

Innovation Support and Small Firm Performance: A Social Capital Perspective

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Abstract

In the age of global competition and rapid technological change, capacity to innovate and adapt is a critical component for the success of small and medium enterprises. Innovativeness is the firm's capacity to engage in innovation, i.e., the introduction of new processes, products, or ideas that may impact business performance. Small firms can use their social capital generated out of their relationships in various networks to overcome the constraints in generating and developing innovativeness. Several studies on firm innovativeness are of the view that small firms derive innovation support from their networks and the social capital embedded in network relationships which in turn have a positive impact on firm performance.

Various dimensions of social capital in the form of network ties, trust, and shared vision in strategic and social alliances of small firms influence their innovativeness and consequently performance. This study attempts to empirically examine the role of network derived innovation support in translating effects of various dimensions of social capital on firm performance while drawing a comparison between firms engaged in strategic alliances and social alliances. The study uses a sample of 100 small firms in West Bengal, India of which 50 firms with strategic alliances in the form of membership in industry/trade related organizations and business associations are used as the experimental group and 50 firms having only social alliances are used as the control group. Results from multiple regression analysis largely support the hypothesis that social capital provides innovation support to small firms, which is consequently translated into improved firm performance. The influence is found to be more pronounced for firms embedded in strategic alliances as compared to other firms engaged in only social alliances.

Key words: *Social capital, small firms, Innovation support, Firm performance*

1. Introduction

A key component in the success of small firms is the extent of their innovativeness. Innovativeness relates to the firm's capacity to engage in innovation in the form of introduction of new processes, products, or ideas in the organization. This capacity to innovate is one of the most important factors that have an impact on the organizational innovation of small firms (Hurley, Hult, & Tomas, 1998). However, being innovative is not an easy task for small firms in isolation. Small firms are usually resource constrained and lack the financial strength and specialized expertise resulting in limited research and development activities. They also find difficulty in attracting external investment due to lack of credibility.

To overcome these limitations, small enterprises seek to establish relationships with other actors in their environment. By entering into relationships in networks outside their boundaries, small firms can complement their limited internal R&D with knowledge generated by external actors and obtain access to external resources that they are unable to generate on their own. Social capital evolves out these network relationships and derives several benefits for small firms that may be reflected in their performance. Support for innovative activities is one such benefit. Against this background, this study investigates the effect of various dimensions of social capital arising out of strategic alliances and social alliances of small enterprises on network derived innovation support and in turn on firm performance while drawing a comparison between firms engaged in strategic alliances and social alliances.

The paper is organized as follows. We commence with a review of literature relevant to the topic, which leads to the development of a conceptual model in the following section. The research method is outlined next, followed by results, a discussion, and concluding remarks in the final section. The results show that social capital generated through networking is important for supporting innovations of small firms the effect of which is translated into firm performance.

2. Review of Literature

Social capital is referred to as “the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit” (Nahapiet and Ghoshal, 1998). Adler and Kwon (2002) developed a

conceptual model of social capital by differentiating its substance, sources, and effects. They defined social capital as the goodwill available to individuals or groups. Its source lies in the structure and content of the actor's social relations. Its effects flow from the information, influence, and solidarity that it makes available to the actor (Wu, 2008). Nahapiet and Ghoshal (1998) categorised social capital into three interrelated dimensions: cognitive (shared codes and language and shared narratives), relational (trust, norms, obligations, and identification) and structural (network ties, network configuration, and appropriate organization) for analytical purposes.

Innovation can be viewed as both an output and a process (Damanpour and Evan, 1984; Salavou and Lioukas, 2003). As an output, it is the result of the innovation process, the types of innovation created by a firm, or the actual implementation of the new product, service, business process, or method (Love, Roper, and Du, 2009). Innovation also indicates the development and commercial exploitation of a new idea or invention, "the process of innovation refers to the temporal sequence of events that occur as people interact with others to develop and implement their innovation ideas within an institutional context" (van de Ven and Poole, 1989). Both the innovation process and the resulting innovation outputs can affect the firm performance of SMEs (Rosenbusch, Brinckmann, and Bausch, 2011).

To measure this relationship, the Oslo Manual has become the reference for various large-scale surveys, including Community Innovation Surveys (CIS), since 1992 when the first edition was published (OECD, 2005). Oslo Manual's definition (OECD, 2005) of innovation states: Innovation is the implementation of any new or significantly improved product (goods or services), operational processes (methods of production and service delivery), any new marketing methods (packaging, sales and distribution methods), or new organizational or managerial methods or processes in business practices, workplace organization or external relations. Various measures for innovation are employed in empirical studies, including innovation breadth which has been shown to underpin firm performance (Dahlander and Gann, 2010). Gronum et al., (2012) applied the Oslo Manual's definition in their study to measure innovation by a composite index of different types of innovations or introductions of new or significantly improved products, operational processes, organizational or managerial processes, as well as marketing methods.

