeddedness and innovation performance. While 5 items measured cognitive embeddedness. The questionnaire was structured (quantitative), and the main variables were measured on a Likert scale of 1-strongly disagree to 5-strongly agree. The measurement items for the various dimensions are presented in Table 2.

For studies of this nature, it is important to control some firm specific variables which could affect the outcome of the study (estimations). Dogbe et al. (2019), for example, found the firm age and size (number of employees) to have a significant effect on SMEs' innovation outcome. Studies such as Boso et al. (2013) and Wu et al. (2016) also came to similar conclusions. This current study thus controlled three firm specific characteristics which were the type of industry (coded as 0-service and 1-manufacturing), firm age and firm size (number of employees).

3.3. Evaluation of Common Method Variance (CMV)

MacKenzie & Podsakoff (2012) proposed that checking for CMV is critical for a firm-level analysis, where a single key informant responds to the research instrument on behalf of the entire firm. To check for CMV, we first ensured confidentiality and anonymity of respondents to reduce the anxiety during the evaluation process (Tian et al., 2020). The questionnaire was also pretested to reduce any possible ambiguity in the research instrument. Thirdly, we conducted Harman's single-factor test through exploratory factor analysis (EFA) performed in SPSS (v.20), as recommended by Fuller et al. (2016). The EFA results indicated four extracted components (according to our research constructs), with each having the eigenvalue greater than 1. The first factor had variance explained of 37.88%, indicating no single factor accounted for more than 50% of the variations in the dataset.

Finally, we also conducted partial correlations, as proposed by Lindell & Whitney (2001). This was to assess if there existed any significant difference in the correlation scores, before and after restricting for a marker variable. A marker variable is simply a theoretically unrelated variable to at least one of the constructs studied. The marker variable used in this case was socially desirable responding (SDR) scale developed by Strahan & Gerbasi (1972). We found out that there were no significant differences in the correlation scores, both before and after restricting for the marker variable. We, therefore, conclude that there was no problem of CMV in this study.

3.4. Reliability and Validity of the Constructs

We also conducted the Confirmatory Factor Analysis (CFA) using Amos (v.23). The CFA calculation was based on maximum likelihood, which assessed how well the data fit our model. As for CFA, we expect the CMIN to be statistically insignificant at 5%, CMIN/DF to be less than 3,

GFI to be greater than 0.8, NFI, TLI and CFI to be greater than 0.9, while RMSEA and RMR are also expected to be less than 0.08 (Hair et al., 2010). From the Tab. 2 presented, we realize that all our fit indices met their respective threshold, and as such conclude that our CFA model for the constructs appropriately fit the data. The average variance extracted (AVE) for all the constructs was also greater than 0.5 (the recommended threshold by Fornell & Larcker (1981), composite reliability (CR) and Cronbach's Alpha (CA) were also greater than 0.7 as expected (Brown, 2014; Bamfo et al., 2018).

Tab. 2 – Confirmatory factor analysis. Source: own research

Goodness-of-Fit CMIN=72.550; DF=71; CMIN/DF=1.022; p-value=0.427; GFI=0.923; NFI=.935; TLI=.998; CFI=.998; RMSEA=0.014; SRMR=0.049		Std. Factor Loading
Relational Embeddedness (RE): CA=0.848; CR=0.849; AVE=0.653. Source: Lin et al. (2009)		
All parties highly trust each other		0.830
We believe all of the partner firms will not act against the law of mutual benefits		0.791
It is believed that all partners act with high transparency		0.802
There is no abuse of power among our contacts		∞
Structural Embeddedness (SE): CA=0.891; CR=0.893; AVE=0.675. Source: Lin et al. (2009)		
We interact with other firms on a high frequency		0.842
There is a long-standing interaction among our partners		0.783
Network ties generate significant influences on partners' behavior during alliance		0.832
The contacts with which we maintain frequent relationships, in general, know each other		0.829
Cognitive Embeddedness (CE): CA=0.849; CR=0.853; AVE=0.659. Source: Lin et al. (2009)		
All partners respect and act upon the shared goals		0.888
Patterns of coordination are clear during the alliance		0.878
Partner behaviors are not mainly restricted by regulation, but norms		0.933
Partners shared norms of behaviors		0.793
Contacts have clear motives during alliance and interactions		∞
Innovation Performance (IP): CA=0.824; CR=0.867; AVE=0.686. Source: Abdallah et al. (2019)		
We are able to develop new products/services with speed		0.777
We are able to launch new products/services on time		0.834
Our new products/services are innovativeness		0.824
Our new products/services improve corporate image		∞
∞ ~ Item deleted due to poor factor loading		

