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## **Fostering the Innovative Behaviour of SME Employees: A Social Capital Perspective**

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### **ABSTRACT**

Although developing the innovative behaviour of employees is considered to contribute to improving organisational efficiency and effectiveness, very little is known about innovative behaviour within the context of small to medium enterprises (SMEs). Human resource managers who are able to develop the innovative behaviour of employees create an opportunity in which an employee's behaviour can be aligned with organisational goals. This study explores several antecedents contributing to the innovative behaviour of employees. The findings confirm that the organisational factors tested affect both the innovative behaviour of employees and the innovative culture that supports innovative behaviour in the workplace. These findings outline implications for management that require the development of employee innovative capability if they are to gain a competitive advantage in the contemporary business arena.

### **INTRODUCTION**

The innovative behaviour of employees can provide a significant competitive advantage for small to medium sized enterprises (SMEs). Innovative behaviour is referred to as the process of bringing new problem solving ideas into use (Arbeits, Van Der Velde & Maurer 2010). Further, Carmeli, Meitar and Weisberg (2006) described innovative behaviour as a knowledge management process that involves recognising a problem, creating solutions for the problem and creating support to embed the solutions into organisational practice. Innovative behaviour is suggested to be important for organisations seeking to improve the overall efficiency and effectiveness of organisational processes. The importance of innovative behaviour is imperative for SMEs as the literature suggests that these institutions can be at a disadvantage when competing with larger firms (Cassell, Nadin, Gray & Clegg 2002). To explain, a disadvantage is often caused by the inequality of leverage and buying power over resources, when comparing

larger organisations and SMEs. Therefore, the importance of developing the innovative behaviour of employees becomes particularly important for SMEs, and is one method of improving the effectiveness and efficiency of organisational processes.

The shared knowledge of employees is an important resource for facilitating innovative behaviour. Cavusgil, Calantone and Zhao (2003) suggest organisations that can facilitate the use of knowledge are able to innovate faster and more successfully. In particular, there is a vast body of evidence which highlights that social networking is vital for improving the innovative behaviour of employees (Cooke & Wills 1999, Dhanaraj & Parkhe 2006, De Jong & Den Hartog 2007, 2010). The importance of social networks becomes evident because despite rapid change and the constant influx of new technology, Nebus (2006) suggests that employees and employers alike still prefer to talk with others who belong to their workplace social networks as a means of gathering important knowledge. Therefore, research into the organisational factors that impact upon the innovative behaviour of employees is imperative for organisations seeking a competitive advantage through innovation and the improvement of organisational processes (Porter 1990). There is some current research that has examined the innovative behaviour of employees (e.g., Scott & Bruce 1994a, Janssen 2000, 2004, 2005, Kleysen & Street 2001, Ramamoorthy, Flood, Slattery & Sardesai 2005, Åmo 2006, Carmeli et al. 2006, De Jong & Den Hartog 2007, 2010, Reuvers, Van Engen, Vinkenburg & Wilson-Evered 2008, Carmeli & Spreitzer 2009, Jafri 2010, Yuan & Woodman 2010). However, considering the importance of innovative behaviour for SMEs, there is a lack of empirical research which examines the innovative behaviour of SME employees, particularly that of service based SME employees (Scozzi, Carvelli & Crowston 2005).

Social Capital Theory (SCT) has been used as a lens for examining some organisational factors that affect the innovative behaviour of SME employees. SCT suggests that there are intangible benefits that accrue for both the individual and the firm resulting from the network of relationships that are embedded within firms (Nahapiet & Ghoshal 1998, Tsai & Ghoshal 1998, Adler & Kwon 2002, Gubbins & MacCurtain 2008). The basic assumption of SCT suggests when individuals in a workplace interact with one another, this leads to far greater sharing of resources and information, than would happen under normal circumstances (Hezlett & Gibson 2007). More specifically, SCT suggests that if the organisational processes embedded within an organisation facilitate trust development among members within social networks, the conditions are favourable for promoting the sharing of ideas and information (Adler & Kwon 2002). Therefore, SCT suggests that the quality of network relationships affects the access of members to a range of resources and information (Nahapiet & Ghoshal 1998). Access to such resources will ensure employees have the knowledge to identify workplace problems and to develop innovative solutions.

Several concepts have been used within past literature to provide insight into developing the social capital of employees. This study aims to examine the impact of several factors, associated with the measurement of social capital, upon the innovative behaviour of SME employees. In particular, this study will examine the strength of workplace social network relationships (tie strength) (Levin & Cross 2004), the social skill of employees (sociability) (Totterdell, Holman & Hukin 2008), experiences of trust (Brunetto & Farr-Wharton 2007), and the innovative culture (Scott & Bruce 1994b) that has formed within the organisation.