Substantial evidence exists that the innovation process and resulting innovation outputs are important determinants of firm performance, indicating that innovators outperform non-

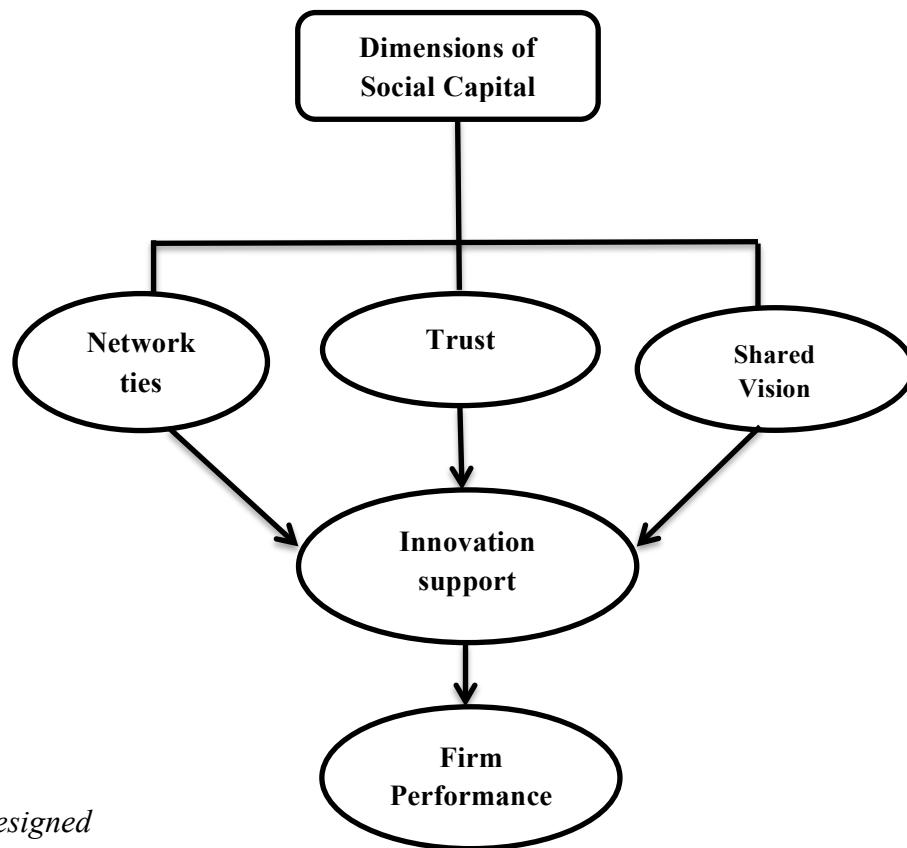
innovating firms (Baldwin and Gellatly, 2003; Goudis, Skuras, and Tsegenidi, 2003; Klomp and van Leeuwen, 2001; Mansury and Love, 2008; Prajogo, 2006; Roper et al., 2002). Some evidence about the causality of this relationship is also emerging, showing that innovators are persistently more profitable than non-innovators (Love, Roper, and Du 2009).

Several studies have found relationships among social capital dimensions like strength of network ties among the network members, level of trust in networks and shared vision among the members of the network and innovativeness of small firms (Gronum et al., 2012; Jalali et al., 2013). OECD (2010) observed that SMEs have insufficient capacity to individually manage the whole innovation process and therefore, collaborate with other firms, leading to potential pooling of resources and information. Pittaway et al., (2004) found that direct and indirect ties enhance a firm's access to required inputs in the innovation process, including skill accumulation through the combination of complementary skills and collective learning that occurs within networks. Trust acts as a mechanism governing embedded relationships (Uzzi 1996), thus facilitating innovation and learning (Meeus, Oerlemans, and Hage, 2001). Dakhli and De Clercq (2004) have argued that trust in interorganizational settings may foster innovation. Shared vision is viewed as being a mechanism that helps different organizations to integrate or to combine resources, thus enhancing firms' level of innovation (Molina-Morales & Martinez-Fernandez, 2010). Gronum et al., (2012) found empirical evidence of firm performance being influenced by innovations facilitated by network relationships.

