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Characteristics of Innovation in Vietnamese Firms: An Exploratory Research

Phan Thi Thuc Anh
National Economics University, Vietnam
Email: phanthucanh@yahoo.com

Abstract

Based on previous literature on innovation at the firm level as well as literature on the business environment in developing countries and in Vietnam, this research proposes four propositions on characteristics of firm innovation in the country. Two Vietnamese firms, one of them operating in the software industry and the other operating in the electronic game industry were selected to find out their innovation characteristics. Within each case, a triangulation of data collection methods was employed including field observations, documents, and direct personal interviews. It was found that evidence collected from the two cases generally supported the proposed propositions. The research provides a number of important implications for the government and businesses in Vietnam.

Keywords: Innovation; product innovation; process innovation; marketing innovation; organizational innovation; incremental innovation; radical innovation.

1. Introduction

Innovation has attracted very special attention from national governments, researchers and practitioners. Previous research has pointed out that innovation is a key determinant of an enterprise's success (Baldwin, 1995; Yamin, Gunasekaran and Mavondo, 1999; Marques and Ferreira, 2009) and a driving force behind the development of an economy (Rose et al., 2009). Innovation plays a particularly important role for Vietnam on the path to achieving the country's target of becoming a middle-income industrial country with a knowledge economy and a national innovation system contributing significantly to the development of the country's socio-economic development by the year 2020 (Ministry of Science and Technology, 2010). The use of innovation as a competitive advantage itself should be used as a model for economic development for Vietnam in the era of globalization and a shift to a knowledge economy.

In Vietnam, there have been several initiatives to improve the country's innovation situation including government policies, innovative activities implemented by enterprises themselves, and innovation training programs conducted by universities and government agencies. However, research on innovation is rare and characteristics of innovation at the level of the firm in the country are still not clearly understood. To date, there have been very few academic publications on Vietnamese enterprises' innovation, and none of them provides a clear picture of firm-level innovation characteristics. This paper represents one of the first attempts to address this issue in a scientific manner.

The paper aims at offering some propositions on characteristics of firm innovation in Vietnam and evidence to support these propositions. It is structured as follows: the next section presents background information on innovation and types of innovation at the firm level, followed by a section on proposition development. The subsequent sections outline the research methodology and then research findings on Vietnamese firms' innovation characteristics. In the last section is discussion and implications for future research.

2. Innovation and types of innovation at the firm level

Innovation is defined in many different ways. For example, Zaltman, Duncan, and Holbek (1973, p.7) describe innovation as 'a creative process whereby two or more existing concepts or entities are combined in some novel way to produce a configuration not previously known by the person involved'. Drucker (1985, p.19) suggests that 'innovation is the specific tool of entrepreneurs, the means by which they exploit change as an opportunity for a different business or service'. Rogers (2003, p.12) argues that innovation is 'an idea, practice, or object that is perceived as new by an individual or other unit of adoption.' Innovation is also defined as a 'process of translating ideas into useful – and used –new products, processes and services' (Bessant and Tidd, 2007, p.29) and 'the application of knowledge in a novel way primarily for economic benefit' (Rose et al., 2009, p.17).

A comprehensive literature review by Ram, Cui, and Wu (2010) has resulted in the identification of five broad dimensions in which the concept of innovation is defined and discussed. The five dimensions are: (1) Innovation

as something new; (2) Innovation as a conduit of change; (3) Innovation as a value driver; (4) Innovation as invention or creativity; and (5) Innovation as a process. According to the authors, among the five dimensions, innovation as something new appears as the central theme in most definitions and no doubt that the element of 'newness' is absolutely necessary for something to be called 'innovation'. The researchers also maintain that 'newness' alone is not sufficient unless it adds value or brings improvement to the innovation adopting unit.

Consistent with the Ram, Cui, and Wu (2010) finding, and in an attempt to develop a common understanding of innovation, the Organization for Economic Cooperation and Development (OECD, 2005, p.46) has proposed a definition of innovation at the firm level as follows:

'An innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations.'

For the purpose of this study, the above definition by OECD is adopted. An important clarification that must be made in this definition is the degree of newness or novelty. The question is how much novelty is sufficient for a change to be considered innovation? Some variations such as: simple capital replacement or extension, changes resulting from fluctuations in factor of production' prices (e.g. increase in the price of petroleum - one type of input), product customization that does not lead to significant differences in product, regular seasonal and other cyclical changes (e.g. small modification of products to fit with different seasons), are all too trivial to be qualified as innovations.

