Capabilities, strategy, and performance: the case of ICT firms in New Zealand.

NG, P.Y. and HAMILTON, R.T.

2015

Capabilities, Strategy and Performance: The case of ICT Firms in New Zealand

POH YEN NG

Higher Colleges of Technology, Dubai Campus, United Arab of Emirates

ROBERT T HAMILTON

University of Canterbury, New Zealand

Smaller technology-based firms are critical for many economies. This study investigates the determinants of performance in a sample of 110 firms from the information and communication technology (ICT) industry in New Zealand. It is a single industry study, reflecting the industry-specificity of resource-based capabilities. Partial Least Squares methods are used to investigate relationships between capabilities, strategy and performance. A product innovation strategy maximised performance, mediating both innovation and human capital capabilities. Pursuing a market expansion strategy ahead of one of product innovation led to inferior performance outcomes. Financial and organisational capabilities had direct positive effects on performance irrespective of strategy.

KEYWORDS. Capabilities, Strategy, Performance, ICT industry, New Zealand

---

Address correspondence to Poh Yen Ng, Higher Colleges of Technology, Dubai Men's Campus, P.O. Box 15825 Dubai, United Arab of Emirates. Email.pohyen.ng@hct.ac.ae

INTRODUCTION

This paper seeks to explain performance differences among smaller technology-based firms in New Zealand. Does strategy matter or does performance reflect resourced-based capabilities? Which capabilities have the most influence of performance? This understanding is critical, especially for small and remote economies such as New Zealand, striving to improve overall productivity and export earnings. This quantitative study of the performance of 110 technology-based small firms in New Zealand measures their resource-based capabilities; strategic choices; and performance, testing how different strategic priorities mediate the capabilities-performance relationship (Edelman, Brush, & Manolova, 2005; House, 2004). Our purpose is to discover if and how product innovation and market expansion strategies mediate the capabilities-performance relationship. Slywotzky & Wise (2003) suggest that a product innovation strategy raises performance by increasing market size and hence growing both revenues and profit. However, the empirical evidence linking innovation and performance is still mixed (Coad & Rao, 2008). Another group of researchers (Casey & Hamilton, 2014; Coad & Tamvada, 2012; Coviello & Munro, 1997; Reijonen, Laukkanen, Komppula, & Tuominen, 2012) find market expansion (or 'spreading') strategies involving diversification, exporting and other internationalisation efforts to have positive significant performance effects. There is however contrary findings, including a strong case for limiting the number of foreign markets to one (Brouthers, Nakos, Hadjimarcou, & Brouthers, 2009). These strategies of innovation and market expansion are not mutually exclusive. Each can support the other but both require extensive capabilities, something we see as a critical challenge for smaller firms with limited resources. Should such firms prioritise product innovation or market expansion to achieve superior performance, or do capabilities drive performance,

irrespective of strategic choice? Performance is operationalized here as a multi-dimensional construct but there is still no consensus on the dimensions to be used across different research settings (Neely, Adams, & Kennerley, 2002; Chakravarthy, 1986; Headd, 2003). Headd (2003) see success as survival through consistent sales growth, profitability and improved market share.

We find a product innovation-led strategy is best in transforming capabilities into superior overall performance (Amit & Schoemaker, 1993; Barbero, Casillas, & Feldman, 2011; Barney & Clark, 2007; Coad & Rao, 2008; Moreno & Casillas, 2008). A strategic focus on market expansion, not supported by product innovation, has no impact on performance. These small high-technology firms should therefore give strategic priority to product innovation ahead of market expansion. Innovation is the basis for market expansion and superior performance, not *vice versa*. The next section introduces the theoretical framework of the study and reviews the literature on capabilities, strategy and performance. The research setting and methodology follow this explaining the sample; measurement of variables; and the Partial Least Squares estimation technique. Results are reported and discussed before we conclude the paper, pointing out some limitations and suggestions for further research.

BACKGROUND

Theoretical framework

Beal (2000) concludes that smaller firms, lacking the scale for unit cost leadership, can only pursue strategies that seek to differentiate them on the basis of innovation, service, marketing or quality. But on what basis is a smaller firm choose among these strategies and what if it makes the wrong choice? Will its suite of capabilities be sufficient to maintain performance, or does strategy matter?

This study is based on the resource-based view (RBV) of the firm as pioneered by Penrose (1959) but brought to prominence in the more recent works of Rumelt (1984), Wernerfelt (1984) and Barney

(1991). It is also located appropriately in a single industry, acknowledging the industry-specificity of firm resources (Barney & Clark, 2007; Carmeli & Tishler, 2004; Priem & Butler, 2001). The Penrosian model (Penrose 1959) showed how a firm's growing slack resources creates its capability to identify and exploit profitable opportunities for further growth. This model had little to say about the choice of unprofitable opportunities and lacked a detailed discussion on the range and nature of resources. This changed when the resource-based theory was resurrected and formalised in the seminal works of Rumelt (1984), Wernerfelt (1984) and Barney (1991). Resources became defined by their value; rarity; being hard-to-imitate; and non-substitutability (VRIN) and underpin or undermine a firm's competitive advantage and hence its performance relative to competitors. The RBV directs firms to focus on building their resource base and allowing that to determine their future position and performance (Carmeli & Tishler, 2004; Galbreath & Galvin, 2008; Peteraf, 1993). Quite early in this development, Chandler & Hanks (1994) acknowledged their difficulty in distinguishing resources and the capabilities that stem from these, introducing the notion, adopted here, of resource-based capability. We follow Dutta, Narasimhan & Rajiv (2005) in viewing 'capability' as the efficiency with which a firm employs a given set of resources (inputs) at its disposal to achieve certain objectives.

The rise of resource-based thinking challenged the hegemony of the strategic positioning school and the well-known paper by Michael Porter (Porter, 1991) which argues strongly that strategy is the prime mover with resource bundles being consequential to strategy. Returning to the questions raised above by Beal's (2000) conclusions, scholars have studied how different configurations of strategy and resources influences performance (Chandler & Hanks, 1994; Chrisman, Hofer, & Boulton, 1988;De Castro & Chrisman, 1995; Hitt, Biermant, Shimizu, & Kochhar, 2001; Edelman et al., 2005; Wiklund & Shepherd, 2005). Results have been mixed with some firms pursuing strategies that their resources do not support (Chandler & Hanks, 1994) or different strategy prescriptions emerging for cross-sections of firms in similar non-dynamic

industry environments (cf., Edelman et al., 2005 and Wiklund & Shepherd, 2005). Our study uses the resourced-based view to investigate how different configurations of capabilities and strategy influence performance in a single industry setting (Carmeli & Tishler, 2004).

Resource-based capabilities

Previous research has linked five capabilities with firm performance: innovation, human, financial, marketing and organisational. While innovation capability has been found to be the main influence on performance (Gracia-Manjon & Romero-Merino, 2012; Lee, Lee, & Pennings, 2001; Mone, McKinley, & Barker, 1998), Coad & Rao (2008) have pointed out that the theoretical case has often lacked empirical support. Without innovation capability, firms would fail to offer state-of-the-art technology products and rapidly lose market position. Other researchers (Romijn & Albaladejo, 2002; Afcha, 2012; Holzl, 2009; Guan & Ma, 2003) show the significance of research and development activities in promoting innovation capability. Wang & Chang (2005) and Hsu & Wang (2012) also confirm the link between intellectual capital and performance in Taiwan's high-tech industry. Intellectual property (Pisano 2006) and learning by doing through product development (Cavusgil, Calantone, & Zhao, 2003; McCann, 1991) also contributed to a firm's capability for innovation.