Figure 1 presents the relational model of social capital, innovation support and firm performance. Based on the summary of research in social capital, we employ three commonly found dimensions of social capital -network ties, trust and shared vision – into the model.

Figure 1: Social Capital, Innovation Support and Firm Performance:

A Relational Model



Source: Self designed

3. Research Objectives

The objective of this paper is to examine the impact of social capital through the dimensions of network ties, trust and shared vision on innovation support and its effect, in turn on firm performance while drawing comparison among firms engaged in strategic and social alliances¹. We hypothesize that social capital has a more significant role to play in deriving

¹ A strategic alliance is a group of firms entering into voluntary arrangements that involve exchange, sharing, or co-development of products, technologies, or services (Gulati, 1998). The last two decades have witnessed a proliferation of strategic alliances among firms as a result of technological development and globalization. An alliance can be formed by firms located in different positions or in the same position of the value chain. In the latter case, the firms concerned may produce similar products and compete in similar geographical markets (see Hamel, Doz, & Prahalad, 1989). Inkpen and Tsang (2005) considered trade associations as part of strategic alliances. Miller et. al. (2007) referred to these membership associations as strategic networks.

The term 'strategic alliance' has been used in this paper to refer to membership associations like business associations, chamber of commerce and industry/trade specific associations.

The term social alliance has been used in this paper to indicate ties in informal networks like extended family networks, social networks, internal network of employees and buyer-supplier networks of small firms.

benefit of innovation support among member firms having strategic and social alliances compared to non-member firms having only social alliances.

4. Methodology of Data Collection

To study the effect of social capital on innovation support and ultimately firm performance, a survey was conducted using a structured questionnaire. The questionnaire was formulated by incorporating the predominant theories advanced in the literature and a review of previous survey instruments. The original questionnaire, consisting of 34 questions, was piloted over a sample of 20 small firms in order to ensure content validity. The test instrument was refined with rectification of question ambiguity. The final questionnaire containing 33 questions was subsequently distributed as described below.

The sample of member² firms was selected using a random number table from the pooled population of 2641 members of five business associations. Four of these associations were selected from a list of industry associations available from the Directorate of Micro and Small Scale Enterprises, Government of West Bengal. Membership data from two general business associations (Bengal National Chamber of Commerce and Industries (BNCCI) and Federation of Small and Medium Industries (FOSMI)) representing heterogeneous trade and manufacturing units and two trade /industry specific associations, Bengal Hosiery Manufacturers Association (BHMA) and Electronic and Accessories Manufacturers Association (ELMA) were used to generate the sample set. Another business association, Computer Association of Eastern India (COMPASS), was added to the sample pool to ensure IT sector representation. To confirm representation of different business activities in the state of West Bengal we cross-referenced the list with expert opinion on the business sector. The sample population was deemed representative of business activity in West Bengal.

Using a random number table from the list of 2641 firms, we generated a list of 100 small firms for the sample set. Sixty-five (65) small firms responded, representing a very high response rate. After removing incomplete questionnaires, 50 small firms remained for analysis.

²Member firms - Members of Industry/Trade Specific Associations and Formal Business Associations
Non-Member firms - Not member of any Industry/Trade Specific Associations or Formal Business Associations

In order to select the sample of 50 firms which would form the control group, another 200 firms were selected using random number table from a population of 3168 continuing small businesses (having filed Entrepreneurship Memorandum II (EM II)³ with District Industries Centre of four districts of West Bengal- Kolkata, Howrah, South-24 Parganas and North 24 Parganas, as per the MSMED Act, 2006) in the urban and suburban areas of West Bengal spread across different industries. In this context it is relevant to mention that by informal networks, the study includes extended family network, social network, internal networks and buyer-supplier networks. All 200 firms were queried with one basic question- ‘are you a member of any formal business association or industry/trade specific association?’ 68 firms gave a negative reply (indicating that these could form the control group), of which 58 firms responded to the questionnaire. After removing the unusable survey, 50 firms remained in the final sample set used for data analysis.

Prior to the dissemination of questionnaires, face-to-face interviews were conducted with owners/managers of sample firms to gather firm profile and information on various dimensions of social capital, benefits obtained therefrom and its role in firm performance.

The demographic data of sample firms collected from the respondents are presented in Table 1.

³ For a continuing business, which was earlier registered with DIC, EM II is the relevant document for registration.