The next question to be considered is to whom it is new. The OECD (2005) has discussed three related concepts for the novelty of innovations: new to the firm, new to the market, and new to the world, in which, new (or significantly improved) to the firm is the minimum requirement. Products/ processes/ methods implemented for the first time in the firm are considered innovations of that firm even though they may already be implemented by other firms. The innovation does not necessarily need to be developed by the firm itself but can be acquired from external sources. An innovation is classified as new to the market if the firm is the first to introduce it on the firm's operating market. The market can be defined subjectively by the firm itself. An innovation is new to the world when the firm is the first (in the world) to introduce the innovation for all markets and industries, domestic and international. In this case, the firm can be considered as an inventor or a market leader.

Thus, to be innovative, a firm has three options. The first one is to adopt an innovation that already exists somewhere else. The second one is to adapt an existing innovation by first getting it, and then modifying it to suit the firm's own needs. The last option is to create/ develop the innovation themselves without taking all or part of existing innovations.

Employing the OECD's definition, innovation can be divided into four types: product innovation, process innovation, marketing innovation, and organizational innovation.

First, 'product 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, p.48). Examples of product innovation include the introduction of the first digital cameras or a new detergent using an existing chemical composition that was previously used as an intermediary for coating production only.

Second, '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, p.49). While production methods involve the techniques, equipment and software used to produce goods or services, delivery methods concern the logistics of the firm and include equipment, software and techniques to source inputs, allocate supplies, or deliver final products. Examples of new production methods are the implementation of new equipment on a production line or the implementation of computer-assisted design for product development. An example of a new delivery method is the introduction of an active RFID (Radio Frequency Identification) goods-tracking system.

Third, '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, p.49). An example of a marketing innovation in product design is the implementation of a significant change in the design of a furniture line to give it a more attractive look. A change in product packaging such as a new bottle design for facial cream is an example of marketing innovation in packaging. The introduction for the first time of direct selling – a new sales channel for the firm is an example of marketing innovation in product placement. An example of marketing innovation in promotion is the first-time use of a T.V. advertisement. The first use of a new method for varying the price of a good or service according to demand (e.g. when demand is low, the price is low) is an example of marketing innovation in pricing.

Finally, 'an organizational innovation is the implementation of a new organizational method in the firm's business practices, workplace organization or external relations' (OECD, 2005, p.51). Business practices refer to the ways work is implemented in organizations. The introduction of a new quality control system is an example of organizational innovation in business practices. Workplace organization refers to the distribution of responsibilities and decision making among employees as well as the structuring of business activities. The first implementation of an organizational model that gives the firm's employees greater autonomy in decision making or the integration of engineering and development with production function in a firm, are examples of organizational innovation in workplace organization. New organizational methods in a firm's external relations involve the implementation of new ways of organizing relations with other firms or public institutions. The subcontracting for the first time of business activities in production, distribution, or recruitment is an example of organizational innovation in external relations.

It should be noted that a particular innovation may have characteristics of several types

of innovation. For example, if firms implement changes to existing products that involve both significant changes in the functions or uses of the product and significant changes in the product's form and appearance or packaging, then this innovation is both product and marketing innovation. The above classification, therefore, is not rigidly fixed.

Another way to classify innovation is to see whether it is incremental or radical. The main feature to distinguish between the two types of innovation is the degree of change associated with it. Radical innovations create fundamental changes in the activities of an organization and represent clear departures from existing practices while incremental innovations embody marginal departure from existing practices and mainly reinforce the existing capabilities of organizations (Ettlie, Bridges and O' Keefe, 1984; Dewar and Dutton, 1986; Gopalakrishnan and Damanpour, 1997). For example, business process reengineering in which a firm's business processes are fundamentally changed by cutting unnecessary steps, combining the remaining ones in order to create almost entirely new processes that can significantly increase the firm's efficiency, can be considered as radical innovation; while small improvement in business processes is incremental innovation.