Keogh & Evans (1999) identify three other major barriers faced by technology-based SMEs - lack of human capital; restricted access to finance; and adverse market conditions. Technology-based firms must build specific capabilities to overcome these barriers. Chien & Chen (2008) suggest that a specialised human capital capability is vital if high-technology firms are to maintain competitive advantages in knowledge-driven industries. Specifically, the main influence on the growth of technology-based firms is the founder's human capital (Colombo & Grilli, 2005;

McPherson, 1996 and Fesser & Willard, 1990). While capabilities embed in the firm's knowledge base (Deeds, DeCarolis, & Coombs, 2000), technology-based firms cannot depend solely on internal knowledge development. Absorptive capacity to gain relevant knowledge from external sources is also critical. The empirical analysis in Deeds, DeCarolis & Coombs (2000) of 94 pharmaceutical biotechnology-based firms in United States, affirms that their human capital capability, viz., the quality of the scientific team and having a CEO with experience in managing product development, each had a significant impact on new product development outcomes.

Financial capability is also important for technology-based firms. Based on research conducted with a group of Korean technological start-up firms, Lee et al. (2001) highlighted the importance of financial resources in affecting the start-up's performance supporting the findings of McMahon & Davies (1994) and Mendelson (2000). Technology-based firms require a large investment in product development and market expansion to compete in their fast changing markets. In addition, Markman & Gartner (2002) find that sales growth and profitability are non-correlated, so technology-based firms will face challenges in funding their development given the owners' strong preference to maintain control and financial independence (Omar & Rejab, 2011).

Technology-based firms need to be marketing capable if they are to fully exploit any innovation through the rapid expansion of their marketing scope, both domestically and internationally (Coviello & Munro, 1997; Burgel & Murray, 2000). Gruber, Heinemann, Brettel & Hungeling (2010) used the data obtained from 230 technology ventures to show that sales and distribution capabilities affected the sales and distribution performance of a firm, and hence overall performance. In other related studies on high-growth firms, marketing capability, including the search of new growth opportunities and product improvement, were found to be important

(Wiklund & Shepherd, 2005; Baum, Locke, & Smith. 2001; Chandler & Hanks, 1994; McCalister, 2012).

On the other hand, Grant (1996) proposed that operating in unstable market conditions caused a firm to be more innovative, and increasing intensity and diversity of competition have led to greater dependence on organizational capabilities in establishing long-term strategies. As defined by Knight & Cavusgil (2004), organisational capability reflects the ability of a firm to perform repeatedly productive tasks that create value by transforming inputs into outputs. The limited research on the importance of organisational capability in the technology industry suggests that this aspect provides structure, culture and strategic planning that supports business performance (Miller & Cardinal, 1994; Gordon & DiTomaso, 1992; Lewis & Churchill, 1983). In addition, Man, Lau, & Chan (2002) have developed a model of SME competitiveness where they hypothesise that organisational capability has a direct influence on the firm's performance but do not offer any empirical support for this.

Strategies and Performance

The literature suggests that smaller firms striving to grow and outperform others in a dynamic setting such as the ICT industry need to adopt generic strategies that are innovation-led and/or market expansion-led. An innovation strategy is seen as one way to enlarge the market size and grow a firm's revenues as well as profit (House, 2004; Slywotzky & Wise, 2003). In technology-based industries there is also the expected emphasis on innovation and product diversification (Stern & Henderson, 2004; Barczak, 1995). Roper (1997) examines the relationship between product innovation strategy and growth in small firms in Germany, Ireland and the United Kingdom finding that in all three countries the output of innovative small firms grew significantly

more than that of non-innovators. This is supported by Mason, Bishop, & Robinson (2009) in a comparable UK study and in the Chinese findings of Zhang, Yang, & Ma (2008). Furthermore, Bradley, Jeffrey, Artz, & Simiyu (2012) note that differentiation-related innovations led to higher performance. From the product perspective, high-growing firms tend to focus on high-end, innovative product (Upton, Teal, & Felan, 2001; Freel & Robson, 2004; Mason, Robinson, & Bondibene, 2012), a strategy that is more obvious in the medium-high technology industry (Smallbone, Leigh, & North, 1995).

Other researchers (Andersson, 2003; Coad & Tamvada, 2012; Coviello & Munro, 1997; Reijonen et al., 2012) have found that a strategy based on market expansion, especially exporting and other internationalisation efforts, positively affects firm growth. As mentioned earlier, Gundry & Welsch (2001) confirmed that high-growth-oriented entrepreneurs were significantly more likely to pursue market expansion and technological change and search for financing, and to emphasise team-based structures, operations planning and organisational development. In addition, the study conducted by Smallbone et al. (1995) found that almost all of the high-growth firms examined had identified and responded to new market opportunities. In the case of New Zealand, the small size of the domestic economy suggests that rapid market expansion may be especially critical to capitalise on innovation (Casey and Hamilton, 2014; Shaw & Darroch, 2004).

Product innovation strategy and market expansion strategy are important determinants for technology-based firms' performance. We summarise our conceptual model in Figure 1 and elaborate this in his leads us to the following hypotheses which elaborate the schema set out in Figure 1:

INSERT FIGURE 1

This hypothesis splits into five sub-hypotheses:

H1a: Innovation capability is positively associated with the product innovation strategy in technology-based firms.

H1b: Human capability is positively associated with the product innovation strategy in technology-based firms.

H1c: Financial capability is positively associated with the product innovation strategy in technology-based firms.

H1d: Marketing capability is positively associated with the product innovation strategy in technology-based firms.

H1e: Organisational capability is positively associated with the product innovation strategy in technology-based firms.

Hypothesis 2: Firm-level capabilities are positively associated with a market expansion strategy

Again, this hypothesis has five sub-hypotheses:

H2a: Innovation capability is positively associated with the market expansion strategy in technology-based firms.

H2b: Human capability is positively associated with the market expansion strategy in technology-based firms.

H2c: Financial capability is positively associated with the market expansion strategy in technology-based firms.

H2d: Marketing capability is positively associated with the market expansion strategy in technology-based firms.

H2e: Organisational capability is positively associated with the market expansion strategy in technology-based firms.

Hypothesis 3: Product innovation strategy is positively related to the performance of technology-based firms

Hypothesis 4: Market expansion strategy is positively related to the performance of technology-based firms

Hypothesis 5: All capability effects on performance are fully mediated by strategies

METHODOLOGY

Research setting

This is a single-industry set in the Information and Communications Technology (ICT) industry in New Zealand. This "fast-growing, high achieving" sector contributes 5.1% of the country's GDP (MBIE, 2013), with strong contributions to exports and employment growth. For the country to prosper, firms in this sector must continue to perform well. New Zealand firms do face strong challenges in acquiring rare and valuable resources (Barney, 1991), as well as reaching potential markets. Transforming resources into a competitive advantage depends on the ability of the firm to generate capabilities, viz., "information-based processes that are firm-specific and developed over time through complex interactions among the firm's resources" (Amit & Schoemaker, 1993, p. 35). The country has exhibited above-average rates of entrepreneurship (Frederick & Carswell, 2001) and its high-technology firms have achieved better new product development performances compared to their United States counterparts when pursuing customer-oriented innovation strategies (Souder, Buisson & Garrett, 1997).

Sample

Prior to collecting data from a statistically-valid sample of ICT firms, eight exploratory interviews were conducted with CEOs in New Zealand. These affirmed the framework adopted here and were useful in wording the self-administered questionnaire (see Appendix A) that was sent to ICT firms in New Zealand. The target respondents were the Chief Executive Officer/Managing Directors or main decision makers in these technology-based firms. An invitation to participate in the survey and a copy of the questionnaire were sent to the selected firms by mail during January and February 2012. The *New Zealand Business Who's Who 2011-2012* and its online version were used to find the relevant information in New Zealand. All the firms listed under the category of Information Technology and Telecommunications, 850 firms in all, were pulled out from the database. By only selecting firms from the same industry sector, we hope to limit any differences in external conditions within the sample.

There were 752 mail questionnaires sent out in New Zealand. However, 148 of these questionnaires were returned as wrongly addressed or indicating the business no longer existed, so the final population for this survey was 604 New Zealand firms. Due to the low response rate from the initial postal questionnaire, the same questionnaire was developed electronically using the online survey tool provided by Qualtrics Inc. Boyer, Olson, Calantone & Jackson (2002) found that electronic surveys were generally comparable to print surveys in most respects. A follow-up email was sent to the firm's or contact's email address during the months of May and June 2012. This email explained the previous invitation and mail questionnaire and invited the contacts to fill in the electronic version of the questionnaire if they had not already returned the mailed version.

