

## THE ROLE OF INNOVATION CAPABILITY ON BUSINESS PERFORMANCE AT SMALL MEDIUM ENTERPRISES

Edlyn Khurotul Aini<sup>1)</sup>, David Chen Long Shen<sup>2)</sup>, Mochamad Al Musadieg<sup>3)</sup>, Siti Ragil Handayani<sup>4)</sup>

<sup>1)</sup> Department of Business Administration, Brawijaya University and National Pingtung University of Science and Technology

<sup>2)</sup> National Pingtung University of Science and Technology, Taiwan

<sup>3,4)</sup> Fakultas Ilmu Administrasi Universitas Brawijaya, Indonesia

E-mail: <sup>1)</sup>edlynkhurotulaini@yahoo.co.id

### **Abstract**

*Small medium enterprises require strong innovation capability to achieve competitive advantage. Based on previous empirical researches, this study emphasizes the importance of innovation capability as the role on business performance. Data were collected from 228 of small medium enterprises in Kediri, East Java, Indonesia and analyzed using structural equation model. The major findings include first, innovation capability and entrepreneurship has significantly positive impact on business performance respectively. Second, learning orientation has a significant and positive effect on innovation capability. Third, IT resource has significantly positive impact on learning orientation and innovation capability respectively.*

**Keywords:** *Learning Orientation, Information Technology (IT) Resources, Entrepreneurship, Innovation Capability, Business Performance.*

### **Abstraks**

Usaha kecil menengah membutuhkan kemampuan inovasi yang kuat untuk mencapai keunggulan kompetitif. Berdasarkan penelitian empiris sebelumnya, studi ini menekankan pentingnya kemampuan inovasi sebagai peran terhadap kinerja bisnis. Data dikumpulkan dari 228 perusahaan menengah kecil di Kediri, Jawa Timur, Indonesia, dan dianalisis menggunakan *structural equation model*. Hasil penelitian meliputi pertama, kemampuan inovasi dan kewirausahaan memiliki dampak positif secara signifikan terhadap kinerja bisnis masing-masing. Kedua, orientasi pembelajaran memiliki pengaruh yang signifikan dan positif terhadap kemampuan inovasi. Ketiga, sumber daya TI memiliki dampak signifikan positif terhadap orientasi pembelajaran dan kemampuan inovasi masing-masing.

**Kata kunci:** Orientasi Pembelajaran, Sumber daya Teknologi Informasi (TI), Kewirausahaan, Kemampuan Inovasi, Kinerja Bisnis.

## INTRODUCTION

The environment is changing constantly and rapidly as well as the market and customer need. Many SMEs presently evolve in a complex business environment characterized by the need for greater efficiency, effectiveness and competitiveness based on innovation and knowledge (Raymond and St-Pierre, 2005). Small medium enterprises (SMEs) are forced to learn new knowledge to develop new products in order to attract the new market and customer because innovation is the basis for organizational survival (Hurley and Hult, 1998). SME need to manage innovation capabilities effectively to provide the firms with opportunities for greater business performance. Innovation is a central strategy role in a firm's efforts to gain positional advantages in competitive markets.

Nasution, et al. (2011) suggested that innovation capability refers to the ability of an organization to adopt or implement new idea, processes, or products successfully. Some researchers have examined the influence of antecedent factors that really drives the innovation capability and its effect on business performance. Organizations improve innovation capability through emphasizing on learning orientation (Calantone, et al., 2002) and providing Information Technology (IT) resources (Benitez-Amado et al., 2010), and thereafter to achieve better performance. According to Lee and Hsieh (2010) research that entrepreneurship also could enhance competitive advantage. The nature of both IT resources and learning orientation are highly emphasized on an organization's willingness and capability to innovate within the organization (Nasution, et al., 2011 and Benitez-Amado, et al., 2010).

This study emphasizes the importance of innovation capability as the role on business performance. First, this study examines the effect of innovation capability and entrepreneurship on business performance. Second, it explores the effect of learning orientation on innovation capability. Third, this paper examines the effect of information technology (IT) resources on learning orientation and innovation capability. Limited study conducted to small medium enterprises in Kediri, East Java, Indonesia. Our study contributes to fulfill this research gap.

## THEORY AND HYPOTHESIS

### Innovation Capability and Business Performance

Yang (2011) defined innovation capability as the potential ability of an organization to position itself in an arena of modernism such as new product development, technology and other advancements that result in competitive advantage over its rivals. In the research of Jimenez-jimenez and Sanz-Valle (2011) argued that the definition of innovation is sharing the idea that implies the adoption of a new idea or behavior. Furthermore, Robert (1999) gave definition of innovation is the broader concept of continuous improvement. Based on previous researchers this research defined innovation capability as capacity of organization to create new idea, process and product successfully. It means small medium enterprises need capacity to create something new to achieve competitive advantage.