Discriminant validity is also another important consideration when conducting studies of this nature. This is to ensure that the measurement items strictly measure their respective constructs,



and not other construct in the model (Bamfo et al., 2018). We checked for discriminant validity by comparing the squared-root of the AVEs ($\sqrt{\text{AVEs}}$) with the inter-correlation scores. To claim discriminant validity, the $\sqrt{\text{AVEs}}$ are expected to be greater than the correlation scores, which was achieved in this study (as presented in Table 3).

Tab. 3 – Discriminant validity and descriptive analysis. Source: own research

Variables	Mean	Std. Dev.	Indus-try	Age	Size	RE	SE	CE	IP
Industry	-	-	-						
Age	-	-	0.043	-					
Size	-	-	0.055	0.540**	-				
RE	3.564	0.894	0.038	0.284**	0.238**	0.808			
SE	3.457	0.879	0.063	0.190*	0.178	0.465**	0.822		
CE	3.958	0.930	0.047	0.169	0.156	0.241*	0.233*	0.812	
IP	3.436	0.930	-0.030	-0.136	0.142	0.469**	0.631**	0.247*	0.829

** ~ P-value significant at 1% (0.01), * ~ P-value significant at 5% (0.05), $\sqrt{\text{AVE}}$ are bold and underlined

4. RESULTS AND DISCUSSION

4.1 Results

The estimation method used in testing the various hypotheses set was the Structural Equation Modelling (SEM), which was performed in Amos (v.23). Table 4 presented the path summary, which indicated that none of the control variables had any significant effect on SME innovation performance. The three hypothesized paths (H1: Relational embeddedness has a positive effect on innovation performance of SMEs [$\beta=0.301$]; H2: Structural embeddedness has a positive effect on innovation performance of SMEs [$\beta=0.631$]; and H3: Cognitive embeddedness has a positive effect on innovation performance of SMEs [$\beta=0.205$]), however, had a statistically significant effect on SME innovation performance. Fig. 2 presents the SEM in a diagrammatical form. From the standardized coefficients presented, structural embeddedness had the greatest effect on SME innovation performance, while cognitive embeddedness had the least effect on innovation performance. The age and industry of the SME had a negative but insignificant effect on innovation performance ($\beta= -0.01$; $\beta= -0.09$ respectively), while the size also had a positive and insignificant effect ($\beta=0.02$).

Tab. 4 – Path summary. Source: own research

Path	Std. Estimate	C.R.
IP ← RE	0.301	3.303**
IP ← SE	0.631	6.024**
IP ← CE	0.205	2.450*
IP ← Size	0.022	0.275

