

# Supplier-Maker Networks Structure and Capability Improvement of Suppliers in Newly Emerging Vietnam's Motorcycle Industry

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(Preliminary, comments are welcome)

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## ***Abstract***

This paper explores the differences in patterns and processes of capability improvement of suppliers exploiting different kinds of supplier-maker network structures (*arm-length* or *embedded* networks) in newly emerging Vietnam's motorcycle industry. Based on production process of suppliers, the paper proposes six supplier's functional capabilities of *function design*, *structure design*, *process design*, *process setup*, *process maintenance* and *delivery control*. Five in-depth case studies of suppliers in newly emerging Vietnam's motorcycle industry, where arm-length and embedded networks coexist, are provided. The study finds the correlation between suppliers' functional capabilities improved and network structure they participate. While suppliers in arm-length networks need more upstream capabilities (structure design, process design, process setup or even function design), suppliers in embedded networks can improve more downstream capabilities (process setup, process maintenance and delivery control). The paper explores two different capability improvement patterns. In the *one-pole* pattern, suppliers belong to production networks with only one kind of structure, either arm-length or embedded. These suppliers improve different functional capabilities asymmetrically that obstructs the suppliers to meet requirements of new buyers who come from networks with different structure. In the *double-pole* pattern, the suppliers rapidly diversified their capabilities to join networks with the both structures and improve capabilities symmetrically. In newly emerging economies, dynamic switching between the two patterns is a way for late-coming suppliers entering new industries.

Key words: Network Structure, Capability, Newly Emerging Economies, Supplier-Maker Network

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## 1. Introduction

Supplier-maker network is known as a source for suppliers to improve capabilities through approaching, absorbing and accumulating knowledge as well as by activating the motivation and ideas to innovate and improve performance (Nishiguchi 1994, Kohno 2001, Clark and Fujimoto 1991, Pittaway et al. 2004). Numerous empirical studies has focused on effects of network structure on capability improvement of suppliers in matured industries in *developed economies* (Nobeoka 1999, Kohno 2001, Helper 1991, Helper and Sako 1995, MacDuffie and Helper 2006) or *matured emerging economies*<sup>1</sup> such as Korea, Taiwan (Kim and Lee 2002, Mahmood and Singh 2003), Brazil, Mexico, India, China (Ivarsson and Alvstam 2005, Odaka 2004), Thailand (Kreinkrai and Thamavit 2004). However, limited understanding is on *how* network structure influences on the capability improvement of suppliers in *newly emerging countries*. This paper explores the patterns and processes of capability improvement of suppliers exploiting different kinds of supplier-maker networks in newly emerging Vietnam's motorcycle industry.

Studies on inter-firm network have pointed out two kinds of network relationship, *arm-length* and *embedded*, which are illustrated by production systems of American and Japanese automobile companies distinctively (Helper 1991, MacDuffie and Helper 2006, Dyer 1997, Dyer and Ouchi 1993, Cusumano and Akira 1991). The advantages of embedded networks in automobile industry were used to explain the rapid development and competitive advantages (by improving performance) of Japanese automobile companies in comparison with American competitors (Clark and Fujimoto 1991, Helper 1991, Helper and Sako 1995, Womark et al. 1990). Embedded network makes participants obtain higher *quasi-rent of relation* (Asanuma 1989), reduce transactional

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<sup>1</sup> Emerging economies are defined by two criteria of rapid pace of economic development; and government policies favoring economic liberation and the adoption of free-market system (Hoskisson et al. 2000). These economies are increasingly strengthening their position in global economy (Wright et al. 2005). In Hoskisson et al. (2000), there are 64 emerging economies. This list can be added up by new countries such as Vietnam, as in researches of Wright et al. (2005). Emerging economies can be divided into two groups of *matured emerging economies* (such as Korea, Singapore or Taiwan), which have decades of emergence, and *newly emerging economies* (such as Bangladesh, Nigeria or Vietnam) which have been emerging recently.