According to Calantone, et al. (2002) that organization business must be innovative to survive in volatile environment. Whereas Jiménez-jiménez and Sanz-Valle (2011); Sinkula, et al. (2001) stressed that innovation helps the company to deal with the turbulence of external environment and, therefore, is one of the key drivers of long-term success in business. The organization business with innovation capability will be able to respond the challenges faster and to exploit new products and market opportunities better than non-innovative organization business.

The researches of Jimenez-jimenez and Sanz-Valle (2011), Allred and Swan (2005), and Wang and Wang (2012) found innovation capability has influence to performance significantly. Provided that firms possess a capacity to innovate, the capacity will allow those firms to develop a competitive advantage, enabling them to derive outcomes from it (Damanpour, 1991; Hurley and Hult, 1998). Rhodes, et al. (2008) focused on Taiwanese Company and the result is that innovation capability has impact on organizational performance. This result revealed that process innovation had a greater impact on organizational performance than product innovation research. Based on the above discussion, this paper proposes hypothesis as following:

**Hypothesis 1:** Innovation capability has a significant and positive effect on business performance

### **Entrepreneurship and Business Performance**

According to Nasution, et al. (2011), the entrepreneurship was defined as a process of enhancement of wealth through innovation and exploitation of opportunities, which requires the entrepreneurial characteristics of risk-taking, autonomy, and pro-activeness. Whereas Wang (2008) and Covin and Slevin (1991) research concluded entrepreneurship as a process of engaging in product-market innovation, risk taking, proactive in introduce innovation, and aggressive to competitor.

Furthermore Slater and Narver (2005) asserted entrepreneurship in organizations enables to identify the latent needs of customers and innovative ways to fill their needs. A primary entrepreneurial activity is not only to create better products than competitors but also to lead the industry in recognizing customers' evolving needs. Entrepreneurship not only exists in new found technological organization, but also exists in the present and within organizations.

Wang (2008) points out that entrepreneurial firm instill flexibility, and grant individuals and teams the freedom to exercise their creativity and to champion promising ideas. So, who apply entrepreneurship can find the changes of environment and clue of opportunity in environment, and can understand the principle of successful business performance. Covin and Slevin (1991) research stated that entrepreneurship significantly influences on business performance. A high entrepreneurship provides business with the ability to find and/or discover new opportunities that can differentiate them from other firms and create a competitive advantage. Wiklunda and Shepherd (2005) focused on small medium size of 413 Swedish firms and the results showed that entrepreneurship has significant effect on business performance. This research proposes hypothesis as following:

**Hypothesis 2:** Entrepreneurship has a significant and positive effect on business performance.

### **Learning Orientation and Innovation Capability**

Fiol and Lyles (1985) indicated that learning orientation essentially reflects whole

process in the organization for learning, which begins from each individual level and builds up to the organizational level. Whereas Calantone, et al. (2002) advocated that learning orientation is organization-wide activity to create and use knowledge to enhance competitive advantage. Based on all researchers, this study concluded to define learning orientation as an organization activity which obtains the process of improving insights and knowledge to enhance organizational performance. Hult, et al. (2004) point out the premise underlying organization learning is that it facilitates flexibility, opportunities for growth, and overall better performance in those firms that possess such a capability. So it plays an important role in enabling firm to achieve speed and flexibility within the innovation (Jimenez-jimenez and Sanz-Valle, 2011).

Many researchers indicated sub-dimension to measure learning orientation. Baker and Sinkula (1999), Sinkula, et al. (2001) and Nasution, et al. (2011) used the three concept of learning orientation which consists of Commitment to Learning, Shared Vision, and Open Mindedness. Commitment to learning refers to the basic principles of learning. This is the foundation of organization to begin and continue learning in order to improve capability. Shared vision refers to an organization-wide focus on learning. Calantone, et al. (2002) stresses that without a shared vision, learning by members of an organization is less likely to be meaningful. In other words, even if they are motivated to learn, it is difficult to know what to learn. Open-mindedness is the willingness to critically evaluate the organization's operational routine and to accept new ideas.

Alegre and Chiva (2008) denoted that learning plays a determinant role in new product development projects because it allows new products to be adapted to changing environmental factors, such as customer demand uncertainty, technological developments or competitive turbulence. Generative learning, the most advanced form of organizational learning, occurs when an organization is willing to question long-held assumptions about its mission, customers, capabilities, or strategy and generate changes in its practices, strategies, and values (Aragón-Correa, et al., 2007). This kind of learning is a necessary underpinning for radical innovations in products and processes. Hurley and Hult (1998) focused on a large agency of the US federal government to show that

organizational innovativeness was positively associated with a culture that emphasizes adaptation, innovation, and learning. Also according to Calantone, et al. (2001) research found out that learning orientation has an influence on firm innovativeness positively. Based on the previous research this paper proposes hypothesis as following:

**Hypothesis 3:** Organizational learning has a significant and positive effect on innovation capability.

### **Information Technology (IT) Resources, Innovation Capability and Business Performance**

Real, et al. (2006) gave the concept of IT infrastructure in term knowledge management, defined as the shared IT capabilities that enable to support the flow of knowledge in an organization. According to White and Bruton (2011), they suggested technology as the practical implementation of learning and knowledge by individuals and organizations to aid human endeavor. This study concluded Information Technology (IT) resources is as tool, process, knowledge, and system which has ability to convert data into meaningful information to provide knowledge and learning activities.