To provide a clear understanding into the conceptual model (that will be examined within this study) two models will be examined. The first model examines the impact of tie strength and experiences of trust upon innovative culture, while the second model examines the impact of tie strength, sociability, experiences of trust, and innovative culture upon the innovative behaviour of employees. Therefore, the following primary research question is proposed to guide the research so as to identify relevant data:

“What is the impact of tie strength, sociability, experience of trust and culture upon the innovative behaviour of employees in SMEs?”

This study is structured using three main sections. The first section examines and discusses the theoretical framework. The second section reviews current literature to develop a set of hypotheses. The third and final section discusses the results and conclusions.

## **LITERATURE REVIEW**

### **Social Capital Theory**

This study uses the multiple dimensions of SCT as a theoretical lens for examining the proposed primary research question. SCT is defined as a cluster of social resources that are derived from the relationships within the workplace (Adler & Kwon 2002). Past literature suggests that SCT has three highly interrelated components known as the structural, relational and cognitive dimensions (Nahapiet & Ghoshal 1998). The structural dimension refers to the development of social capital by analysing the structures embedded within organisations, promoting ties between workplace social network members. Structural social capital can be examined by analysing the number of interpersonal linkages (ties) between workplace social network members (Nahapiet & Ghoshal 1998). The relational dimension refers to examining the development of social capital by analysing the role of the factors affecting the quality of relationships. This involves analysing factors such as respect, trust and trustworthiness in influencing a person's behaviour particularly in relation to information sharing (Chow & Chan 2008). The cognitive dimension refers to a theoretical lens for examining the impact of cultural resources in facilitating a

shared understanding of the organisation's collective goals and etiquette within a social system (Nahapiet & Ghoshal 1998). Effective organisations embed structures and mechanisms to facilitate the shared understanding about the rules of sharing information (Anderson 2007). For the purpose of this study and to examine the variables selected for testing, the structural dimension will be used to examine the strength of network ties and the relational dimension examines trust and sociability (Nahapiet & Ghoshal 1998, Tsai & Ghoshal 1998, Adler & Kwon 2002, Akdere 2005, Weber & Weber 2007).

### **The Strength of Workplace Network Ties**

Levin and Cross (2004) suggest that the strength of ties in the workplace determines the benefits that could result from a social network. Tie strength refers to the closeness of the relationships between two workplace social network members. Granovetter (1973: 1361) explains tie strength as the "...combination of the amount of time, the emotional intensity, the intimacy and the reciprocal services which characterise the relationship.". He argues that the longer the time that social network members have known one another and the greater the contact and rapport established amongst members, the greater the opportunity to form ties with others. Moreover, current literature argues that social capital in the workplace is derived from social relations (networks) because of the strength of ties between employees and the structure of the network (Nahapiet & Ghoshal 1998, Tsai & Ghoshal 1998, Adler & Kwon 2002).

The strength of workplace network ties can be further partitioned into formal and informal relationships (ties). Formal relationships are outlined by policies, job descriptions and organisational charts (Marouf 2005) and should facilitate the development of informal ties. The opportunity to develop informal ties takes place because the formal relationships provide the contact from which to develop more informal (social) relationships. Informal networks are developed by people who know each other and who will interact to help each other (Nebus 2006). The informal social system is a tool that is able to assist in coordinating and facilitating employees within a workplace social network. The informal social system is an appropriate tool because the contract of employment or daily operations are considered to be socially binding rather than legally binding (Jack 2005). What this means is that employees will be willing to follow the goals of the organisation, otherwise their social reputations and/or power could be damaged.

Past literature suggests ties or relationships can be either strong or weak. Granovetter (1973) explains weak ties as relationships that are generally categorised as distant and having infrequent interaction. Furthermore, it is suggested that weak ties are more likely to provide new sources of information, because the knowledge transferred between strong ties tends to already be known by other members in the group where strong ties exist. In contrast, strong ties are considered to involve relationships that have a high level of

interaction and emotional closeness (Perry-Smith 2006). Therefore, for a workplace social network to be effective it is imperative that it contain both strong and weak ties that link everyone together (Hoang & Antoncic 2003). A combination of ties provides the closeness and bond of strong ties for problem solving with the diverse perspectives of weak ties, to provide an environment that fosters knowledge dissemination and innovation.

Organisations that can bring together all of their knowledge and collective expertise are more likely to be an innovative, efficient and effective entity (Iles, Yolles & Altman 2001). To add to this argument, Edwards (2000) suggests that innovation is not the work of one brilliant mind. Rather, the innovation process represents the building of knowledge through the ties of social networks, and hence, it is in the firm's interest to facilitate effective informal social networks. The social relationships/ networks of employees form high capacity information links that create a motivation for information sharing and reducing ambiguity (Bruton, Dess & Janney 2007). This means that the more effective the social network, the better the level of information sharing and the smaller the propensity of ambiguity with regards to identifying a workplace problem or identifying a solution. However, in practice the transfer of knowledge throughout an organisation has manifested as a major organisational challenge (Levin & Cross 2004). The question then becomes what type of organisational design will facilitate and sustain an environment in which people share knowledge quickly and efficiently, aiding and encouraging the development of the innovative behaviour of employees within the organisation?

