

# The Relationship between Innovation Capability, Innovation Type and Innovation Performance in FDI Enterprises in Vietnam

Nguyen Thi Oanh<sup>1</sup>

<sup>1</sup> Academy of politics region, Ho Chi Minh, Vietnam

Correspondence: Nguyen Thi Oanh, Academy of politics region II, 99 Man Thien st, Hiep Phu, Q9, Ho Chi Minh. Tel: 84-972-188-451. E-mail: oanhnt@hcma2.edu.vn

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## Abstract

The purpose of this study is to assess the impact of innovation capability on types of innovation and innovation performance in foreign direct investment enterprises in Vietnam. The study uses quantitative analysis (Cronbach Alpha, CFA, SEM) with survey data from structured questionnaires. The analysis results from investigating 254 enterprises in Vietnam show that there is a clear influence of innovative capability on four types of innovation: (1) organizational innovation; (2) process innovation; (3) product / service innovation and (4) marketing innovation. Improving the types of innovation in enterprises also affects the innovation performance of enterprises the results also provide important implications for businesses that need to focus on innovation culture in enterprises, form and select business strategies based on innovation.

**Keywords:** innovation, types of innovation, innovation performance, FDI, Vietnam

## 1. Introduction

### 1.1 Introduce the Problem

Innovation is important for enterprises to form competitive advantages (Tsai et al., 2014). Innovation is considered an important part of business success because it relate to processes introduction, products / services or new ideas in the business. Therefore, many studies emphasize that enterprise innovation is one of the most important factors affecting enterprise performance (Hult & Tomas, 1998; Porter, 1990). Enterprises with innovation capability can respond to challenges from the business environment faster and better than ones without it (Brow & Eisenhardt, 1995). Innovation allows businesses to protect themselves against uncertainties, increase their ability to find new opportunities and exploit available resources more effectively (Matzler et al., two thousand and thirteen).

Vietnam is an emerging economy with a high growth rate and is attracting a lot of FDI from foreign investors. Driven by the increasing level of competitiveness in the industry and a vibrant market, enterprises have become more and more interested in innovation. Therefore, innovation activities have become an indispensable part of enterprises' development strategies for various reasons, such as more efficient production processes, market penetration, reputation creation to form sustainable competitive advantages for enterprises. Innovation also aims to overcome the business problems of enterprises (Hitt et al., 2001; Kuratko et al., 2005). Increasing accession of FDI enterprises will promote competitiveness of Vietnamese enterprises. In addition, by participating in the business link chain, domestic enterprises can penetrate into global production chains and improve their competitiveness. Therefore, study of innovation in FDI enterprises can bring useful lessons for Vietnamese enterprises.

Research on innovation has been expanded and approached in different direction since Hurley and Hult (1998) endorse it as an important structure to create competitive advantages and enterprise performance. Innovation capability affects types of innovation and innovation performance (Rajapathirana & Hui, 2018). Innovation includes not only technological innovations but also innovation in processes and marketing (Pino et al., 2016), the ability to acquire and replace knowledge (Leal - Rodriguez et al., 2014). Therefore, in the traditional views, improving innovation capability is an effective way to increase competitiveness and efficiency of enterprises.

Although innovation is more and more important to enterprises. Traditional awareness believes that innovation in enterprises is a good way to increase business performance (Hult et al., 2004; Kunz & Schaaf, 2011). However,

many studies do not delineate between innovation capability and types of innovation in enterprises. Therefore, this study was conducted to assess the impact of innovation capability on types of innovation and innovation performance of FDI enterprises in Vietnam. Accordingly, this study provides rich and useful implications for researchers and practitioners.

## 1.2 Literature Review

### 1.2.1 Innovation Performance

Innovation performance in business is the output of innovation process in enterprises. The innovation performance is connected with improvement of quality and existed service, novelty of technology used for production or service provision accepted by customers; speed of introducing new products or services; new feature for existing products or services introduced (cited). The innovation performance in enterprises reflects the results of types of innovation implemented and the innovation capability of enterprises to adapt to the market.

### 1.2.2 Research Model

The study aims to establish and assess the impact of innovation capability on types of innovation, the innovation performance in FDI enterprises in Vietnam. Research models inherited and developed from previous researches are proposed as follows.

