Exploring the relationships between strategy, innovation and management control systems: the roles of social networking, organic innovative culture and formal controls

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Abstract

This paper is concerned with the relationship between strategy, management control systems (MCS) and innovation. MCS are described in terms of a package of controls comprising social networking, organic innovative culture and formal controls. We develop a path model that proposes that product differentiation is associated with more extensive innovation. It is argued that this association is explained, in part, by paths from product innovation to the three dimensions of MCS, and then paths from these MCS dimensions to innovation. Using a survey of Russian enterprises we confirm that product differentiation is associated with innovation. Also, product differentiation is associated with each dimension of the MCS. Organic innovative culture and formal controls have direct paths to innovation, while social networking has an effect on innovation acting indirectly through its connection with organic innovative culture.

Key words: product differentiation, social networking, organic innovative culture, formal management control systems, innovation.

JEL Classification: M41
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INTRODUCTION

In contemporary business settings characterized by extensive competition and technological change, organizations can gain competitive advantage if they maintain high levels of innovation (Ireland et al. 2001; Aghion et al. 2005). More specifically, it has been argued that the necessity to develop innovation is driven by the type of strategy employed, with higher levels of innovation being more likely in firms following strategies such as prospectors (Miles and Snow 1978) and product differentiation (Porter 1985). Researchers into management control systems (MCS) have explored how different strategies influence the adoption of MCS (Langfield-Smith 2007); while another stream of research has shown how MCS can help promote innovation (Bisbe and Otley 2004; Henri 2006b; Widener 2007). However, the way in which MCS are implicated in the connection between strategies and innovation remains unexplored. This study examines the way in which MCS are employed in response to strategies of product differentiation and then how these MCS enhance innovation. As such the study helps elaborate on the role of MCS in the relationship between product differentiation and innovation.

The study contributes to the body of research that investigates the relationship between MCS and strategy, and connections with innovation. We aim to make three interrelated contributions to the literature. First, the study addresses the concern of Langfield-Smith (2007 753) that our knowledge of the relationship between MCS and strategy is still somewhat limited, by examining how MCS are implicated in the relationship between strategies of product differentiation and innovation. In examining these relationships we add, also, to the body of literature that examines the relationship between MCS and innovation (Davila et al. 2009). Second, the study investigates the role of three dimensions of a MCS, social networking, organic
innovative culture and formal controls, responding to the call to study packages of controls when investigating the role of MCS in business (Malmi and Brown 2008). Social networking refers to the way interorganizational exchanges are managed with an emphasis of personal and social connections based on long standing relations and trust. Organic innovative cultures are the informal processes within the organization that provide for open and flexible communications and structures. Formal controls are the deliberately articulated controls that are used for planning and control, such as budgets and variance analysis. Third, the study examines the relatively unexplored control of social networking, operating in tandem with organic innovative culture and formal controls. As such the study is topical and important, with a novel approach to considering MCS.

The study uses a path model to examine the proposed relationships. As illustrated in Figure 1, we propose a relationship between product differentiation and innovation, and examine how the three dimensions of the MCS are implicated in this relationship. We use a survey to test our model within Russian business. Russia provides a context where firms are facing pressure to become innovative as the business setting has become more competitive in the post communist era. Importantly, in Russia, there is a wide range of social networking across all business contacts. This is apparent as social networking has evolved from a Russian cultural tradition, called Blat, that has been important, historically, involving the use of personal contacts to acquire resources (Ledeneva 1998; Puffer et al. 1994). Appendix 2 provides an historical overview of the importance of Blat in the social evolution of Russia.¹

Given the need to examine a sample of firms with a wide variation in social networking, the study of Russian firms was, in our view, advantageous to testing the proposed model. In collecting data from Russian firms, where organizational social networking is likely to be more widespread than in Western economies, an issue arises as to the generalizability of the findings to firms in Western economies. While Russia has been seen as an emerging economy since the demise of communism, firms operate within a market economy and have adopted Western
approaches to management (Kets de Vries et al. 2004) and commercial, legal and accounting systems (Taylor and Osipenkova 2003). We believe that results from our study will become increasingly important to Western organizations as practice and research make advances in developing and understanding social networking as a significant part of business practice (Nohria and Eccles 1992; Anderson et al. 1994; Gulati et al. 2000).

The paper is organized as follows. The next section develops theory. This is followed by the research method. Then the results and discussion are presented. A final section presents conclusions and limitations.

THEORETICAL FRAMEWORK

The theory developed next considers, first, how strategies of product differentiation are related to innovation, and then, to the three dimensions of the MCS (social networking, organic innovative cultures and formal controls). Next, we consider how innovation is enhanced by the application of the three aspects of MCS. Figure 1 summarizes this theory in terms of a path model.

(Insert Figure 1 about here)

Relationship between strategies of product differentiation and innovation

Innovation is defined as the adoption of an idea or behavior that is new to the adopting organization (Zaltman et al. 1973). As in other MCS research into innovation we examine product innovation (e.g. Thomson and Abernethy 1998; Bisbe and Otley 2004). This form of innovation is often perceived as being more closely related to solving an organization’s need to be more competitive and tend to be more visible and adopted more widely, whereas administrative innovations are more complex to implement and less advantageous (Damanpour 1990, 127).

In contemporary markets that are characterized by increased competition most organizations seek to close potential performance gaps by innovation (Aghion et al. 2005) and
many do so by developing strategies of product differentiation (Porter 1985). Organizations that are emphasizing strategies of product differentiation are faced with the need to continually develop and change products thereby providing a range of novel offerings (Porter 1985). It is through innovation that the organization can assure a stream of differentiated products that offer unique attributes that are valued by customers. Differentiation strategies typically will involve a commitment to expend resources on research and development and marketing to identify novel product attributes and promote brand imaging (Porter 1985).

These arguments provide the basis for the following hypothesis:

**Hypothesis 1:** Strategies of product differentiation positively influence innovation.

**Relationship between product differentiation and social networking**

Firms adopting strategies of product differentiation tend to operate in highly competitive settings which necessitate developing effective mechanisms to scan the environment for areas where products can be developed that add value to customers. Traditionally, it has been suggested that environmental scanning and market research can identify opportunities (de Wit and Meyer 1999, 198). However, in contemporary settings the search for ideas to differentiate products can be facilitated if social networks of connections can be established that provide special and unique relationships whereby the firm can work in collaboration with potential customers and suppliers to provide a range of products to satisfy customer needs.

The notion of social networking has been employed as a response to developing preferential connections in response to competitive pressures (Osland and Yaprak 1995). These external relationships involve developing personal and social connections based on informal contacts and trust. They provide the advantage of preferential treatment based on those within the network, and contacts who can provide connections and help achieve desired outcomes (Anderson et al. 1994; Mahama 2006; Thrane and Hald 2006). For example, in a competitive situation a firm developing a new product may require a component part to be developed.
Tendering for this part through normal industry practice may result in a six month waiting period. However, if a supplier is part of the firm’s social network the firm will likely gain preferred treatment with earlier delivery of the component and improved time to market.

In some organizations social networking develops into the customary way of engaging in interorganizational exchanges. When these are well established they become institutionalized and are part of ‘the way an organizations does things’ (Merchant 1985, 42). As such social networking becomes part of the MCS that is applied to the conduct of interorganizational exchanges.

The idea of employing social networks to establish close connections with customers is developed by Galbraith (2005) who refers to the ‘customer centric organization’ as one where the firm develops the ‘customer relationship’ as the most important asset of the firm. Firms following differentiation strategies may be encouraged to develop these customer relationships as they provide platforms for the firm to supply an array of customized and personalized products, services, support, education, and consulting to make the customer more effective (Galbraith 2005, 17). The aim is to develop these connections with customers in ways that provide for trusting, long standing relationships and develop close interpersonal ties whereby customer needs and applications of products are shared, often involving privileged information.

These arguments provide the basis for the following hypothesis.

**Hypothesis 2:** Product differentiation positively influences social networking.

**Relationship between product differentiation and organic innovative culture**

Firms that are competing on the basis of product differentiation strategies will endeavor to ensure that employees internalize a focus on generating and managing product variety (Quinn 1980). This will involve developing responsiveness within the organization to an array of existing and potential customer-based demands. Specifically, to sustain the changes required to
develop and maintain product differentiation the organization requires that employees accept the need to continuously improve or change product offerings, learn and adapt to customer focused demands (de Wit and Meyer 1999, 145). This is most effectively achieved where the underlying value structures of organizational cultures (Bhimani 2003; Henri, 2006a) encourage innovation by way of co-operation, flexibility and adaptation (Parthasarthy and Sethi 1993). For example, employees are likely to respond to strategies that involve new product development if the workforce is encouraged to engage in debate on ideas and cooperate with each other and management. This is best achieved if there are few barriers to communications, if there is sharing of ideas and if management is supportive and tolerant of mistakes. These cultures have been described as organic decision and communication processes (Chenhall and Morris 1995); adaptive corporate controls (Kotter and Heskett 1992), cultural controls (Merchant and Van der Stede 2007, 76) and loose controls (Merchant 1985, 130). In this paper we use the term organic innovative culture to designate this variable.

