THE STRENGTH OF NETWORK RELATIONSHIPS IN STRATEGIC ACCOUNT MANAGEMENT

Roy Broad
roy.broad@wlv.ac.uk United Kingdom University of Wolverhampton

Competitive paper

ABSTRACT

Research on Strategic Account Management (SAM) and Key Account Management (KAM) has traditionally focussed on the value, configuration and management of major accounts, with frequent recommendations from authors to increase the understanding of SAM/KAM from an operational perspective. There is a continuing discussion as to whether SAM/KAM is the responsibility of sales or marketing and interest in the role of the account manager in developing strategic alliances and business relationships.

This paper suggests that SAM/KAM and the wider responsibility of GAM, is not simply a ‘sales’ or ‘marketing’ responsibility, but arguably a wider firm responsibility with relationships in networks seen as a way to improve business performance. Firms are frequently encouraged to invest resources in networking activities to develop business opportunities, without necessarily being able to measure the result.

The purpose of this paper is to examine the benefits from business networking from the perspective of firms in the West Midlands and explains the factors which were found to improve networking performance in terms of increased sales turnover.

Using survey data from 298 firms, the research findings using a quantitative method suggest that planned networking behaviour, degree of embeddedness, networking intensity and crucially for SAM/KAM, the role that strength of relationship has in influencing networking performance and sales turnover.

This study provides some empirical support for the idea that firms which adopt a structured approach to business networking may achieve better outcomes in terms of networking performance when measured as a percentage of sales turnover. This study contributes to the markets as networks and SAM/KAM literature by advancing the conceptualisation of networking performance measured in terms of sales turnover.

Key words: Strategic/Key/Global Account Management, Marketing, Networks, Relationships in Networks, Business Networking, Networking Performance
INTRODUCTION

The importance of relationships and interaction in the changing role of sales and marketing has been recognised for some time (Webster 1992). However, most research has continued to follow the separate conventions of sales account management, relationship marketing and networks (Håkansson and Snehota 1995; McDonald, Millman et al. 1997; Pardo 1997). The role of marketing with the emergence of KAM is questioned by Pardo (2001, p.15), suggesting further research was required into supplier customer relationships and comparisons with other business functions, leading to the conclusion that KAM was an organisational responsibility.

The extant literature has been accused of being myopic in its approach to KAM by Bradford, Challagalla et al (2012, p.54) with Gosselin and Bauwen (2006, p.27) calling for more research into the importance of organisational, structural and strategic perspectives of account management, or strategic account management (SAM). In particular, there have been requests for more quantitative research to compliment the current qualitative tradition, as KAM is arguably under-researched and its efficacy is therefore only partially understood (Millman and Wilson 1996). Only limited academic research has been done from a relationship marketing perspective on account management (Gosselin and Heene 2003).

Homburg, Workman JNR et al. (2002, p.39) support the notion of building a bridge between marketing organisation research and relationship research, noting that some authors have described KAM relationships as an evolutionary process. Some business relationships are said have more importance than others and hence are ‘key’ and that it is this ‘keyness’ of certain relationships that has led to key relationship management (Ivens, Pardo et al. 2009).

KAM is said to have three different types of value, exchange value, proprietary value and relational value (Pardo, Henneberg et al. 2006). It is the relational value in account management that is considered important in developing this study. SAM/KAM arguably suits larger organisations with complex organisational structures (Millman and Wilson 2000). But what happens in smaller organisations and SMEs, where it is often the business owner or entrepreneur who takes responsibility for selling. Is selling an individual or a team responsibility with a coordinated approach? Senior managers and business owners must also play a lead role in securing business in the SAM construct and what role does cross-functional business networking play in increasing sales turnover?

The idea for the research topic originated from observing executives responsible for selling high value capital equipment. It was apparent that the most successful salespeople were also the most proficient at creating influential business networks. These people were adept at forming relationships with important connections in their personal and business networks with key suppliers, consultants, prospects and
customers. Their success was not accidental, as these networks were expertly planned and deliberately exploited through active networking. It begged the question; “If more executives deliberately invested time and effort in creating and maintaining business networks, could they achieve better business results, such as higher sales turnover?”

Many researchers endorse the practice of networking for business (Achrol and Kotler 1999; Araujo 2004; Chell 2000; Dennis 2000; Doyle 1995; Easton 1992; Gilmore et al 2001; Ford et al 2003; Håkansson and Snehota 1989; O’Donnell et al. 2001; Ottesen 2004; Swann et al. 1999). However, few researchers have offered an insight as to what constitutes a productive network in terms of networking performance and importantly, how the benefits of business networking might be measured. The purpose of this research is to investigate the relationship between networking activities and networking performance, in particular the influence of strength that relationship has on sales turnover and the development key accounts.

This research is based on an empirical study of the benefits of business networking for a large sample of firms in the West Midlands region of England. The study examines a number of factors identified as contributing to the strength of business networking relationships, in particular the connection between networking activities and networking outcomes, with the aim of developing and testing a model of Networking Performance (NP).

For this study, the emerging concept of Networking Performance is taken to mean the combination of the metaphor ‘networking’ being a collection of ‘actors’ and their structural connections, linked to ‘performance’ being the process, manner or execution of the practice of networking.

However, little is known about the association between networking activity and firm performance (Dennis 2000; De Propris 2000; Miller 2007; Swann et al. 1999). Measuring performance in networks is described by Iacobucci (1996) as being suffused with difficulty due to the problems of obtaining financial data. Measuring firm performance within a network is dependent on access to relevant financial information (Terziovski 2003; Watson 2007). This may have deterred researchers in the past but measures of performance in networks have been identified and analysed in a number of studies (Medlin 2003; Ritter 2002; Wilkinson and Young 2002). The need to recognise the overall conceptual understanding of the networking ability of firms is supported by Ritter et al. (2004, p.176), adding “Beside the long-standing interest in understanding networks, interest in managerial aspects of networking is fairly new and diverse”, encouraging the idea for researchers to gain a greater understanding of the benefits of business networking.