IP ← Age	-0.011	-0.140
IP ← Industry	-0.086	-1.099

** ~ P-value significant at 1% (0.01), * ~ P-value significant at 5% (0.05)

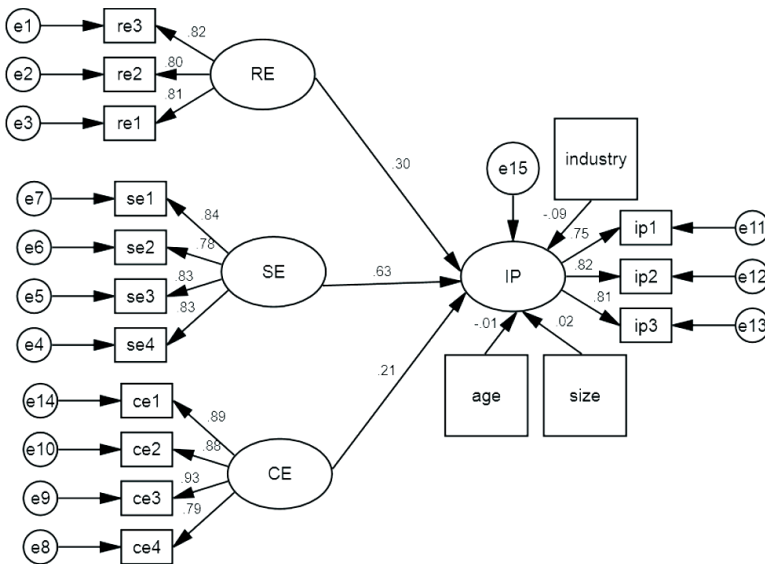


Fig. 2 – Structural equation model. Source: own research

4.2 Discussion

Firstly, we hypothesized that SME innovation performance is influenced positively by their level of relational embeddedness, which was confirmed by the analysis. This implies that SMEs that are embedded in a network based on high levels of trust and transparency are able to develop new products and launch in the market with speed. Our current study supports previous empirical studies such as Lin et al. (2009); Swierczek (2019); Kim (2014) and Isaac et al. (2019) that relational embeddedness enhances trust leading to better performance. Relational embeddedness opens up firms to help each other for mutual benefit. Trust in a network relationship limits opportunistic behavior by members, making it possible for resources such as human, technological and financial to be shared among members. These shared resources are used by members to enhance their innovation performance. Relational embeddedness stimulates the exchange of the tacit and explicit knowledge needed for innovation (Inkpen & Tsang, 2005). Business collaborations and relationships based on trust bring about some sense of belongingness to the business community, which reduces the parochial interest of each members (Dogbe et al., 2020; Dyer & Singh, 1998). As indicated by Ferraris et al. (2018), community identity propels innovation resource sharing among SMEs due to the reciprocal benefits involved.

Secondly, we hypothesized that SME innovation performance is influenced positively by the level of structural embeddedness, which was confirmed by the analysis. The result of this study

also confirms previous studies by Kim (2014); Hsueh et al., 2010 and Lin et al. (2009) showing that structural embeddedness enhances firm related performances. The network structure is seen as a key factor, as it determines the opportunities that are available for knowledge sharing in the network (Hansen et al., 2005). From the present study it was determined that SMEs that interact with other network members at a high frequency, and those with a long-term relationship with network members have higher innovation performance. A network with members who share familiar relationships with one another has a significant influence on partner behavior. Structural embeddedness facilitates cooperation among partners, which helps SMEs to gain the needed resources to develop new products with speed. Vidal & Mitchell (2013) have also found that structural embeddedness enhances the enhancement of the skills needed to develop and commercialize new products.

Lastly, we hypothesized that SME innovation performance is influenced positively by the level of cognitive embeddedness, which was also confirmed by the analysis. The study reveals that SME innovation performance increases when the enterprises are embedded in a network in which members respect each other and act upon common goals. This current study resonates with other previous studies such as Lin et al., (2009) as well as Stevens & van Schaik (2020), who also found a significant relationship between cognitive embeddedness and performance related outcomes. When networks are not strictly or solely governed by regulations, but also by behavioral norms and values, members tend to obtain much assistance from their partners for their innovation activities. In terms of the standardized coefficients reported (Table 4), cognitive embeddedness recorded the lowest effect on innovation performance. This notwithstanding, Li et al. (2013) have demonstrated the importance of shared cognition as the foundation for the other two dimensions (relational and structural embeddedness). According to these authors, shared cognition facilitates trust among members (relational) and also defines the network tie (structural). Having shared goals, visions, values and norms helps increase trust among SMEs in a network. Disunity in cognition increases misunderstanding and conflicts among network members, which reduces their willingness to support each other's innovation agenda. As indicated by Li et al. (2013), in a network with shared cognition, uncooperative and opportunistic members can be asked to exit to maintain the unity of the network. The overall interest of such a network is thus supreme to the interest of the individual firms.

5. CONCLUSION

This study concludes that SME innovation performance is positively influenced by relational, structural and cognitive embeddedness, which means that a stronger network embeddedness facilitates an SMEs' ability to speedily develop and launch new products. Based on these conclusions, the following contributions as well as suggestions for future studies can be put forth.

5.1. Theoretical Implications

First and foremost, this study adds to the knowledge on social capital. Social capital basically represents the potential and actual resources that surround social relationships. We have presented that relational, structural and cognitive embeddedness each have different characteristics which could have unique effects on SME innovation performance. SMEs embedded in a network (based on trust, network ties and shared cognition) have at their disposal diverse resources

needed for their innovation activities. Since the resources are shared among firms in a network, this study falls in line with resource-based theory (RBT) (Grant, 1991; Barney, 1991). Based on RBT, firms enjoy a competitive advantage when they possess unique resources (Barney, 1991). The resource in question here is largely knowledge transfer, which according to the knowledge-based view (KBV) represents an intangible asset of firms (Grant, 1996). As SMEs combine their internal resources with those drawn from the networks, they tend to develop strong innovation capability, which provides them with a competitive advantage.