There is some evidence that firms pursuing product differentiation employ more organic innovative cultures. For example, Abernethy and Lillis (1995) report that firms following differentiation strategies involving manufacturing flexibility, employed integrative liaison devices involving more organic arrangements such as spontaneous contact, face to face meetings and flat structures. Simons (1990) found firms following differentiation strategies employed interactive controls involving personal interactions of an open nature, while Gupta and Govindarajan (1984) found product differentiators used less formal, subjective performance assessment systems. The relationship between product differentiation and organic innovative culture is formally presented as follows:

**Hypothesis 3**: Product differentiation positively influences organic innovative culture.

**Relationship between product differentiation and formal controls**
Product differentiation tends to produce product diversity and complexity within the organization. This has been seen to encourage the application of formal controls as they provide a mechanism to integrate diverse operations (Lawrence and Lorsch 1976; Merchant 1981). By formal controls we mean deliberately articulated practices that can be used for planning and control such as budgeting and variance analysis, costing and investment appraisal techniques.

There is some support for the affect of product differentiation on the adoption of formal controls. Bouwens and Abernethy (2000) found that product differentiation, based on customization, was associated with more complex interdependence, and that this acted as an intervening variable in the association between customization and the choice of various aspects of formal MCS that provided aggregated and integrated information.

Simons (1987) found that while prospecting firms (that might be expected to employ differentiation strategies) did not emphasize formal cost controls, they did employ tight budgetary controls, formal monitoring of outputs and forecast data. It is possible that organizations with high levels of product differentiation will adopt more aggregated formal controls as they provide managers with confidence that they will be able to capture the interdependencies that occur when there is a wide scope of diverse activities related to product differentiation strategies (Dent 1990).

We provide the following hypothesis to present the relationship between product differentiation and formal controls.

**Hypothesis 4**: Product differentiation positively influences formal controls

**Relationship between social networking and innovation**

Theoretical support for the role of social networking to enhance innovation can be found in literature from organizational studies. Noteboom (1999) claims that social networking can assist in innovation, as to be innovative firms need outside sources of cognition and competence
to complement their own. This assists in knowledge exchange and learning (Praise and Casher 2003). Synergism occurs in collective learning due to the presence of resource complementarities; and has the greatest potential to generate innovations which produce market advantage (Osland and Yaprak 1995).

Research on the affects of the socializing process that typically occurs within social networking indicates strong associations between socialization and a willingness to share information, engage in joint problem solving, adapt to unanticipated change and restrain from the use of power (Mahama 2006, 323), all of which can encourage innovation (Feldman 1976). Empirical evidence on how social networking between organizations boost innovations is provided by Goes and Park (1997) and Pennings and Harianto (1992) who report that innovative capability and the adoption of innovations within organizations is strongly enhanced by interorganizational network links.

We summarize these relationships in the following hypothesis.

**Hypothesis 5**: Social networking positively influences innovation.

**Relationship between organic innovative culture and innovation**

In organizational research it has been claimed that organizational cultures will be supportive of innovation if they are more adaptive and responsive, having open communication and a free flow of information, and engage employees in developing new ideas (Burns and Stalker 1961; Mintzberg and Waters 1985; Quinn 1980). Mintzberg (1994, 183-188) summarizes a wide body of thinking in how organizations generate new ideas noting the important role of supporting the creative but sometimes uncomfortable processes of innovation and notes that more open, informal, supportive cultures are necessary to support innovation.

Burns and Stalker (1961) proposed that organic organizations are better suited to generating innovation than more mechanistic organizations. They claimed that organic approaches to
decision making and communications are necessary to ensure that individuals are motivated to participate in creative decision making and there is a free flow of ideas that are essential for developing innovation. Organic innovative cultures also help in ensuring that ideas flow readily through the organization (Rosenfeld and Servo 1990, 255). They have a role in shaping and communicating strategies, and promoting curiosity and seeking behaviour (Davila et al. 2006). The free flow of ideas and information, and the promotion of curiosity and seeking behaviours are important attributes of an organization’s internal controls that can encourage innovation (Simons 1995). Chenhall and Morris (1995) showed the benefits of organic innovative cultures to the generation of innovation.²

The association between organic innovative culture and innovation is formulated as follows:

Hypothesis 6: Organic innovative culture positively influences innovation.

Relationships between social networking and organic innovative culture

Firms employing social networking are open to joint problem solving having well entrenched interorganizational practices that assist in developing more personal, trusting and less bureaucratic connections between organizations. These interactions provide a climate that promotes the exchange of fine grained information that can seed ideas for development. It is in this situation, where there tends to be rich opportunities for innovation, that organizations are stimulated to develop organic innovative cultures that can help enable receptivity to new ideas and a free flow of communications and decision processes to develop innovations.

Several authors have argued for the way external networks influence the adoption of internal controls. Håkansson and Lind (2007, 894) note that internal organic controls are strongly governed by the nature of the organization’s extensive external networks. That is, organizations that have an emphasis on social networking will likely encourage managers to develop a congruent management culture based on flexibility and openness to innovation. Mouritsen (1999) identified one form of flexibility and innovation in organizations as a ‘hands on-labor process view’ where
the organization responds to its customers in more organic rather than mechanistic ways. This approach is legitimized by the external networks where customers can influence the way the firm is managed and employees are empowered to respond to these external relationships in ways that are flexible and innovative (Mouritsen 1999, 32). Also, Mouritsen et al. (2001) show that as a consequence of open external interorganizational controls, intraorganizational controls were set in motion to help develop new notions of competitiveness.

The relationship between social networking and organic innovative cultures is formalized as follows:

**Hypothesis 7:** Social networking positively influences an organic innovative culture.

**The role of formal controls**

While much of the traditional organizational literature suggests that formal controls are not suitable for innovative organizations (Burns and Stalker 1961; Mintzberg 1994; Quinn 1980) more recently it has been claimed that formal controls have a role to play within a package of controls that aim to encourage innovation (Chenhall and Morris 1995; Simons 1995; Henri 2006b; Widener 2007). Davila et al. (2009, 283) conclude that a new paradigm has been emerging over the last decade highlighting the relevance of formal accounting and control to innovation and entrepreneurship. We propose that formal controls have a main effect on innovation and also that there are incremental benefits when formal controls are combined with organic innovative cultures.

**The main effects of formal controls**

We define formal controls of relevance to innovation as management accounting practices that assist in planning such as investment appraisal techniques, incremental analysis, activity based costing, budgeting, production scheduling; and controlling such as quality control, inventory...
controls, internal auditing and performance appraisal (Davila et al. 2006; Chenhall and Morris 1995). There is considerable support for the idea that formal controls can assist in generating innovation. Davila et al. (2009, 286) conclude that formal controls can assist intelligence gathering which requires established processes; idea recognition that requires a structured process to move ideas from any person in the organization to people with resource allocation rights; and idea selection that is enhanced by formal portfolio management tools. Haas and Kleingeld (1999) argue that formal controls can act as a base upon which to instigate flexible information and innovative thinking. For example, investment appraisal, incremental analysis, budgeting and activity-based costing can be used to test the technical and commercial outcomes from different innovative ideas or ways of configuring ideas to suit customer needs.

Davila et al. (2009, 296) note that in some organizations, financial plans are used to encourage people to project themselves in the near and far future, to identify new trends, to see new opportunities and threats, to adopt new strategic postures. For example, formal systems can help identify potential areas of the business that are likely to require more innovative effort through techniques such as SWOT analysis and examining internal capabilities (Chakravarthy and Lorange 1999). Also, formal controls, by way of internal auditing, can be used to overcome potential drift from planned activities to ensure innovative effort (Davila et al. 2006); and for motivation by developing reward systems targeted on managers effectiveness in generating innovation (Simons 2000). Davila et al. (2006), see benefits accruing from showing how innovative ideas are associated with business strategy, how ideas create value, how network partners interrelate by way of innovation platforms, and performance evaluation and monitoring to assess innovative effort.

These arguments lead us to the following hypothesis that relates formal controls to innovation.