This research draws on both the theoretical background used to describe personal contact networks and networking found in the entrepreneurial literature, as well as the theory encompassing the inter-organisational and markets and networks approaches associated with describing networks and the relationships within networks. In practice the key account sales manager (actor) in a business network is simultaneously both an individual and a representative of the firm, supporting the notion that there is an overlap in the categorisation of personal networks and inter-organisation networks. O’Donnell et al. (2001, p.756) note that “some researchers adopt a definition which encompasses aspects of both, and indeed such a perspective is encouraged”. It is
acknowledged there is a risk in taking this approach too far and whilst considering networking activities in the context of SAM/KAM and business networks, a distinction has been maintained between the separate terms and theoretical concepts.

Early research in the IMP tradition is primarily concerned with the nature of network relationships (Mattsson 1997). Subsequent network analysis has developed from understanding the nature of interconnected actors to recognising the interdependence of complex business relationships within business networks (Araujo 2004; Mouzas, Henneberg et al. 2004; Ottesen, Foss et al. 2004). Strength of relationship is therefore seen as an important factor in determining the success of networking activity. Relationships in business develop and evolve over time. Existing theories of network relationships are frequently based upon an understanding of the relevant dimensions of relationship traits, such as trust, commitment and mutual understanding. Whilst these studies present an insight into the social aspects of the relationship, they often involve only simple exploratory network tasks with low economic benefits. The stronger network ties based on the interactive nature of relationships in networks, where actors participate in collaborative activities associated with achieving economic goals and gaining financial benefits, are more closely identified with contemporary research into aspects of networks and relationship performance (Ritter, Wilkinson et al. 2004; Rust, Ambler et al. 2004; Medlin 2005).

Contemporary research suggests there are links between networks, networking activities and business relationships for improving business performance (Ritter 2002; Medlin 2003; Terziovski 2003; Ottesen, Foss et al. 2004). Relationship performance has been used as the dependent variable for single firm and dyadic network studies in (Medlin 2003). The advantage of an economic focus is that it offers direct performance indicators relative to commercial expectations. Relationships in networks are therefore seen as a prerequisite to successful business networking and the development of inter-firm relationships. Ritter, Wilkinson et al. (2002) observe that the ability of a firm to develop and manage relations with key suppliers, customers and other organisations is a core competence of a firm, having a direct bearing on a firm’s competitive strength and performance. It is suggested that this might prove an important indicator of networking activity and NP with implications for SAM/KAM.

CONCEPTUAL FRAMEWORK

The development of a conceptual framework to investigate the linkages between networking activity and NP is based partly on the study of relationships in networks (Håkansson and Snehota 1995). Research undertaken within the markets as networks domain recognises the interdependencies, interaction and relationships, as important generic aspects of firms’ behaviour and network orientation (Håkansson 1982). This is seen as the focal firm’s perspective within the dyadic network construct and was influential in this study and the development of a conceptual model explaining NP.

In reviewing the literature, it became apparent there was an overlap in the description and conceptualisation of many of the network terms. For example, network
atmosphere and network environment share similar descriptions and are frequently interchanged. Similarly, there is a cross-over in the literature between the networking constructs of network environment and networking capability, with competence and capability frequently used to describe the same networking effect. It was evident that some refinement was required to be effective in describing NP. As Ritter, Wilkinson et al. (2004, p.181) in a study of networking ability, suggest that the task is to fine-tune the understanding of networking capabilities, to develop good measures and to empirically examine how they contribute to the relationship and network development and firm performance. Having considered the influence of the various networking constructs described in the literature, a conceptual framework was developed linking a range of networking constructs to proposed independent variables. Based on these observations, a conceptual framework is presented in Figure 1.

FIGURE 1
Conceptual Framework

The conceptual framework in Figure 1 shows four overarching theoretical constructs and their associated concepts represented diagrammatically, suggesting their potential influence on the identified networking outcomes. In this study, NP linked to financial performance (sales turnover) has been identified as the dependent variable. The positive outcomes of networking activity identified by McLoughlin and Horan (2000)
suggest that the financial aspects of a networking relationship are a major factor contributing to networking success.

The problem in refining the conceptual framework with twenty one potential variables is that this number is too large to be sure that those best suited to the study may be selected with confidence. Further refinement was achieved by undertaking a two-stage research design, with an initial qualitative phase to pre-test the concepts in a series of twenty face-to-face interviews using a snowball sampling technique (Dawes 1987). The resultant narrative from the interviews were analysed using a simplified method of coding and textual analysis (Alreck and Settle 1995). This improved the quality of data and enabled a better understanding of the variables from a practitioner perspective in developing a parsimonious model.

Relationships are seen as a prerequisite to successful networking and the development of inter-firm relationships, recognised as a core competence of a firm (Ritter 2002). From the findings of the pilot study where executives had responsibility for SAM/KAM and sales turnover targets, it became evident that it was not the relationship alone but the strength of the relationship based on frequency of contact and degree of mutual beneficial networking activity that might prove an important indicator of NP.

**Dependent Variable**

Networking Performance (NP) is the dependent variable in this study. Existing research has measured performance in networks in terms of relationships within a framework of network activities at the actor/firm level (Medlin 2003, p.2). Relationship performance is defined as “the perceived economic performance of the relationship parties, relative to expectations in that network”. However, as this study is interested in measuring the performance from networking derived from the perspective of the focal firm, a more precise economic measure was required. Medlin (2003, p.6) found that performance constructs in measuring networking outcomes generally lacked precision and that it would be advisable to measure more directly the purpose of the economic activity. Economic performance measures within networks have been considered good indicators of networking activity (Kandemir et al. 2006; Lehmann 2004; Medlin 2003). Therefore sales turnover was selected as the basis for the DV for this study, being a measure of the perceived economic performance of a firm within a network. NP was measured by using the response to the question “What percentage of your sales are generated by networking?”