Chairman Greenspan, former Chairman of the Federal Reserve (White and Bruton, 2011) argued that not only will the future of business be directed by technology but also that the root of business today is driven by technology and its application. His belief in the growth of technology is supported by the growth in patents worldwide.

Furthermore Tarafdar and Gordon (2007) indicated that IT resources such as technological IT and human IT resources could act as key enablers of business innovation. Technological IT resources can enable a firm to improve its ability to establish an innovative environment that encourages creativity and the development of new products or process. Creativity can be stimulated if the firm grants resources and also improves the empowerment of its employees. Thus, the employees can utilize technological IT resources such as database, applications or email systems to develop their task in a more innovative way (Chandler, et al., 2000). Benitez-Amado, et al. (2010) found the deployment of technological IT and human IT resources have an effect on the development of an innovative

environment. This research proposes hypothesis as following:

**Hypothesis 4:** Information technology (IT) resource has a significant and positive effect on innovation capability.

The importance of IT in learning orientation implementation is established by theoretical and empirical evidence. According to Real, et al. (2006) research, Information technology has a significant direct influence on learning orientation. IT is a strong component to learning because it is used as tool, process, knowledge, and system which have ability to convert data into meaningful information to provide knowledge and learning activities. Rogé, et al. (2011) result showed that IT has positive direct relationship on learning orientation. Learning orientation is concerned with acquiring, disseminating, and using information. Lee and Choi (2003) found that 'IT support' significantly impacted the learning organization process variable. Therefore this research proposes hypothesis as following:

**Hypothesis 5:** Information technology (IT) resource has a significant and positive effect on learning orientation.

## **METHODOLOGY**

### **Data Collection**

The samples in this study were owner or manager of small medium enterprises at Kediri, East Java-Indonesia. A personal interview approach was used to get the data from owner or manager of small medium enterprises. The reason to choose small medium enterprises at Kediri, East Java-Indonesia as the research object is that Kediri is The Central Business District at West area of East Java and has commitment to increase the business in this area, especially small medium enterprises. They improve the innovation for business to develop the performance.

This study adopt census and questionnaires were distributed to 228 SMEs at Kediri, East Java-Indonesia. The sampling frame was listed from Cooperative, Industrial, and Trade Official in Kediri. The usable respondents were 215, which provided the final effective response rate of 94%.

### **Measures**

The variables in this study are measured by Likert Scale with range from 1 to 7 in which 1

equal to “strongly disagree” and 7 equal to “strongly agree”. The variables that are studied consist of latent exogenous variable and latent endogenous variable.

#### **Latent exogenous variable are:**

##### a. Information technology (IT) resources

The measurement of IT resources developed by Ray, et al. (2005) and Benitez-Amado, et al., 2010) was adopted in this study. The proposed measurements of IT resource are 5 items, consist of 2 items for Technological IT resources and 3 items for Human IT resources.

##### b. Entrepreneurship

To assess entrepreneurship, this study adopted some of measurement which is developed by Wang (2008) and Nasution, et al. (2011). The proposed measurements of entrepreneurship are 4 items which include market pro-activeness, competitive aggressiveness, risk taking and innovativeness.

#### **Whereas latent endogenous variable are:**

##### a. Learning orientation

This study adopts the work of Nasution, et al. (2011), Calantone, et al. (2002), Hult, et al. (2002), Sinkula, et al. (2001). Three sub dimensions of learning orientation consist of 8 items to measure the learning orientation variable, consist of 3 items of sub-dimensions for commitment to learning, 3 items for shared vision, and 2 items for open mindedness.

##### b. Innovation capability

The scale developed by Rhodes, et al. (2008), Nasution, et al. (2011), and Jimenez-jimenez and Sanz-Valle (2011) were used to measure innovation capability. The innovation capability measure has 5 items: product innovation (two items) and process innovation (three items).

##### c. Business performance

This study adopts the research of Rhodes, et al. (2008) and Delaney and Huselid (1996) to build measurement of business performance. The measurement has 4 items which consist of 2 items for financial performance and 2 items for non-financial performance.

## **RESULTS**

Data were analyzed using AMOS 17 software package and Structural Equation Model (SEM) program. According to Kaplan (2000),

there were two-steps procedures of Structural Equation Model. First step is measurement model and the second step is structural model.

### **Measurement model**

#### *Goodness Fit Indices*

This measurement model was estimated using Confirmatory Factor Analysis (CFA) method. Based on Hooper et al. (2008) the measurement of fit indices were Chi-square value ( $\chi^2$ ), Goodness of Fit (GFI), Adjusted Goodness of Fit (AGFI), Root Mean Square Error of Approximation (RMSEA), Comparative fit index (CFI), and the other indicators was included in overall measurement model fit indices.