**Hypothesis 8.** Formal controls positively influence innovation.
The interaction of organic innovative culture and formal controls

Organic innovative cultures may well provide managers with a work situation that is receptive to scanning for new ideas that encourages a curiosity and sensitivity to identify potential innovations (the emergence of which, we argue, is enhanced from sources identified from social networking). However as Davila et al. (2009, 295) conclude, ‘formal control balances the focused freedom that creativity requires with the flexible discipline that moving from an idea into value creation demands’. We elaborate on this idea by arguing that formal controls will be important to accelerate the impetus from organic innovative cultures to generate innovation for two reasons.

First, as indicated in the prior section, formal controls can help generate innovation by identifying potential areas for innovation, test the efficacy of potential innovative ideas and focus innovation on organizational goals, and provide motivation when linked into reward systems. It can be argued that these attributes can provide particular benefits for organizations that employ organic innovative cultures. In these cultures managers are more likely to realize benefits for innovation when tools and mechanisms are used to help develop and refine their efforts derived from a proclivity to work towards innovation.

A second role for formal controls to accelerate the effects of organic innovative cultures is to help managers with a concern for innovation to learn from processes that evaluate the extent to which potentially innovative ideas are consistent with organizational objectives and whether they are economically feasible and viable in terms of implementation issues (Chenhall and Morris, 1995; Simons 1995; 2000; Ahrens and Chapman, 2004; Henri 2006b; Widener 2007). The on-going use of these practices helps managers with an inclination for innovation to learn about taking ideas to innovation. This can provide them with confidence in assessing the viability of developing and implementing a wide-ranging array of ideas that have potential for innovations (Davila et al. 2006, 233-234).
It is the combination of the role of formal controls in helping instigate and motivate innovative effort in a receptive culture and then ensure confidence in taking projects from ideas to the launch stage that is likely to augment an organic innovative culture’s potential for innovation, and result in enduring effort applied to developing innovation (Simons 1995, 160; Davila et al. 2006, 222-227). We expect that this interaction is monotonic, that is when there is a well established organic innovative culture a high emphasis on formal controls will increase innovation, however, it is not expected that when there is a strong organic innovative culture that a low emphasis on formal controls will result in decreased innovation (Hartmann and Moers 1999).

These arguments are formally presented in the following hypothesis.

**Hypothesis 9:** The extent to which an organic innovative culture positively influences innovation will be enhanced by the application of formal controls.

**RESEARCH DESIGN**

**Sample**

An issue in testing the theory developed in this paper is that while social networking is of growing importance to organizations it is not, as yet, widespread as a form of control for general business in Western firms (Anderson et al. 1994; Gulati et. al. 2000). Rather social networks have been employed as part of specific interorganizational controls for transactions such as joint ventures and targeted buyer-supplier arrangements (Håkansson and Lind 2004, 56). Russia provides a context to test the hypothesized relationships. Given the heritage of Blat, Russia provides a situation that affords variance between organizations in social networking (Ledeneva 1998; Puffer et al. 1994). Additionally, in Russia, since the demise of the communist system a market economy has evolved. This has encouraged firms to be more innovative than under the communist régime and provides a setting where firms face competitive market forces in their
business dealings from local and overseas firms. In this setting product differentiation provides opportunities to be competitive. Moreover, Western styled business practices and commercial, legal and accounting systems have developed. To illustrate, Russia belongs to countries that have adopted International Financial Reporting Standards (IFRS). Also, evidence indicates that Russian firms employ Western styled approaches to management and strategy (Kets de Vries et al. 2004) and formal management accounting controls (Taylor and Osipenkova 2003).

Data were collected by employing a professional data collection agency to administer a survey, by face-to-face interviews. The questionnaire was administered to 100 chief executive officers drawn from Russian industrial firms in the St Petersburg region. We obtained the 100 companies, or 21%, willing to participate in our study, from 476 companies listed on the INFOWAVE data base. Chief executives were contacted by telephone to seek their participation in the study. Collecting survey data in Russia by mail-out or internet methods can result in low response rates to non-official surveys due to the lack of experience of managers in assisting with academic research.

The data collection method was for the interviewer to make contact with the correct interviewee and attempt to develop a rapport with the managers. The interview focused on the questionnaire with the interviewee filling out the survey. The interviewer engaged in conversation only to explain any ambiguity in the survey. This ensured that respondents understood the terms and concepts, and that the survey questionnaire was completed independently. Within the terms of the agreement between the agency and the researchers, it was not possible for them to collect additional qualitative information. Also, the respondents were assured of their anonymity. The respondents appeared to represent the broader sample frame with no significant differences (chi-squared at p<0.10) in size and industry between responding and non-responding firms. Table 1 provides information on the size and industry of the sample firms.

(Insert Table 1 about here)
**Measures**

For variables used in our study we assume reflective measurement models and accept that for each variable there are underlying, latent constructs that are reflected in a series of manifestations, and as such the constructs can be defined by a sample of some of these interchangeable manifestations. The questionnaire used existing instruments where possible. These were use of formal controls and organic innovative culture as developed by Khandwalla (1972) and Chenhall and Morris (1995). Items used to measure the use of formal controls were the use of accounting practices that typically relate to developing and implementing new products and services such as capital budgeting and financial decision tools, standard costs, contemporary costing, budgeting, processes controls, and systematic evaluations of personnel. The organic innovative culture included items that covered more open communications such as informal access to managers, an emphasis on consensus and tolerance of mistakes.

Product innovation is considered as the development and launching of new products (Higgins 1996; Schumpeter 1934). Its measurement is drawn from instruments developed by Capon et al. (1992) and Scott and Tiessen (1999) as applied in accounting research by Thomson and Abernethy (1998) and Bisbe and Otley (2004). The items cover the number of new products launched and modifications to products over the prior three years, how often the firms was first to market with products, and the percentage of new products in the product portfolio.

Differentiation was measured using an instrument employed by Govindarajan (1988). This assesses on a seven point Likert scale the relative position of the organization on the following characteristics compared to competitors: product selling price, percent of product sales spent on R&D, percent of product sales spent on marketing expenses, product quality, brand image and product features.

Given the novelty of social networking to survey research a new instrument was designed for this study. We identified the following dimensions from the social networking literature and
from the characteristics of Blat: personal and social networks and connections, informal contacts, interactions based on trust, subjective recommendations based on those within the network, preferential treatment from those within the network, contacts who can provide connections and who can help achieve desired outcomes (Butler and Purchase 2004; Michailova and Worm 2003; Ledeneva 1998). To ensure that this was relevant to our research setting we conducted a review process involving discussions with seven Russian speaking academics and managers. Most of these showed the questionnaire to other persons in their organizations to get feedback. On the basis of this review processes several changes were made to emphasize the long-term nature of social connections and the personal aspects of social networking.

For all instruments we used seven-point Likert scales ranging from (1) ‘Not used at all/significantly lower/not important’ to (7) ‘Used to a great extent/significantly higher/very important’. The respondents were asked to choose the alternative that best described the situation in their firm. The final questionnaire was tested with a group of chief accountants, financial directors and academic colleagues to refine the design and focus the content. To ensure accuracy of translation, a review process was undertaken that involved translating the English questionnaire into Russian and then back translating the Russian into English. Appendix 1 provides the details of the questions used to measure constructs in the study.

In this study we use Partial Least Squares, PLS Graph 3, to test our path model. As described by Hulland (1999), a PLS model should be analyzed and interpreted by assessing the reliability and validity of the measurement model and then by assessing the resulting structural model. As constructs used in this study are considered to be reflective, unidimensionality and reliability tests based on Classical Test Theory (e.g. factor analysis and internal reliability tests) are appropriate (Bisbe et al. 2007). To assess construct validity, for this study, the multi-item variables were examined within the measurement model of the PLS analysis. In assessing construct validity it was considered important that we retained as many items as possible to ensure
the content validity of the instruments. We followed the recommendation of Chin (1998b), Hulland (1999) and Raubenheimer (2004) that items with loadings below 0.40 should be deleted from their respective constructs. When recalculating after deleting items with loadings less than 0.40, the loadings on the remaining items within constructs were all significant at the p<0.01 level. Table 3 reports the results of the analysis of construct validity. Loadings determined on all items within constructs are reported in the right hand column. Loadings for items remaining within constructs after deletion of those with scores lower than 0.40 are reported in the middle column.