**Explanatory Variables**

*Network Attractiveness*

The idea of networks having a discernable identity, atmosphere and therefore degree of attractiveness described by Ford et al. (1998), is encapsulated in the notion of the network environment and the resulting social bonds and inherent attractiveness suggested earlier by (Granovetter 1985). The notion of network attractiveness is recognised as being problematic because of the interconnectedness of the terms surrounding phrases like network environment and network atmosphere in Holmlund and Törnroos (1997) but firms appreciating the relative attractiveness of embedded networks perceive distinct differences in relative network performance (Ritter et al. 2004). Network attractiveness is defined as a construct which describes the mutual
interest between actors within a network (Ellegaard and Ritter 2008). Attractiveness is recognised to be an important constituent in network identity and can lead to other actors’ initiatives to establish a relationship, akin to social attraction and social network ties (Granovetter 1973). Network attractiveness is determined by dimensions of emotional consideration, interaction process and value creation.

Based on the above, I propose my first hypothesis:

\[ H_{1a}: \text{Greater network attractiveness will have a positive impact on networking performance.} \]

**Network Identity**

Networks have an identity bounded knowledge about the atmosphere in which they are engaged Håkansson (1982), limited by the perceived network horizon and the inability to see beyond a number of network connections and relationships. A network horizon will vary over time and the part of the network within the horizon that the actor considers relevant at any point in time is what according to Håkansson and Snehota (1989) gives the network context or identity. It is atmosphere created between connected firms that defines the identity of the network and the relationships which provide a perceived level of importance (Anderson and Håkansson 1994). It is the network ‘identity’ which defines how firms see themselves in the network and how they are seen by others in the network. Because network identity is perceived from the viewpoint of the actor or firm, it is important to describe network identity in the context of the network under consideration, and it is for this reason that it was considered in the same dimension as the perceived network atmosphere (Achrol 1997; Achrol and Kotler 1999).

Based on the above, I hypothesize:

\[ H_{1b}: \text{There is a positive relationship between network identity and networking performance.} \]

**Network Profile**

Network profile is defined as how the network is perceived from the viewpoint of the actors in a network (Achrol and Kotler 1999). It is seen in the same dimension as network atmosphere and was considered an important operational factor by the respondents in the pilot study in assessing the attractiveness of a network. Network profile is described as how the network is seen by others Håkansson and Snehota (1989).

Based on the above, I hypothesize:

\[ H_{1c}: \text{There is a positive relationship between network profile and networking performance.} \]

**Networking Behaviour**

Networking behaviour is described as the interactive network process whereby actors seek to develop close relationships on the basis of reciprocal and mutually beneficial actions (Thorelli 1986). The nature and behaviour within the dyadic relationship is characterised by length of relationship, frequency of contact, network activation, competence, commitment and the social bonds that affect networking behaviour. Behaviour conditions the mutual interactions between actors in a network and defines the nature of the dyadic relationship (Ford et al. 2003). Networking behaviour is
bounded by the network environment, network rules, network traditions, relationships and business connections. The boundary may not be arbitrary but patterns of network behaviour can be measured against the actor’s of network outcomes. This in turn influences the network’s reputation, conveying a sense of importance and competence in the network exchange (Achrol and Kotler 1999). Network activation may be formal, i.e. in a network meeting or informal, in a more social setting. Steward et al. (2010, p.563) found that salespeople were more likely to use their personal contact network first before turning to more formal network systems, suggesting that salespeople should “enhance the value and usability of formal network systems”.

Based on the above, I hypothesize:

H2a: Stronger networking behaviour will have a positive influence on networking performance.
H2b: There is a positive relationship between network activation and networking performance.
H2c: There is a positive relationship between networking contacts and networking performance.

Networking Intensity
Networking intensity refers to the extent of the interacting organisation’s resources committed to the networking relationship, in terms of frequency of contact & amount of resources (Aldrich 1979). Networking intensity is said to refer to the extent to which actors honour their obligations to others in the network (O’Donnell et al. 2001). Network intensity is also recognised as an important dimension of a network’s environment (Gemünden et al. 1996). Frequency of interaction is considered likely to have a positive influence of firm performance (Üstüner and Iacabucci 2012). Successful networks are said to be characterised by consistent interaction among members and regular sharing of information (Hollenbeck et al. 2009, p.134).

Based on the above, I hypothesize:
H2d: Greater networking intensity will have a positive impact on networking performance.

Degree of Embeddedness
The degree to which an actor firm is embedded in a network relates to the linkages of economic action and outcomes, the actors’ dyadic relations and the overall structural, economic and social dimensions of the network (Holmlund and Törnroos 1997). The importance of embeddedness in actor network relations is recognised by Håkansson (1982) with the extent of its influence on networking outcomes dependent on the nature of the relationships between actor firms and their commitment to create positive outcomes. Network embeddedness is the subject of a considerable body of research into network relationships (Greve and Salaff 2003; Håkansson and Snehota 1995; Holmlund and Törnroos 1997; Ritter et al. 2004; Young and Wilkinson 2004).