3. Proposition development

Although innovation is subject to firm-specific characteristics (e.g. McGourty, Tarshis and Dominick, 1996; Shaw, 1998; Keogh, 1999; Bagherinejad, 2006; Neely and Hii, 2012), it is still widely recognized that innovation is also determined by the firm's broader context or external environment (e.g. Aubert, 2005; Hobday, 2005; OECD, 2005). In other words, while innovation is different from one firm to another, firms operating in the same environment may share some common characteristics. Innovation of Vietnamese firms could be similar to each other in several aspects, which are different from that of innovation of firms in Australia, the United States, or Thailand. The purpose of this paper is to identify such aspects of innovation in Vietnamese firms. As pointed out by Mashelkar (2005), countries differ in terms of innovative capabilities, and country-specific factors influence the performance of innovation (Freeman, 2002; Hu and Mathews, 2005; Léger and Swaminathan, 2007).

Being a developing country, Vietnam is facing a number of challenges that shape the country's innovation landscape in a certain way. These challenges include, but are not limited to, macroeconomic uncertainty and instability; under-developed physical infrastructure (such as a poor transportation system); institutional fragility, lack of social awareness about innovation; existence of barriers to business start-up (OECD, 2005); low levels of educational attainment; poor governance, lack of financial transparency, bureaucratic climate (Aubert, 2005); high transaction costs, low technological capacities, and low effective demand (Léger and Swaminathan, 2007).

First of all, there is a low level of awareness and knowledge about innovation in general and among Vietnamese firms in particular. Enterprises that put innovation at the top of their agenda and state innovation as their primary strategic direction tend to be the exceptions. There are several reasons responsible for this lack of awareness and knowledge, one of which is the sustained dominance of state-enterprises.

Coupled with the monopolistic nature of some industries e.g. those in the energy sector, this has led to weak or even an absence of competition, which in turn, discourages innovation. Another attribute might be weak business support and management training. Therefore, it is no wonder that innovation knowledge is not as thoroughly disseminated as it should be. A low level of awareness and knowledge about innovation leads to a low level of innovation, and in cases where an innovation is implemented; it was done in an informal way.

Secondly, operating in an uncertain and unstable macroeconomic business environment (according to a survey by WEF (2013), 'policy instability' was ranked 2nd among 15 most problematic factors for doing business in Vietnam as seen by business executives), Vietnamese firms often focus more on short-term gains rather than long term benefits, while innovation requires a long-term vision and commitment. As innovation involves high risks while the return is unclear, it does not become a top priority of firms in Vietnam. Like many other developing countries, Vietnam's competitiveness depends more on the exploration of natural resources rather than differentiated products. In many cases, product or service quality is not as important as 'relationship'. Moreover, due to the lack of a good enforcement mechanism for intellectual property protection (the country is ranked 116th among the 148 economies covered by the 2013–2014 global competitive index according to WEF's survey (2013)), it is difficult for Vietnamese enterprises to protect the gains from their innovation activities, if any. Thus, enterprises' motivation to create new ideas, products, or services is low, leading to a low level of actual innovation.

Thirdly, resources for innovation, including but not limited to financial resource and qualified human resource, are not readily available in Vietnamese firms. In fact, 'access to financing' ranked 1st and 'inadequately educated workforce' ranked 3rd among 15 most problematic factors for doing business in Vietnam (WEF, 2013). Without adequate resources, innovation is difficult and sometimes, impossible. All of these lead to:

Proposition 1: Innovation in Vietnamese firms is generally low and tends to be informal.

In general, innovation systems in developing countries are poorly constructed and are very fragmented (Aubert, 2005). In Vietnam, a weak national innovation system, characterized by limited business funding for R&D activities, a loose relationship between science and enterprises, lack of international linkages (Nguyen Ngoc Anh, Doan Quang Hung and Nguyen Thi Phuong Mai, 2013; OECD, 2013), together with an inherent internal incapability would not facilitate and enable firms to develop new-to-the-world innovations. For enterprises that want to be innovative, it is much easier (and smarter, perhaps) for them to buy ready-to-use machinery, equipment or even a whole production line than to 'reinvent the wheel'. At best, Vietnamese firms could take existing innovations and modify them to suit their needs. In fact, a report by CIEM, DoE and GSO (2012) on firm-level competitiveness and technology in Vietnam has shown that in 2011, only 800 out of nearly 8000 surveyed enterprises were conducting original R&D and Vietnamese firms preferred to adapt outside technology

brought from external sources. Thus,

Proposition 2: Vietnamese firms tend to adopt or adapt existing innovations rather than develop new ones.