TABLE 1: DEMOGRAPHIC PROFILE OF SAMPLE FIRMS

Demographic	Profile	Member Firms	Non-member Firms
Nature of Activity	Manufacturing	72%	52%
	Service & Trade	28%	48%
Form of Business	Unincorporated	54%	86%
	Incorporated	46%	14%
Firm age	Below 15 years	28%	48%
	15 to 30 years	42%	40%
	Above 30 years	30%	12%
Firm Size	Below 6 employees	6%	26%
	7 to 10 employees	20%	50%
	11 to 20 employees	42%	20%
	21 to 100 employees	32%	4%

Source: Field Survey

5. Operationalization of the research objectives

In trying to investigate the dimensions of social capital, standard instruments were used. As a measure of social capital we have used the constructs of ‘network ties’, ‘trust’ and ‘shared vision’. Four items were developed from the theoretical insights in the literature for measuring the innovation support derived by the small firms through their social capital networks. The responses to each item were measured on a five point likert scale (1= strongly disagree, 2 = disagree, 3 = undecided, 4 = agree, 5 = strongly agree). To ensure the reliability of all the scales used, Cronbach’s alpha tests were applied. Scales were determined to be reliable if the Cronbach’s α coefficient was greater than (0.7) (Nunnally and Bernstein, 1994).

A construct of ‘innovation support’ was used to measure the level of network derived innovation support among. Exploratory factor analysis was conducted to generate the score for latent variables. The criteria of KMO and Bartlett’s test of sphericity were satisfied for all factors.

Strength of Network ties - On the basis of extant literature the survey questions were designed to inquire about the strength of firm's ties in various types of networks. The network structure of the member firms comprises both formal and informal network ties which include affiliations with industry/trade specific associations and business associations along with ties in family and extended family networks, social networks, internal networks, and buyer-supplier networks. Network structure of the non-member firms contains mainly informal networks involving ties in family networks, social networks, internal networks and buyer-supplier networks.

Strength of ties in each network was measured as an average scoring of closeness, frequency, and duration of contact in the network. To derive an indicator of strength of network tie, responses were taken on three items assessing perception of closeness, duration of relationship, and frequency of contact in each network. Example questions include: "How close are you with the members of the network?" (1 = very distant, 2 = distant, 3 = neutral, 4 = close, 5 = very close) (Perry-Smith, 2006; Baer, 2010). Strength of tie in each network was measured as an average scoring of closeness, frequency and duration of contact in the network.

Separate factor analyses were conducted for network tie strength for member and non-member firms. Tie strength in six networks was considered for member firms (1. industry/trade specific associations, 2. business associations, 3. family and extended family networks, 4. social networks, 5. internal networks, and 6. buyer-supplier networks), whereas tie strength in four networks are considered non-member firms (1. family networks, 2. social networks, 3. internal networks, 4. buyer-supplier networks). Factor analysis of six network ties strength of the member firms using principal component method generated two factors having Eigen values greater than 1 which explained 77.94% of the variance. The first factor comprises of 'tie strength in family and extended family networks', 'tie strength in social networks', 'tie strength in internal networks,' and 'tie strength in buyer-supplier networks'. This factor is named 'Net_tie(Social)' as it explains the informal network structures and relationship guided by mutual understanding and trust. Cronbach's alpha coefficient of this factor is .872. The second factor is named 'Net_tie(Strategic)' as it comprises of 'tie strength in industry/trade specific associations', and 'business associations' where firms enter

proactively through membership for gaining strategic advantage⁴. This factor has a Cronbach's alpha coefficient of .884

Factor analysis of the four network ties strength of non-member firms generated one factor having Eigen value greater than 1 which explained 78.15% of the variance. The factor comprises of 'tie strength in family and extended family networks', 'tie strength in social networks', 'tie strength in internal networks,' and 'tie strength in buyer-supplier networks'. The factor is coded non-member Net_tie(Social) as it explains the strength of network structure and relationship guided by informal relationship among the members. This factor has a Cronbach's alpha coefficient of .889 KMO measure of sampling adequacy was satisfied for both member and non-member firms and Bartlett test of sphericity was also significant.

Trust - Alongside network ties another dimension of social capital measured for this study is trust. Perception of trust in networks among the entrepreneurs' of the sampled firms was measured using four items from past literature (Portes and Sensenbrenner, 1993; Miller & Bessar, 2007). Cronbach's alpha coefficient was used to measure the internal consistency of the scale and factor analysis using principal component was applied to ensure the construct validity of the items measuring trust. As four items measuring trust was administered to all the respondents, factor analysis was conducted on the pooled data. Factor analysis of the items generated one factor having Eigen value greater than 1 which explained 68.75% variance. This variable is named 'Trust'. Cronbach's alpha coefficient of 'trust' for member and non-member firms was .861 and .814, respectively.