The analysis results in table 1 showed  $\chi^2/df$ -ratio of 1.99 was less than 2, it means that the model is acceptable. GFI, NFI, NNFI, and CFI are greater than or close to 0.9, so those are acceptable. For the RMSEA value was 0.07, it is still acceptable because according to MacCallum, et al. (1996) the range of RMSEA 0.05 to 0.10 was acceptable. The overall measurement indices showed a good fit to the model.

#### *Reliability Analysis of Measurement Model*

The measurement model of reliability is to meet the standards for the study variables, including all observed variables using the standardized factor loadings, and to calculate the composite reliability for each variable. Composite reliability in table 2 is about 0.6. The recommended value of Fornell & Larcker (1981), are greater than 0.60.

#### *Validity Analysis of Measurement Model*

##### *Convergent Validity*

On the validity of the detection, this study used confirmatory factor analysis to measure the scale of convergent validity. From the table 2 in the t-value column, the standardized loading of all observed variables were significant (greater than 1.96), showing the path coefficient is significant, and this was the results of these indicators to meet the convergent validity (Anderson & Gerbing, 1988).

##### *Discriminant Validity*

The higher the correlation coefficient between two variables might indicate that the discriminant validity could not be satisfied. Therefore, this study intends to select "learning orientation" and "entrepreneurship", "entrepreneurship" and "innovation capability"

which the correlation coefficient are higher than 0.8 to verify that the two pairs of variables has discriminant validity.

The results from table 3 showed that the chi-square difference between measurement and unidimensional measurement model for both pairs are significant. It concludes that those variables were distinct. In general, all measures were shown to have discriminant validity because the biggest of correlation among variables was significantly different.

#### *Common Method Variance (CMV)*

The effect of common method variance (CMV) is a major potential validity threat in social sciences research (Sharma, et al., 2009). When two or more variables are collected from the same respondents and an attempt is made to interpret their correlation, a problem of CMV could happen. In the line opinion of Podsakoff, et al. (2003) that common method variance refers to a bias which occurs from having a common rater, a common measurement context, a common item context, or from the characteristics of the items themselves. Common method variance can have a substantial impact on the observed relationship between predictor and criterion variables in organizational and behavioral research.

This study used two ways to test the common method variance. First is Harman's single factor test. It stress if the majority of the variance can be explained by a single factor. The result for this test showed that the value of CMV was 40.04%. According to Podsakoff, et al. (2003) that CMV is not assumed to exist because a first factor doesn't explains the majority of the variance in the variables.

Second, this study used a common latent factor to capture the common variance among all observed variables in the model. The significant of the differences between common method model and measurement model was tested. The result showed in table 4 that the p value was less than 0.05. Overall of the CMV analysis indicate that there is no bias in the answer, so there was a low potential validity threat to the finding of this research.

#### **Structural Model**

This study provides empirical research about the role of innovation capability on business performance. To examine the research hypothesis, this research used analysis of structural equation model. The result of overall

goodness fit of structural model was shown at table 5. Chi-square ( $\chi^2$ )/df-ratio was 2.65. According to Hooper, et al. (2008) that less than 3 was acceptable. GFI and NNFI still acceptable because larger than 0.8 and close to 0.9. RMSEA still was acceptable because it equal or less than 0.1. Overall of the goodness fit indices of structural model is acceptable. The structural model RNFI must be greater than 0.9, the closer to 1 is the better. RPR is in the detection of structural models to parsimony degree, the greater the better the goodness of fit. It can be seen from table 4 RNFI= 0.91, of RPR = 0.27, and RRFI = 0.24, this structural model indicated has a good goodness of fit and parsimony.

This part explored validation for the hypothesis. The causal path between the latent variables in the research hypothesis (H1 to H5) and the analysis results are shown in Table 6. The path of structural model result was shown in Figure 1. From the table results, the path coefficients were: innovation capability and entrepreneurship → business performance were 0.44 and 0.16 respectively; learning orientation → innovation capability was 0.73; IT resources → innovation capability was 0.35; and IT resources → learning orientation was 0.33. Furthermore, "innovation capability" as the dependent variable, the  $r^2$  value was 0.81; the "learning orientation" as the dependent variable, the  $r^2$  was 0.57; and the "business performance"  $r^2$  was 0.57. According to Kleijnen, et al. (2007) categorized  $r^2$  effect sizes as: small: 0.02; medium: 0.13; large: 0.26, so it can be regarded that innovation capability, learning orientation, and business performance as having a high degree of support.

#### **Conclusion**

According to the result and discussion, this section would address conclusion, limitation and suggestion.

#### **Research Conclusion**

*The effect of innovation capability on business performance (H1 is supported).*

The finding of data analysis found that innovation capability has a significant and positive effect on business performance (coefficient=0.44,  $t=4.34$ ,  $p<.001$ ). This result is consistent with the Allred and Swan (2005) and Jimenez-jimenez and Sanz-Valle (2011) empirical research that innovation capability has a

significant direct impact on business performance. It indicates innovation capability plays a critical role in influencing on business performance. Small medium enterprises can increase the business performance whether in financial or non-financial by improving capability to create new product and process which more innovative than the competitor.