Although there is no exact data, research shows that the number of Small and Medium sized Enterprises (SME) in Vietnam account for approximately 97% of the total number of enterprises (Khánh Hòa, 2014; Ricky, 2014). In the meanwhile, SMEs often face problems such as lack of access to credit, limited knowledge, and limited network of relationships. The remaining 3% of the so-called large enterprises also have problems of their own. As pointed out by the OECD (2005), even enterprises considered 'large' in developing countries usually operate at suboptimal production scales with higher unit costs and far from optimal efficiency. This is also the case of Vietnamese 'big' firms. The lack of economies of scale, coupled with limited capital supplies and low capability would not allow firms in Vietnam to implement large-scale projects. Furthermore, under the situation of macroeconomic uncertainty and economy instability, it may not be wise to do so. As indicated by Naudé, Szirmai and Goedhuys (2011), incremental innovation may be more important in developing countries. Therefore,

Proposition 3*: *Vietnamese firms tend to focus on incremental rather than radical innovations.

Enterprises in developing countries like Vietnam often exhibit heterogeneity in technological, organizational and managerial patterns (OECD, 2005). For example, it is very easy to find situations in which 'high-technology' firms coexist with informal organizational structures and unwritten operating procedures in Vietnam. Meanwhile, the absorption of technologies generated in industrialized countries often requires synchronization among them. For instance, the implementation of a new Enterprise Resource Planning (ERP) information system would require respective changes in organization and management aspects. Organizational change is absolutely essential for the absorption of new technologies embodied in the off-the-shelve machinery, equipment, and systems bought by Vietnamese firms. Besides, many enterprises are operating in a still far from professional way. Organizational innovation would be needed in these enterprises even if no product or process innovation happens. This means, organizational innovation may be the most common form of innovation in Vietnam. In fact, prior research conducted in similar contexts, such as the one conducted by Egbetokun, Adeniyi, Siyanbola and Olamade (2009) in Nigeria, a developing country, showed that although some product, process and marketing innovations were found, organizational innovations were still 'at the heart of the innovation activities' of the firms. Thus,

Proposition 4*: *Among the four types of innovation, organizational innovation occurs most frequently and plays a particularly important role in the overall innovation process of Vietnamese firms.

4. Research methodology

This study employed the multiple-case study method proposed by Yin (1989), which includes five standard steps: (1) development of a theoretical framework, (2) selection of cases, (3) design of the case study protocol, (4) collection of case study evidence, and (5) analysis of case study evidence.

As for step 1, the above-proposed propositions have shaped the theoretical framework for this research. With regards to step 2, two Vietnamese firms were selected to examine their innovation characteristics. The first case is the Joint Stock Company for Telecom and Informatics (CT-IN) and the second one is Emobi Games Joint Stock Company (Emobi Games Studio). Both firms operate in high-technology, high-velocity industries, where changes are paramount and innovation is a must.

After selecting the two cases, a case study protocol was developed under the form of interview guide and questions. Interview questions focused on finding out the innovation situation at the company and consisted of questions such as 'please describe your company's innovation activities during the last 3 years', 'who developed these innovations?', 'please estimate the degree of newness in your company's innovations', 'what percentage of revenue does your company spend on innovative activities?', 'what difficulties has your company encountered in the innovation process'? The case study protocol also included instructions on note-taking and reporting of the interview results.

In step 4, a triangulation of data collection methods was used including field observations, documents, and interviews. Field observations were done at the same time as the interviews, in which observable things were taken note of. Brochures, websites, and publications about the companies including newspapers, magazine articles, and internal documents were collected before, during and after the interviews.

At CT-IN, 8 executive officers and staff were interviewed, including CT-IN's CEO, Deputy CEO, and Chief of ISO's board as well as CT-IN's Software center's Director, Vice Director, Quality Assurance manager, and two staff who were directly involved in the innovation process. At Emobi Games, interviews were conducted with 6 managers and a staff, including the CEO, the Programming manager, the Art manager, the R&D manager, the Quality Assurance manager, the HRM, Administrative and Accounting manager, and a Game designer. Two field researchers were given the interview protocol and coached to conduct the interviews. All interviews took place at the two firms' premises and lasted from 15 minutes to 1 hour. Interview notes were first hand-recorded and then transferred to digital form before being returned to the author.

In the final step, interview data, field notes and other company documents were analyzed following the thematic analysis procedure proposed by Ryan and Bernard (2003), in which repetitions, theory-related materials, as well as similarities and differences among interviewees' answers were particularly stressed. The research report was sent back to three representatives of the interviewees (two of them are from CT-IN and one from Emobi Games) for verification and final proof.