Shared vision - Shared vision among network members has been measured using four items taken from Miller and Bessar (2007). Factor analysis of the items generated one factor having Eigen value greater than 1 which explained 76.15% variance. Factor score generated for each respondent was used as index of shared vision for further analysis. This variable is named 'Sh_vision'. Cronbach's alpha coefficient of 'shared vision' for member and non-member firms was .850 and .833, respectively.

⁴ Inkpen and Tsang (2005) focussed on strategic networks and followed Gulati et al.,'s (2000) definition of strategic business networks as ties between business organizations that are enduring and intended to provide strategic advantages. The networks offer strategic significance in that individuals in interorganizational relationships use the resources and shared interests to enhance and develop subsequent business strategies benefitting chiefly the business and subsequently the network.

Innovation support - This variable relates to the extent to which firms find support for innovation activities from their various network relationships. On the basis of literature review and the pilot study conducted prior to administration of final survey, a total of 41 benefits obtained by small firms through network relationships were chosen for this study on impact assessment of social capital in small firms of West Bengal. The respondents, owner/managers of small firms, were asked to rate their perception of these benefits to their firm on a 5 point Likert scale ranging from 1 to 5 (1= strongly disagree, 2 = disagree, 3 = undecided, 4 = agree, 5 = strongly agree). As the items of social capital benefits chosen for the study were large in number and inter-related, Factor Analysis was done using Principal Component method to extract and aggregate the benefits. Six components having Eigen value greater than 1 were generated from these items through Factor analysis using Principal Component method and varimax rotation and together, they account for almost 85.15% of the variability in the original variables. The components are marketing support, information sharing, HR support, innovation support, legal and advocacy services and financial support. As the focus of this paper is innovation support, the other components were not considered for further analysis.

Four items measured on a five point likert scale, capturing the small firm owner/manager's perception of support received from networks in innovating new products or services, in product development, and design related issues, in introducing new methods of producing goods or delivering services and in introducing new methods of marketing products or services correlated into the fourth factor. The factor was named 'In_Sup'. The items were guided by the literature on innovation support received by firms embedded in networks like Molina-Morales & Martinez-Fernandez (2010), Gronum et al., (2012) and Farsi et al., (2013). Cronbach's alpha coefficient of 'innovation support (In_Sup)' for member and non-member firms was .903 and .834, respectively.

Firm performance – Firm performance measured from perception of the respondent/owner has been used, as they are considered more appropriate than objective measures for comparing performance in cross-industry studies (Dawes, 1999). Three items of subjective measurement of firm performance based on the entrepreneur's own perception of the firm's

success, future prospect of profitability, and future prospect of growth has been adopted from past studies (Danes et al., 2009).

Factor analysis (Principal component method) of the three items measuring perception of performance generated one factor having Eigen value greater than 1, which explained 84.25% variance. The factor was named Success Perception Index (SPI). Cronbach's alpha coefficient for member and non-member firms was .899 and .827, respectively. Table 2 summarizes the measurement of constructs.

Size of business and age of the firm has been used as control variables for the study. Literature on social capital, innovations and firm performance reveal the use of firm size and firm age as control variables (Gronum et. al, 2012; Wu, 2008).

Table 2: Construct Measurement: Factor loadings and Relevance

Items	Variable Name	No. of Items	Factor Loading	Eigen value	Variance Explained	Alpha score
Network tie (Member firms) 2 factors	Net_tie (Social)	4	.873	3.114	51.903%	.872
			.893			
			.882			
			.897			
	Net_tie (Strategic)	2	.980	1.563	26.041%	.884
			.955			
Network tie (Non-Member firms) 1 factor	Net_tie (Social)	4	.898	3.126	78.15%	.889
			.881			
			.841			
			.892			
Trust 1 factor	Trust	4	.836	2.75	68.75%	.861 (Member firms) .814 (Non-member firms)
			.801			
			.824			
			.854			
Shared vision 1 factor	Sh_vision	4	.851	3.046	76.153%	.850 (Member firms) .833 (Non-member firms)
			.916			
			.932			
			.783			
Innovation Support*	In_Sup	4	.840	6.119	10.809%*	.903 (Member firms) .834 (Non-member firms)
			.920			
			.874			
			.863			
Success Perception Index 1 factor	SPI	3	.885	2.528	84.25%	.899 (Member firms) .827 (Non-member firms)
			.934			
			.942			

* Six factors were generated from 41 items of benefits arising out of social capital usage in networks of small firms. Together they accounted for 85.151% variation in social capital benefits. Innovation support (In_Sup) is the fourth factor and accounts for 10.809% variations in social capital benefits. Only this factor has been considered in this study.