## **Sociability**

An employee's propensity to interact in the workplace will be dependent upon the level of social skill or ability (Nie 2001). In addition, an employee's ability to interact with others in the workplace can be used as a vehicle for building social capital, because it builds a foundation for social interaction. Sociability can be described in terms of social skill, the skill required for social interaction, social competence, social intelligence and social interdependence (Ferris, Witt & Hochwarter 2001, Tarricone & Luca 2002, Lizardo 2006). The propensity for employees to be sociable and their level of sociability is thought to be a trait an employee has before entering the organisation (Totterdell, et al. 2008). For the purpose of this research, it is important to test how well employees interact and how they build friendships and networks (relationships). How well people build relationships is basically their level of sociability and it is often thought of as a person's ability to develop social networks or ties (Nie 2001).

When analysing the sociability of workplace social network members it is important to determine how and with whom members connect. Once the organisation can pinpoint where the majority of social interaction is taking place a determination of the appropriate resources required for social interaction can be established. In addition to sociability, appropriate methods of

communication should be available to encourage the development of new relationships within the organisation. This action will promote the development of weak ties, which are suggested to increase the amount of new information circulating throughout the organisations workplace social network (Levin & Cross 2004).

Nie (2001) suggests that face to face hallway conversations between employees are on the decline due to an increased use of emails and instant messaging to communicate. However, while the individual sociability of workplace social networks members is important for network development, it is imperative for relationship development so individuals can feel a sense of human connectivity and personal interaction. To provide human interaction for network development, organisations can outline formal relationships in policies, job descriptions and organisational charts. In addition, it is important that employees develop the skills to communicate and develop networks online, and it is also vital the employee's have the sociability to build social networks (Ferris, et al. 2001). These notions are translated as hypothesis 1.

*Hypothesis 1 Sociability will be positively and significantly correlated with the innovative behaviour of employees.*

## **Experience of Trust**

To trust is to take risks and to leave oneself open to the actions of the trusted party which is considered to be crucial for network development. McCarthy (2006) suggests that trust exists when one partner has confidence of another partner's ability and integrity. Furthermore, the movement of knowledge and information is likely to be slowed down if one party cannot trust the other (Droege, Anderson & Bowler 2003). Brunetto and Farr-Wharton (2007) also suggest that the success of a network within the firm is dependent on the quality of relationships between workplace social network members. This relationship between two workplace social network members may leave one member vulnerable and trusting that the other network member will not act opportunistically (Six & Sorge 2008). Das and Teng (1998) suggest that controls (policies and regulations) can be used to increase the confidence that a workplace social network member has with other network members. Therefore, to initially build trusting relationships within a social network and to improve the confidence that network members have in one another, it may be important to have organisational controls in place.

There are currently few studies that have examined the role of trust as an antecedent of innovative behaviour. An exception is the work of Clegg, Unsworth, Epitropaki, and Parker (2006) who define innovative trust as an expectancy of reasonable and positive reactions by others in response to individual attempts to be innovative. More specifically, if a workplace social network member perceives that current workplace relationships are developed upon trust, they are more likely to feel they will be supported in their attempt to

be innovative. Therefore, there are two important points to consider in relation to trust and innovative behaviour. First, demonstrating innovative behaviour is considered risky and engineers are usually risk averse. Second, even when outcomes are not positive an organisation that has developed relationships upon trust will refer to mistakes as learning experiences to further facilitate and support the development of innovative behaviour. Additionally, Yuan and Woodman (2010) suggest that if an employee is trusted by their supervisor the individual is likely to feel more comfortable and supported to engage in risky innovative behaviour. In summary, it is suggested that workplace social network members will be more inclined to be innovative when they trust that their colleagues and supervisors will respond positively to the outcome.

To be sustainable a network requires the continuation of building and maintaining trust between members (Brunetto & Farr-Wharton 2007). Initial trust amongst employees (network members) is not based on any prior knowledge or experience of other employees (McKnight, Cummings & Chervany 1998). Instead, this trust is based on an employee's tendency to be willing to depend on others (disposition to trust) or their beliefs about other parties (Brunetto & Farr-Wharton 2007). More specifically, the past behaviour of network members impacts on the current level of trust between members (experience of trust). For example, an employee will know whether or not to trust another employee based on their previous experiences together. While it is important to understand the two facets of trust, this study will focus on the relational factor that can be influenced; experience of trust.

## **Innovative Culture**

The definition of culture and its true meaning are often debated and there are many definitions within the academic literature. One of the most widely recognised definitions explains that culture is the pattern of learned, valid and shared assumptions, which are taught to new members as the most correct way to think, feel and perceive in a firm (Schein 1990). Similarly, Koberg and Chusmir (1987) argued that it is a construction of collective values, beliefs, attitudes and assumptions that generates the standard of behaviour in the organisation. Another way to describe organisational culture is a shared perception of thoughts, feelings and bonds that motivates employees; it manages the way a business interprets information and its values (McAleese & Hargie 2004).