5. Research findings

Formally established in 2001, CT-IN is one of the top companies in the field of telecommunications, information technology and automation solutions for smart buildings. In 2012, CT-IN ranked in the top 500 biggest enterprises of Vietnam and in the top 200 private enterprises that pay the biggest amount of income tax. For the purpose of this study, at CT-IN, particular attention was given to its software devel-

opment field, which is a relatively new line of business for the firm. Software development is conducted by the Software Centre (Csoft), which is a young but innovative business unit. While belonging to CT-IN, Csoft operates quite autonomously and is preparing to spin off from the mother company to become an independent enterprise. In 2014, Csoft employed nearly 70 people. At the end of 2013, the revenue of the Centre was VND 16.8 billion (Csoft, 2014).

Emobi Games Studio was founded in 2009 with an original team of 8 individuals who used to be members of an R&D department. The team has committed to create and develop full scale made-in-Vietnam online and offline computer and mobile games that could serve both local and international markets. After five years of development, the company has grown from a micro to a small-sized company that employs 40 regular members, including 6 managers and 34 staff. The revenue figure was estimated at about VND 15.8 billion at the end of 2013 (Emobi Games, 2014).

A common finding from the interviews was that at first, the topic 'innovation' seemed to be unfamiliar with almost all managers. Many of them found it difficult to discuss what is beyond the mere concept of innovation although they themselves had engaged in innovation activities in practice. For instance, when asked to describe all the innovative activities that had been implemented in his firm, a manager responded: 'what are you talking about? It is a very strange topic and I haven't heard about it before'. In fact, the firm has implemented many activities that could be classified as innovation but he did not know that that is what they were. The firm did it without explicitly made formal statements about it. While the CEO at Emobi Games Studio was very passionate about new product development, he found it difficult to talk about the firm's strategic directions. Perhaps, such a formal strategy does not exist in this firm. Likewise, at Csoft, a clear long-term business orientation with an emphasis on innovation cannot be found. According to one interviewee, the Centre does not have a formal, specific mechanism to encourage and reward new ideas and initiatives nor does it have a clear training strategy to support innovation.

At Csoft, R&D activities are not regular and a formal, separate R&D unit does not exist. This indicates the lower priority given to R&D. Meanwhile, the situation is different at Emobi Games Studio. The company has a formal R&D department and is very keen on R&D activities. With regard to the funding aspect, while Emobi Games Studio is relatively flexible in their spending and has spent approximately 30% of their annual revenue on R&D activities (as stated by the company's CEO), Csoft does not have such a condition. At this company, a separate fund for R&D activities is not available. According to a Csoft accountant's calculation, over the last 3 years, the total expenses for innovation are only about 5% of the Centre's operating expenses. Why there is such a big difference between the two cases although they both are operating in industries that require a high degree and speed of innovation? The answer lies not only in their sizes (smaller firms tend to be quicker and more flexible) and their ownership structure (CT-IN grew out of a state-owned organization and currently still has 32% of equity stake owned by the government, while Emobi Games is totally private-owned),

but also in their traditional habit. Since its establishment, CT-IN has been following Vietnamese accounting standards in which R&D costs are funded by an Investment and Development fund, which is a fund extracted from after-tax profits. The Vietnamese government has now allowed firms to establish their own R&D fund derived from pre-tax profits but CT-IN still keeps its traditional practice. They may not see the establishment of a separate R&D fund as urgent as in the case of Emobi Games. Nor do they see an urgent need to invest much on R&D activities.

Taken together, the above findings support proposition 1 in a sense that innovation tends to be *informal*, characterized by the lack of explicit statements on innovation in the firm strategies (in both cases) and the lack of a formal R&D unit as well as an R&D dedicated fund (in Csoft's case).

During the last 3 years from 2011 to 2013, Csoft has implemented several notable innovations, including (1) the application of CMMI level 3 (CMMI, standing for Capability Maturity Model Integration. This is a framework for process-improvement developed by Software Engineering Institute (SEI), Carnegie Mellon University (CMU), and Pittsburgh, USA), (2) the procurement of two new servers, (3) the opening of an online account to enable access to open-source software for management developed by world famous companies such as IBM, Oracle, and SAP, (4) the purchase of copyright accounting software, (5) the application of Balance Scorecard (BSC) and Key Performance Indicators (KPI), as well as (6) the introduction of a number of improved software products. According to an interviewee, these products are new to the firms, not to the market, and the company could only add about 10% of value to the products, 90% are already made by someone else.