*The effect of entrepreneurship on business performance (H2 is supported).*

According to previous analysis and discussion, it indicates entrepreneurship has a significant and positive affect on business performance (coefficient=0.16,  $t=2.27$ ,  $p<.05$ ). This result is consistent with the previous empirical research by Covin and Slevin (1991) and Wiklunda and Shepherd (2005) that entrepreneurship has direct and significant impact on the business performance. Since small medium enterprises increase the entrepreneurship with market pro-activeness, competitive aggressiveness, risk taking, and innovativeness, it will create new opportunity to improve business performance due to achieve competitive advantage.

*The effect of learning orientation on innovation capability (H3 is supported).*

Based on analysis and discussion, learning orientation has significant and positive influence on innovation capability (coefficient=0.73,  $t=2.60$ ,  $p<.01$ ). The organization has higher willingness in term learning orientation will facilitate to increase innovation capability. This result is consistent with Calantone, et al. (2002) research that learning orientation has positive and significant effect on innovation capability. When small business enterprises have commitment to learning, it aspires to keep product and process development within SMEs. The entrepreneurs (owner or managers) have to share their vision within organization to encourage employees. It will increase the innovation capability for achieving organization objectives. Furthermore the willingness to open mindedness in which critical evaluate and accept new ideas will develop to more innovative within small medium enterprise (Sinkula, et al., 2001).

*The effect of information technology (IT) resources on innovation capability (H4 is supported).*

The findings of analysis is that IT resource has positive and significant effect on innovation capability (coefficient=0.35,  $t=3.23$ ,  $p<.01$ ). The

result indicates small medium enterprises which have more IT resources will increase capability to innovate product and process within organization. It is consistent with result provided by Benitez-Amado, et al. (2010) and Rhodes, et al. (2008) that IT resource has significant impact to innovation capability. Integrated technological and human IT resources will enable to increase innovation capability within organization. Technological can empower employee to be more creative to create product and process development.

*Relationship information technology (IT) resources on learning orientation (H5 is supported).*

The result from previous analysis found that IT resources has positive and significant effect on learning orientation (coefficient=0.33,  $t=7.37$ ,  $p<.001$ ). Following to Real, et al. (2006) and Rogé, et al. (2011) research, this study supports that IT resources has positive and significant impact on learning orientation. IT resource is used as facilitator to increase learning within SMEs. Small medium enterprise needs technological IT resources as tool and human who has skill in IT to provide smoothness to create learning. When SMEs emphasize to more IT resources, it will increase capability to innovative in organization whether product or process.

### **Limitation and Suggestion**

Although the role of innovation capability on business performance was based on extant research findings with the changing of environment business, this role of innovation capability may change over time. Based on previous analyzing in this research, it has the limitation and suggestion for further research.

#### *Limitation*

- a. The reliability measurement model analysis showed that the composite reliability of learning orientation is less than 0.60. It is because the standardized loading each indicators have a bit low.
- b. The study focused on small medium enterprises because it was based on the data from Cooperative, Industrial, and Trade Official in Kediri, so it generalizes at small medium enterprises field.

### Suggestion

This study can be extended in several directions for further research. There are suggestions based on this study.

- a. SMEs should enhance the entrepreneurship to increase business performance. They should emphasize more proactive and aggressive in competitive to meet with the opportunity.
- b. This study focused on small medium enterprises field and in the specific area in Indonesia. The suggestion for future research can extent the result by analyzing different country and including big enterprises.
- c. The analysis method of this study is a cross-sectional analysis. The aim is to explore the role innovation capability within a certain period of time, and the effect to business performance. However, some variables may be changes over time so it makes the results change. Therefore, this study suggests that future researchers can develop theoretical model to be more exhaustive construct.
- d. The theoretical framework in this study consists of five variables as research variables such as learning orientation, IT resources, entrepreneurship, innovation capability, and business performance. Therefore, this study suggests that future research can develop the study by analyzing the moderating effect of contextual such as culture and turbulence environment.