cost (Dyer 1997) so that it allows firms to get higher performance (of *cost, delivery, quality* and *lead-time* of product development) in long-term relation (Clark and Fujimoto 1991, Nishiguchi 1994, Dyer 1997). Arm-length structure, on the other hand, is more efficient when the network requires less transaction. When products and component parts are standardized (or *modularized*), arm-length networks can have more advantages because they stimulate innovation and mass customization (Sanchez 1996, Beckman and Haunschild 2002, Kotha 1995). Recent debates on network relationship and its effects on performance of firms, particularly of suppliers, are continuous on when and how to adjust networks to get better performance and competitive advantages (Nobeoka 1999, Pham 2005, MacDuffie and Helper 2006).

Although studies on effects of supplier-maker networks on capability improvement of suppliers mostly in the situation of developed economies (as in example of automobile industries in Japan, Europe and United States), few studies started to focus on matured emerging economies (such as Korea, Brazil, Thailand). Along with the process of expanding transnational corporations' (TNCs) technologies and production systems worldwide (Dunning 1998), supplier-makers networks are increasingly built in emerging economies. Long-term studies on the development of firms in matured emerging economies, such as Korea, Brazil, Thailand and Taiwan have described supplier-maker networks as a source to create capabilities of firms in emerging economies. However, there is still little understanding of how and which kinds of capabilities suppliers improve when dealing with different kinds of network, particularly in the cases of suppliers in newly emerging economies.

The development of firms in matured emerging economies and the expansion of their production systems abroad also lead to changes in business environment nowadays. Suppliers in newly emerging economies may simultaneously deal with various production systems, both arm-length and embedded, from investors from various countries. Under this new framework of business environment, late-coming suppliers in newly emerging economies have their new strategies of exploiting networks. Thus, this paper is aiming at the research question of *how suppliers can exploit supplier-maker relationship to improve their capabilities and performances in newly emerging economies having a mix of different network structures*. Case studies of suppliers in newly emerging Vietnam's motorcycle industry are provided to examine strategies of different suppliers.

The paper is organized as following. Research framework will be synthesized in Section two. Section three is an overview of newly emerging Vietnam's motorcycle

industry. Methodology and case analysis of five motorcycle part suppliers are described in Section four and five. Discussions and concluding remarks are in Sections six and seven.

## **2. Buyer-Supplier network and capability improvement of suppliers**

### ***Supplier-maker network structures: embedded and arm-length***

In recent decades, the development of the Japanese automobile industry has drawn more attention of researchers on supplier-maker relationship as a source of competitive advantages. Two kinds of supplier-maker network structures have been identified to distinguish the differences in inter-firm relationship between suppliers and makers and advantages created by different networks.

The more familiar networks to western automobile companies are *arm-length* structure. This kind of network is characterized by market-based relation between participants. Suppliers and makers set up a relationship called *exit* (Helper 1991). It means that the relationship is relatively unstable that every participant can go out of the contracting relation. Suppliers and makers in arm-length networks have short-term relationship, subcontract small amount of product, exchange little information. Transactions within these networks are concentrated in bargaining, contracting and payment. Participants are more independent in asset and management (Helper 1991, Dyer 1997, Cusumano and Akira 1991). With this kind of relationship, to sustain relation within arm-length network, it needs to have more governance mechanism such as guarantees (Dyer and Singh 1998, Dyer 1997, Williamson 1985).