Based on the above, I hypothesize:
H3a: Greater network embeddedness will have a positive impact on networking performance.
H3b: There is a positive relationship between network membership and networking performance.
Strength of Relationship
Relationships in networks is recognised as a critical factor in how people in firms interact with each other and is central to marketing performance (Iacobucci 1996). The economic value of relationships in networks is complex but critical to understanding the potential the perceived benefits of the relationship (Ford et al. 2003). The ability of a firm to develop and manage relationships in networks is seen as a core networking competence (Ritter 2002). The resultant discussion is therefore centred on ‘managing network relationships’ with the emphasis on hub firms and strategic network alliances (Ritter et al. 2004). Terzirovski (2003, p.91) suggest that networking practices have a significantly positive effect on business excellence and found that the strength of relationship between networking practices and business excellence to be significant and positive. Similarly, Richards and Jones (2009, p.312) found that relationship effectiveness had a positive effect on sales performance.

Based on the above, I hypothesize:

H4: Stronger networking relationships will have a positive impact on networking performance.

FIGURE 2
Conceptual Model
METHOD

The decision to adopt quantitative data analysis as the principal method to test a model of networking performance was made based on the requirement to produce research findings with a high degree of operational credibility (Bryman and Cramer 1999). The method selected for this research was based on the seven step process suggested by Sekaran (1992), being a practical approach to business research using proprietary statistical modelling software, SPSS v16. The quantitative research methodology and process for the main survey was selected based on the requirement for a large-scale cross-sectional, self-administered postal survey of firms within the defined geographical area of the West Midlands. The objective was to collate multivariate data for analysis from a large sample, to identify linkages between networking activities and NP.

Sample Characteristics

The sample frame was defined as managers or directors of firms within the region who were responsible for generating sales income (SAM/KAM) and actively engaged in business networks and networking activities. A sample of 3013 firms located in the West Midlands and representative of diverse business sectors were identified from data from sources including the Chambers of Commerce and the Regional Development Authority (AWM).

A high degree of reliability and validity in the sample is a prerequisite for a robust survey, free from bias and random error. Pre-survey interviews were conducted with twenty senior executives to check the relevance and accuracy of the research assumptions, as a result greater confidence can be attributed to the final survey sample (Sekaran 1992). Another potential cause of bias in this type of survey is common method bias (CMB) or common method variance (CMV). Method bias can be a problem if it results in measurement error and therefore affects the validity of empirical results and associated conclusions. Although possible statistical tests for CMV vary in method and outcome, the consensus for researchers is to follow good measurement practice by implementing procedural remedies related to questionnaire and item design and to control for method bias as followed in this survey by:-

(a) considering the source for predictor and criterion variables, (b) assessing whether predictor and criterion variables can measured in different contexts, (c) identify whether the source of the method bias can be identified, and (d) whether the method bias can be measured (Podsakoff et al. 2003).

Sample Size

A total of 3013 questionnaires were distributed to the survey sample representing 197,592 registered firms in the West Midlands, employing 2,511,300 staff. The West Midlands has a population of 5,366,700, representing approximately 9% of the GB total. The sample size of 3013 met the sample frame criteria being approximately
1.5% of the 200,000 registered firms in the region and was considered representative of firms in the West Midlands. The principal method of data collection used in this study was a large scale, self-administered mail survey. From the total of 282 responses received, after initial checking for complete questionnaires and data entry, a total of 237 (7.9%) complete and useable responses were recorded as being suitable for analysis, with a confidence level of 95% (Bryman and Cramer 2005). A sample size of over 200 is considered adequate for this type of study (Kenny 2011).

Data Evaluation

Tests of non-response bias indicate that there were no significant differences between early and late respondents in terms of variables relating the individual (position, age, gender, networking experience) or to the respondent’s firm relating to (sector, geographic location, size or sales turnover).

Tests of key-informant competence. On average the respondents had been a member of a network for 6 years and were members of 3 network groups. 73% of respondents were recorded as being at director, managing director, chief executive officer or chairman, indicating a high level of seniority amongst the respondents. A further 19% were managers in their respective firms. 68% of respondents were aged 40 or above but 32% were aged under 40, reflecting that business networking is not confined to older participants. The majority, 64% were from organisations with one site in the West Midlands and represented a wide cross section of business sectors, with 58% having a turnover below £4.9m, which is in-line with the firm demographics for the region and representative of the economic activity.

After data entry, exploratory factor analysis is used to extract the multi item measures using in SPSS v16. The total variance associated with each factor is assessed and compared with the visual representation on the scree plot for each construct group. Kaiser Normalisation with varimax rotation was used to rotate the factor loadings to assist the interpretation of the correlation pattern for the selected variables. The factors having the highest loading were minimised and the largest coefficients shown as higher compared to the smaller coefficients in each of the constructs. Tests of reliability are used to assess the correlation between the observed score and the sample. OLS regression was then used to estimate the model of NP and to examine the results. Tests for interaction were used to examine the moderating and mediating effect of the independent variables (Baron and Kenny 1986).

Descriptive Statistics

NP was assessed against the independent variables described in the conceptual model at Figure 2. The scale mean, standard deviation and inter-correlations for each construct is presented Table 1. The relationship between each of the independent variables and the dependent variable was examined with the Pearson correlation coefficient, providing a measure of the strength of the linear relationship between each item. The reliability of one construct, Networking Behaviour, was improved to 0.89 (Chronbach alpha) by deleting the fourth item and labelling the new construct Planned Networking Behaviour. Table 1 shows both the observed significance and the magnitude of the of the coefficient correlation. Coefficients that have an observed significance level less than 0.01 are shown with double asterisks (**).
TABLE 1
Descriptive Statistics and Inter-correlations