6. Results and Analysis

The descriptive statistics and correlation matrix for the study variables are presented in Tables 3 and 4, respectively. Ties in strategic networks have significantly high positive correlation with network derived innovation support among member firms. Ties in social networks, trust, and shared vision are also positively correlated to network derived innovation support among both member and non-member firms but the correlations are higher among member firms. The reason may be that member firms get the benefits of financial, technical, legal, advisory and other support services provided by the membership associations. These associations also provide the member firms a cooperative platform guided by trust and shared vision that helps them to collaborate with other firms for innovative activities. Innovation support enjoyed by member firms is further supplemented by ties in social alliances.

Table 3: Descriptive Statistics and Correlations for Member Firms

<u>Variables</u>	<u>Mean</u>	<u>S.D</u>	<u>α</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>
1.Net_tie(Strategic)	3.631	.9754	.884	1							
2.Net_tie(Social)	3.081	.6970	.872	.211	1						
3. Trust	3.71	.7649	.861	.328**	.384**	1					
4. Sh_vision	3.75	.6418	.850	.305**	.209**	.339**	1				
5. In_Sup	3.608	.7492	.903	.521**	.338**	.446*	.561**	1			
6. SPI	3.443	.9722	.899	.546**	.465**	.584**	.513**	.581**	1		
7. AGE	22.86	10.16	-	.332**	.169	.398**	.322**	.205	.214	1	
8. SIZE	33.74	11.73	-	.423**	.342**	.152**	.392**	.492**	.498**	.007	1

* Correlation is significant at the 0.01 level (2-tailed).

** Correlation is significant at the 0.05 level (2-tailed). N=50

Table 4: Descriptive Statistics and Correlations for Non-Member Firms

<u>Variables</u>	<u>Mean</u>	<u>S.D.</u>	<u>α</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>
1.Net_tie(Social)	2.961	.7356	.889	1						
2. Trust	3.45	.9006	.814	.327**	1					
3. Sh_vision	2.763	.9095	.833	.291**	.321**	1				
4. In_Sup	2.306	.6388	.834	.398**	.482**	.108**	1			
5. SPI	2.252	.6439	.827	.237**	.414**	.197**	.116**	1		
6. AGE	18.58	7.54	-	.080	.263**	.136**	.091	.168	1	
7. SIZE	14.5	9.54	-	.154**	.124**	.159**	.185**	.426**	.360*	1

* Correlation is significant at the 0.01 level (2-tailed).

** Correlation is significant at the 0.05 level (2-tailed). N=50

To probe the effect of social capital on network derived benefits of innovation support two multiple regression models have been constructed with score of innovation support (In_Sup) as the dependent variable and dimensions of social capital (Net_tie(strategic), Net_tie(social), Trust and sh_vision) and firm related control variables (SIZE and AGE) as independent variables.

The multiple regressions have been used here for analyzing the associative relationship between the dependent variable (innovation support) and the independent variables (dimensions of social capital and control variables). Multiple regression analysis is useful to determine whether the independent variables explain a significant variation in the dependent variable, i.e. whether a relationship exists or not. It is also a suitable method to determine how much of the variation in the dependent variable can be explained by the independent variable.

Most robust models generated for member and non-member firms through step wise regression method have been presented in Table 5.

Table 5: Multiple Regression Analysis: Effect of ‘Social capital’ on ‘Innovation support’

Dependent variable: Innovation Support (In_Sup)							
Model 1: Member Firms				Model 2: Non-member Firms			
Independent Variables	B	Beta	Sig.	Independent Variables	B	Beta	Sig.
(Constant)	2.709		.000	(Constant)	1.935		.000
Net_tie (strategic)	.445	.579	.000				
Net_tie (social)	.146	.135	.017	Net_tie (social)	.179	.206	.013
Trust	.428	.436	.000	Trust	.338	.476	.004
Sh_vision	.357	.305	.000				
SIZE	.010	.156	.009	SIZE	.015	.224	.017
R ² = .645				R ² = .542			
Adjusted R ² = .605				Adjusted R ² = .512			

Model 1 shows that benefits of innovation support received by the sampled member firms from their networks are affected by ties in strategic networks ($\beta = .579$, $p < 0.01$), ties in social networks ($\beta = .135$, $p < 0.01$), trust ($\beta = .436$, $p < 0.01$), and shared vision ($\beta = .305$, $p < 0.01$). The Model is quite robust with R² of .645 indicating that 64.5% variation in network derived benefits of innovation support can be explained by social capital dimensions of ties in strategic networks, trust, and shared vision. Positive association between size of business ($\beta = .156$, $p < 0.01$) and network derived innovation support indicates that bigger firms have

greater inclination towards availing this benefit through network relationships. The other control variable, AGE, was not significant and was removed in step-wise regressions.