Emobi Games Studio has also implemented many innovations, which consist of (1) the introduction of 5 new computer and mobile games (7554, 2112, Nova Defense, Nova Squad, and Dai Minh Chu), (2) the procurement of many specialized computers and software such as a piece of equipment known as 'Motion Capture' to support the development of 3D animation for the 7554 game and a 'Unity Engine' software to speed up the programming phase, (3) changes (3 times) in organizational structures, and (4) the inclusion of many new sales channels such as selling via Soha Game, a Vietnamese publisher, via Appstore, and via GooglePlay besides direct selling, book stores, and game shops. Among the above listed innovations, only the introduction of the Dai Minh Chu game is considered as entirely new to the market. Other innovations have either a low degree of newness or are already used by other firms. Thus, proposition 2, '*Vietnamese firms tend to adopt or adapt existing innovations rather than develop new ones'* seems to be supported.

Among the innovations implemented by Csoft, the application of CMMI level 3 is perhaps the biggest one. This innovation is built upon the previous experience that the company had gained when implementing ISO. Without having such an experience, it is difficult to implement CMMI successfully. At Emobi Games, the game designer interviewed said that 'normally, each year, we would create a product that is about 5 - 10% new compared

to the previous one, and then over 5 years, we would have a product that is about 50% new compared to the original one. It is hard to create something completely new right away'. Thus, proposition 3 '*Vietnamese firms tend to focus on incremental rather than radical innovations'* is supported.

While product innovation seems to be the major focus of Emobi Games Studio, at Csoft, the interviewees emphasized the importance of organizational innovations. One of them noted that, until the time the interview was conducted, the Centre had not been able to fully exploit the advantages of new software development methods resulting from CMMI application because of the incompatibility between technology on one hand, and business practices and workplace organization on the other hand. To have a complete success in CMMI application, the Centre must implement organizational changes accordingly. Besides the organizational changes accompanying CMMI, the Centre also implemented other changes such as issuing a new BSC and KPI system independent from CMMI. Thus, in the case of Csoft, it can be said that *among the four types of innovation, organizational innovations occur most frequently and play a particularly important role in the overall innovation process.* Proposition 4 is partially supported.

6. Discussion and conclusion

Drawing on previous literature on innovation as well as literature on the business environment in developing countries in general and in Vietnam in particular, this research has proposed several propositions on characteristics of firm innovation in the country. The propositions are illustrated by examples of innovation in two Vietnamese firms. The research provides a number of implications for the government and businesses in Vietnam.

Firstly, it is hard (and may not be urgent) for a single firm to innovate in a generally low innovative environment. Firms would be more motivated to innovate if they operate in a highly innovative environment. At this stage of development, the Vietnamese government's policies and actions play an important role in influencing the whole country's innovation situation. What the government of Vietnam must do is to improve the national innovation system to enable and facilitate the innovation process of businesses. Measures such as strengthening the higher education sector, promoting linkages between FDI and private sectors to allow for technology diffusion, and providing tax-incentives and other preferential treatment to highly innovative enterprises, could be taken to address this issue. Furthermore, a well-defined legal framework that helps enterprises to appropriate the gains from their innovations is essential and it is the government's responsibility to make sure that it happens.

Secondly, Vietnamese firms should have clear strategies and mechanisms for innovation, obtain more innovation knowledge and skills through different channels and training, mobilize and allocate appropriate funds for innovation activities, and should build internal and external linkages with domestic and international organizations. The first phase could be 'adopting and adapting innovation' as it is now, but over the long term, firms should then gradually go into the 'creating/developing innovation' stage. Lessons could be learnt from enterprises in countries like Japan or South Ko-

rea. In addition, attention should be given to all types of innovation and the match among different parts/ aspects of the organizations should be built to ensure innovation success.

This research is exploratory in nature and perhaps a little bit biased toward innovative firms. More evidence is needed to provide a full picture of the innovation characteristics in Vietnam. Future research could overcome this weakness by investigating a larger number of companies with more diverse backgrounds, and by conducting a large-scale survey of Vietnamese enterprises' innovation level and types to test the proposed propositions. Despite this weakness, the research has provided some important insights into characteristics of innovation in Vietnamese firms and therefore, has improved our understanding of firm innovation in general and characteristics of firms' innovation in Vietnam, a developing country, in particular.

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