Firms can send signals to their employees about their desire to promote an innovative culture. For example, innovative behaviour which is supported and developed through the socialisation of workplace social network members is embedded within the shared values, systems and beliefs of the organisation (Martins & Terblanche 2003). In addition, organisations seeking to develop the innovative behaviour of employees should be seeking to foster a culture, which is supportive of innovative behaviour (Iles, et al. 2001, Siengthai & Bechter 2001,

Potosky 2010). Furthermore, for innovative behaviour to be encouraged, the organisation must first demonstrate that they value innovative shared values, systems and beliefs (innovative culture) (Dobni 2008). If employees perceive the organisation to value such behaviour, they will strive to be innovative.

The forming of social networks requires an encouraging culture in order to disseminate knowledge throughout the organisation effectively. Furthermore, as social networks essentially involve coordinating and developing the strength of ties between two or more people within an organisation, effective cooperation and trust is vital to the success of knowledge networks and an innovative culture (Das & Teng 1998). Past literature on networks suggests that there is a need for a high level of trust (McCarthy 2006). A good organisational culture can impact positively on organisational functions; however, a poor organisational culture can have the opposite effect and severely reduce the effectiveness of the organisation (Martins & Terblanche 2003). This effect is due to the fact that the focus on knowledge management currently is knowledge transfer (knowledge sharing) (Al-Alwai, Al-Marzooqi & Mohammed 2007). Linking the presented knowledge allows the forecasting of hypothesis 2, and hypothesis 3.

*Hypothesis 2 An organisation's innovative culture is positively and significantly correlated to the innovative work behaviour of employees.*

*Hypothesis 3 Tie strength and trust impacts significantly and positively upon innovative culture.*

## **Innovative Behaviour**

Current literature suggests that developing the innovative behaviour of employees can give organisations the edge when seeking to remain competitive or gain a competitive advantage. Carmeli and colleagues (2006) described innovative behaviour as a multi staged process, including recognising a problem, creating new ideas and solutions for the problem, creating support for the new ideas and solutions for use in the organisation. Additionally, Ishak (2005) proposes that to increase the innovativeness of employees, organisations should develop employee skills associated with solving work based problems innovatively (problem identification, problem resolution and solution implementation) Furthermore, the innovation process is often described as being comprised of an initiation and implementation phase (De Jong & Den Hartog 2007).

This research will focus on the transfer of knowledge that can be used as a resource to aid the innovative behaviour of employees within the context of an SME. The shared knowledge of employees constitutes an important resource and organisations that can facilitate the use of knowledge are able to innovate faster and more successfully (Cavusgil, et al. 2003, Carbonell & Rodriguez-Escudero 2009). The main aim of knowledge management and knowledge based social development is to enable and encourage knowledge transfer and sharing as the

creation and transfer of knowledge provides a foundation for a competitive advantage (Branchos, Kostopoulos, Soderquist & Prastacos 2007). Therefore, by creating a culture which fosters the transfer of knowledge and innovative behaviour of employee is likely to develop a sustainable competitive advantage.

The growing pressure to innovate is enforced by a turbulent business environment (which is contributed to by a number of factors) including technology growth, globalisation and hypercompetitive markets. Subsequently, innovative behaviour goes beyond the familiar path of what is accepted and concrete and is often associated with complexity and ambiguity (Kriegesmann, Kley & Schwering 2007). Therefore, employees are unlikely to display innovative behaviour unless they are enticed, rewarded and supported (Burns & Otte 1999). Furthermore, if an employee makes a mistake when displaying innovative behaviour, it is important that this will not damage their career or reputation otherwise employees will be too concerned about the consequences to think innovatively or creatively (Janssen 2005). Nevertheless, the more an organisation rewards and supports an employee's innovative behaviour and listens and trusts their judgement, the more effort employees will put into being innovative (Ramus 2001). In conclusion, it is pivotal that for an organisation to encourage and facilitate innovative behaviour, a culture of trust and support be created through incentives, rewards and an environment where mistakes are a learning curve. Collectively, the relevant literature provides foundation for hypothesis 4.

*Hypothesis 4 Tie strength and trust impacts significantly and both negatively and positively upon the innovative behaviour of employees.*

## **Length of Employment**

It was expected that an employee's length of employment (time in the company) would moderate the relationship between sociability and innovative behaviour. For example, it is believed that an employee's ability to develop social networks in a professional workplace would improve with increased time in the company. Such expectations were made on the ideal that increased time in the company also infers employees' with the appropriate sociabilities have time to develop workplace social networks. Furthermore, in an office setting the longer the tenure in an organisation and through several encounters employees' will develop workplace social network ties. Therefore, if the knowledge to develop innovative solutions can be gathered through a social network, there should be a positive and significant relationship between time in the company, sociability, and innovative behaviour. Consequently, hypothesis 5 has been generated.