Measures

The self-administered questionnaire was based on the exploratory interviews and previous similar studies. There were three sections: capabilities; strategies and performance. Questions were measured on a seven-point Likert scale ranging from *Not Important At All* to *Extremely Important*. Items used to capture innovation capability (Icap) were derived from the exploratory interviews. Other capabilities used wording adopted from Barbero et al. (2011). The measures on both strategies were derived from Tan (2007), supported by the exploratory interviews. Three performance measures were used in the questionnaire: sales growth, return on asset (before interest and tax) and return on equity (after tax). Sales growth was the most frequently mentioned performance metric mentioned in the initial interviews, followed by profitability. Participants were asked to evaluate their business performance over the last three years, on the scale of 1 to 7, in comparison with their competitors. Self-reported subjective measures of performance are often used in organisational performance research (Galbreath & Galvin, 2008; Dess, 1987). Previous studies (Chandler & Hanks, 1993; Dess & Robinson, 1984) reveal that owner/CEO/top managers' assessments of business performances such as sales growth, profit and earnings were highly correlated with objective measures.

Procedures

Four stages were involved in the data analysis using SPSS 20.0 and PLS-graph 3.0. Firstly, data were screened for missing value and incomplete information. Secondly, data involving multi-item variables were run through Exploratory Factor Analysis (EFA) to eliminate survey items with loadings <0.4 on factors (Hair, Black, Babin, Anderson & Tatham, 2006). After confirming the valid items for each variable, internal reliability for each of them was calculated. The descriptive statistics for each item and variable were tabulated to check against any violations of statistical

assumptions (e.g., multicollinearity, outliers, normality). Finally, PLS-path modelling (Partial Least Square) was used to provide a holistic view on the effects of capabilities on the performance of firms through growth strategies. PLS-path modelling has been employed in similar research areas (Moreno & Casillas, 2008; Lechner & Gudnundsson, 2014). PLS is defined by two sets of linear equations: the measurement model and the structural model. The measurement model specifies the relationships between a latent construct and its indicators while the structural model explains the relationships between latent constructs, (Henseler, Ringle & Sinkovics, 2009). As multiple regression analysis only evaluated each component model separately and could not examine the path effects, path analysis is used to check the dependence relationship and relative importance between variables.

There are several reasons to use PLS in this study. The quantitative study uses both reflective and formative constructs to build the theoretical model which can be used in variance-based PLS but not covariance-based Structural Equation Modeling (SEM). Furthermore, PLS does not require the assumptions of multivariate normal distribution. This study uses convenience sampling from groups of technology-based firms in New Zealand, thus the data might not be normal. According to Chin et al. (2003), the sample requirement for PLS is much lower compared to covariance-based SEM in LISREL software. Their study shows that PLS can be performed successfully with a sample size as low as 30 as well as a more complex model with 21 constructs, 672 indicators and 210 cases. The minimum sample requirement in PLS would be ten times i) the greatest number of formative indicators in a construct, or ii) the greatest number of structural paths going into a construct, whichever is higher. Referring to the proposed research model, the minimum sample required would be 50. Considering that the sample size in this study is 110, it is

possible to capture the largest number of structural paths in the model. The PLS software used in this study is PLS-Graph version 3.00 Build 1130.

FINDINGS

Measurement model and structural model

The survey provided 110 usable responses from generally smaller companies with a mean employment size of 39. Based on the number of invitation letters (excluding those with wrong address or invalid firm data) sent out to the Chief Executive Officers of technology-based firms, the final response rate is 18.2%. According to Snow & Thomas (1994), strategic management surveys produce relatively low response rates especially when top managers are surveyed. However, the response rate was slightly higher than that of a similar study conducted in Australia (Galbreath & Galvin, 2008) using similar informants in a different industry. As we used two survey methods, postal and on-line, responses received from the on-line survey were treated as late responses and t-test comparisons run on differences between the two groups of responses. None of the variables showed significant differences between means, confirming that the different collection methods and non-response bias should not be major issues.

Common method biases arise from having a common rater, a common measurement context, a common item context or from the characteristics of the items themselves (Podsakoff, MacKenzie, Podsakoff, & Lee, 2003). As this study used a self-administered survey, it is important to assess the presence of common method variance. In this case, Harman's one-factor test was used where all variables in the questionnaire were entered into a factor analysis. The un-rotated factor analysis revealed 20 factors with eigenvalues greater than one and no single factor was

dominant. According to the assumption of the one factor test, if a substantial amount of common method variance exits in the data, either a single factor will emerge or one 'general' factor will account for the majority of the covariants among the variables (Podsakoof & Organ, 1986). The results showed that common method variance was not a potential problem in the data.

Principal Component Analysis was used to uncover the structure of each factor and to determine internal reliability. It is a good general approach that simplifies the interpretation of factors and it is strongly encouraged for a first analysis (Field, 2009). A minimum loading criteria of 0.4 was adopted and any indicator with more than 0.5 for two or more factors was deemed a cross-loading indicator. Subsequent to principal component analysis, all the variables used in this study were tested for internal consistency by checking their Cronbach's alpha value. The Cronbach's alpha value for each variable (based on the indicators identified in factor reduction) is presented in Table 1. For the items remaining after exploratory factor analysis, the mean, median and standard deviation scores are presented alongside with kurtosis and skewness. Descriptive statistics are used to explain the data distribution, especially in detecting non-normality. According to Garson (2012), kurtosis and skewness should be within the +2 and -2 range when the data are distributed normally.

INSERT TABLE 1

The hypothesised model for the study used two types of indicators/constructs to measure different types of variables First of all, it is important to check whether the variables and the constructs used are accurate and reliable in the measurement model. As there were two types of constructs, formative and reflective, used in this study, several sets of procedures based on the type of construct were conducted. After the validity and reliability of the measurement model are confirmed, analyses of the structural model are conducted and explained. There was only one

formative construct used in this study: performance. It is assumed that return on asset (ROA), return on equity (ROE) and sales growth built up the performance construct for technology-based firms. Firms frequently use these three measures to evaluate performance. As formative constructs are multidimensional, it is meaningless to conduct reliability checks. Thus, content validity is discussed on the formative construct in this study. Following procedure recommended by Chin (1998), bootstrapping with 500 resamples was used to generate standard errors and t-statistics. Based on Table 2, all the three items have very high t-statistics value and they are all significant.

INSERT TABLE 2

Secondly, the reliability of reflective constructs is examined by checking on the items loading, composite reliability and average variance extracted (AVE). Item loadings would verify that the item is a reliable and its variance can be explained by the latent construct of at least 50%. Thus the correlation between the construct and each of its indicators should be at least 0.7. According to Henseler et al. (2009), if a reflective indicator has lower than 0.4 loading it should be eliminated. The results presented in Table 3 show no item with such a low loading. The composite reliability for all constructs exceeded 0.7, well above the minimum threshold of 0.6. Chin (2010) suggests the ideal AVE should be greater than 0.5, meaning that variance of the indicators of 50% or more should be accounted for. The constructs used have fulfilled this requirement. Thus the construct reliability of the reflective constructs is verified in this study.

INSERT TABLE 3

Next, the structural model was assessed to establish the significance of all path estimates. The path analysis for the structural model is presented in Figure 2. The number on each arrow indicates the path coefficients, while the number on the construct circle represents the R^2 value. Path significance was generated by bootstrap from the PLS-graph. The bootstrap approach is

useful for calculating the precision of the PLS estimates (Chin 2010). N (in this case N=500) sample sets were created to obtain 500 estimates for each parameter in the model. The sample was derived by re-sampling from the original data set. Path significance was calculated by calculating the 500 estimates for each parameter.

INSERT FIGURE 2

Hypothesis testing

Based on the results from Figure 2, the overall model is significant with explanatory power of 18.5% (R^2=0.185). The capabilities dimension significantly explained 41.3% of variation in product innovation strategy (R^2=.413) and 24.8% of market expansion. But only innovation capability and human capability have positive and significant relationships with innovation strategy and market expansion strategy. Marketing, financial and organisational capabilities had no significant influence on either strategy. Thus only H1a and H1b are fully supported, as are H2a and H2b. Clearly, innovation and human capabilities are more prevalent in helping technology-based firms to implement these strategies. But, which configuration of capabilities and strategies is best for performance?