The internal reliability was assessed using the composite reliability statistic which indicated high reliability with scores in excess of 0.80 for all constructs. Composite reliability is reported in Table 3. Fornell and Larcker (1981) suggest that the discriminant validity of the measurement model should be examined by testing the extent to which a construct shares more variance with its own measures than it shares with other constructs. For this purpose, we calculate the square roots of the average variance extracted (AVE) and compare with the correlations between constructs. The square roots of the AVEs reported in Table 3 are clearly larger the correlations reported in Table 5. This attests to satisfactory discriminant validity of the measurement model. With the exception of organic innovative culture and formal controls, AVEs are above the 0.50 recommended for satisfactory convergent validity. While the low AVEs on organic innovative culture and formal controls are not ideal they did not produce any discriminant validity problems. We refrained from deleting items to enhance the AVEs to maintain the content validity of the measure.

The assessment of construct validity resulted in the deletion of the following items: for the constructs of social networking: 1.8 (contacts who can push through whatever needs to be pushed); formal controls: 2.4 (activity-based costing), 2.5 (internal audit) and 2.6 (performance or operating auditing by outside auditors); and for organic innovative culture: 3.2. (an emphasis on
adaptation without concern for past practice). It appears that the development of formal controls in Russia has not evolved to where more ‘sophisticated’ practices such as activity-based costing and an internal or external audit function are employed. To confirm this we checked the average scores on these items with the average score for all items. Activity-based costing and internal audit scores were significantly lower, however performance or operating audits by outside auditors was significantly higher than the average. We may speculate that perhaps this later finding indicates that in this area there is a lack of expertise within organizations resulting in outsourcing of this function. Importantly, the analysis indicates that the items within the formal controls construct appeared relevant to planning for potential innovations and monitoring ongoing operations.

The model includes an interaction term that captures the combined effect of organic innovative culture and formal controls. Chin et al. (2003) has elaborated on the introduction of interaction terms in PLS modelling. We followed Goodhue et al. (2007) in constructing the interaction term using the product of the average of the standardized item scores of organic innovative culture multiplied by the average of the items of the formal controls construct (product of the sums), which has been shown to provide the strongest basis to detect significant interactions.13

Table 2 reports descriptive statistics of the constructs based on the weighted average scores of multi-item variables. Actual ranges of all constructs correspond well with their theoretical ranges indicating high dispersion in the values of constructs.

(Insert Table 2 about here)

(Insert Table 3 about here)

RESULTS
This section describes the PLS regression method used to test our theoretical model and reports the empirical results.

**Partial least squares regressions**

As indicated earlier, in the empirical analyses, the multivariate statistical method PLS was used. PLS provides the measurement model that specifies the relations between the original variables and the constructs that they represent. It also provides estimates and diagnostics of the structural model that specifies the relationships among constructs. Finally, the structural model specifying relationships among the constructs is assessed by examining the estimated path coefficients and their significance levels. It is inappropriate in PLS to use any overall goodness-of-fit measures, as used in covariance structure analysis modeling such as LISREL, because PLS makes no distributional assumptions (Chin 1998a). Rather, fit is evaluated by the overall incidence of significant relationships between constructs and the explained variance of the endogenous variables. $R^2$ values are reported in Table 4. The bootstrapping sampling method with 500 iterations is used to obtain the confidence intervals to assess the significance of the estimated path coefficients.

(Insert Table 4 about here)

(Insert Table 5 about here)

Table 4 reports the PLS regression results, while figure 2 illustrates significant associations in the path model. Before considering the path model, a test of the bi-variate relationship between product differentiation and innovation is the correlation between these variables, which is significant ($r = 0.334, p<0.01$) (H1). Within the path model, there is a significant path between product differentiation and innovation (0.193, $p<.05$), which indicates that after the MCS variables have been considered in the model, there remains a significant association between
product differentiation and innovation. There are significant paths between product differentiation and each dimension of the MCS: social networking (0.237, p<0.05) (H2), organic innovative culture (0.179, p<0.05) (H3), and formal controls (0.346, p<0.05) (H4). There is no significant path between social networking and innovation (0.008, NS) (H5). A significant path is apparent between organic innovative culture and innovation (0.217, p<0.05) (H6), and a significant path between social networking and organic innovative culture (0.231, p< 0.10) (H7). There is a significant path between formal controls and innovation (0.186, p<0.10) (H8), however the path between the interaction of organic innovative culture with formal controls and innovation is not significant (0.150, NS) (H9).

(Insert Figure 2 about here)

While there are potentially many additional variables that could be included as controls, in this study organizational size is included as it can act as a surrogate for the availability of resources to experiment with change and management innovations, such as MCS (Damanpour 1992). Size was measured by the number of employees in the organization. Table 4 shows that size has a significant path to organic innovative culture (0.193, p<0.05) and to formal controls (0.194, p<0.05). Industry may also be important as it can capture the potential effects of uncertainty and different types of production technologies, which may influence the development of MCS and innovation (Ittner and Larcker 1998). We combined industry groups into manufacturing and non-manufacturing/resources as these groups typically face different types of international competition, uncertainty and production complexities. Also, many managerial and MCS applications are often perceived as being developed and applied differently within manufacturing than nonmanufacturing (Does et al. 2002-3). Table 4 shows that are no significant paths from industry to model variables.
DISCUSSION

Our aim was to employ a path model to explore the way in which social networking, organic innovative culture and formal controls are implicated in the relationship between product differentiation and innovation. We examined these relationships in Russia where a traditional form of social networking, called Blat, provides the opportunity to examine how variation in social networking forms part of a package of controls relevant to the study of strategy and innovation. While the model has relatively low explanatory power, the data provide varying degrees of support for the hypothesized connections.

We were interested in product differentiation as a source of innovation and how the use of social networking, organic innovative cultures and formal controls may intervene in this relationship. The results of correlation analysis, reported in Table 5, indicate that firms employing product differentiation strategies had more extensive innovation ($r = 0.334, p<0.01$). This supports a bi-variate relationship between product differentiation and innovation. In considering the relationship between product differentiation and innovation within the full model, the path remains significant indicating that the correlation between product differentiation and innovation is partially mediated within the model (Baron and Kenny 1986).

The model is consistent with the idea that managers of firms following product differentiation strategies use social networking to gain information, perhaps privileged, on customer needs and opportunities to sell customers a variety of products. This may be enhanced if the firm responds by developing social networks to establish close customer relationships. These firms also demand that the internal communication and decision processes are more organic enabling the diversity and complexity that derive from highly differentiated product offerings to be managed with a high degree of lateral responsiveness. Formal controls are also demanded by product differentiators as they can provide a way of integrating the total portfolio of products, and
can assist in the management of interdependencies that may be evident where there are multiple products.

Once the three dimensions of the MCS are adopted, a question remains as to whether they help explain the generation of innovation. The study shows that innovation is associated with organic innovative culture and, marginally, with formal controls. There was no significant direct association between innovation and social networking. In considering the mediating role of the MCS variables in the relationship between product differentiation and innovation, it can be seen that the combined path through social networking is not significant, while the combined paths through both organic innovative culture and formal controls are significant. Using the Sobel’s test to determine the significance of the combined coefficients, the path from product differentiation through organic innovative culture to innovation is marginally significant (0.04, Z= 1.33, p< 0.10), and the path from product differentiation through formal controls to innovation is significant (0.06, Z =1.64, p<0.05). These results support the idea that both organic innovative culture and formal controls have a role in explaining how firms pursuing product differentiation enhance innovation.

From Figure 2 we can examine further the effects on innovation of various connections between the MCS dimensions. As noted above, social networking is not significantly associated with innovation, however, it does have an effect acting indirectly through organic innovative culture. There is a marginally significant path from social networking to organic innovative culture and then a significant path between organic innovative culture and innovation. The combined effect is marginally significant (0.05, Z= 1.29, p<0.10). This represents a full mediation of the significant bi-variate correlation between social networking and innovation. That is, the bi-variate association (r = 0.193, p<0.05), becomes an insignificant path (0.008, NS) when considered in the full model. This is consistent with the idea that social networking helps encourage an organic innovative culture, this then provides a scenario of receptiveness to novel
ideas and ways of facilitating communications and decision making to sustain imagination and resourcefulness to progress ideas to innovative. The model also indicates that the correlation between social networking and innovation ($r = 0.193$) is decomposed into a direct effect of 0.008, an indirect effect of 0.050 (a combination of 0.231 and 0.217), with unexplained variance of 0.135.

The path model provides modest support for the role of formal controls in enhancing innovation (0.186, $p<0.10$). This is consistent with Widener (2007) who found that diagnostic controls (a construct that is similar to formal controls) are associated with organizations that are more amenable to learning, which arguably is consistent with innovation. However, we did not find support for the predicted association between innovation and the interaction of organic innovative culture with formal controls. This is surprising given recent management accounting literature arguing that formal controls can augment the effects of more organic approaches to control. However, the result is consistent with a study by Henri (2006b) which found that dynamic tension generated from a combination of diagnostic and interactive use of controls did not enhance innovativeness.