*Hypothesis 5 Length of employment will be positively and significantly correlated to sociability and innovative behaviour.*

## **METHODOLOGY**

## **Participants and Site**

The participants for this study are engineering employees within an Australian SME. The Australian Bureau of Statistics (2001) defines an SME as an organisation employing more than 20, but less than 200 people. An engineering SME was selected for this study based on two main factors. Firstly, engineering firms can be considered as knowledge based firms and knowledge based firms require, amongst other things, the development of the innovative behaviour of employees to ensure they leverage their knowledge (Hansson 1997). In addition, such development and leveraging of knowledge is imperative for knowledge based firms seeking to gain a competitive advantage. Secondly, based on the premise that SMEs also require the development of innovative behaviour and business practices (if they are to remain competitive), an engineering SME was selected as the site for this study.

## **Procedure**

This study used mixed methods to examine the innovative behaviour of employees within five separate engineering offices within an SME. An engineering SME was chosen for this study because they are required to develop innovative business practices if they are to remain competitive, especially during a period of intense competition (Brunetto & Farr-Wharton 2007). Engineering employees were selected because they require the use of knowledge to develop innovative solutions to work based problems.

Engineering firms are knowledge based organisations and require the generation of knowledge to support the development of innovative behaviour.

The organisation being researched has a vast array of communication tools and technologies to assist the development of a workforce social network that is dense with weak ties. Because the organisation selected for this study has several offices all with a number of divisions, online development is necessary. Additionally, if the organisation being studied is to develop weak ties throughout the workplace social network this would also require the online development of the sociability of employees. The challenge for the organisation is to develop the necessary skills to foster the development of employee sociability throughout the organisation.

## **Measurement**

### **Tie Strength**

The strength of network ties (tie strength) was examined using a measure constructed by Levin and Cross (2004). This particular measure was selected because it is important to examine how close engineering employees perceive themselves to be to others within their social network. The scale examines the overall closeness of relationships within a workplace network as perceived by employees. This measure includes three closed ended questions examining the tie strength between engineers in a workplace social network with a six point

interval scale (1 = Very close to 6 = very distant). The tie strength instrument had a coefficient alpha value of .91.

### **Sociability**

Sociability included 11 closed ended questions used to examine the social skill of engineering employees. The measure used for the survey was developed by Totterdell and colleagues (2008), and assesses whether engineers and draftspersons have the socially embedded skills or sociability to be able to develop social networks rich in weak and strong ties. The measure uses a six point interval scale (1 = strongly agree to 6 = strongly disagree). The sociability instrument had a very high coefficient alpha value of .92.

### **Trust**

The measure for trust was developed from Brunetto and Farr-Wharton (2007). This scale assesses the current experiences of trust between workplace social network members with four closed ended questions. The scale also examines how successful relationships requiring trust within the organisation's social network have been in the past. The trust instrument used to measure experiences of trust had a coefficient alpha value of .87.

### **Innovative Culture**

This measure was developed by Scott and Bruce (1994b) and examines whether the study of engineers and draftspersons perceived their organisation valued an innovative culture. This measure contains 14 closed ended questions and uses a point interval scale of six (1 = never to 6 = very frequently). The innovative culture instrument had a high coefficient alpha) of .81.

### **Innovative Behaviour**

The innovative behaviour measure was developed by Janssen (2005) which was adapted from the work of Scott and Bruce (1994a). This instrument contains nine items and uses a six point interval scale (1 = never to 6 = very frequently). The innovative behaviour instrument had a coefficient alpha score of .92.

## **Analysis**

Statistical, content and data analysis were used to test the relationship among variables. Statistical data analysis was conducted (using SPSS software) and included means, standard deviations, factor analysis and linear regressions. Interview transcripts and the organisation's mission statement were analysed using a content analysis, and policies were scanned for any items associated with innovation or innovative behaviour. Content analysis can be defined as a methodology that codes text into categories and then calculates the rate of occurrence within each category (Ahuvia 2000). After the content and statistical analyses were undertaken, an analysis of all three forms of data was conducted. This grouped analysis was undertaken utilising a process known as pattern matching. Yin (2003) suggests that pattern matching increases the internal validity of the research by comparing observed with predicted patterns. In

summary, the three methods of analysis are utilised to increase the depth of the analysis.

## RESULTS

### Quantitative Results

There were 85 respondents to the survey comprising a 56.67 per cent response rate, which formed the core engineering group. The sample selected consisted mostly of males (69.4 per cent), with a wide spread of age up until 50 years. With regards to employment length, 55.3 per cent of employees have been with the company for two years or less. Also, 70.5 per cent of employees have at least an undergraduate degree. In summary, the demographic results portray diverse group of ages with high levels of education and low levels of employment length. These details are presented in Table 1.