For the strategies-performance hypotheses testing, only product innovation strategy had significant relationship with performance (β=0.371; p<0.01). No significant relationship was found between market expansion strategy and performance of technology-based firms in New Zealand (β=0.110, ns). Thus, H3 is supported and H4 is rejected. Further examination of the mediation effect in the structural model was undertaken. Mediation is a third variable effect that captures the path relationship between two variables, explaining how or why they are related (Fairchild, MacKinnon, Taborga & Taylor 2009). From the baseline model in Figure 2, a significant path was found between market expansion strategy and performance when the path

Product Innovation Strategy → Performance was omitted (Figure 3). There was also a significant path between market expansion strategy and product innovation strategy (β=0.237, p<0.01). The model's R^2 reduces to 0.082 without the product innovation strategy effect. However, when product innovation strategy was included in the path analysis (in Figure 2), the effect between market expansion strategy and performance became insignificant, while increasing the R^2 to 0.185 and the path coefficients drop from β=0.286 to β=0.110. This means that product innovation strategy has fully mediated the impact of market expansion strategy on performance. This might imply that the impact of market expansion strategy on performance would be strongly influenced by product innovation strategy. This observation is important in helping technology-based firms decide whether or not to pursue product innovation strategy or market expansion strategy while facing constraints in resources.

INSERT FIGURE 3

Table 4 summarises the path coefficients from the baseline model, control model as well as indirect effects. Three control measures: education, firm age and size are estimated against performance. However, none of them exhibit any significant relationship. Similarly, data were also explored in more depth by examining the direct effects of all firm's level capabilities on performance. The effect of organisational capability (β=0.264, p<0.01) and financial capability (β=0.196, p<0.05) are significant and positive on performance while the performance effects of innovation capability, human capability and marketing capability are non-significant. By comparing with the baseline model in Figure 2, these results confirm the full mediating effects of strategies on innovation and human capabilities: these only contribute to superior performance when configured with the appropriate strategy. Organisational and financial capabilities are directly linked to superior performance and not mediated by strategy, hence H5 is rejected.

INSERT TABLE 4

DISCUSSION AND CONCLUSION

The study supports the argument proposed by Edelman et al. (2005) in finding that neither resources nor strategies on their own can explain performance. We confirm the importance of innovation capability and human capability, providing empirical support to previous studies that also emphasised innovation capability (Ravichandran & Lertwongsatien, 2005; Lee et al. 2001; Ortega, 2010; Gracia-Manjon & Romero-Merino, 2012) and human capability (Barringer, Jones, & Lewis, 1998; Florin, Lubatkin, & Schulze, 2003 and Hsu & Wang, 2012). If a technology firm wishes to pursue a product innovation strategy, it needs then to emphasise the development of innovation and human capabilities.

Only the product innovation strategy has a positive influence on performance. This result supports the previous studies of Roper (1997); Covin, Slevin, & Heeley (2000); Coad & Rao (2008) and Coad & Holzl (2012). However the result contradicts the findings of Chandler & Hanks (1994) and Edelman et al. (2005) who were unable to link innovation strategy and performance, but we acknowledge that different settings and samples are involved here. The market expansion strategy had no significant relationship with performance in New Zealand, which conflicts with some previous findings (Agrawal, Pandit, & Menon, 2012; Carman & Langeard, 1980 and Reijonen et al. 2012). However, it is important to note that market expansion strategy is mediated fully in our study by the product innovation strategy. In the absence of product innovation, market expansion strategy would have significant positive impact on the organisation's performance (Figure 3). The results suggest that a market expansion strategy is strongly influenced by product innovation strategy. This interaction between product innovation and market expansion has been

widely debated and appears to be a chicken-and-egg situation. Guan & Ma (2003) and Ito & Pucik (1993) reason that research and innovation activities lead on to improved export performance in China and Japan respectively. However, Kafouros, Buckley, Sharp & Wang (2008); Hitt, Hoskisson, & Kim (1997) and Kobrin (1991) have a different perspective. They argue that market expansion and internationalisation generates both the resources and the opportunities for innovation. The mediation analysis from this study supports the proposition of Guan & Ma (2003) and Ito & Pucik (1993) that innovation leads market expansion.

This study has sought to understand has focused on the differences in performance among firms in the ICT sector in New Zealand. Those high-technology firms that have developed and applied their capabilities to a strategy of product innovation outperform competitors in terms of profitability and sales growth. The lesser performing firms pursue market expansion for its own sake and do not support this with an innovation focus. So strategy matters for these firms - strategic choice mediates how their capabilities convert into overall performance. One clear limitation of this study is that it has focused on just one high-technology sector in one country. There is scope to both replicate and extend this study to other sectors and places. It is important to note that the technology industry is often seen as highly influenced by the environment in which it operates, and therefore different strategies may apply in different industry and country settings. Larger samples would allow researchers to include additional strategic options and to incorporate more controls for external factors, especially in multi-sector studies. More broadly, there remains considerable scope for research into how other types of small firms seek to compete, especially in those more mundane fragmented industries where the competitors are other small firms and where there may be no strategic advantage to be gained from innovation.

ACKNOWLEDGEMENT

The authors wish to thank College of Business and Economics, University of Canterbury for funding the research reported in this paper.

REFERENCES

Afcha, S. (2012). Analyzing the interaction between R&D subsidies and firm's innovation strategy. *Journal of Technology Management & Innovation*, 7(3), 57-70.

Amit, R., & Schoemaker, P. J. (1993). Strategic assets and organizational rent. *Strategic Management Journal*, *14(1),* 33-46.

Andersson, S. (2003). High-growth firms in the Swedish ERP industry. *Journal of Small Business and Enterprise Development, 10 (2),* 180-193.

Agrawal, N. M., Pandit, R., & Menon, D. (2012). Strategy to usher in the next phase of growth in the Indian IT industry. *IIMB Management Review*, *24*(3), 164-179.

Barbero, J. L., Casillas, J. C. & Feldman, H. D. (2011). Managerial capabilities and paths to growth as determinants of high-growth small and medium-sized enterprises. *International Small Business Journal*, *29 (6),* 671-694.

Barczak, G. (1995). New product strategy, structure, process, and performance in the telecommunications industry. *Journal of Product Innovation Management*, *12(3),* 224-234.

Barringer, B. R., Jones, F. F. & Lewis, P. S. (1998). A qualitative study of management practices of rapid-growth firms and how rapid-growth firms mitigate the managerial capacity problem. *Journal of developmental Entrepreneurship*. *3 (2),* 97-122.

Barney, J. B. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, *17 (1)*, 99-120.

Barney, J. B., & Clark, D. N. (2007). *Resource-Based Theory: Creating And Sustaining Competitive Advantage*. Oxford: Oxford University Press.

Baum. J. R., Locke, E. & Smith, K. (2001). A multidimensional model of venture growth. *Academy of Management Journal, 44 (2),* 292-303.

Beal, R. M. (2000). Competing effectively: environmental scanning, competitive strategy and organizational performance in small manufacturing firms. *Journal of Small Business Management*, 38(1), 27-47.

Boyer, K., Olson, J., Calantone, R. & Jackson, E. (2002). Print versus electronic surveys: a comparison of two data collection methodologies. *Journal of Operations Management, 20(4),* 357-373.

Bradley, S., Jeffrey, S., Artz, K. & Simiyu, E. (2012). Capital is not enough: Innovation in developing economics. *Journal of Management Studies, 49 (4),* 685-717.

Brouthers, L. E., Nakos, G., Hadjimarcou, J. & Brouthers, K. D. (2009). Key factors for successful export performance for small firms. *Journal of International Marketing*, 17(3), 21-38.

Burgel, O., & Murray, G. C. (2000). The international market entry choices of start-up companies in high-technology industries. *Journal of International Marketing*, 33-62.