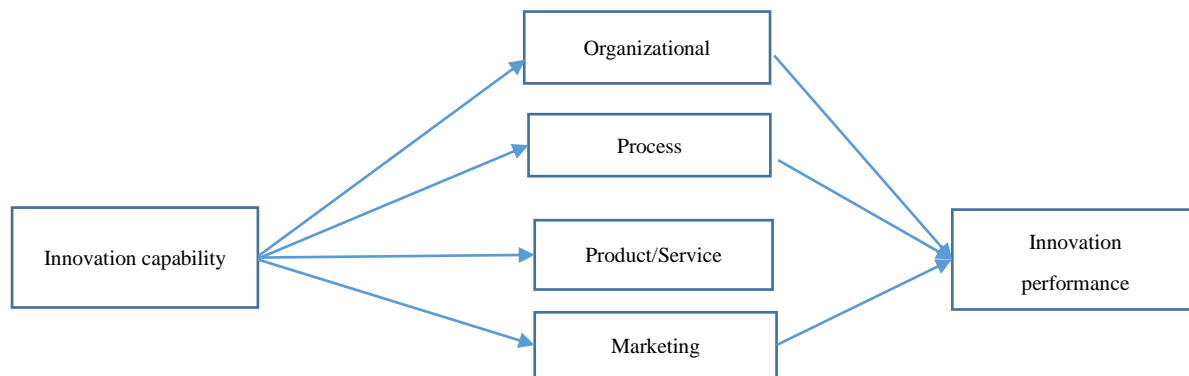


Figure 1. Research model

### 1.2.3 Research Hypotheses

#### *Relationship between innovation capability and types of innovation*

Innovation capability reflects the ability to use / transform resources through the application of processes, organizational methods or resources combination to implement the innovation process. Types of innovation in enterprises are quite diverse. According to the OECD classification, there are 4 types of innovation including (1) organization; (2) process; (3) products / services and (4) marketing (OECD, 2005).

#### *Organizational Innovation*

An organizational innovation is the implementation of a new organizational method in the firm's business practices, workplace organization or external relations (OECD, 2005). Organizational innovation can lead to increased business performance by reducing management and transaction costs. Organizational innovations are connected with all the administrative efforts including renewing the organizational systems, procedures, routines to encourage the team cohesiveness, coordination, collaboration, information sharing practice and knowledge sharing and learning (Van der Aa & Elfring, 2002).

#### *Process Innovation*

A process innovation is the implementation of a new or significantly improved production or delivery method. This includes significant changes in techniques, equipment and/or software. (OECD, 2005). Process innovation can affect productivity, growth or profitability of businesses (Veugelers, 2008, Nguyen & Nguyen, 2011). Innovating the process is a way to change the supply process without forcing customers to pay directly. Therefore, process innovation should be a regular activity to increase productivity and the value delivered to the stakeholders (Savitz et al., 2000).

### *Product/Service Innovation*

Product/service innovation is the introduction of a good or service that is new or significantly improved with respect to its characteristics or intended uses. This includes significant improvements in technical specifications, components and materials, incorporated software, user friendliness or other functional characteristics. (OECD, 2005). Product/service innovation is a way for enterprises to enter new markets and industries (Dam pour & Gopalakrishna, 2001). Product / service innovation is also a way for businesses to adapt to changes in consumer culture and changes in business models. Product /service innovation activities also consider changing the structure of product or service lines, legacy systems and business processes to promote revenue growth, financial stability, and to improve customers' experience and against the competition of other emerging products (Deloitte, 2017).

### *Marketing Innovation*

A marketing innovation is the implementation of a new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing (OECD, 2005). Main purpose of marketing innovation is better address the needs of customers, penetrate new markets or positioning new products in the market in order to increase sales.