**Table 1**  
**Survey and interview demographics**

<b>Surveys</b>	<b>Engineering employees (%)</b>	<b>Interviews</b>	<b>Engineering managers (%)</b>
<b>Gender</b>		<b>Gender</b>	
Male	69.4	Male	80
Female	30.6	Female	20
<b>Age (years)</b>		<b>Age (years)</b>	
16-23	30.6	16-23	0
24-30	32.9	24-30	0
30-50	27.1	30-50	80
50+	9.4	50+	20
<b>Employment length (years)</b>			
< 1	15.3		
1-2	40.0		
2-3	18.8		
3+	25.9		
<b>Education</b>			
High school	10.6		
TAFE	10.6		
Undergraduate	52.9		
Postgraduate	17.7		
<b>Employment status</b>			
Full time	96.4		
Part time	2.3		
Casual	2.3		
<b>Office location</b>			
City 1, State 1	51.8		
City 2, State 2	17.6		
City 3, State 3	9.4		

**Table 1**  
**Survey and interview demographics**

Surveys	Engineering employees (%)	Interviews	Engineering managers (%)
City 4, State 4	15.3		
City 5, State 5	5.9		

The means, standard deviations, Cronbach's alphas and inter correlations for all variables including tie strength, trust, sociability, innovative culture and innovative behaviour are presented in Table 2.

**Table 2**  
**Means, standard deviations and correlations of the organisational factors tested**

Variables	Mean	SD	1	2	3	4	5	6
1 Innovative behaviour	3.55	.90	(.92)					
2 Sociability	2.99	.86	.95**	(.87)				
3 Tie strength	2.77	.96	-.15*	.164	(.91)			
4 Trust	2.69	.98	.27*	.25*	.53**	(.87)		
5 Innovative culture	3.79	.56	.98**	.94**	.41**	.64**	(.81)	
6 Time in company	2.55	1.04	.28*	-.23	-.23*	.13	.10	
7 Advice network	2.07	.26	.05	.20	-.01	.05	.05	.22*

A linear regression was undertaken to examine the relationship between several social capital enablers and the innovative behaviour of engineering employees and the results are shown as Table 3. The findings demonstrate that there is a significant relationship between the independent variables (sociability, tie strength, trust and innovative culture) and the dependent variable (innovative behaviour) ( $F = 202.39$ ,  $R^2 = 91$  per cent,  $p < .01$ ) (see Table 3, model a). The results suggest that the independent variables explained 91 per cent of the variance of the innovative behaviour of engineering employees. A second model tested the relationship between two independent variables (tie strength and trust) and a dependent variable (innovative culture). The results show that there is a significant relationship between the two independent variables and the dependent variable ( $F = 19.71$ ,  $R^2 = 37.1$  per cent,  $p < .01$ ) (see Table 3, model b). These results from the linear regression suggest that the independent variables explained 37.1 per cent of the variance of the innovative culture.

**Table 3**  
**Sociability, tie strength, trust, innovative culture and innovative behaviour**

Model	R <sup>2</sup>	F	p <	β
a	.910	202.39	.000	.945**, .085*, .423, -.129*
b	.371	19.71	.000	.409**, .642**

Notes. a. Predictors: (constant), sociability, tie strength, trust and innovative culture; dependent variable: innovative behaviour.  
b. Predictors: (constant), tie strength and trust; dependent variable; innovative culture.

The first hypothesis (H1) stated that sociability would be positively and significantly correlated with the innovative behaviour of employees. H1 should be accepted because the sociability of workplace social network members is significant and positively related to innovative behaviour (see Table 3, model a). The mean of the sociability scale was 2.99 suggesting that on average workplace social network members moderately agree that they have an appropriate level of sociability to form friendships, gain acquaintances and build networks. Furthermore, the results depicted in the correlation matrix (see Table 2) suggest that sociability is significantly correlated to the innovative behaviour of employees ( $r = .95$ ,  $p = .01$ ).

The second hypothesis (H2) forecasts that an organisation's innovative culture is positively and significantly correlated to the innovative behaviour of employees. H2 should be accepted because the more an organisation values an innovative culture the greater should be the innovative behaviour of their employees (see Table 3, model a). Therefore, the results from the linear regression of employees suggest that the innovative culture of the organisation is positively and significantly associated with the innovative behaviour of employees.

The third hypothesis (H3) predicted that tie strength and trust would impact significantly and positively upon innovative culture. The  $R^2$  value shown in Table 3 demonstrates that tie strength and trust contribute to 37.1 per cent of the variance in innovative culture for employees. The results, therefore, suggest that hypothesis 3 should be accepted as the combination of trust and tie strength is positively associated with the innovative culture of employees. Both experience of trust ( $\beta = .62$ ) and tie strength ( $\beta = .41$ ) are related to innovative culture and are significant at  $p < .000$ .

The fourth hypothesis (H4) stated that both tie strength and trust would impact upon employee innovative behaviour. Table 3 shows trust was related to innovative behaviour, but the relationship was non significant ( $\beta = .42$ ). The negative correlation between tie strength and innovative behaviour (see table 2) can be explained by the premise that weak ties provide access to new information, which is considered beneficial for creativity and innovation. In summary, tie strength is inverse and significantly related to the innovative behaviour of employees and trust is positively and significantly related to tie strength.