Carman, J. M. & Langeard, E. (1980). Growth Strategies for Service Firms. *Strategic Management Journal*, 1 (1), 7-22.

Carmeli, A. & Tishler, A. (2004). Resources, capabilities and the performance of industrial firms: A multivariate analysis. *Managerial and Decision Economics, 25,* 299-315.

Casey, S. R., & Hamilton, R. T. (2014). Export performance of small firms from small countries: The case of New Zealand. *Journal of International Entrepreneurship*, 12(3), 254-269.

Cavusgil, T. S, Calantone, R. J., & Zhao, Y. (2003). Tacit knowledge transfer and firm innovation capability. *Journal of business & industrial marketing*, *18*(1), 6-21.

Chakravarthy, B. S. (1986). Measuring strategic performance. *Strategic Management Journal*, *7(5),* 437-458.

Chandler, G. & Hanks, S. (1993). Measuring the performance of emerging businesses: a validation study. *Journal of Business Venturing, 8,* 391-408.

Chandler, G. & Hanks, S. (1994). Market attractiveness, resources-based capabilities, venture strategies and venture performance. *Journal of Business Venturing, 9*, 331-349.

Chien, C. F., & Chen, L. F. (2008). Data mining to improve personnel selection and enhance human capital: A case study in high-technology industry. *Expert Systems with Applications, 34(1),* 280-290.

Chin, W. W., Marcolin, B. L & Newsted, P. R. (2003). A Partial Least Squares Latent Variable Modeling Approach for Measuring Interaction Effects: Results from a Monte Carlo Simulation Study and an Electronic-Mail Emotion / Adoption Study, *Information Systems Research, (14)2*, pp. 189-217.

Chin, W. W. (1998). Commentary: issues and opinion on structural equation modelling. *MIS Quarterly,* 22 (1), vii-xvi.

Chin, W. W. (2010). How to write up and report PLS analysis. In Vinzi, E. E, Chin, W.W., Henseler, J. and Wang, H. (Eds), *Handbook of Partial Least Squares: Concepts, Methods and Applications.* (pp. 655-690). Springer Handbooks of Computational Statistics, Springer-Verlag Berlin Heidelberg. DOI 10.1007/978-3-540-32827-8 29

Chrisman, J. J., Hofer, C. W., & Boulton, W. B. (1988). Toward a system for classifying business strategies. *Academy of Management Review*, *13*(3), 413-428.

Coad, A. & Holzl, W. (2012). Firm growth: empirical analysis. In Dietrich, M. & Krafft, J. (Eds), *Handbook On The Economics And Theory Of The Firm.* (pp. 324-338). Edward Elgar Publishing Ltd: Cheltenham.

Coad, A., & Tamvada, J.P. (2012). Firm growth and barriers to growth among small firms in India. *Small Business Economics, 39 (2),* 383-400.

Coad, A. & Rao, R. (2008). Innovation and firm growth in high-tech sectors: A quantile regression approach. *Research Policy,* 37, 633-648.

Colombo, M. G., & Grilli, L. (2005). Founders' human capital and the growth of new technology-based firms: A competence-based view. *Research policy*, 34(6), 795-816.

Coviello, N., & Munro, H. (1997). Network relationships and the internationalisation process of small software firms. *International Business Review, 6 (4),* 361-386.

Covin, J. G., Slevin, D. P. & Heeley, M. B. (2000). Pioneers and followers: Competitive tactics, environment and firm growth. *Journal of Business Venturing,* 15, 175-210.

De Castro, J. O., & Chrisman, J. J. (1995). Order of market entry, competitive strategy, and financial performance. *Journal of Business Research*, *33*(2), 165-177.

Deeds, D., DeCarolis, D. & Coombs, J. (2000). Dynamic capabilities and new product development in high technology ventures: An empirical analysis of new biotechnology firms. *Journal of Business Venturing, 15*, 211-229.

Dess, G. G. (1987). Consensus on strategy formulation and organisational performance: Competitors in a fragmented industry. *Strategic Management Journal, 8 (3),* 259-277.

Dess, G. G. & Robinson, R. B. (1984). Measuring organisational performance in the absence of objective measures: The case of the privately-held firm and conglomerate business. *Strategic Management Journal, 5 (3),* 265-273.

Dutta, S., Narasimhan, O. & Rajiv, S. (2005). Research notes and commentaries. Conceptualising and measuring capabilities: Methodology and empirical application. *Strategic Management Journal, 26*, 277-285.

Edelman, L. F., Brush, C. G. & Manolova, T. (2005). Co-alignment in the resource-performance relationship: strategy as mediator. *Journal of Business Venturing, 20*, 359-383.

Fairchild, A. J., MacKinnon, D. P., Taborga, M. P. & Taylor, A. B. (2009). R^2 effect-size measures for mediation analysis. *Behaviour Research Methods, 41(2),* 486-498

Fesser, H. R. & Willard, G. E. (1990). Founding strategy and performance: A comparison of high and low growth high tech firms. *Strategic Management Journal, 11*, 97-98.

Field, A. (2009). *Discovering Statistics Using SPSS.* (3rd edition). London: Sage.

Florin, J., Lubatkin, M. & Schulze, W. (2003). A social capital model of high-growth ventures. *The Academy of Management Journal, 46 (3),* 374-384.

Frederick, H. H and P. J. Carswell. 2001. *Global Entrepreneurship Monitor New Zealand 2001.* Auckland: New Zealand Centre for Innovation and Entrepreneurship.

Freel, M. S. & Robson, P. L. (2004). Small firm innovation, growth and performance: Evidence from Scotland and Northern England. *International Small Business Journal, 22 (6),* 561-575.

Galbreath, J. & Galvin, P. (2008). Firm factors, industry structure and performance variation: New empirical evidence to a classic debate. *Journal of Business Research, 61*, 109-117.

García-Manjón, J. V., & Romero-Merino, M. E. (2012). Research, development, and firm growth. Empirical evidence from European top R&D spending firms. *Research Policy, 41(6),* 1084-1092.

Garson, G. D. (2012). *Testing Statistical Assumptions*. Asheboro, North Carolina: Statistical Associates Publishing.

Grant, R. M. (1996). Prospering in dynamically-competitive environments: Organizational capability as knowledge integration. *Organisation Science, 7(4),* 375-387.

Gordon, G. G., & DiTomaso, N. (1992). Predicting corporate performance from organizational culture. *Journal of Management Studies*, *29(6),* 783-798.

Gruber, M., Heinemann, F., Brettel, M. & Hungeling, S. (2010). Configurations of resources and capabilities and their performance implications: An exploratory study on technology ventures. *Strategic Management Journal, 31*, 1337-1356.

Guan, J. & Ma, N. (2003). Innovative capability and export performance of Chinese firms. *Technovation,* 23, 73.7-747.

Gundry, L. & Welsch, H. (2001). The ambitious entrepreneur: high growth strategies of women-owned enterprises. *Journal of Business Venturing, 16,* 453-470.

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). *Multivariate data analysis* (6th ed.). Upper Saddle River: Pearson Prentice Hall.

Headd, B. (2003). Redefining business success: distinguishing between closure and failure. *Small Business Economics*, *21(1),* 51-61.

Henseler, J., Ringle, C.M. & Sinkovics, R. R. (2009). The use of partial least squares path modelling in international marketing. *Advances in International Marketing, 20*, 277-319.

Hitt, M. A., Biermant, L., Shimizu, K., & Kochhar, R. (2001). Direct and moderating effects of human capital on strategy and performance in professional service firms: A resource-based perspective. *Academy of Management journal*, *44*(1), 13-28.

Hitt, M., Hoskisson, R., Kim, H. (1997). International diversification: effects on innovation and firm performance in product-diversified firms. *Academy of Management Journal,* 40 (4), 767-798.

House, D. (2004). People, power and profits: linking strategy to business growth. *Handbook of Business Strategy,* 257-261.

Holzl, W. (2009). Is the R & D behaviour of fast-growing SMEs different? *Small Business Economics, 33 (1),* 59-75.