It appears that extensive organic innovative cultures provide benefits to innovation as do formal controls, but the effects occur independently acting more as additive supplements rather than multiplicative complements (Davila et al. 2009, 292). In terms of the theory developed in this paper, it seems that formal controls may provide a role in helping managers develop innovation. However, these benefits did not add additional benefits, in terms of innovation, for those organizations that had organic innovative cultures in place.

In considering these results it is possible that the precise meaning of the organic innovative culture construct is important. Much of the accounting literature has considered the role of interactive controls and while these involve face-to-face interaction and discussion, they still are based on formal information systems applied within bureaucratic structures (Simons 1995, 85).
Organic innovative cultures are different as they are very much concerned with an environment that encourages the development of new ideas, a free flow of information, learning and sharing lessons and informal signaling of potential problems. They are not constrained to formal systems and embrace innovation as a way of doing business. We may speculate that the potential benefits that may arise from formal controls providing a focus for new information and more formalized routines for learning may not have great incremental value for these firms that are already gaining these benefits from organic innovative cultures. It is also possible that the positive benefits of formal controls to organic innovative cultures are countered by incompatible formal controls. It may be that formal controls were too rigid to provide incremental benefits when operating in conjunction with organic innovative cultures (Davila et al. 2009, 287).

Our study controlled for the potential effects of size and industry. Table 4 provides the paths between the control variables and constructs in the model. Size has significant paths to organic innovative culture (0.193, p<0.05) and to formal controls (0.194, p<0.05). The relationship between size and formal controls provides some support for the idea that large organizations have resources to employ more formal controls. The relationship between size and organic innovative cultures is, perhaps, surprising. There is considerable literature that suggests that larger firms employ more bureaucratic approaches rather than more open styles of management (Bruns and Waterhouse 1975; Merchant 1981). However, our organic innovative culture variable concerns approaches to develop more innovative, flexible cultures. In recent times many large organizations have endeavored to delayer their traditional hierarchical arrangements and empower employees by providing more participative seamless organizations that focus on flexibly managing horizontally (Galbraith 2005). In our study, there were no significant paths between the industry and variables within the model.

Finally, in considering how the full model explains the association between product differentiation and innovation, the direct and indirect effects of variables can be summarized. As
noted earlier, the correlation between differentiation and innovation ($r = 0.334$, $p< 0.01$) is partially explained by the relevant paths within the model. That is, there is a path from differentiation to social networking ($0.237$, $p<0.05$), and then to organic innovative culture ($0.231$, $p<0.10$), and on to innovation ($0.217$, $p<0.05$). This provides a combined indirect effect of 0.012. A second path is from differentiation to organic innovative culture ($0.179$, $p<0.05$) and then to innovation ($0.217$, $p<0.05$), a combined indirect effect of 0.039. A final path is from differentiation to formal controls ($0.346$, $p< 0.01$) and then on to innovation ($0.186$, $p<0.10$) providing a combined effect of 0.064. Thus the model indicates that of the 0.334 correlation between product differentiation and innovation, there is a direct effect of 0.193, indirect effects that total 0.115, with 0.026 remaining unexplained.

**CONCLUSIONS**

This paper investigates how three dimensions of MCS, social networking, organic innovative culture and formal controls, are implicated in the relationship between strategies of product differentiation and innovation. The evidence based on the bi-variate correlation suggests that innovation is found to be more prominent in firms pursuing product differentiation strategies. This supports the idea that innovation is more likely where firms are faced with the continuing challenges to develop a variety of products to satisfy the needs of customers. After considering the intervening role of MCS, the model shows that this relationship is both direct and indirect. That is, there are indirect effects acting through the MCS, but after considering these, there remains a significant direct effect. The model shows that the indirect effects act through the intervening role of organic innovative culture and formal controls, and also through social networking acting indirectly through its effects on organic innovative culture.

Our study was interested in examining the role of social networking as a relatively unexplored control in the study of MCS, strategy and innovation. We identified that social
networking had a moderately significant indirect effect on innovation, acting through organic innovative culture, rather than a direct effect. The lack of a direct effect is, perhaps, not surprising as, clearly, there are many outcomes from social networking not captured in our model that could help explain the association between social networking and innovation. For example, social networking may involve variables such as developing attractive supplier and customer arrangements that provide preferred contacts and arrangements for mutual product development. Alliances may be arranged that provide opportunities to share ideas for development. The way in which organizations learn from social networking connections and experiences will likely assist in explaining links to innovation. We found that formal controls also have an influence in helping organizations develop innovation. These effects occur by formal controls directly enhancing innovation, however the predicted accelerating effect of formal controls on the role of organic innovative cultures in enhancing innovation was not apparent.

To enable us to test the role of social networking as a way of managing business in general, we tested our model in Russia. In Russia, a system of social networking, called Blat, is built into the social structure which can be invoked and developed as a way for commercial organizations to do business (Barnes et al. 1997; Edwards and Lawrence 2000; Michailova and Worm 2003). Although the Russian economic environment has become more competitive and the legal setting has developed, social networking can be important for some firms. Therefore, Russia provided a useful setting in which to investigate the connections between product differentiation, innovation, and social networking, organic innovative cultures and formal controls.

The results contribute to the literature in several ways. Overall, we extend the growing body of knowledge that examines the connections between strategy and MCS, by exploring how MCS are implicated in the relationship between product differentiation and innovation. Also, we add to the literature on MCS and innovation. Specifically, first, our findings are consistent with the idea that firms following strategies of product differentiation have higher levels of innovation. Second,
we confirm that strategies of product differentiation do place demands on information which encourages the application of three dimensions of MCS. Moreover, the results suggest that innovation is enhanced by social networking, organic innovative culture and formal controls. The study contributes insights into how these dimensions, which form part of a package of MCS controls, have theoretical connections that trace through to innovation. Empirically, we find that organic innovative culture and formal controls have direct relationships with innovation, but social networking has its effects indirectly through organic innovative systems. Third, we developed the idea of social networking, within a management accounting framework, as an interorganizational control that is relevant to the way a firm interrelates with external parties in the course of its business. We show how social networking has consequences that help promote innovation, but as indicated above, that this is indirect through organic innovative culture. The study illustrates the manner in which inter and intraorganizational controls operate to help effect innovation. Finally, we show that size was connected with organic innovative cultures and formal controls, but that industry was not associated with variables in the model.

Our study also provides some insights into the development of strategy and MCS in Russia. It appears that product differentiation has been a useful strategy in Russia to enhance innovation. Our results confirm other studies that Western styles of management practices and MCS are being employed in Russia. While social networking has its roots in the traditions of Blat and as such has its distinctiveness, our study captures the essence of how social networking encourages some organizations to develop complementary organic cultures, and it is this connection that helps explain how social networking has its effects on innovation.

The study is subject to several limitations that should be considered when drawing conclusions from the results. Some of the paths in our study have only weak levels of statistical significance. Determination of what p values are, or are not, significant is somewhat arbitrary (Bross 1971). It can be argued that findings in the p <0.05-0.10 area should be acknowledged as of
interest and indicative that the distributions of interest are not wholly due to chance.\textsuperscript{15} Certainly, extensions of our study using larger sample sizes would be more likely to be able to detect significance at more conservative levels.

The results of the analysis represent necessary but not sufficient conditions for proof of causal relationships. The paths indicate statistical associations consistent with the theory developed in the paper. One extension of our study could be to examine the extent to which social networking and organic innovative culture involve recursive causality, such as social networking encouraging organic innovative cultures and these cultures in turn providing a basis to further develop social networking.\textsuperscript{16} Research employing qualitative methods that examine the evolution of MCS over time could help identify how the variables are causally linked in recursive ways.

The study had a relatively low response rate to the survey, although this is not inconsistent with other published survey work in management accounting (e.g. Guilding 1999 = 23 percent; Moores and Yuen 2000 = 15 percent). Collecting data for non-official, business-related research by survey is relatively novel in Russia. Early preliminary work examining the viability of employing postal and internet methods revealed that these approaches would not be successful. By collecting data employing a survey with a professional data collection agency, we believe that while the response rate is modest the approach provided high quality data in terms of the correct person answering the survey, the opportunity to clarify any ambiguity in the survey and the likelihood that a level of trust could be developed between interviewer and respondents which helped ensure that the survey was taken seriously.