Different to networks of American automobile companies, Japanese competitors build up *embedded* networks with their suppliers. The fundamental characteristic of this kind of network is that networks are built on trust-based relation between firms (MacDuffie and Helper 2006). Makers and suppliers sustain relationship for long term, with different products. The amount of product subcontracted is large and stable. Participants actively share information about production process, technology and management. Makers, who often have better technological and managerial knowledge, are willing to share their experience and knowledge with suppliers. In return, makers ask for more information about production process of suppliers, even cost structure (Nishiguchi 1994, Dyer 1997). Inter-dependence between firms is strengthened. Makers

and suppliers can even cooperate in developing new products (Clark and Fujimoto 1991), in solving problems during production (Nishiguchi 1994) or in reacting against struggles of market (Pham 2005). With this *voice* relationship (Helper 1991), participants can get *relation (quasi) rent* (Asanuma 1989) and reduce governance mechanism (Dyer and Singh 1998). That allows embedded networks to have competitive advantages in long term.

Arm-length and embedded networks co-exist in automobile and motorcycle industry since long time. Recently, while Japanese automotive companies retain their embedded networks, in the Chinese motorcycle industry, supplier-maker networks are based on arm-length relation (Ohara 2001, Matsuoka 2002, Sugiyama and Otahara 2002). In the case of American automobile companies, although the companies are improving collaborative relationship within networks (Helper and Sako 1995), there is still a remarkable gap in *embeddedness* between networks of American automobile companies and those of their Japanese competitors. Relationship within embedded style networks of Japanese companies is based on *trust* entirely while collaboration in American networks is *without trust* (MacDuffie and Helper 2006). The modification of network structure has also been seen in Japanese automobile and motorcycle companies (Nobeoka 1999, Pham 2005). However, supplier-maker networks of Japanese automobile and motorcycle companies are still in embedded style (Fujimoto 2004, Pham 2005, MacDuffie and Helper 2006).

Effect of supplier-maker network to capability improvement of suppliers is one of one focuses of competitive strategy literatures. Studies on automobile industry in recent decades indicated the long-term effects of embedded networks to capability improvement of suppliers. Empirical studies on the Japanese automobile industry evidenced that beside *scope of customer*, long-term relation with customer (Nobeoka 1996), and cohesive relation with main customer (Kohno 2002) help to improve performances<sup>2</sup> of suppliers. Other studies showed the effects of embedded networks on improving delivery, quality, flexibility (Nishiguchi 1994) and cost, product development (Clark and Fujimoto 1991).

However, it does not mean that arm-length networks have not any positive effects on the capability improvement of suppliers. Nobeoka (1996) shows that in Japanese automobile industry, the more customers a supplier has, the higher performance it gets.

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<sup>2</sup> Performance can be seen as picture of firms' capabilities. See more at Fujimoto, 2004, (pp 41-70) about the relationship between capabilities and performance

Research on the late-coming motorcycle industry of China also showed the roles of arm-length networks to the development of suppliers (Ohara 2002, Sugiyama and Otahara 2002).

**Table 1: Arm-length and embedded networks**

<b>Relationship</b>	<b>Arm-length</b>	<b>Embedded</b>
<b>Features</b>	<ul style="list-style-type: none"> <li>- Short-term relationship, large distance, small volume of subcontract, less information exchange, low degree of combination</li> <li>- Unstable, ask for more governance mechanism</li> </ul>	<ul style="list-style-type: none"> <li>- Long-term relationship, proximity, large volume of subcontract, more information exchange, high degree of combination</li> <li>- Stable due to self-guard mechanism</li> </ul>
<b>Knowledge improved</b>	More efficient for explicit ( <i>codifiable, teachable, less complex, low system dependence, observable</i> ) knowledge	More efficient for tacit (implicit) knowledge
<b>Example</b>	Electronic industry, American automotive industry (particularly before 1990s)	Japanese automotive industry