### REFERENCES

- Alegre, J. and R. Chiva, 2008. *Assessing the Impact of Organizational Learning Capability on Product Innovation Performance: An Empirical Test*, *Technovation*, 28, 315-326.
- Allred, B.B. and K.S. Swan, 2005. *The Mediating Role of Innovation on The Influence of Industry Structure and National Context on Firm Performance*, *Journal of International Management*, Vol. 11, No.3, p.p.229-252.
- Anderson, J.C. and D.W. Gerbing, 1988. *Structural Equation Modeling in Practice: A Review and Recommended Two Step Approach*, *Psychological Bullentin*, Vol. 103, p.p.411-423.
- Aragón-Correa, J.A. and V.J. García-Morales, 2007. *Leadership and Organizational Learning's Role on Innovation and Performance: Lessons from Spain*, *Industrial Marketing Management*, Vol. 36, No.3, p.p.349-359.
- Baker, W.E. and J.M. Sinkula, 1999. *The Synergistic Effect of Market Orientation and Learning Orientation on Organizational Performance*, *Journal of The Academy of Marketing Science*, Vol. 27, No.4, p.p.411-427.
- Benitez-Amado, J., M.N. Perez-Arostegui, and J. Tamayo-Torres, 2010, "Information Technology-Enabled Innovativeness and Green Capabilities," *Journal of Computer Information System*, p.p.87-96.
- Calantone, R.J., S.T. Cavusgil, and Y. Zhao, 2002. *Learning Orientation, Firm Innovation Capability, and Firm Performance*, *Industrial Marketing Management*, Vol. 31, p.p.515-524.
- Chandler, G.N., K. Chalon, and W.L. Douglas, 2000. *Unraveling The Determinant and Consequences of An Innovation-Supportive Organizational Culture*, *Entrepreneurship theory and practice*, p.p.59-76.
- Covin, J.G. and D.P. Slevin, 1991. *A Conceptual Model of Entrepreneurship as Firm Behaviour*, *Entrepreneurship theory and practice*, p.p.7-25.
- Damanpour, F.,1991, *Organizational Innovation: A Meta-Analysis of Effects of Determinants and Moderators*, *Academy of Management Journal*, Vol. 34, p.p.555-590.
- Delaney, J.T. and M.A. Huselid, 1996. *The Impact of Human Resource Management Practices on Perceptions of Organizational Performance*, *Academy of Management Journal*, Vol. 39, No.4, p.p.949-969.
- Fiol, C.M. and M.A. Lyles, 1985. *Organizational Learning*, *Academy of Management review*, Vol. 10, No.4, p.p.803-813.
- Fornell, C. and D.F. Larcker, 1981. *Evaluating Structural Equation Models with Unobservable Variables and Measurement Error*, *Journal of Marketing Research*, Vol. 18, p.p.39-50.
- Hult, G.T.M., O.C. Ferrell, and R.F. Hurley, 2002. *Global Organizational Learning Effects on Cycle Time Performance*, *Journal of Business Research*, Vol. 55, p.p.377-387.
- Hult, G.T.M., R.F. Hurley, and G.A. Knight, 2004. *Innovativeness: Its Antecedents and Impact on Business Performance*, *Industrial Marketing Management*, Vol. 33, No.5, p.p.429-438.
- Hurley, R.F. and G.T.M. Hult, 1998. *Innovation, Market Orientation, and Organizational Learning: An Integration and Empirical Examination*, *Journal of Marketing*, Vol. 62, No.3, p.p.42-54.
- Hooper, D., J. Coughlan, and M.R. Mullen, 2008. *Structural Equation Modelling: Guidelines for Determining Model Fit*, *The Electronic Journal of Business Research Methods*, Vol. 6, No.1,