The Model for non-member firms (Model 2) is less robust than Model 1 for member firms. Model 2 shows the effect of ties in social networks ($\beta = .206, p < 0.01$) and trust ($\beta = .476, p < 0.01$) on network derived innovation support among firms embedded in informal networks. Similar to results for member firms, size of business ($\beta = .224, p < 0.01$) has significant impact on innovation support obtained by non-member firms. Model 2 has a R^2 value of .542, which indicates that 54.2% variation in network derived innovation support can be explained by social capital dimension of informal network tie strength and trust among sampled non-member firms, which is less compared to variance explained for the member firms. This may be rationalized by the fact that the components of Model 2 are firms are not members of any formal business network and their ties in informal natural networks are not adequate in providing the requisite support for new innovations.

Further, to test the impact of network derived innovation support on firm performance two regression models were constructed with subjective firm performance score (SPI) as dependent variable and innovation support (In_Sup) and firm related control variables (SIZE and AGE) as independent variables. Model 3 (for member firms) and Model 4 (for non-member firms) is presented in Table 6.

Table 6: Multiple Regression Analysis: Effect of ‘Innovation support’ on ‘Firm Performance’

Dependent variable: Success Perception Index (SPI)							
Model 3: Member Firms				Model 4: Non-member Firms			
Independent Variables	B	Beta	Sig.	Independent Variables	B	Beta	Sig.
Constant	1.957		.000	Constant	1.628		.000
In_Sup	.425	.328	.000	In_Sup	.121	.120	.048
SIZE	.009	.109	.011	SIZE	.007	.104	.039
$R^2 = .586$				$R^2 = .495$			
Adjusted $R^2 = .568$				Adjusted $R^2 = .473$			

Impact of innovation support on firm performance is explained more distinctly among member firms compared to non-member firms. Model 3 for member firms has an R^2 value of

.586 and shows that 58.6% variation in SPI can be explained by network derived innovation support ($\beta = .328$, $p < 0.01$) and size of the firm ($\beta = .109$, $p < 0.05$).

Model 4 shows the effect of network derived innovation support ($\beta = .120$, $p < 0.05$) and size of the firm ($\beta = .104$, $p < 0.05$) among non-member firms. With an R^2 value of .495, Model 4 is less robust than Model 3 and shows that 49.5% variation in SPI can be explained by network derived innovation support and size of the firm.

Innovation support is more robustly explained as a dependent variable on social capital in member firms (Model 1) in comparison to non-member firms (Model 2). Three dimensions of social capital, namely strength of tie in strategic alliances and social alliances, trust and shared vision explain 64.5% of variance in benefits of innovation support among member firms whereas 54.2% of such innovation support benefits are explained by the dimension of social capital in non-member firms. This substantiates our hypothesis that social capital has a more significant role to play in deriving benefit of innovation support among member firms having strategic and social alliances compared to non-member firms having only social alliances.

Among the dimensions of social capital in member firms, the component representing ties in strategic alliances has the most pronounced effect on benefits of innovation support derived by member firms. The reason may be that membership organizations have both local knowledge and links into national and international bodies. Membership can serve as active centralized conduits of information on new ideas, products & product related designs, customer preferences, market demands as well as sources of further advice and guidance to member firms regarding new innovations. Depending on the strength of ties in the strategic alliances, the member firms may find innovation related support from these associations. Moreover higher level of trust and shared vision among the firms' network members help in the innovation process through cooperative and collaborative activities.