Hsu, L. C. & Wang, C. H. (2012). Clarifying the effect of intellectual capital on performance: The mediating role of dynamic capability. *British Journal of Management, 23*, 179-205.

Ito, K. & Pucik, V. (1993). R&D spending, domestic competition, and export performance of Japanese manufacturing firms. *Strategic Management Journal, 14 (1),* 61-75.

Kafouros, M. I., Buckley, P. J., Sharp, J. A. & Wang, C. (2008). The role of internationalisation in explaining innovation performance. *Technovation, 28*, 63-74.

Keogh, W. & Evans, G. (1999). Strategies for growth and the barriers faced by new technology-based SMEs. *Journal of Small Business and Enterprise Development*, 5 (4), 337-350.

Knight, G. A. & Cavusgil, S. T. (2004). Innovation, organisational capabilities and the born global firm. *Journal of International Business Studies, 35 (2),* 124-141.

Kobrin, S. (1991). An empirical analysis of the determinants of global integration. *Strategic Management Journal,* 12, 17-31.

Lechner, C., & Gudmundsson, S. V. (2014). Entrepreneurial orientation, firm strategy and small firm performance. *International Small Business Journal. 32 (1),* 36-60.

Lee, C., Lee. K. & Pennings, J. M. (2001). Internal capabilities, external networks, and performance: A study on technology-based ventures. *Strategic Management Journal, 22*, 615-640.

Lewis, V. L., & Churchill, N. (1983). The five stages of small business growth. *Harvard Business Review, 61(3),* 30-50.

Man, T.W. Y, Lau, T. & Chan, K. F. (2002). The competitiveness of small and medium enterprises: a conceptualization with focus on entrepreneurial competencies. *Journal of Business Venturing, 17*, 123-142.

Mason, G., Bishop, K., & Robinson, C. (2009). *Business Growth and Innovation. The wider impact of rapidly-growing firms in UK city-regions*. London, United Kingdom: NESTA.

Mason, G., Robinson, C., & Bondibene, C. R. (2012). *Fast-growing firms, product strategies and skills development*. London, United Kingdom: NESTA.

Markman, G. & Gartner, W. (2002). Is extraordinary growth profitable? A study of Inc. 500 high growth companies. *Entrepreneurship Theory and Practice,* Fall, 65-75.

McCalister, A. (2012). The top factors that affect the commercial success of high-growth companies. *Business Intelligence Journal, 5 (1),* 102-112.

McCann, J. (1991). Patterns of growth, competitive technology, and financial strategies in young ventures. *Journal of Business Venturing, 6*, 189-208.

McMahon, R. G., & Davies, L. G. (1994). Financial reporting and analysis practices in small enterprises: their association with growth rate and financial performance. *Journal of Small Business Management*, *32*, 9-9.

McPherson, M. A. (1996). Growth of micro and small enterprises in Southern Africa. *Journal of Development Economics, 48* (2), 253-277.

Mendelson, H. (2000). Organizational architecture and success in the information technology industry. *Management science, 46(4),* 513-529.

Miller, C. C., & Cardinal, L. B. (1994). Strategic planning and firm performance: a synthesis of more than two decades of research. *Academy of Management Journal, 37(6),* 1649-1665.

Ministry of Business, Innovation and Employment (2013). *The New Zealand Sector Report 2013:Information and Communications Technology.* Wellington: New Zealand.

Mone, M. A., McKinley, W., & Barker III, V. L. (1998). Organizational decline and innovation: A contingency framework. *Academy of Management Review*, *23(1),* 115-132.

Moreno, A. M. & Casillas, J. C. (2008). Entrepreneurial orientation and growth of SMEs: A causal model. *Entrepreneurship Theory and Practice, May,* 507-528.

Neely, A. D., Adams, C., & Kennerley, M. (2002). *The Performance Prism: The Scorecard For Measuring And Managing Business Success*. London: Financial Times Prentice Hall.

Omar, R. & Rejab, I. (2011). Entrepreneurship orientation of small and medium enterprises (SMES) in Malaysia information communication technology (ICT) sector. *African Journal of Business Management, 5(31);* 12329-12340.

Ortega, M. (2010). Competitive strategies and firm performance: Technological capabilities' moderating roles. *Journal of Business Research,* 63, 1273-1281.

Penrose, E. T. (1959) *The Theory Of The Growth Of The Firm.* New York: Wiley.

Peteraf, M. A. (1993). The cornerstones of competitive advantage: A resource-based view. *Strategic Management Journal*, 14(3), 179-191.

Pisano, G. (2006). Profiting from innovation and the intellectual property revolution. *Research policy*, *35(8),* 1122-1130.

Podsakoff, P. & Organ, D. (1986). Self-reports in organisational research: problems and prospects. *Journal of Management Studies, 27*, 305-327.

Podsakoff, P., MacKenzie, S., Podsakoff, N. & Lee, J.Y. (2003). Common method biases in behavioural research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88 (5),* 879-903.

Porter, M. E. (1991). Towards a dynamic theory of strategy. *Strategic Management Journal*, 12(S2), 95-117.

Priem, R. L., & Butler, J. E. (2001). Is the resource-based" view" a useful perspective for strategic management research? *Academy Of Management Review*, 22-40.

Ravichandran, T. & Lertwongsatien, C. (2005). Effect of information systems resources and capabilities on firm performance: A resource-based perspective. *Journal of Management Information Systems, 21 (4),* 237-276.

Reijonen, H., Laukkanen, T., Komppula, R. & Tuominen, S. (2012). Are growing SMEs more market oriented and brand oriented? *Journal of Small Business Management, 50 (4)*, 699-716.

Romijn, H., & Albaladejo, M. (2002). Determinants of innovation capability in small electronics and software firms in southeast England. *Research Policy*, *31(7),* 1053-1067.

Roper, S. (1997). Product innovation and small business growth: a comparison of the strategies of German, U.K. and Irish companies. *Small Business Economics, 9*, 523-537.

Rumelt, R. P. (1984). Towards a strategic theory of the firm. In R. Lamb (ed.) *Competitive Strategic Management*. Prentice-Hall, Englewood Cliffs, NJ, pp. 556-570.

Shaw, V., & Darroch, J. (2004). Barriers to internationalisation: a study of entrepreneurial new ventures in New Zealand. *Journal of International Entrepreneurship, 2(4),* 327-343.

Slywotzky, A., & Wise, R. (2003). Three keys to ground breaking growth: a demand innovation strategy, nurturing practices, and a chief growth officer. *Strategy & Leadership*, *31(5)*, 12-19.

Smallbone, D., Leigh, R. & North, D. (1995). The characteristics and strategies of high growth SMEs. *International Journal of Entrepreneurial Behaviour & Research, 1 (3),* 44-62.

Snow, C. C. & Thomas, J. B. (1994). Field research methods in strategic management: Contributions to theory building and testing. *Journal of Management Studies, 31 (4),* 457-480.

Souder, W., Buisson, D., & Garrett, T. (1997). Success through Customer-driver New Product Development: A Comparison of US and New Zealand Small Entrepreneurial High Technology Firms. *Journal of Product Innovation Management,* 14(6), 459-472.

Stern, I., & Henderson, A. D. (2004). Within-business diversification in technology-intensive industries. *Strategic Management Journal*, *25(5),* 487-505.

Tan, S.L. C. (2007). *Sources Of Competitive Advantage For Emerging Fast Growth Small-To-Medium Enterprises: The Role Of Business Orientation, Marketing Capabilities, Customer Value, And Firm Performance*. (Unpublished PhDs thesis). Royal Melbourne Institute of Technology University, Melbourne: Australia.

Upton, N., Teal, E. J., & Felan, J. T. (2001). Strategic and business planning practices of fast growth family firms. *Journal of Small Business Management*, *39(1),* 60-72.

Wang, W. Y., & Chang, C. (2005). Intellectual capital and performance in causal models: Evidence from the information technology industry in Taiwan. *Journal of Intellectual Capital, 6(2),* 222-236.

Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic Management Journal,* 5 (2), 171-180.

Wiklund, J., & Shepherd, D. (2005). Entrepreneurial orientation and small business performance: a configurational approach. *Journal of Business Venturing, 20(1),* 71-91.