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>S.D.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Network Attractiveness</td>
<td>5.090</td>
<td>1.081</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Network Profile</td>
<td>3.413</td>
<td>1.507</td>
<td>0.363*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Planned Networking Behaviour</td>
<td>5.724</td>
<td>1.262</td>
<td>0.362**</td>
<td>0.086</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Networking Intensity</td>
<td>3.180</td>
<td>2.660</td>
<td>0.135*</td>
<td>0.033</td>
<td>0.348**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Degree of Embeddedness</td>
<td>5.255</td>
<td>0.998</td>
<td>0.542**</td>
<td>0.229**</td>
<td>0.684**</td>
<td>0.374**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Strength of Relationship</td>
<td>5.035</td>
<td>1.224</td>
<td>0.446**</td>
<td>0.202**</td>
<td>0.655**</td>
<td>0.335**</td>
<td>0.743**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 Networking Performance</td>
<td>4.541</td>
<td>2.820</td>
<td>0.103</td>
<td>-0.027</td>
<td>0.334**</td>
<td>0.338**</td>
<td>0.362**</td>
<td>0.464**</td>
<td></td>
</tr>
</tbody>
</table>

** denotes correlation is significant at the 0.01 level (2-tailed)

In the correlation matrix above, there is a high correlation between planned networking behaviour, networking intensity, degree of embeddedness, strength of relationship and the DV networking performance. With the exception of network attractiveness and network profile, all the independent variables analysed in pairs in the correlation matrix are highly correlated. In the case when there is a high degree of correlation it is important to check for collinearity between the variables. The procedure in Norusis (2008, p271) was followed to check for multicollinearity, reporting for variance inflation factor (VIF) against each of the independent variables in the following section.

In the first stage of hypotheses testing, OLS bivariate regression was used to test each of the hypotheses against the dependent variable NP (Q7. What percentage of your sales are derived from networking?). The results of the initial regression in Table 2 were examined and each of the independent variables assessed in the model to identify which were predictors of networking performance. From the OLS bivariate regression at Table 2 below, four hypotheses are supported: H2a Planned networking behavior, H2d Networking intensity, H3a Degree of embeddedness, H4 Strength of relationship. Two hypotheses H1a network attractiveness and H1c network profile which were not supported in this regression.

TABLE 2
Bivariate Regression Results

<table>
<thead>
<tr>
<th>Hypotheses</th>
<th>Independent Variables</th>
<th>Unstandardised Coefficients</th>
<th>Standard Coefficients</th>
<th>T-values</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1a</td>
<td>Network attractiveness</td>
<td>0.269</td>
<td>0.173</td>
<td>0.103</td>
<td>1.552</td>
</tr>
<tr>
<td>H1c</td>
<td>Network profile</td>
<td>-0.059</td>
<td>0.144</td>
<td>-0.027</td>
<td>-0.406</td>
</tr>
<tr>
<td>H2a</td>
<td>Planned networking behaviour</td>
<td>0.746</td>
<td>0.141</td>
<td>0.334</td>
<td>5.289</td>
</tr>
<tr>
<td>H2d</td>
<td>Networking intensity</td>
<td>0.358</td>
<td>0.067</td>
<td>0.338</td>
<td>5.557</td>
</tr>
<tr>
<td>H3a</td>
<td>Degree of embeddedness</td>
<td>1.023</td>
<td>0.176</td>
<td>0.362</td>
<td>5.802</td>
</tr>
<tr>
<td>H4</td>
<td>Strength of relationship</td>
<td>1.069</td>
<td>0.137</td>
<td>0.464</td>
<td>7.821</td>
</tr>
</tbody>
</table>

Levels of significance are **<0.05; ***<0.01
The observed values for the one-sample $T$ test show significant results for the four hypotheses indicated with a double asterisk (**) at the 0.01 level, planned networking behaviour, networking intensity, degree of embeddedness and strength of relationship. The regression results do not support the remaining two independent variables, network attractiveness and network profile. In testing the hypotheses, assumptions were made about the independence of the variables (IV) and their linear relationship with the dependent variable (DV). In an analysis of variance (ANOVA) the sum of the squares explained by the OLS regression and the residual sum of the two values for the regression and the residual, or multiple $R^2$. This confirms that the null hypothesis can be rejected, as there is a linear relationship between the DV and the IVs as the $F$ change statistic close to or at zero is significant. The findings of the OLS regression are summarised in the order the variables are presented in Table 2, as follows:-

**Network attractiveness**

$H_{1a}$ network attractiveness has an observed standard coefficient Beta ($\beta$) = 0.103, a $T$ value = 1.552 and was found not to be significant, so is therefore not a predictor of NP. Network attractiveness was developed as a construct which describes the mutual interest between actors within a network (Ellegaard and Ritter 2008, p.4). It is determined in this study by dimensions of the interaction process and value creation. Network attractiveness has been recognised as problematic due to the interconnectedness of the terms surrounding phrases like network environment and network atmosphere (Holmlund and Törnroos 1997). The concept has been developed by Ritter et al. (2004, p.178) where firms were found to appreciate the relative attractiveness of embedded networks. This was supported by the findings in the pilot study where respondents were able to make a clear distinction between attractive and non-attractive networks, considered important in assessing a network’s potential. However, network attractiveness is not a significant predictor of NP in this study.

**Network profile**

$H_{1c}$ network profile has a standard coefficient Beta ($\beta$) = -0.027, a $T$ value = -0.046 and was found not to be significant, so is not a predictor of NP. This finding is despite this variable being recognised as a social phenomenon in assessing the relative prestige of a network in Achrol and Kotler (1997) and the relative profile of a network being considered important by the respondents in the pilot study. However, network profile was not found to be a significant predictor of NP in this study.