There are issues concerning variable measurement. Existing measures were used for established variables. However, the construct of social networking had to be defined from the existing literature and contemporary practice, and measures developed. As the underlying dimensions of this construct are likely to change through time, further work will be required to refine the measures. There is also an issue of social desirability response bias concerning social
networking which captures positive connotations of social interactions. While we checked on whether firms emphasising social networking did so in ways that did not involve unfair and dishonest practices, these too could be seen to suffer from social desirability bias. To avoid these biases we relied on the use of a formal survey and assured respondents of their anonymity. The choice of professional data collection agency ensured that the survey was administered in a way that involved an arm’s length interaction. The preservation of respondent anonymity and, if relevant, interviewer skills have been identified as adequate methods to manage the risk of social desirability (Nederhof 2006). We also ensured that the survey was focused on the organization and not on individual attitudes and behaviour which may typically be more at risk of social desirability bias. From Table 2 it can be seen that although the social networking mean is quite high, a full range of responses is evident providing sufficient variance to detect the effects of more or less emphasis on social networking.

The measure of formal controls was based on controls employed by Western firms. While these are the sorts of controls being adopted by firms in Russia, our data indicated a more limited application of contemporary practices. However, our purpose is to develop and test theory. Consequently, the important issue is that the controls we examine represent formality. Additionally, the type of formal practices seems to relate to planning issues and control of processes of importance within the context of a study into strategy and innovation. Our study does not identify how well the formal controls are designed, nor if particular controls might be more or less important to innovation, or where in the process of innovation they might be used. We assume that if managers are using these formal controls they do so as the controls provide useful information. However, the issue of the design quality and applicability of formal controls present opportunities for further investigation. The measurement of constructs in this study was by way of self-assessment. This is often criticized for potential bias. While there is support for the use of self-
assessment (Venkatraman and Ramanujam 1987) it would be useful, if possible within the research design, to confirm self-assessments with external measures.

The study included size and industry as controls within the model. It is possible that other variables might be important. For example, uncertainty about future contingencies might influence the model. Possibly industry could be seen as a proxy for uncertainty but a direct assessment of uncertainty would be a useful extension of the study. An additional variable of potential importance is the extent to which firms in a relatively stable setting are involved in incremental change or are facing more dramatic change requiring radical change. In our study most of the sampled firms were from relatively stable environments, with only 11 firms from the electronic and computing industry which might be expected to involve more radical changes. The mean for these 11 firms did not differ significantly on any of the studied variables, from the remaining group. Given this small number of firms in this industry this is not a strong test. Examining radical and incremental change represents an interesting extension of this study.

Foreign ownership and stock exchange listing might also influence the variables in the model. In this study, within the sample, only 11 firms had direct foreign ownership and only five firms were listed on the stock exchange. We compared the means in these groups with that of the remaining firms and found no significant differences for foreign owned firms; however the group of firms that were listed on the stock exchange were more innovative than those that were not. These comparisons should be treated with caution as the sample size for the specific groups is small. It is possible that other studies that include a higher proportion of foreign owned firm, or those with stock exchange listing, may find significant effects of these variables. Particularly, foreign ownership may be important as it been identified as important in studying the development of MCS within emerging economies (Firth 1996). Similarly, future studies may wish to consider the role of contextual variables that have been identified in Western studies to influence the use of
MCS, such as different types of advanced technologies and organizational structure (Chenhall 2003).

In conclusion, our study provides evidence consistent with the idea that strategies of product differentiation are associated with innovation. Also, product differentiation appears to encourage organizations to engage in more social networking, and to implement organic innovative cultures and formal controls, supporting arguments for the crucial role of strategy in the design of MCS. Also, our study showed that in the Russian context, where many firms employ social networking as part of the everyday way of doing business, that firms relying more extensively on social networking had also implemented organic innovative culture and it was these controls that enhanced innovation. We found that formal controls also enhanced innovation. Our study has focused on testing the theoretical issues of interest in our model. A useful extension would be a contemporary comparative study between Russian and Western firms, and then a further study in the future as social networking becomes more established in the Western firms. It might be expected that as Western firms gain more experience with social networking that the resulting social networks will become a more established part of satisfying the information demands of product differentiation strategies and become important to conducting and controlling business to generate innovation, at least for some firms (Nohria and Eccles 1992; Anderson et al. 1994; Gulati et al. 2000).
REFERENCES


Henri, J.-F. 2006a. Organizational culture and performance measurement systems Accounting, Organizations and Society 31 1: 77-103


TABLE 1

Summary statistics for the sample organizations

<table>
<thead>
<tr>
<th>Panel A: Size</th>
<th>N</th>
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</thead>
<tbody>
<tr>
<td>Number of employees</td>
<td></td>
</tr>
<tr>
<td>1-100</td>
<td>19</td>
</tr>
<tr>
<td>101-500</td>
<td>51</td>
</tr>
<tr>
<td>501-1500</td>
<td>18</td>
</tr>
<tr>
<td>1501-</td>
<td>12</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Panel B: Industry</th>
<th>Category</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing: heavy, light and electronics:</td>
<td>Chemistry</td>
<td>7</td>
</tr>
<tr>
<td>Light engineering and electrical</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Engineering and automotive</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Computers and electronic</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Non-manufacturing and resources</td>
<td>Foodstuffs (provisions, groceries) and beverages</td>
<td>14</td>
</tr>
<tr>
<td>Agricultural</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Construction and mining</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Clothing</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Pulp, paper and wood products</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>9</td>
<td></td>
</tr>
</tbody>
</table>
### TABLE 2

**Descriptive statistics**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>Actual range</th>
<th>Theoretical range</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Min</td>
<td>Max</td>
</tr>
<tr>
<td>Innovation</td>
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<td>1.94</td>
<td>1.00</td>
<td>7.00</td>
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<tr>
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<td>1.00</td>
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<td>Organic innovative culture</td>
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<td>1.01</td>
<td>1.00</td>
<td>6.78</td>
</tr>
<tr>
<td>Social networking</td>
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<td>1.32</td>
<td>1.00</td>
<td>7.00</td>
</tr>
<tr>
<td>Differentiation</td>
<td>3.37</td>
<td>1.70</td>
<td>1.00</td>
<td>6.50</td>
</tr>
</tbody>
</table>
**TABLE 3**

PLS loadings, composite reliability and AVEs for social networking, formal controls, organic innovative culture, innovation and differentiation.

<table>
<thead>
<tr>
<th>Panel A. Social networking</th>
<th>Loadings after deletion of items with low loadings</th>
<th>Loadings for all items</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>0.814</td>
<td>0.807</td>
</tr>
<tr>
<td>1.2</td>
<td>0.653</td>
<td>0.631</td>
</tr>
<tr>
<td>1.3</td>
<td>0.673</td>
<td>0.641</td>
</tr>
<tr>
<td>1.4</td>
<td>0.827</td>
<td>0.847</td>
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<td>1.5</td>
<td>0.848</td>
<td>0.870</td>
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<td>1.6</td>
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<td>1.7</td>
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<tr>
<td>1.8</td>
<td>-</td>
<td>0.339</td>
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<tr>
<td>Composite reliability</td>
<td>0.922</td>
<td>0.910</td>
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<tr>
<td>AVE</td>
<td>0.631</td>
<td>0.569</td>
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</table>

<table>
<thead>
<tr>
<th>Panel B. Formal controls</th>
<th>Loadings</th>
<th>Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>0.562</td>
<td>0.539</td>
</tr>
<tr>
<td>2.2</td>
<td>0.679</td>
<td>0.697</td>
</tr>
<tr>
<td>2.3</td>
<td>0.553</td>
<td>0.489</td>
</tr>
<tr>
<td>2.4</td>
<td>-</td>
<td>0.393</td>
</tr>
<tr>
<td>2.5</td>
<td>-</td>
<td>0.286</td>
</tr>
<tr>
<td>2.6</td>
<td>-</td>
<td>0.121</td>
</tr>
<tr>
<td>2.7</td>
<td>0.704</td>
<td>0.584</td>
</tr>
<tr>
<td>2.8</td>
<td>0.697</td>
<td>0.750</td>
</tr>
<tr>
<td>2.9</td>
<td>0.696</td>
<td>0.755</td>
</tr>
<tr>
<td>2.10</td>
<td>0.528</td>
<td>0.474</td>
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<tr>
<td>Composite reliability</td>
<td>0.824</td>
<td>0.786</td>
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<tr>
<td>AVE</td>
<td>0.404</td>
<td>0.297</td>
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</table>
Panel C. Organic innovative culture