- p.p.53-60.
- Jiménez-Jiménez, D. and R. Sanz-Valle, 2011. *Innovation, Organizational Learning, and Performance*, *Journal of Business Research*, Vol. 64, No.4, p.p.408-417.
- Kaplan, D., 2000. *Structural Equation Modeling Foundation and Extensions*. London: Sage Publication.
- Kleijnen, M., K.D. Ruyter, and M. Wetzels, 2007. *An Assessment of Value Creation in Mobile Service Delivery and The Moderating Role of Time Consciousness*, *Journal of Retailing*, Vol. 83, No.1, p.p.33-46.
- Lee, H. and B. Choi, 2003. *Knowledge Management Enablers, Processes, and Organizational Performance: An Integrative View and Empirical Examination*, *Journal of Management Information Systems*, Vol. 20, p.p.179-228.
- Lee, J.S. and C.J. Hsieh, 2010. *A Research in Relating Entrepreneurship, Marketing Capability, Innovative Capability, and Sustained Competitive Advantage*, *Journal of Business & Economics Research*, Vol. 8, No.9, p.p.109-119.
- MacCallum, R.C., M.W. Browne, and H.M. Sugawara, 1996. *Power Analysis and Determination of Sample Size for Covariance Structure Modeling*, *Psychological methods*, Vol. 1, No.2, p.p.130-149.
- Nasution, H. N., F.T. Mavondo, T.M. Felix, J.M. Margaret, and O.N. Nelson, 2011. *Entrepreneurship: Its Relationship with Market Orientation and Learning Orientation and As Antecedents to Innovation And Customer Value*, *Industrial Marketing Management*, Vol. 40, No.3, p.p.336-345.
- Podsakoff, P.M., S.B. MacKenzie, J.Y. Lee, and N.P. Podsakoff, 2003. *Common Method Biases in Behavioral Research: A Critical Review of The Literature and Recommended Remedies*, *Journal of Applied Psychology*, Vol. 88, p.p.879-903.
- Ray, G., W.A. Muhanna, and J.B. Barney, 2005. *Information Technology and The Performance of The Customer Service Process: A Resource-Based Analysis*, *MIS Quarterly*, Vol. 29, No.4, p.p.625-652.
- Real, J. C., A. Leal, and J.L. Rolan, 2006. *Information Technology As A Determinant of Organizational Learning and Technological Distinctive Competencies*, *Industrial Marketing Management*, Vol. 35, No.4, p.p.505-521.
- Rhodes, J., R. Hung, P. Lok, B.Y. Lien, and C.M. Wu, 2008. *Factors Influencing Organizational Knowledge Transfer: Implication for Corporate Performance*, *Journal of Knowledge Management*, Vol. 12, No.3, p.p.84-100.
- Roberts, P.W., 1999. *Product Innovation, Product-Market Competition and Persistent Profitability in The U.S. Pharmaceutical Industry*, *Strategic Management*, Vol. 20, No.7, p.p.655.
- Rogé, J.N., J. Hughes, and P.N. Simpson, 2011. *Learning to Thread The Needle: Information Technology Strategy, The journal of computer information systems*, Vol. 52, No.1, p.p.76-86.
- Sharma, R., P. Yetton, and J. Crawford, 2009. *Estimating The Effect of Common Method Variance: The Method-Method Pair Technique with An Illustration from TAM Research*, *MIS Quarterly*, Vol. 33, No.3, p.p.473-490.
- Sinkula, J.M., W.E. Baker, and T. Noordewier, 2001. *A Framework for Market-Based Organizational Learning Linking Values, Knowledge, and Behaviour*, *Journal of The Academy of Marketing Science*, Vol. 24, No.4, p.p.305-318.
- Slater, S.F. and J.C. Narver, 1995. *Market Orientation and The Learning Organization*, *Journal of Marketing*, Vol. 59, p.p.63-74.
- Tarafdar, M. and S.R. Gordon, 2007. *Understanding The Influence of Information Systems Competencies on Process Innovation: A Resource-Based View*, *The Journal of Strategic Information Systems*, Vol. 16, No.4, p.p.353-392.
- Wang, C.L., 2008. *Entrepreneurial Orientation, Learning Orientation, and Firm Performance*, *Entrepreneurship Theory and Practice*, p.p.635-657.
- Wang, Z. and N. Wang, 2012. *Knowledge Sharing, Innovation and Firm Performance*, *Expert Systems with Applications*, Vol. 39, No.10, p.p.8899-8908.
- White, M.A. and G.D. Bruton. 2011. *The Management of Technology and Innovation : a Strategic Approach*. Australia: South-Western: Cengage Learning.
- Wiklund, J. and D. Shepherd. 2005. *Entrepreneurial Orientation and Small Business Performance: A Configurational Approach*, *Journal of Business Venturing*, Vol. 20, No.1, p.p.71-91.
- Yang, J, 2011. *Innovation Capability and Corporate Growth: An Empirical Investigation in China*, *Journal of Engineering and Technology Management*, p.p.1-13.

APPENDIX

**Table 1**  
**The Measurement Model Fit Result**

Index	Result
Chi-square ( $\chi^2$ )	109.29
Chi-square DF	55
Chi-square ( $\chi^2/df$ )	1.99
Goodness of Fit (GFI)	0.92
Adjusted Goodness of Fit (AGFI)	0.87
Root Mean Square Error of Approximation (RMSEA)	0.07
Root Mean Square of Residual (RMR)	0.01
Normed fit index (NFI)	0.90
Non-normed Fit Index (NNFI)	0.92
Comparative fit index (CFI)	0.95

**Table 2**  
**Scale Composite Reliability and Convergent Validity Analysis**

Construct (F) and Indicators (V)		Standardized Loading	t value	Indicator Reliability	Composite Reliability
<b>Learning Orientation (F1)</b>					
V1	Commitment of Learning	0.661	9.15	0.437	0.57
V2	Shared Vision	0.612	8.49	0.375	
V3	Open Mindedness	0.367	4.88	0.135	
<b>IT Resources (F2)</b>					
V4	Technological IT resources	0.802	12.70	0.643	0.83
V5	Human IT Resources	0.881	14.20	0.775	
<b>Entrepreneurship (F3)</b>					
V6	Market pro-activeness	0.231	3.11	0.053	0.64
V7	Competitive aggressiveness	0.476	6.72	0.226	
V8	Risk taking	0.781	12.13	0.611	
V9	Innovativeness	0.683	10.32	0.466	
<b>Innovation Capability (F4)</b>					
V10	Product Innovation	0.778	11.88	0.605	0.69
V11	Process Innovation	0.680	10.27	0.462	
<b>Business Performance (F5)</b>					
V12	Financial	0.751	11.68	0.564	0.84
V13	Non-Financial	0.936	15.12	0.877	

**Table 3**  
**Discriminant validity analysis**

	Correlation Coefficient		Unidimensional Measurement Model	Measurement Model	The difference	p-value
Learning orientation ↔ Entrepreneurship	0.81***	Chi-square	117.14	109.285	7.855	< 0.05
		DF	56	55	1	
Entrepreneurship ↔ Innovation capability	0.86***	Chi-square	117.08	109.285	7.795	< 0.05
		DF	56	55	1	

Note: \*p<0.05, \*\*p<0.01, \*\*\*p<0.001.