**Planned networking behaviour**

$H_{2a}$ planned networking behaviour has a standard coefficient Beta ($\beta$) = 0.334, an observed positive $T$ value = 5.289 and was found to be significant at the <0.01 level. Planned networking behaviour is an interactive network process, whereby actors seek to develop close relationships on the basis of reciprocal and mutually beneficial actions (Thorelli 1986). The nature and behaviour within the dyadic relationship being characterised by length of relationship, frequency of contact, network competence, commitment, trust, experience and the social bonds which affect networking behaviour. Behaviour conditions the mutual interactions between actors in a network and defines the nature of the dyadic relationship (Ford et al. 2003). Planned
networking behaviour is considered to be a reliable indicator of networking performance and is supported as a predictor of NP in this study.

**Networking intensity**

$H_2$ networking intensity has a positive coefficient Beta ($\beta = 0.358$, a $T$ value $= 5.357$ and was found to be significant at the 0.01 level. Networking intensity, being a measurement of the number of networking events attended per calendar month, is therefore an important indicator of networking activity, establishing a linkage between attendance at networking events with the perceived benefits of economic performance and sales turnover related to networking outcomes. The nature and behaviour within the dyadic relationship in the network is characterised by frequency of contact, network competence, commitment, trust, experience and the social bonds, which together affect networking behaviour (Ritter 2002). Networking intensity is therefore considered to be a reliable predictor of NP and is supported in this study.

**Degree of embeddedness**

$H_3$ degree of embeddedness, was found to have a positive standard coefficient Beta ($\beta = 0.362$, an observed $T$ value $= 5.802$ and is significant at the 0.01 level. Degree of embeddedness is defined as being the degree to which an actor is embedded in a network. The concept of embeddedness relates to the linkages of economic action and outcomes, with the actor’s dyadic relations affecting the economic dimensions of the network (Holmlund and Törnroos 1997). Degree of embeddedness has been used as a network construct in several research studies examining relationships and outcomes in networks (Andersson and Forsgren 2000; Greve and Salaff 2003; Håkansson and Snehota 1995; Holmlund and Törnroos 1997; Polidoro et al. 2011; Ritter et al. 2004; Young and Wilkinson 2004). There is considerable evidence in the literature suggesting a positive impact when linking network embeddedness with relationships and networking outcomes. Degree of embeddedness was found to be a predictor of NP and is supported in this study.

**Strength of relationship**

$H_4$ strength of relationship was found to have a positive standard coefficient Beta ($\beta = 0.464$, an observed $T$ value $= 7.821$ and was found to be significant at the 0.01 level. Therefore, strength of relationship, recognised as being an indicator of relationship performance at a dyad level, has been successfully conceptualised, with the full economic outcomes of a relationship strategy and interaction comparing favourably with the findings of Medlin (2003, p.5) where strength of relationship was found to provide a measure of relationship performance and firms’ economic outcomes. Similarly, the findings are reinforced by the evidence of established links between business relationships and firm performance (Medlin 2003; Ottesen et al. 2004; Ritter 2002; Terzirovski 2003). The advantage of an economic focus (sales turnover) is that it offers a direct performance indicator relative to commercial expectations as suggested by Medlin (2005). This confirms a connection between the strength of relationship in a network, strongly influencing NP and the economic outcomes derived from business networking activity and is supported in this study.

The findings from the first stage of hypotheses testing presented above with four of the six hypotheses supported, provide a set of results suitable for further examination
in developing and testing a model of networking performance using OLS multiple regression.

In the second stage of developing a model of NP, multiple regression is used to estimate the model fit, with the contextual control variable regressed against the dependent variable NP. The variance inflation factor (VIF) is shown in the last column.

The control variables from Model 1 were regressed together with the independent variables network attractiveness, network profile, planned networking behaviour, networking intensity, degree of embeddedness and strength of relationship against the DV. In this model, only turnover >£25m with a standardised negative coefficient Beta (β) = -0.229 was shown to be significant at the <0.01 level. However, turnover >£25m was insufficiently distinguished from the other sales turnover value groups for it to be considered to have a reliable effect as a control variable. In the Model, two independent variables were found to have a significant influence on NP. Networking intensity has a standardised coefficient Beta (β) = 0.143 as is significant at the <0.05 level. Strength of relationship has a standardised coefficient Beta (β) = 0.366 and is significant at the <0.01 level. The Adjusted R squared value = 0.299, explaining 30% of the variance when the IVs are included in the regression. The F-Change value increases from 3.958 in Model 1 to 9.722 in Model 2 and is therefore significant. The model was then run with the significant control variable at Table 3.

In the process to refine the model of NP, the significant control variables identified in Model 1 turnover £1-4.9m and turnover >£25m were regressed with the independent variables network attractiveness, network profile, planned networking behaviour, networking intensity, degree of embeddedness and strength of relationship against the DV. In Model 3, only turnover >£25m with a standard negative coefficient Beta (β) = -0.226 was to prove significant at the <0.01 level. Two independent variables were found to have a significant influence on NP. Networking intensity has a standard coefficient Beta (β) = 0.175 as is significant at the <0.05 level. Strength of relationship has a standard coefficient Beta (β) = 0.399 and is significant at the <0.01 level. The adjusted R squared value remained the same in Model 3 at 0.299, accounting for approximately 30% of the model fit. The F-Change value increases from 3.958 in Model 1 to 12.957 in Model 3 and is significant.