Zhang, Y., Yang, X. & Ma. F. (2008). A quantitative analysis of the characteristics of rapid-growth firms and their entrepreneurs in China. *Journal of Small Business and Enterprise Development,* 15 (4), 675-688.

FIGURE 1 Research framework

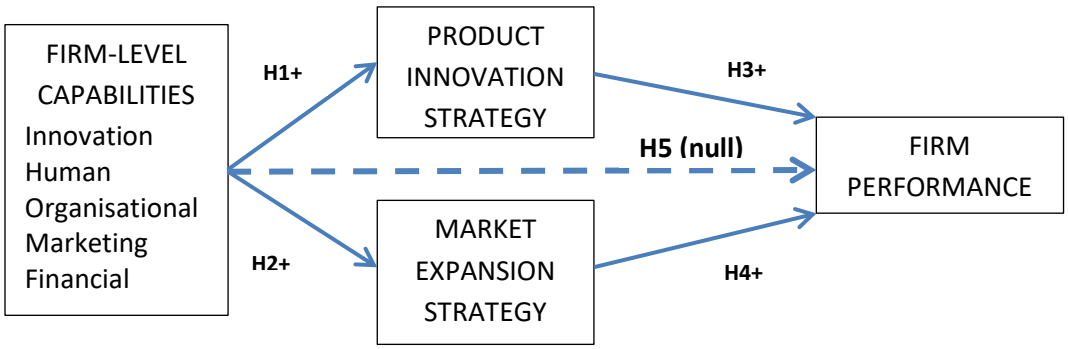


TABLE 1 Cronbach's Alpha Reliability for Variables

Variables	
Performance	0.80
Strategy	
Product Innovation	0.76
Market Expansion	0.62
Resource-Capabilities	
Innovation Capability	0.83
Human Capability	0.92
Organisational Capability	0.83
Marketing Capability	0.71
Financial Capability	0.87

TABLE 2 Formative Constructs Outer Model Weights

Construct and items	***Weight***	***Std Error***	***T-statistic***
Performance			
Return On Asset	0.0503	0.1102	6.9085**
Return On Equity	0.4644	0.1041	7.6519**
Sales Growth	0.6638	0.1044	8.5341**

**p<0.01

TABLE 3 Reflective Constructs Outer Model Loadings

Construct and items	Loadings	Composite Reliability	Average Variance Extracted
Innovation Capability (Icap)		**0.910**	**0.771**
Icap1	0.866		
Icap2	0.926		
Icap3	0.808		
Human Capability(Hcap)		**0.932**	**0.775**
Hcap1	0.907		
Hcap2	0.905		
Hcap3	0.916		
Hcap4	0.861		
Organisational Capability(Ocap)		**0.879**	**0.593**
Ocap1	0.821		
Ocap2	0.769		
Ocap3	0.700		
Ocap4	0.767		
Ocap5	0.809		
Marketing Capability (Mcap)		**0.822**	**0.537**
Mcap1	0.781		
Mcap2	0.592		
Mcap4	0.715		
Mcap5	0.802		
Financial Capability (Fcap)		**0.917**	**0.708**
Fcap1	0.873		
Fcap2	0.874		
Fcap3	0.675		
Fcap4	0.811		
Fcap5	0.840		
Product Innovation (Inn)		**0.873**	**0.696**
Inn1	0.767		
Inn2	0.873		
Inn4	0.818		
Market Expansion (Exp)		**0.801**	**0.574**
Exp1	0.752		
Exp3	0.726		
Exp4	0.805		

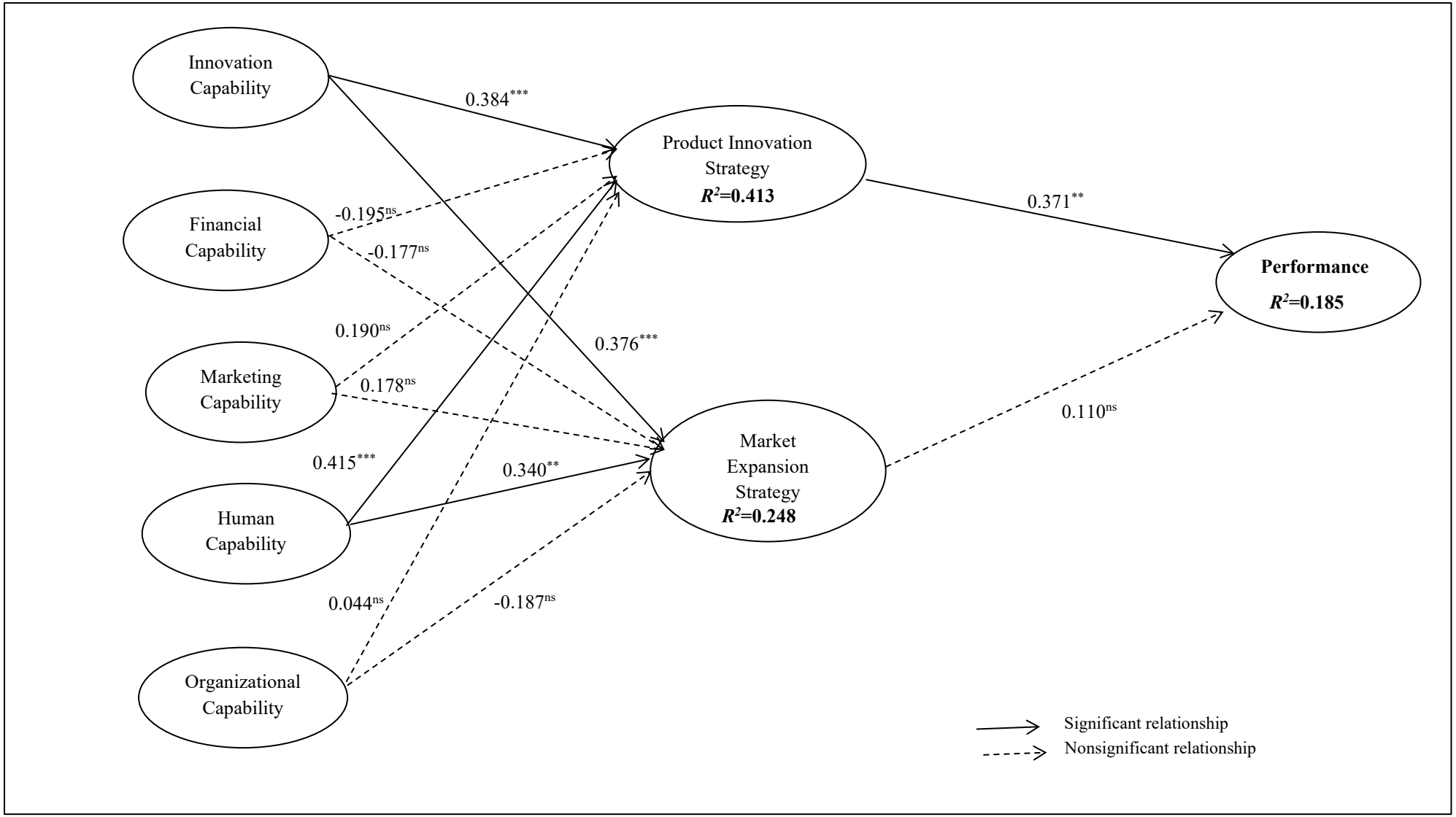
Details of each item can be found in Appendix