Innovation capability affects the ability of enterprises to convert resources under different types of innovation, thereby affecting the business results of enterprises. In other words, innovation capability can affect the decision of enterprises to choose different types of innovation. Therefore, the research proposes research hypotheses as follows:

**H1:** Innovation capability positively affects organizational innovation.

**H2:** Innovation capability positively affects process innovation.

**H3:** Innovation capability positively affects product/service innovation.

**H4:** Innovation capability positively affects marketing innovation.

### *Relationship between types of innovation and innovation performance*

The type of innovation will determine the innovation performance of enterprises. Process innovation can lead to effective organization's innovative performance outcomes (Lendel & Varmus, 2014). Expanding the quality of new products / services increases the reliability of businesses with customers, which can lead to changes in the overall performance of businesses (Langerak, Hultink, & Robben, 2004; Rosli & Sidek, 2013). In fact, a large number of studies found a positive relationship between types of innovation and enterprise innovation performance (Chiang & Hung, 2010; Reed, Storrud-Barnes, & Jessup, 2012 ). Therefore, the types of innovation in enterprises are considered an important factor to create benefits for organizations to achieve competitive advantages (Baer & Frese, 2003). Various types of innovation bring benefits to the company to enhance the effectiveness of business activities in different aspects. Research by Antocic and Hisrich (2001), Hagedoor and Cloudt (2003) shows that different aspects of innovation have a clear effect on enterprises' performance, especially innovation performance. Therefore, this study hypothesizes:

**H5:** Organizational innovation positively affects innovation performance of enterprises

**H6:** Process innovation positively affects innovation performance of enterprises.

**H7:** Product/service innovation positively affects innovation performance of enterprises.

**H8:** Marketing innovation positively affects innovation performance of enterprises.

## **2. Method**

### *2.1 Scale Development*

The scales in the study are referred to previous studies. Innovation capability is referred to Akman and Yilmaz (2008) with 3 observed variables. Types of innovation are referred to OECD (2005) and Bilderbeek et al. (1998). In particular, organizational innovation is measured by 5 observed variables. Process innovation is measured by 5 observed variables; Product / service innovation is measured by 4 observed variables and marketing innovation is measured by 3 observed variables. Innovation performance is measured by four observed variables referred to Cronin and Taylor (1994) and Rothkopf and Wald (2011). The questionnaires were translated from English to Vietnamese and used a reverse translation method to ensure the questions did not change the original meaning. All observed variables in the factors in the research model are evaluated by the Likert-5 in which 1 is completely disagree and 5 is completely agree.

## 2.2 Sample and Method of Data Collection

Research data were collected through direct questionnaires to senior managers of FDI enterprises in Hanoi, Bac Ninh (North), Ho Chi Minh City, Binh Duong (South). The survey was conducted in January and February 2019. There were 254 valid questionnaires out of 30 questionnaires spread out. Information about enterprises' characteristics is described as tables.

Table 1. Characteristics of surveyed enterprises

Type of enterprises	Number of enterprises	Percentage
<i>Size of enterprises</i>		
Big	33	13%
Medium	156	61%
Small	65	26%
<i>Sector</i>		
Production	92	36%
Service	36	14%
Both	126	50%

## 2.3 Analysis Method

Multivariate data analysis methods are used to analyze collected data and verify research hypotheses. Confirmatory factor analysis is used to assess the reliability and the overall fit of the model to actual data, convergent validity and discriminant validity. The standard used is Chi-square / df less than 3, CFI, TLI, IFI greater than 0.9 and RMSEA less than 0.08 (Hair et al., 2006). Factor loadings of observed variables in each factor greater than 0.6 are considered convergence validity. The 95% confidence interval of the correlation coefficients between the factors in the model does not contain value 1, which indicates that the research concepts have discriminant validity. Cronbach Alpha coefficients, composite reliability coefficient is greater than 0.7, average variance extracted greater than 50% shows that concepts achieve the required reliability. The structural model is used to test the research theory. The statistical significance level is 5% as usual.

## 3. Results

### 3.1 Confirmatory Factor Analysis

A analysis results confirmatory factor analysis with saturated model showed that the research model proposed is fit to the actual data: Chi-square / df = 2.121 < 3, CFI = 0.923; TLI = 0.920; IFI = 0.923 greater than 0.9, RMSEA = 0.046 < 0.008. The factor loading of each factor in the model is greater than 0.6, indicating that the research concepts achieve convergent validity. Testing by bootstrap method, the correlation coefficients show that the 95% confidence interval of the factors in the model does not contain value 1, showing that the factors in the model reach the discriminant validity. Cronbach Alpha coefficients, composite reliability (CR) are greater than 0.7 and the average variance extracted (AVE) of all factors is greater than 50%, indicating that the research concepts achieve the required reliability (table 2).