**Table 4**  
**Common Latent Factor Result**

	Common Latent Model	Measurement Model	The difference	p-value
Chi-square	247.142	109.285	137.857	< 0.05
DF	65	55	10	

**Table 5**  
**Structural Model Indices**

Model	Goodness Fit Indices										Structural model		
	Chi-square	DF	$\chi^2/df$	GF I	AGF I	CF I	NF I	NNF I	RM R	RMSE A	RNF I	RP R	RPF I
Structural Model	156.50	59	2.65	0.89	0.84	0.90	0.85	0.87	0.02	0.08	0.91	0.27	0.24

**Table 6**  
**Structural Model Path Coefficient**

Dependent Variable	Independent Variable	Standardized path coefficient	t value	Square Multiple Correlation ( $r^2$ )
Business Performance	Innovation Capability (H1)	0.44	4.34***	0.52
	Entrepreneurship (H2)	0.16	2.27*	
Innovation Capability	Learning Orientation (H3)	0.73	2.60**	0.81
	IT Resources (H4)	0.35	3.23**	
Learning Orientation	IT Resources (H5)	0.33	7.37***	0.57

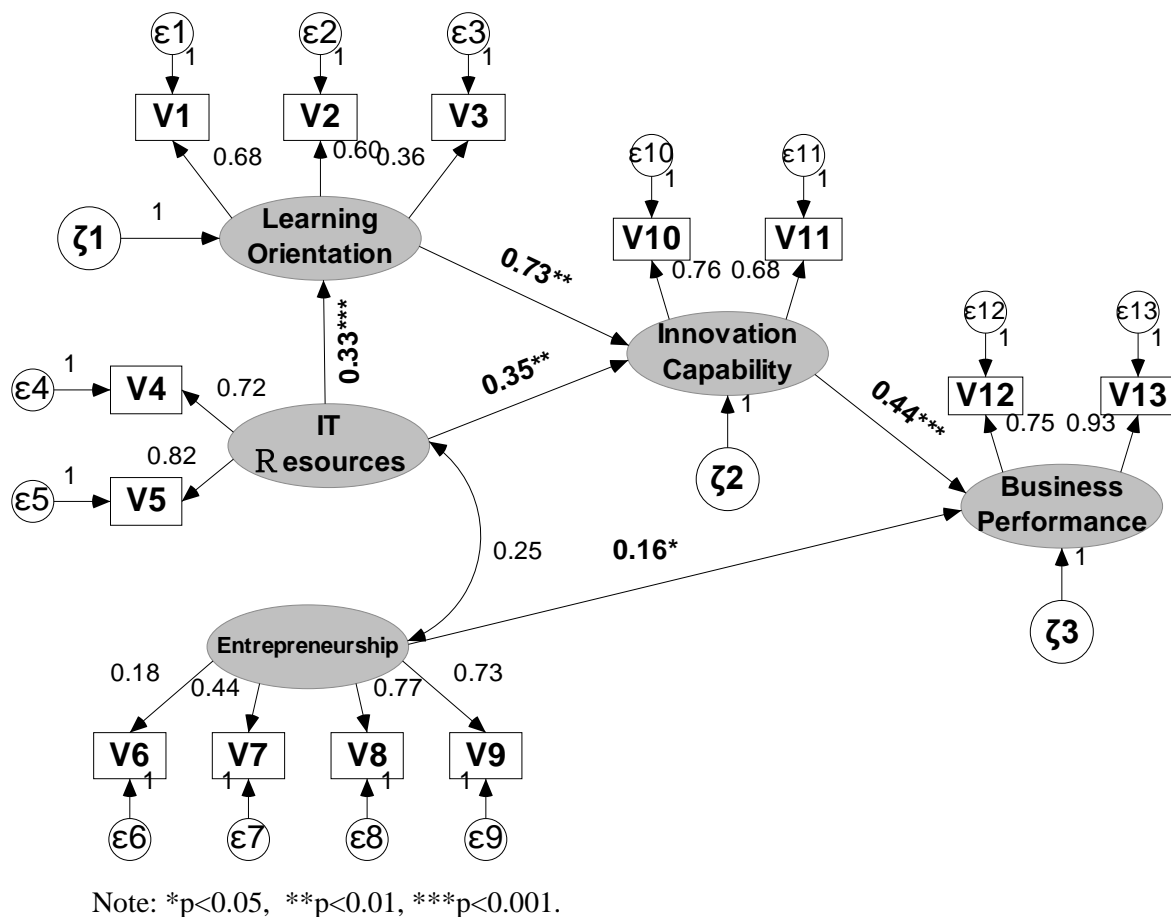


Figure 1 Structural Model Result