The fifth hypothesis (H5) stated that increased time in the company will be positively and significantly correlated to sociability and innovative behaviour. While time in the company is not a variable or mediator of innovative behaviour, it does moderate the relationship between sociability and the innovative behaviour of employees. An independent sample t-test was conducted to examine the innovative behaviour of employee's in relation to the time the employee has been employed by the organisation. More specifically, the independent sample t-test was undertaken to examine the difference between employees that have been with the company for two to three years and more

than three years. In addition, a second independent t-test was conducted comparing the sociability of employee's in relation to their time in the company, examining again the differences between employee's that have been with the company for two-three years and more than three years. There was a significant difference for the innovative behaviour of when comparing employees' that had been with the company for two to three years with those that had been with the company for more than three years. On the other hand, when examining sociability the difference between employees' that had been with the company for two to three years was not significantly different to those employees that had been with the company for more than three years. In summary, the results from the t-test suggest that innovative behaviour improves with the length of time in the company.

**Table 4**  
**Independent t-test of sociability and innovative behaviour**

Variable	Mean score		Degrees of freedom	Two tail probability	
	2-3 years	3+ years	t-value	df	p <
Innovative behaviour	3.79	4.21	1.955	36	.022
Sociability	4.19	3.88	.989	36	.165

### Qualitative Findings

In order to triangulate the data and to add to the depth of the study, qualitative research (interviews and content analysis) was also undertaken. The research question was tested by examining the frequency of contact and the strength of workplace social network ties, level of trust and control, support, resources and time for innovative behaviour and why engineering professionals are usually risk averse. Semi structured interviews were undertaken with 15 engineering managers. Interview transcripts were manually coded and analysed using emerging themes that were developed using a convergence style of interviewing (Yin 2003). In particular, content analytical procedures were used to analyse and code the interview data (Cummings & Worely 2005). This process involved summarising comments, perceptions, and/ or issues of interview participants into a list of emerging themes. Additionally, the coded themes were validated using a process referred to as inter rater reliability. This process involves a second researcher checking the qualitative data and the emerging themes developed by the primary researcher. The inter rater reliability process uncovered very little variation in the emerging themes developed by both of the researchers.

The first interview question can be partitioned into two sections: what is the mission and vision of the organisation and are the values of the organisation supporting the achievement of the company's mission and vision. All 15 participants were able to recite the current mission and vision. It is the mission of the organisation to provide engineering excellence that provides value for their clients. However, from the same interview participant's, 40 per cent of employees with a university degree stated the values and current practice of the

organisation do not support the current mission and vision. A total of 13 per cent of the participants claimed the values do support mission and vision and that the organisation is achieving its goals. A further 33 per cent of the sample responded that sometimes the organisation achieves the set goals; however, there is a need for improvement. The results suggest that more senior employees tend to be more critical of the organisation's operations, which could be attributed to the fact that they are closer to strategic decisions and therefore better able to see the truth.

Interview findings also suggest that the communication of the organisation's mission and vision is highly effective. However, there appears to be a clear discrepancy between organisational policy and practice. Furthermore, a content analysis of organisational policies uncovered that there is no policy within the organisation that encourages or supports the innovative work behaviour of employees in any way. There are, nevertheless, resources that are being developed to support innovative behaviour and foster the development of innovative solutions. The development of an organisation wide knowledge management system is currently being researched, but no resources have currently been implemented that support the innovative work behaviour of employees. It was also suggested by the majority of interview participants that the organisation has a well developed strategic direction that needs to be effectively implemented if the organisation is to positively develop their innovative capability.

The interview themes suggest that overall tie strength in the workplace is strong and that the frequency of contact is high within each office. Furthermore, the trust within the organisation is at first built around control (for example, at the junior level); however, over a period of time and several interactions, trust is formed. Nevertheless, due to the economic recession, the majority of interview participants suggested that the trust between management and employees is average. The results also suggested that an organisation attempting to improve innovative capability needs to provide greater levels of support, resources and time for employees to be able to pursue creative and innovative solutions. More specifically, 44 per cent of participants suggested that the best thing about the organisation is its ability to source complex and challenging problems. This suggests that the organisation has sourced jobs that require innovative solutions for their engineers to be able to add value to the project, although the organisation is not providing an appropriate amount of support to foster the innovative solutions. In summary, organisational value could be improved if the organisation continues to develop and improve the resources that support the innovative work behaviour of employees.

### **Testing the Model**

The models proposed to be tested suggested that trust, tie strength and innovative culture would be significantly related to innovative behaviour of

employees. The model also proposed that strength of workplace social network ties and trust would be significantly related to the organisations innovative culture. Tables 2, 3 and 4 confirm the models and identifies that experiences of trust in social networks had significant and positive relationships with both the strength of ties and the organisations innovative culture. Overall, the two models tested should be accepted as all hypotheses were accepted, except for experience of trust, which was positively associated with an organisation's innovative culture and tie strength.