Table 2. Results of reliability and model fit testing

Items		Loadings	Cronbach's Alpha	CR	AVE
Innovation capability					
IC1	Organizational culture	0.871	0.821	0.816	60%
IC2	Use knowledge from different sources	0.722			
IC3	Involvement of workers, customers etc.	0.719			
Organizational Innovation					
OI1	New business practice	0.701	0.879	0.893	63%
OI2	New Knowledge management system	0.762			
OI3	Distributing responsibilities and decision making	0.821			
OI4	Renew in external relationship	0.853			
OI5	Renewing the organizational structure	0.811			

Items		Loadings	Cronbach's Alpha	CR	AVE
Process innovation					
PSI1	Increase speed of implementation	0.754	0.911	0.902	65%
PSI2	Building operating flat form	0.766			
PSI3	Interactive online process	0.814			
PSI4	Methods allowing work instruction	0.855			
PSI5	Reduce variable cost	0.836			
Product innovation					
PDS1	Develop original products	0.719	0.871	0.868	62%
PDS2	Increase the value of the products	0.761			
PDS3	Add new elements to the products	0.821			
PDS4	Technical specification	0.853			
Marketing Innovation					
MI1	New media or technique	0.821	0.893	0.887	72%
MI2	New sales channels or placement	0.852			
MI3	New delivery channels	0.879			
Innovation performance					
IP1	Quality of new product or services	0.811	0.901	0.896	68%
IP2	Technological competitiveness	0.831			
IP3	Speed of introduce new products or service	0.859			
IP4	Novelty of new product or service	0.807			

### 3.2 Structural Model and Hypothesis Testing Results

Analysis results by structural model show that the model is fit to the actual data: Chi-square / df = 2.178, CFI = 0.911; TLI = 0.908; IFI = 0.911, RMSEA = 0.049. Testing of research hypotheses shows that all hypotheses are accepted (p-value < 0.05).

Table 3. Results of structural equation analysis (standardized)

Hypotheses	Relationship		Std. Beta	p-value	Accepted or not
H1	IC	OI	0.321	<0.001	Accepted
H2	IC	PSI	0.214	0.017	Accepted
H3	IC	PDI	0.274	<0.001	Accepted
H4	IC	MI	0.352	<0.001	Accepted
H5	OI	IP	0.135	0.023	Accepted
H6	PSI	IP	0.171	<0.001	Accepted
H7	PDI	IP	0.236	<0.001	Accepted
H8	MI	IP	0.218	<0.001	Accepted

## 4. Discussion

The findings of the study confirmed that the innovation capability in enterprises has a strong and positive impact on innovation type. Especially innovation capability has a strong influence on organizational innovation and marketing innovation. These findings play an important role in reaffirming the importance of creating innovation capability in enterprises. These insights provide the basis for enterprises to set their business strategies forward and focus on improving innovation capabilities of enterprises. This can be done through the influence of the top leaders in the business. Because the transformation of knowledge, ideas into practical innovation of subordinates depends on the delegation level, resources provision capability and the support of the leadership. Therefore, innovation capability provides insight to confirm the ability of enterprises to transform their capabilities and resources into competitive advantages through influencing and practicing types of innovation in enterprises.

The research results also recognized the clear impact of innovation type on the innovation performance in FDI enterprises in Vietnam. Especially products/services innovations and marketing innovations have a clear influence on the innovation performance in enterprises. This shows that for FDI enterprises investing in emerging markets like Vietnam, types of innovation have a clear influence on business operation performance. This also suggests that improving innovation capability can impact corporate culture towards innovation and

implementation of innovative activities to improve enterprise performance. Therefore, FDI enterprises in Vietnam should aim to improve the implementation of innovation activities in enterprises, towards the market to improve the performance of enterprises.

Although initial results have been achieved, this study has certain limitations. First this is a quantitative study, but the survey of innovation performance through likert scales may be biased by the respondents' opinions. Therefore, further studies can combine specific indicators of innovation such as number patent, number of useful solutions or actual success rates of new products / services, which may be better in measuring innovation performance. Second, the scale of research is still quite small due to limited resources of research, so further studies should be expanded. Third, this study is a cross-sectional study, so the conclusions on the relationships in the model may have limited representativeness. In the future, researchers will be able to expand the research to time series model, which will have a more reliable conclusion about the relationship between the variables in the model.

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