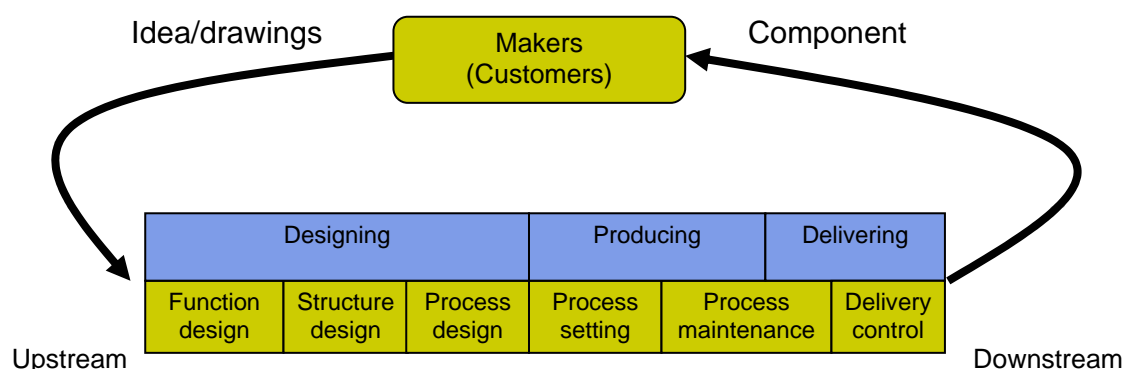
***Production process and capabilities of suppliers***

Capabilities of firms decide the firms’ competitiveness. Firms’ capabilities are complex and invisible (see more in Fujimoto 2004). There are noticeable differences between capabilities required to suppliers compared to normal firms. Products of suppliers are component parts, needed to be compacted with products of makers. Makers often have knowledge of technology and management and often require more on technical aspect of products (components). Compared to normal firms, suppliers need more capability relating to production process. This study, based on production process of suppliers, analyzes suppliers’ capabilities.

Production process in a supplier starts from receiving subcontracting contract and/or order from a maker. The makers can give the supplier ideas about the product (i.e. component parts) or even give to the supplier designing drawings. After receiving the ideas of a component, the supplier starts *designing* process, which can be divided into three steps of *function design* (or concept design, to design functional aspect of

components), *structure design* (to design physical aspects of components, including *product plan* (or *basic design*) and *product design* or (*detailed design*)) and then *process design* (to design production layout). *Producing* process starts by setting up production system (*process setting*) and then ordinary producing activities (*process maintenance*). After being produced, components are delivered to makers<sup>3</sup>. Along with designing, producing, delivering processes, suppliers need the capabilities of *function design*, *structure design*, *process design*, *process setting*, *process maintenance* and *delivery control* (Figure 1).

**Figure 1: Production process and capabilities of suppliers**



To evaluate the total capability of a supplier, there are two aspects to be considered. The first is the content or the quality of each capability. Suppliers improve each capability by upgrading related skills. For example, to improve process maintenance capability, suppliers need to improve operating skill of workers, trouble shooting skill of engineers, management skill of purchasing workers as well as other operating related skills. In this process, surrounding supplier-maker networks have effects on suppliers (Nishiguchi 1994, Odaka 2004, Ivarsson et Alvastam 2005). The second aspect is kind of capability the suppliers concentrate in.

Which kind of capability to be improved and how to improve are critical questions to suppliers in their strategy and operation. In capability improving process of suppliers, surrounding supplier-maker networks play an important role. Maker who plays the role

<sup>3</sup> See more about product designing in Clark and Fujimoto (1991) and about producing process management in Womark et al. (1990).

of customer is one of main sources offering knowledge to suppliers (Hippel 1994). Subcontracting with maker stimulates supplier to improve capability and to respond to makers' increasingly requirements. As supplier provides input and participates in maker's production process, maker may also directly offer knowledge to suppliers. This phenomenon can be seen in emerging economies, particularly in the relationship between local suppliers and foreign makers (Odaka 2004, Ivarsson et Alvstam 2005, Hobday 1995). During the process of enlarging their production networks globally, foreign makers transfer knowledge to local suppliers (Kim and Lee 2002). How maker influence on capability improvement of supplier is depended on maker's requirements and the relationship with supplier. In the other words, it is depended on supplier-maker network structure.