From the analysis, it was also evident that although there was a relationship between the degree of embeddedness and NP, where the standard coefficient Beta (β) = 0.031 but which was not significant in the regression at Model 3. On investigation, degree of embeddedness was shown to have a variance inflation factor (VIF) value of 3.106 and being above 3, may be collinear with other variables. Multicollinearity checks were performed on all the variables in modelling NP using multiple linear regression Norusis (2008), but only degree of embeddedness was shown to have a VIF value above 3. The variance inflation factor (VIF) is defined by Norusis (2008) as the reciprocal of the tolerance, measuring the increases of the coefficients due to the correlations of the independent variables.
TABLE 3
Regression Model – relationship between variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Networking Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Model 1 (Controls only)</td>
</tr>
<tr>
<td><strong>Firm &amp; respondent characteristics</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Firm size</strong></td>
<td></td>
</tr>
<tr>
<td>Employees</td>
<td>0.490</td>
</tr>
<tr>
<td>Turnover £1-4.9m</td>
<td>-0.160*</td>
</tr>
<tr>
<td>Turnover £5-24.9m</td>
<td>-0.119</td>
</tr>
<tr>
<td>Turnover £25m+</td>
<td>-0.258**</td>
</tr>
<tr>
<td><strong>Respondents’ Profile</strong></td>
<td></td>
</tr>
<tr>
<td>Age 30-39</td>
<td>0.095</td>
</tr>
<tr>
<td>Age 40-49</td>
<td>0.146</td>
</tr>
<tr>
<td>Age 50+</td>
<td>0.025</td>
</tr>
<tr>
<td>Seniority: MD/CEO</td>
<td>0.012</td>
</tr>
<tr>
<td>Seniority: Director</td>
<td>-0.163</td>
</tr>
<tr>
<td>Seniority: Manager/Exec</td>
<td>0.172</td>
</tr>
<tr>
<td>Tenure with employer</td>
<td>-0.137</td>
</tr>
<tr>
<td><strong>Networking Performance predictors</strong></td>
<td></td>
</tr>
<tr>
<td>Network attractiveness</td>
<td>-0.081</td>
</tr>
<tr>
<td>Network profile</td>
<td>-0.083</td>
</tr>
<tr>
<td>Planned network behaviour</td>
<td>0.023</td>
</tr>
<tr>
<td>Networking intensity</td>
<td>0.175*</td>
</tr>
<tr>
<td>Degree of embeddedness</td>
<td>0.031</td>
</tr>
<tr>
<td>Strength of relationship</td>
<td>0.399**</td>
</tr>
<tr>
<td>R</td>
<td>0.412</td>
</tr>
<tr>
<td>R squared</td>
<td>0.170</td>
</tr>
<tr>
<td>Adjusted R squared</td>
<td>0.127</td>
</tr>
<tr>
<td>F Change</td>
<td>3.958**</td>
</tr>
</tbody>
</table>

*Levels of significance are *< 0.05; **< 0.01

The relationship between degree of embeddedness and NP suggested that although not significant in the model, it may have an interaction effect between the indicators of networking performance and the DV. The degree to which an actor is embedded in a network relates to the linkages of economic action and outcomes, the actors’ dyadic relations and the overall structural, economic and social dimensions of the network (Holmlund and Törnroos 1997). The importance of ‘embeddedness’ in actor network relations is recognised by Håkansson and Snehota (1995) with the extent of its
influence on networking outcomes dependent on the nature of the relationships between actor firms and their commitment to create positive outcomes. Degree of embeddedness has been used as a network construct in several research studies examining relationships and outcomes in networks (Andersson and Forsgren 2000; Greve and Salaff 2003; Håkansson and Snehota 1995; Holmlund and Tornroos 1997; Polidoro et al. 2011; Ritter et al. 2004; Young and Wilkinson 2004). There is considerable evidence in the literature suggesting a positive impact when linking network embeddedness and relationships with networking outcomes and NP.

In summarising the development of a model of NP, the findings of the first stage OLS bivariate regression presented in Table 2 built on the original assumptions in the literature and described in the conceptual framework, were found to correspond closely to the practitioner findings in the pilot study. Four of the hypotheses were supported in the results. In the second stage of developing a model of NP, multiple regression was used to estimate the model fit, with the contextual control variables regressed against the dependent variable NP and then regressed against the independent variables in Model 2. The model was improved by retaining the significant control variables in Model 3 and regressing these with the independent variables. The Adjusted R squared value increased to 0.299 (approximately 30% of the variance) with the F-Change value increasing 3.998** to 12.957**.

In the process of analysing the data and producing findings from the results, further analysis was required to test for possible interaction effects. The first interaction test was to investigate whether degree of embeddedness may have a moderating effect on the independent variables, where the dependent variable is a measure of the sales turnover generated by networking activity. A key part of moderation is the measurement of the X to Y causal relationship and the value of the B₁ causal path, where Z is the moderating variable (Baron and Kenny 1986). However, the moderating effect of degree of embeddedness B₃ on X-Y was not found to be significant. Therefore the findings suggest degree of embeddedness has no moderating effect on NP.

The next stage was to examine degree of embeddedness for a possible interaction effect with a mediating influence on the independent variables and the dependent variable, as suggested by Baron and Kenny (1986). Degree of embeddedness was found to have a mediating effect on the relationship between planned networking behaviour on networking performance, and networking intensity on networking performance. This is not a unique situation, as according to Garnett et al. (2008), in practice mediator effects are often not mutually exclusive from either a conceptual or empirical perspective. This applies to this analysis, where degree of embeddedness might mediate the relationship between networking behaviour and NP, with patterns of planned networking behaviour being influenced by the degree to which the actor is embedded in the network, which in-turn would affect (NP).

As a consequence of these findings, a model of networking performance is presented showing the relationship between the three independent variables, planned networking performance, networking intensity and strength of relationship on NP.
In the model of NP presented at Figure 2, *degree of embeddedness* is shown to have a partial mediation effect on the relationship between each of the independent variables at path (a) *planned networking performance* and *networking intensity* on the dependent variable *networking performance* at path (b). The relationship between *strength of relationship* and the (DV) *networking performance* is shown at path (c).