TABLE 4 Path coefficients from partial least squares

Hypothesis	Path from	To	Control model	Theoretical model	
			Control model coefficients	Main model coefficients	Indirect effects
	Education	Performance	-0.568^{ns}		
	Firm age	Performance	-0.209^{ns}		
	Firm size	Performance	0.098^{ns}		
H1a	Innovation Cap	Product innovation		0.384***	
H1b	Human Cap	Product innovation		0.415***	
H1c	Financial Cap	Product innovation		-0.195^{ns}	
H1d	Marketing Cap	Product innovation		0.190^{ns}	
H1e	Organisational Cap	Product innovation		0.044^{ns}	
H2a	Innovation Cap	Market expansion		0.376***	
H2b	Human Cap	Market expansion		0.340**	
H2c	Financial Cap	Market expansion		-0.177^{ns}	
H2d	Marketing Cap	Market expansion		0.178^{ns}	
H2e	Organisational Cap	Market expansion		-0.187^{ns}	
H3	Product innovation	Performance		0.371***	
H4	Market expansion	Performance		0.110^{ns}	
	Innovation Cap	Performance			0.11^{ns}
	Human Cap	Performance			0.106^{ns}
	Financial Cap	Performance			0.196*
	Marketing Cap	Performance			-0.177^{ns}
	Organisational Cap	Performance			0.264**
	R^2 Product innovation			.413	
	R^2 Market expansion			.248	
	R^2Performance			.185	

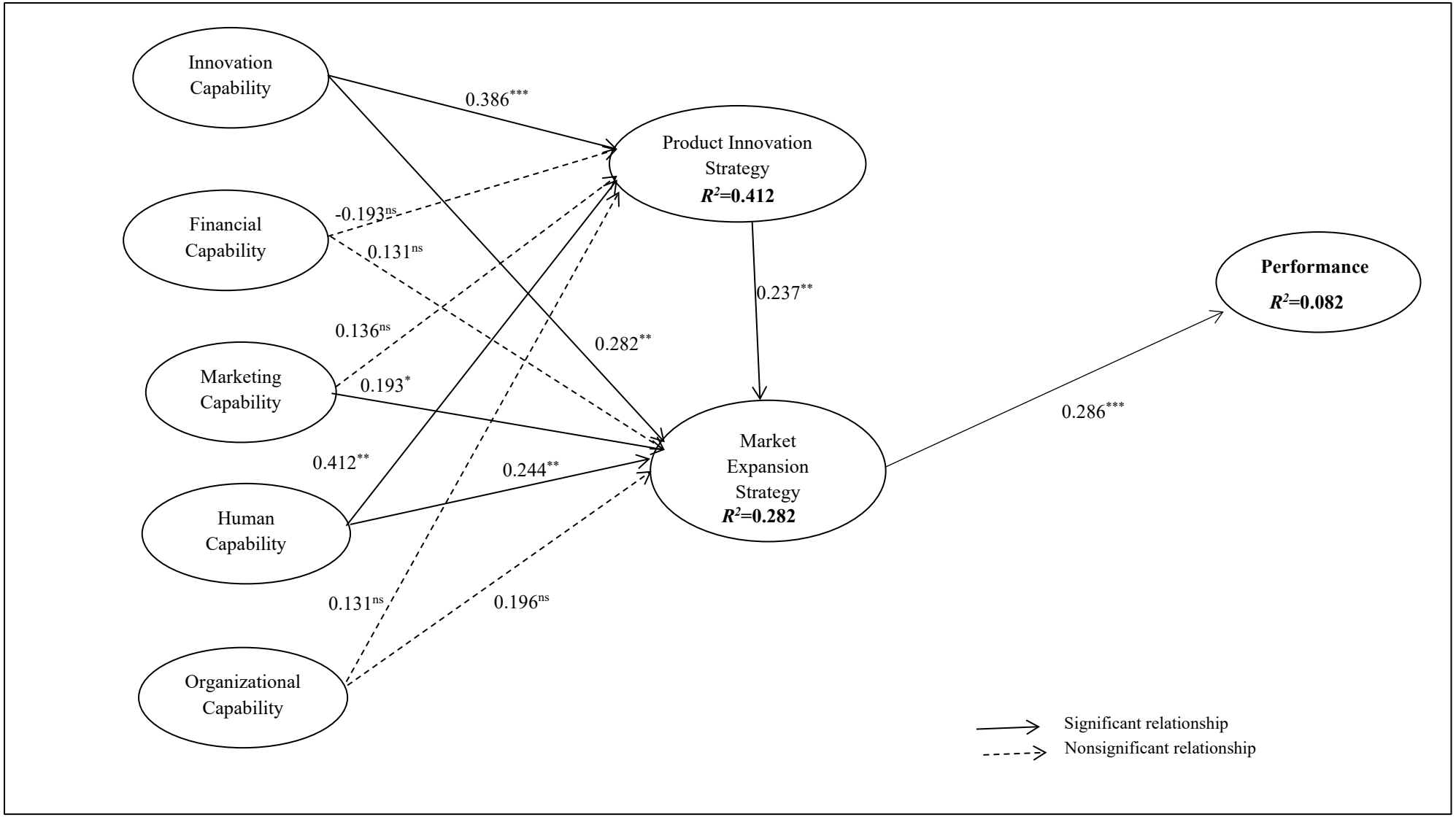
*Note:*p<0.05; **p<0.01; ***p<0.001, ns=nonsignificant*

FIGURE 2 Structural Model Results



*Note:*p<0.05; **p<0.01; ***p<0.001, ns=nonsignificant*

FIGURE 3 Structural Model Results (Mediating Analysis)



*Note:*p<0.05; **p<0.01; ***p<0.001, ns=nonsignificant*

APPENDIX A

We indicate which items relate to each capability and strategy, e.g., ICap1 relates to innovation capability and Exp4- captures market expansion with a negative direction. These indicators were not on the actual survey form.

Capabilities	Not important at all						Extremely important
Research and development (Icap 1)	1	2	3	4	5	6	7
Investment in new product development (Icap 2)	1	2	3	4	5	6	7
Intellectual Property ownership (Icap 3)	1	2	3	4	5	6	7
Adequate training for employees (Hcap 1)	1	2	3	4	5	6	7
Existence of control mechanisms (Hcap 2)	1	2	3	4	5	6	7
Adequate organisational structure (Hcap 3)	1	2	3	4	5	6	7
Existence of a mission and clear objectives (Hcap 4)	1	2	3	4	5	6	7
Efficient and effective task delegation (Ocap 1)	1	2	3	4	5	6	7
Internal process and systemisation improvement (Ocap 2)	1	2	3	4	5	6	7
Existence of strong leadership (Ocap 3)	1	2	3	4	5	6	7
Existence of a culture aligned with objectives (Ocap 4)	1	2	3	4	5	6	7
Search of new growth opportunities (Ocap 5)	1	2	3	4	5	6	7
Customer knowledge (Mcap 1)	1	2	3	4	5	6	7
Current product improvement (Mcap 2)	1	2	3	4	5	6	7
Sales effort (Mcap 4)	1	2	3	4	5	6	7
Strategic planning (Mcap 5)	1	2	3	4	5	6	7
Cash flow management (Fcap 1)	1	2	3	4	5	6	7
Financial reporting management (Fcap 2)	1	2	3	4	5	6	7
Availability of financial capital (Fcap 3)	1	2	3	4	5	6	7
Cost control (Fcap 4)	1	2	3	4	5	6	7
Historical analysis of financial situation (Fcap 5)	1	2	3	4	5	6	7
Strategy	Strongly disagree						Strongly agree
Our firm is continuously expanding to overseas markets for growth. (Exp1)	1	2	3	4	5	6	7
Domestic market is not important for our business growth.(Exp2(-))	1	2	3	4	5	6	7
There are opportunities to expand the domestic market for our products/services. (Exp3)	1	2	3	4	5	6	7
We offer products/services that are unique and distinctly different from our major competitors. (Inn1)	1	2	3	4	5	6	7
We only offer products/services that we specialise in. (Inn2)	1	2	3	4	5	6	7
We target the same market segment/s since establishment.(Exp4(-))	1	2	3	4	5	6	7
We continuously launch new product/service to capture bigger market share. (Inn 3)	1	2	3	4	5	6	7
We develop products/services with innovative ideas. (Inn4)	1	2	3	4	5	6	7
The product/service that we offer now is totally different from what we offered during the start up. (Inn5)	1	2	3	4	5	6	7
Please consider the performance of your business over the previous three years	Much worse than your competitors						Much better
Return on Assets (before interest and tax)	1	2	3	4	5	6	7
Return on Equity (after tax)	1	2	3	4	5	6	7

Sales Growth	1	2	3	4	5	6	7