<table>
<thead>
<tr>
<th></th>
<th>Loadings</th>
<th>Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1</td>
<td>0.484</td>
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<td>3.2</td>
<td>-</td>
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<td>3.3</td>
<td>0.710</td>
<td>0.751</td>
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<tr>
<td>3.4</td>
<td>0.610</td>
<td>0.577</td>
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<tr>
<td>3.5</td>
<td>0.668</td>
<td>0.703</td>
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<tr>
<td>3.6</td>
<td>0.745</td>
<td>0.736</td>
</tr>
<tr>
<td>3.7</td>
<td>0.658</td>
<td>0.638</td>
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<tr>
<td>3.8</td>
<td>0.635</td>
<td>0.611</td>
</tr>
<tr>
<td>3.9</td>
<td>0.768</td>
<td>0.746</td>
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<tr>
<td>3.10</td>
<td>0.551</td>
<td>0.548</td>
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</table>

Composite reliability: 0.868
AVE: 0.427

Panel D. Innovation

<table>
<thead>
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</thead>
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<tr>
<td>4.1</td>
<td>0.882</td>
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<tr>
<td>4.2</td>
<td>0.867</td>
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<tr>
<td>4.3</td>
<td>0.876</td>
</tr>
<tr>
<td>4.4</td>
<td>0.898</td>
</tr>
</tbody>
</table>

Composite reliability: 0.933
AVE: 0.776

Panel E. Differentiation

<table>
<thead>
<tr>
<th></th>
<th>Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1</td>
<td>0.818</td>
</tr>
<tr>
<td>5.2</td>
<td>0.614</td>
</tr>
<tr>
<td>5.3</td>
<td>0.829</td>
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<tr>
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<td>0.917</td>
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<td>5.5</td>
<td>0.904</td>
</tr>
<tr>
<td>5.6</td>
<td>0.923</td>
</tr>
</tbody>
</table>

Composite reliability: 0.934
AVE: 0.707
### TABLE 4

Results of PLS regressions: path coefficients and p-values, $R^2$.

<table>
<thead>
<tr>
<th>Paths to:</th>
<th>Innovation</th>
<th>Formal controls</th>
<th>Organic Innovative culture</th>
<th>Social networking</th>
</tr>
</thead>
<tbody>
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<td></td>
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***, ** and * indicate significant at 1%, 5%, 10% respectively.
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***, ** and * indicate significant at 1%, 5%, 10% respectively.
FIGURE 1: Hypothesized path model

- Social networking
  - H2
  - H7
- Organic innovative culture
  - H3
  - H6
- Differentiation
  - H4
- Innovation
  - H5
  - H9
- Formal controls
  - H8
FIGURE 2:
Results of estimating PLS regressions (after including controls of size and industry)

---

** Organic innovative culture
- Differentiation
  - Social networking
    - Formal controls
      - Innovation
      - 0.193**
    - 0.346***
  - 0.179**
  - 0.237**
- 0.231*
- 0.217**
- 0.150
- 0.186*
- 0.008

***, ** and * indicate significant at 1%, 5%, 10% respectively.
APPENDIX 1.
Constructs and underlying questions used in the survey.

1. Social networking

Which of the following best characterizes your organization?

Success in business involves:
1.1 Personal and social network & connections
1.2 Subjective recommendations based on preferences of trusted individuals
1.3 Preferential contacts to gain access to information, resources, suppliers

To what extent are the following factors important to the conduct of your business?
1.4 Informal contacts and personal network
1.5 Close personal and long-term relationship
1.6 Friendship based on trust
1.7 Contacts who can provide useful connections
1.8 Contacts who can push through whatever needs to be pushed

2. Formal controls

To what extent does your organization use the following?

2.1 Standard costs and the analysis of cost variances
2.2 Marginal or incremental costing in ‘make or buy’ or pricing decisions
2.3 Flexible or activity level budgeting
2.4 Activity based costing
2.5 Internal auditing
2.6 Performance or operational auditing by outside auditors
2.7 Use of internal rate of return or net present value in evaluating investments
2.8 Statistical quality control of production
2.9 Inventory control and production scheduling by means of operations research techniques
2.10 Systematic evaluation of managerial and senior staff personnel
3. Organic innovative culture

To what extent do the following describe your firm?

3.1. An emphasis on consensus-seeking, staff participative decision making
3.2. An emphasis on adaptation without concern for past practice
3.3. Open channels of communications and free flow of information
3.4. An emphasis on initiative, and adaptation to the local situation rather than specialization and top level co-ordination
3.5. Easy informal access to senior managers
3.6. Managers encouraged to develop new ideas even if they fall outside the individual’s area of responsibility
3.7. Tolerance of manager’s mistakes, learning and sharing lessons from them
3.8. Managers share information with colleagues
3.9. Fast reaction to take advantage of unexpected opportunities
3.10. Current corporate culture encourages informal signaling of potential problems

4. Innovation

In comparison with the industry average,

4.1. During the last three years, how many new products has your firm launched?
4.2. During the last three years, how many modifications to already existing products has your firm launched?
4.3. In new products, how often has your firm been first-to-market?
4.4. What is the percentage of new products in your firm’s product portfolio?

5. Differentiation

Relative to leading competitors how does your firm rank (significantly lower to significantly higher)

5.1 Product selling price
5.2 Percent of product sales spent on R&D
5.3 Percent of product sales spent on marketing expenses
5.4 Product quality
5.5 Brand image
5.6 Product features
APPENDIX 2

To help understand the historical context and cultural specificity of Blat we examine the evolution of its meaning and practice over four time periods that covers its earliest usage to its role in contemporary Russia. These periods are: pre Soviet, Soviet, immediate post Soviet and the contemporary era. The origins of the word Blat came from Poland and mean 'someone who provides an umbrella, a cover', and has earlier origins related to 'close familiar', 'one of us', 'one of our circle' (Butler and Purchase 2004).

Pre Soviet times

The practice of Blat has its historical roots in pre-revolutionary traditions of the Russian collective life style, involving patronage and self-interested giving (Michailova and Worm 2003, 525). Russians have a long tradition of mutual dependence in achieving their goals. For example, in early times it was common to share seasonal work such as harvesting and house maintenance. This formed the basis for continuous trusting relationships and allowed access to scarce resources. While this idea of collectivism is evident in other cultures, with Blat being most closely compared with Guanxi in China, Blat has had an individualistic orientation and a focus on the exchange of favours based on friendships, where individuals are largely responsible for themselves. By contrast, Guanxi is firmly and deeply rooted in Confucian ideas that individuals are social or relational beings which leads to a desire for harmonious social interactions. This is seen as an integral and essential part of how society works and is accepted as such. Russia has always been a more individualistic society than China. Interpersonal trust is more important in Russia where helping friends is a pleasure, whereas in China it is a moral and social obligation (Wilson and Donaldson 1996).

The Soviet period

During the Soviet period Blat developed as a way for individuals to manage and survive under the communist regime (Ledeneva 1998). Blat developed from its pre Soviet roots, where individuals gave special treatment and help to those in their circle, as a specific response to the conditions of scarcity and a state system of privileges under socialism (Ledeneva 2003). Blat involved gaining any kind of resource and consumer goods by way of connections and acquaintances. It was acceptable behaviour because the circumstances were so dire, making it necessary for friends to help one another, often at the expense of public resources. At a personal level, Blat served the needs of personal consumption and was often characterized by mutual care
and friendly support by persons involved. Blat arrangements could secure scarce products or gain access to services and facilitate interactions with the State, such as the provision of housing, medical services and employment. For businesses, Blat networking was also important to enable organizations to gain advantage and overcome obstacles in a situation of shortage of resources, tight government control and central distribution of many aspects of economic life. For example, the government would give enterprises quotas on output, without providing needed inputs. Suppliers of resources (pushers or fixers) drew on their Blat contacts to obtain goods. These arrangements were sustained by developing networks based on ‘favours of access’ and trustworthiness (Ledeneva 1998; Puffer et al. 1994). In some cases the offering of incentives involved bribery, which was illegal but meeting planned output justified skirting the law.

Given the use of Blat to gain advantage at the expense of the State, the term evolved to carry official negative connotations. It became a slang term that was not used in official discourse, nor in polite conversation (Ledeneva 1998). Ledeneva (2003) notes that in the Soviet era Blat was officially considered “antisocial,” because it involved “cheating the system”. However, it was common for Russians to misrecognize their own Blat practice. While outsiders would label a Blat transaction as “antisocial and unfair”, the participants would interpret their own behaviour positively as a “necessary and logical” act of friendship. This maybe contrasted with China, where a Guanxi transaction was seen by both the participants and outside observers as “adherence to traditional ethics and culturally rooted practices” (Ledeneva 2003). Notwithstanding the overt, official negative connotations to Blat, the practice became embedded within the economy and not many enterprises could have succeeded without some participation in Blat networking (Butler and Purchase 2004).