Informal ties in social networks also have influence on innovation support benefits among member and non-member firms, which arise out of backing from family members, friends and acquaintances. Networks of employees and buyer supplier networks may also provide vital support for innovative activities. Such social networks support may provide small firms with more access to resources, complementary skills, capabilities, and knowledge that are not internally available. Trust, representing a relational dimension of social capital, has positive

significance for innovation support for both member and non-member firms but its effect is more pronounced for firms embedded in strategic alliances (seen in β values of results for member vs. non-member firms). This indicates that small firms having strategic alliances derive more benefits of innovation support from their network relationships. Empirical results found in this study support intuitive thoughts that benefits such as information and knowledge resources gathered through membership associations as well as through trusted relationships and shared vision among the members, complemented by resources gathered from social alliances, substantiates that firms embedded in strategic alliances find greater innovation support from their networks compared to firms embedded only in social alliances (i.e., non-members).

Among the firm related control variables, size of the firm is a significant variable in the regression results of member (Model 1) and non-member firms (Model 2), which indicates that benefits from social capital in the arena of innovation support are more pronounced among the bigger firms in the sample. This may be because the bigger firms among the SMEs face competition from the large corporates compared to smaller sized firms, which cater to localized needs. In other words, larger firms need more innovative support to fight back competition. Lack of requisite resources within the organization prompt them to access the membership driven benefits of innovation support.

Impact of network derived innovation support in terms of innovating new products or services, product development and design related issues, introducing new methods of producing goods or delivering services and introducing new methods of marketing products or services on firm performance in the form of perceived success is stronger in case of member firms (Model 3) compared to non-member firms (Model 4). This may be explained by higher level of innovation support received by the member firms from their diverse network relationships as compared to non-member firms. Size of the firm is found to have a significant effect on firm performance among member and non-member firms in terms of perception of success of the entrepreneurs. The reason may be that bigger firms have stronger resource base compared to small firms and can afford to take more risks, which enhance their perception of success.

Among the sampled member and non-member firms, perception of success is estimated to be higher among firms receiving innovation support and bigger firms. Ties in business

associations and industry associations may have provided opportunities for undertaking joint research and development activities among the member firms that may have helped in innovations of new products and services, product development, and design related issues. Associations also arrange for training programmes for adoption of new technology that member firms may avail of to improve capacity and performance. Member firms also receive support in entering new markets from participation in the buyer-seller meets and trade fairs at the regional /state /national /international levels through the membership associations. Other than the ties in strategic alliances, sampled member and non-member firms seem to have received innovation support from their informal ties in social alliances. Information about new products, product designs, new markets, and new sources of raw materials may have flowed in from ties in buyer-supplier networks. Sampled firms were also found to have obtained financial support needed for innovations from their ties in family and extended family networks. In addition, they may have received knowledge and information support for innovations of new products and services, new product designs, new sources of supply of raw materials, and entering new markets from internal networks of employees and colleagues and social networks. Innovation support received through social capital usage in various networks and comparatively bigger size of the firms is estimated to have an impact on the entrepreneurs' perception of success among the sampled small firms in the study. Member firms obtain higher innovation support from more diverse ties compared to non-member firms which are estimated to have greater impact on their perceived firm performance.

7. Concluding observations

This study offers empirical results suggesting that SMEs embedded in strategic alliances receive greater support for innovative activities from their networks compared to firms embedded only in social alliances. The innovation support received by the member firms through diversity of exchange partners in strategic and social alliances seem to outperform the network derived innovation support received by non-member firms from their social alliances only.

The effect of innovation support on firm performance in terms of perceived success indicates that network derived innovation support is one of the mechanisms that translates the benefits of social capital into positive firm performance. Results indicate that the member firms embedded in strategic alliances outdo the non-member firms having only social alliances in that the innovation support received by member firms have a stronger effect on firm

performance as compared to non-member firms. The stronger network derived innovation support enjoyed by member firms may be attributed to the greater diversity of network relationships enjoyed by them. Their strategic network connections may provide them with greater information and knowledge resources, training and development facilities for their workforce, legal and advocacy support for new innovations and encouragement of innovative activities that may not be available to the non-member firms.

Finally, limitations of this research should be mentioned. The study has been conducted on a small sample. Future analysis conducted on a larger sample would provide an opportunity to further test the conclusions drawn. This study also suffers from some of the inherent limitations of all quantitative research. The variables that represented the different dimensions of social capital are by no means exhaustive. The operationalization of the dimensions of social capital may not have fully captured the various facets of each dimension. These limitations may be partially overcome by future research that incorporates qualitative data, which could provide deeper understanding of network embeddedness. It is also worth mentioning that while previous research indicates subjective measures of performance are appropriate for use in the type of research undertaken here (Dawes 1999), comparing the subjective responses to actual performance may provide additional insight into the relationships tested. For example, the effect of network derived innovation support on actual innovation and financial performance of the firm may also be probed in further studies.

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