**DISCUSSION**

The influence of planned networking behaviour as a predictor of networking performance is supported and draws on the findings of Medlin (2003), Ottesen et al. (2004), Ritter (2002), Terziövski (2003). Networking behaviour is presented as an interactive process where actors develop close relationships on the basis of reciprocal and mutually beneficial acts. Network behaviour is also recognised as a reliable indicator of firm performance (Thorelli 1986). This view is supported by Anderson and Håkansson (1994) who found that networking relationships can be heavily influenced by the perceived networking behaviour of actors in the dyadic structure of the network. Planned networking behaviour $H_{2a}$ is supported by the regression model where $\beta = 0.334$, $T = 5.289$ and is significant at the $<0.01$. Therefore it is argued that there is a strong relationship between planned networking behaviour and networking performance and from the previous evidence networking behaviour was found to be a predictor of networking NP. Support for this view is also found in the reliability test where Cronbach’s alpha score for planned networking behaviour = 0.890 which is considered good. This suggests a strong correlation between the observed score and the sample and is therefore a good estimate of the hypothetical true alpha value of planned networking behaviour.
$H_{2d}$ networking intensity, with $\beta = 0.338$, $T = 5.357$ is significant at the $<0.01$ level and is supported in the regression model, confirming that hypothesis based on the greater the number of networking meetings attended each month, the better the business outcomes, measured as networking performance. The term networking intensity is used to describe the behaviour of actors within a network where frequency of contact within a networking environment is understood to influence the actors’ perception of NP. The positive result for networking intensity is closely associated with networking behaviour, where it is established that dyadic business relationships are influenced by the perceived behaviour of the actors, bounded by the networking environment, networking rules, networking traditions and relationships (Anderson and Håkansson 1994).

The degree of embeddedness in networks is suggested as a predictor of networking performance, with $\beta = 0.362$, $T = 5.802$ and was significant at the $<0.01$ level. Degree of embeddedness was proven to have a partial mediating effect on networking performance where the effect of the calculated regression coefficient on the dependent variable was to prove significant. This builds on the findings of Holmlund and Törnroos (1997) where they found that the network embeddedness being the degree to which relationships are embedded in a network and the benefits of the resulting social bonds have a positive impact on the networking exchanges they encompass. Medlin (2003) also found a positive relationship between network embeddedness and the perceived economic benefits and therefore the value of the network outcomes as the degree of embeddedness increases. It should also be noted from the test of reliability has a positive Cronbach’s alpha score of 0.719 for 6 items, confirming that network embeddedness is a good measure.

Strength of relationship $H_4$ was found to have a strong positive effect on NP and the hypothesis is supported with $\beta = 0.464$, $T = 7.821$ and is significant at the 0.01 level in the regression model at. Ritter (2002) established that it is not dyadic relationship alone but rather the strength of that relationship that was more likely to have a positive effect on a firm’s networking performance and competitive strength. The findings of this research support the importance placed on strength of relationship identified by Achrol and Kotler (1999) and Anderson and Håkansson (1994). Strength of relationship also proved a strong measure in the reliability test with a Cronbach’s alpha score of 0.889 for 8 items. This finding is important in the context of understanding the direct relationship between strength of relationship and sales turnover in considering the influence of business networking and SAM/KAM.

The dependent variable measured by the perceived percentage of sales attributed to networking activities was the evolved measure of NP. Although economic performance is recognised to be an important factor in determining networking performance Medlin (2003) quantifying the result in terms of sales turnover attributed to networking activities as a percentage of overall sales is an important finding of this research. The model of networking performance was presented in Table 3. The model fit based on the adjusted R squared value of 0.299, accounts for approximately 30% of the variance in measuring NP. This is considered an average fit in assessing this type of business model (Kenny 2011). The $F$-Changes movement from 3.958 in Model 1 to 12.957 in model 3 which is significant and a good indicator as how this model might perform in a similar study of business to business networking.
Relationships are seen as a prerequisite to successful networking and the development of inter-firm collaboration (Achrol 1997; Anderson and Håkansson 1994; Håkansson and Snehota 1995). Ritter et al. (2002) found strength of relationship had a direct bearing on a firm’s competitive strength and performance. From the pilot study, it was evident that it was not the relationship alone but the strength of the relationship, based on the frequency of contact and the degree of mutually beneficial networking activity that might prove an important indicator of networking activity and NP. This study has found that strength of relationship is a significant measure of NP and has therefore made a contribution to understanding the role of relationships as a firm responsibility in business networks and SAM/KAM.

The results from this study will provide researchers and practitioners with an insight into the tangible benefits of business networking. The identification of a networking performance measure based on sales turnover should find a resonance with business owners, managers and those involved in SAM/KAM. The findings in the study support the research objective to develop a measure of networking performance which will be beneficial to large and small firms, as they seek to maximise their marketing opportunities by building SAM/KAM relationships through business networks and networking.

LIMITATIONS AND FUTURE RESEARCH

In common with most major research studies of this kind, a number of limitations of this study and areas identified for future research have emerged during the development of this paper. This study developed a number a number of new measures associated with networking performance and these could therefore be considered exploratory in the way they were applied in this research. The research strategy was to utilise a balance of existing and new measures in the study. The results in the final model of NP support this strategy with planned networking behaviour being considered a new measure, with networking intensity and strength of relationship being extensions of existing measures and degree of embeddedness found to have a mediating effect in determining NP.

Although the final sample size of 237 is considered perfectly adequate (Kenny 2011), it could be argued that being restricted to the UK and to one region in the West Midlands, the study has no direct geographic comparison. However, cross border studies also have their problems in achieving direct comparisons when business practices and cultural differences may affect the outcome (Alreck and Settle 1995; Easton and Araujo 1994). Further research would be required to make a direct comparison with another region or geographic area.

Finally, having found theoretical and practical support for the measure of networking performance based on sales turnover in this study, it is hoped that researchers may use this as the basis for further research into the benefits and outcomes of business networking and the development of SAM/KAM.
REFERENCES