**Immediate post Soviet**

The form of Blat in the early post-communist period reflected the pre-communist cultural legacies, the communist experience, and the circumstances of the transition to marketization. With the advent of marketization in the early 1990s, it was no longer necessary for individuals to rely on Blat to obtain special access to resources and services for personal consumption. Instead, cash replaced personal connections as the most important form of capital. While connections were still relevant for ordinary citizens, a market place based on monetary exchange provided the basis to access their needs. The importance of Blat moved from individuals to the business community, becoming more focused on the pragmatics of running a business organization (Michailova and Worm 2003, 518). At this stage, business regulation, corporate governance and commercial law were underdeveloped (Liberman and Eidinov 1995, 804). As a
legacy of the Soviet era, contracts were not valued as they could easily be violated and businesses could not be sure they would be protected by the law. As a result, close relationships by way of Blat ensured that business could be conducted with trust.

Marketization and underdeveloped business regulation lead to high degrees of uncertainty and ambiguity within the Russian economy. In this climate, Blat provided a way for businesses to reduce uncertainty, to define intentions in ways that were rationally controlled within Blat networks (Michailova and Worm 2003, 516). Blat networks were used by some businesses to negate market forces, gain special favours to acquire privatized businesses and state contracts, access restricted markets and to set up special arrangements with suppliers (Michailova and Worm 2003, 518). At the extreme the word Blat developed negative connotations and in some instances with criminal undertones (Michailova and Worm 2003). Some commentators have elaborated on these negative connotations claiming that Blat has sometimes been accompanied with bribes or ‘grease payments’ that facilitate the process of reaching the target individual and that this was an impediment in some firms to develop more market-based, Western management styles (Puffer and McCarthy 1995, 39).

**Contemporary era**

In recent years Russia has been subjected to increasing foreign influence. This has heightened competition, exposure to international business practice and encouraged improved regulations related to commercial law and governance (McCarthy and Puffer 2002). While progress is evolutionary, the Russian business environment is moving towards a more Western orientation (Taylor and Osipenkova 2003). In studying recent Russian leadership, Kets de Vries et al (2004) stress that a hybrid ‘global Russian’ style of leadership has evolved that has many of the characteristics of Western international leadership while still being essentially Russian. Importantly, they note that the effectiveness of Russian business leaders depends on their ability to create and maintain networks of all kinds, drawing on the culturally important traditions of networking, that we identify in this paper as being derived from Blat.

It seems clear that while Blat has a strong legacy in Russia it is not as encompassing as it was in earlier periods, particularly among the new generation of market-oriented people conducting business. Thus, while Blat is still important in Russia it is no longer the essential way of doing business for all organizations and, as such, it follows that there is variation in the extent to which contemporary business organizations develop and employ Blat networks. Consequently, in studying Russian business it is plausible to examine how variation in a reliance on social networking is associated with outcomes, such as innovation.
Recently, in the West, social networking has been identified as an important part of business (Nohria and Eccles 1992; Anderson et al. 1994; Gulati et al. 2000). Understanding of contemporary Blat is enhanced when it is considered as a form of social networking (Michailova and Worm 2003). Contemporary Blat has its roots in Russian history and the psyche of its people (Barnes et al. 1997; Michailova and Worm 2003; Puffer and McCarthy 1995). While Blat inspired social networking is an imprecise construct we define its contemporary form based on its observed characteristics as they relate to social networking (see Butler and Purchase 2004). First, Blat inspired social networks relationships serve the individual and are based largely on friendship and collectivism. Second, Blat-based social networks involve mediated exchanges that exist not only within one’s own network but also between the networks of others. Therefore, obligatory relations may extend to people whom one does not know directly, or will never meet. This feature of the social networking considerably expands potential connections and increases their importance to business. Third, an immediate return is not assumed in Blat-based relationship, but parties involved in the network accept a time lag that allows them to be owed a favor for later use and reciprocity is often disguised by the intermediation of a third party. This creates the continuity of social relationships. In overview, contemporary social networking inspired by Blat is characterized by a distinctive, historical grounded orientation to: 1) collectivism, 2) mediated exchanges of favors, and 3) continuity (Butler and Purchase 2004; Michailova and Worm 2003; Ledeneva 1998).

1 Historically, Blat has been an exchange of ‘favors of access’ and was important in conditions of shortages where the favor of access was provided at public expense (Ledeneva 1998; Puffer et al. 1994). Blat served the needs of personal consumption and was characterized by mutual care and friendly support by persons involved (Barnes et al. 1997; Edwards and Lawrence 2000). With the advent of a market economy Blat has lost its pervasiveness at the cultural level but for some firms the legacy of informal contacts and close personal relationships have helped develop social networks (Butler and Purchase 2004).

2 There are similarities in the constructs of organic innovative cultures and Simon’s (1995) interactive control systems. Interactive controls involve the use of formal controls to encourage a more participative approach to decision making, involving face-to-face interaction between managers. Several authors have noted the similarities of these constructs and have drawn on common arguments for the role of both constructs to encourage innovation (Henri 2006b; Widener 2007). However, the variables are different with organic innovative cultures being a broader construct involving less bureaucratic controls with more extensive informal controls related to free flowing communications and decision processes and concern with innovation. In this paper formal controls are squarely focused on the design of MCS, that is, the tools and practices of formal controls.
This approach is contrasted with another response that focuses on the costs of flexibility, which is also a response to external pressures.

Davila et al. (2009) provide an extensive review of the role of formal controls in helping generate innovation from a variety of theoretical perspectives.

St. Petersburg region represents a dynamic and more globally-oriented part of Russia as compared to rural areas of the country. Thus, the results concerning Russia as a whole have to be interpreted with caution.

As it was not practical for the researchers to collect data in Russia using face-to-face methods due to language and logistical impediments we employed a professional data collection agency. Also, it may be argued that having survey data collected by agencies other than the researchers is an advantage as it places the researcher at arm’s length from the focal organizations, thereby enhancing data integrity and credible. Attention was given to ensuring that the data collection was done by a reliable agency. The data collection agency used in the current research was a Finnish-Russian Chamber of Commerce that had a sound reputation supported by its lengthy period of operations and extensive experience in carrying out surveys for public and private sectors.

For a discussion of the distinction between reflective and formative indicators see Bisbe et al. (2007). We note that it is not always clear whether business and MCS variables are reflective or formative, however, we feel that the variables in this study exist at a deeper conceptual level than their manifestations and as such can be treated as reflective.

It was assumed that items derived from Western practices are relevant in Russia as it is these practices that are being imported for use (Taylor and Osipenkova, 2003).

There is a view that at the extreme Blat induced social networking may involve some managers in dishonest and unfair practices, particularly in the Soviet era. To provide some assessment of this we asked respondents to provide a score on several items related to the conduct of business, ranging from 1= not important to 7 = very important. The items were: ‘The firm plays a fair market game’, ‘The firm keeps fair partner relationships with contractors’, ‘The firm’s business is based on honest (decent) relationships’. These questions have significant positive correlations with our measure of social networking at the p<0.01 level, providing some confirmation that our social networking construct tends not to involve unfair and dishonest practices.

PLS is described in detail in a following section.

There is some variation in guidelines for deleting items based on loadings from PLS. For instance, loadings of at least 0.60 ensure high reliability of measures (Chin 1998a). In the current study the PLS structural model was examined after deleting items from constructs with loadings lower than 0.60 and compared to the model using the 0.40 cut off. The same paths in both approaches are significant.

To provide further testing of the measurement model we employed common exploratory factor analysis to variables within the model. The results of this stand-alone factor analysis indicate that all the items included in constructs identified in the PLS model have factor loadings greater than 0.40, and no other items should be excluded due to low loadings, supporting the PLS measurement model.

As PLS does not have assumptions of multivariate normality, the introduction of product terms does not suffer from the complications found in SEM, such as Lisrel, where the use of these terms can result in violating the assumptions of multivariate normality (Cortina et al. 2001).
The industry categories are presented in Table 1.
The reporting of findings at the p<0.10 level is quite common in management accounting research published in top journals. See for example, Ittner and Larcker (1997), Ittner, Larcker and Randall (2003); Ittner, Lambert and Larcker (2003); Burney et al. (2009) and Chapman and Kihn (2009).

It is perhaps pertinent that as social networking has been established for many years in Russia, its application in contemporary settings will likely precede the development of innovative organic controls. However, this is speculation and only case based research or historical studies can empirically shed light on the causal connection between these variables.