The results regarding the relationship between the various dimensions of network embeddedness and performance have been mixed. Ruiz-Ortega et al. (2018), for example, presented an inverted U-shaped relationship between structural embeddedness and performance; this implies that the relationship between network ties and performance is positive at the initial stages, reaches an optimum and then becomes negative. Li et al. (2013) also found relational and structural embeddedness to hinder decision making processes among the individual firms, which they termed the “dark side of tie strength.” Amidst these varied results, we also add to the knowledge by presenting relational, structural and cognitive embeddedness as positively relating to SME innovation performance, especially in Sub-Saharan Africa.

5.2. Managerial Implications

The findings of the present study show that SME innovation performance is positively affected by the various dimensions of network embeddedness. With the global challenge of the low resource capacity of SMEs, firms can seek to embed themselves in a network to tap into the resources that are available. Based on RDT, firms embedded in a network enjoy the diverse resources made available by other network members.

Structural embeddedness was shown to have the greatest impact on innovation performance. As such, SMEs seeking to improve their innovation performance through a network should devote critical attention to structural embeddedness. The results indicate that the network tie and density of the network play a much greater role in innovation performance than might be expected.

Policy makers such as Ghana’s National Board for Small Scale Industries should also promote network embeddedness among its target audience. Since groups such as NBSSI are seen as authorities and advocates, SMEs are more likely to work according to their recommendations. Training and workshops should be organized for SMEs on how to secure and utilize network embeddedness for the growth and sustainability of the firms.

5.3. Limitations and Future Research Suggestions

Similar to other studies in the field, this present study also contains some limitations. Firstly, using cross-sectional data (data from single point in time) may not be reliable to model estimations and predictions. The nature of this study, however, made it difficult to obtain longitudinal data, since they were not available. To overcome this limitation, we ensured that the data was gathered from top management members with adequate knowledge on the activities of the SMEs studied. The constructs studied were defined based on the questionnaire. Despite these steps to alleviate bias, the responses provided may not necessarily be objective, so we also checked for CMV. Although CMV was not a challenge, it is recommended that the application of the results of this



present study should be made keeping this limitation in mind. In addition, in other circumstances in which obtaining longitudinal data is possible, we recommend future researchers to use it.

The study has focused on the direct effect of various dimensions of network embeddedness on SME innovation performance. There may, however, be some other useful intermediary variables which could significantly influence the outcome of the study. Future studies should focus on variables such as dynamic capability, absorptive capacity, organizational learning, etc., to either mediate or moderate (depending on the supporting theories) the relationships studied. Network embeddedness may only present the SMEs with a window of opportunity which may be leveraged by firms with high innovation capability, absorptive capacity or effective organizational learning.

Attention was also not devoted to the levels of the various dimensions of network embeddedness. For instance, we found that at high levels of cognitive embeddedness, SME innovation performance increases. Nevertheless, a critical assessment was not made for the various levels of cognitive embeddedness of the firms. Much attention should, therefore, be paid to the various levels of the three dimensions of network embeddedness in future studies.

The current study was conducted in Ghana, the socio-cultural factors of which may differ in significant ways from other countries. This obviously may affect the generalizability of this study to other economies. Scholars who attempt to replicate this study in their respective countries should do so based on their peculiar socio-cultural differences.

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Contact information

Wisdom Wise Kwabla Pomegbe
Jiangsu University
School of Management
P. R. China
E-mail: 5103181201@stmail.ujs.edu.cn
ORCID: 0000-0002-7552-9801

Courage Simon Kofi Dogbe
Jiangsu University
School of Management
P. R. China
E-mail: 5103181233@stmail.ujs.edu.cn
ORCID: 0000-0003-4658-4067

Prof. Wenyuan Li, Ph.D.
Jiangsu University
School of Management
P. R. China
E-mail: livenyuan8@ujs.edu.cn

Charles Oduro Acheampong Otoo
Jiangsu University
School of Management
P. R. China
E-mail: 5103170253@stmail.ujs.edu.cn
ORCID: 0000-0001-8470-2576