## **DISCUSSION**

This study tested and confirmed a model of the relationship between some organisational factors and innovative culture and behaviour. Specifically, the study tested the impact of tie strength, sociability and trust upon the organisation's innovative culture to the innovative behaviour of employees' within a SME engineering enterprise. Results from this research confirm the proposed model because they stipulate that tie strength, trust and sociability are correlated with an organisation's innovative culture. In addition, the results also suggest that the innovative culture is positively and significantly associated with the innovative behaviour of employees. What this means is that the stronger and more developed an organisation's culture is towards supporting the innovative behaviour of employees, the greater will be the individual's innovative behaviour.

The evidence proposed from the employees' confirms the model tested should be confirmed, because the variables tested were significantly related to an employee's innovative behaviour. In addition to confirming the proposed model, a number of conclusions emerged from the findings about the impact of the four organisational factors examined upon the innovative behaviour of employees. The following discussion outlines the findings that relate to the proposed model. The overall findings are important, as it is the first time that these particular variables have been examined together to assess the impact on both innovative culture and behaviour. As such, new knowledge has been created in the field of innovative behaviour and culture. Such information has implications for the management of SMEs operating within a competitive environment and who are seeking to gain or maintain a competitive advantage.

The findings concerning the tie strength and sociability of employees provided new insight and addressed some gaps in the literature about the innovative work behaviour of engineering employees. These findings suggest that employees with different positions and education levels are impacted by different organisational factors and have differing opportunities to be innovative. Moreover, the impact of sociability upon innovative work behaviour is moderated by an employee's time in the company. This observation suggests that the more time an employee spends in the company the greater the relationship between sociability and innovative behaviour. Specifically, this research concludes that the greater the

number of relationships that involve lower levels of closeness between employees and the higher their social skills, the greater the output of innovative work behaviour. The proposed model demonstrates the association between the number of relationships with low levels of closeness between employees within a workplace, social skills of employees and the innovative work behaviour demonstrated within the organisation. Therefore, the results suggest that the more the organisation's culture values innovation, the greater will be the innovative behaviour exhibited by employees. The results confirm existing literature by Dobni (2008), who stated if an organisation shows that they value innovative behaviour within the organisation then employees will strive to be innovative. Additionally, the results also confirm research by Martins and Terblanche (2003) who suggested that an organisational culture that values innovative behaviour is inevitably supporting the innovative behaviour of employees. The results suggest that the current organisational culture does not support the innovative behaviour of employees consistently. The question then is how organisations develop an organisational culture that supports the development of the innovative behaviour of employees.

In response to examining the relationship between experiences of trust and the innovative behaviour of employees, the results suggest that experience of trust is not significantly related to innovative behaviour. What this means is that the differing experiences of trust will not impact on an employee's innovative behaviour. However, according to current academic literature, trust should be an important facet in the development of social networks (Das & Teng 1998). The results suggest that an increased level in the experiences of trust should mean greater relationship strengths between employees and the innovative culture within the organisation. Additionally, the results support Brunetto and Farr-Wharton (2007), who suggested that the success of networks in the firm is dependent on the quality of relationships between workplace social network members. Nevertheless, the results from this study suggest that while trust between employees is high, the trust between management and employees needs improving. Furthermore, the result of the examination of trust suggests that the more positive experiences of trust between workplace social network members and their managers needs to be developed, improving and strengthening the foundation for promoting intra and inter office networks.

## **CONCLUSION**

This study used two dimensions of SCT as a lens for analysing innovative behaviour. These dimensions proved insightful for identifying the importance of social capital enablers (high trust, encouraging innovative culture and high numbers of strong and weak ties) in facilitating innovative behaviour. No other lens provided a multi dimensional approach to examining innovative behaviour. This study has also expanded the understanding of how the structural and relational dimensions of SCT can be used as a lens for examining the relationship between some organisational factors and the innovative behaviour

of SME employees. Overall, the findings provided support for legitimising the model, suggesting that innovative behaviour will improve with social capital. As such, the lens was ideal for providing a comprehensive perspective about the role of trust, tie strength, sociability and culture on the innovative behaviour of employees.

This study also provides implication for the contemporary practice and policy of human resource management in organisations. Overall the study provides two key implications. Firstly, developing the innovative behaviour of employees contributes to overall organisational efficiency and effectiveness, which in turn aligns employee practice and behaviour with the common organisational goal to maximise efficiency and effectiveness. This result has implications for human resource managers seeking to develop and implement an appropriate strategic human resource management strategy that aligns employee practice with organisational goals. Secondly, this study provides new knowledge and understanding about the factors that can be applied to measure employee performance. For example, rarely has innovative behaviour been conceptualised as a performance indicator. However, this is surprising considering the importance of innovative behaviour in gaining a competitive advantage, and improving organisational efficiency and effectiveness. As such, this study provides implication about the opportunity for performance indicators that are linked to the innovative behaviour of employees.

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