***Effects of supplier-maker network structure on suppliers' capabilities improvement in newly emerging economies***

In recent newly emerging economies, suppliers deal with various makers within different kinds of subcontracting networks. The above analysis on network structure and suppliers' capability suggests two prepositions related to the effects of network structure to capability improvement of suppliers.

First, in newly emerging economies, suppliers have limited capabilities. To reduce the burden of the full production process and to enable that suppliers can support good components, makers tend to assist suppliers more. They may handle partly works of suppliers and take charge several functions of suppliers in production process. However, these supports appear in embedded networks rather than in arm-length ones. Moreover, due to capabilities in upstream need long time to improve and often lack in new-coming suppliers (Kim and Lee 2002, Xie and Gu 2003, Mahmood and Singh 2003), makers in embedded networks will take charge upstream functions (designing related functions) of suppliers and assist suppliers more to improve downstream capabilities

*Proposition 1: In newly emerging economy, the more embedded relationship with makers the suppliers have, the higher downstream capabilities they can improve.*

Second, studies on development of firms in emerging countries also pointed out strategy of *imitation* as a way for latecomer to grow (Fujimoto 2004, Sugiyama and Otahara 2002). To follow this strategy, suppliers need capabilities of designing. Moreover, in newly emerging economies, the appearance of late-coming makers, both come from abroad and aroused locally, creates new supplier-maker networks. Suppliers can join the industry by entering networks of late-coming makers. However, since these



makers have short time of growth and limitation of capabilities, they rather build arm-length networks.

*Proposition 2: In newly emerging economies, the more arm-length relationship the supplier has, the more upstream capabilities the supplier can improve.*

### **3. Newly emerging Vietnam's motorcycle industry**

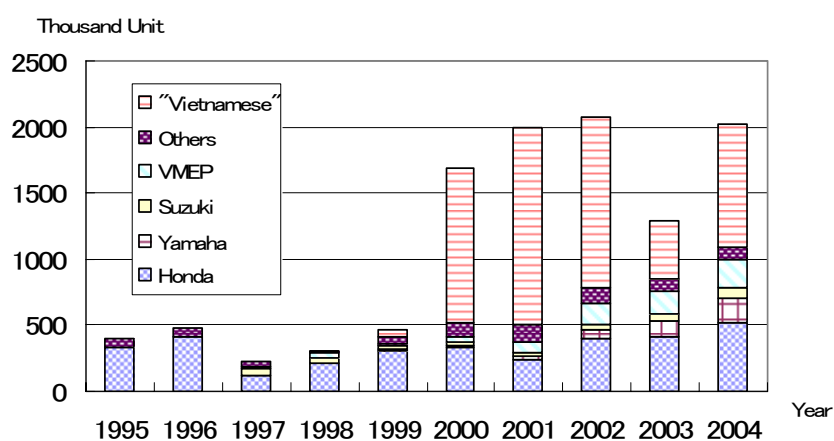
With the population of more than 80 millions and annual income per capital of US\$ 550 (in 2004), Vietnam is a potential market for motorcycle. Annual motorcycle sales are about 1.5 million units in recent years and ranks eighth in the world's motorcycle market. However, it is just since 1998 that motorcycle industry grew briskly in Vietnam. From 1999 to 2002, the motorcycle market multiplied by six times.

One of the reasons leads to the booming of motorcycle market in Vietnam is the emergence of low-priced motorcycle manufacturing in Vietnam. Although the first Taiwanese motorcycle maker then Japanese Suzuki, Honda and Yamaha established their factories in Vietnam in 1993 and afterwards, it is until 1999 that motorcycle manufacturing really boomed in Vietnam with the penetration of Vietnamese motorcycle makers in low-priced motorcycle market segment. These newly-born makers, whose number reached to 54 in 2000, started their business by importing component parts from China and assembling in Vietnam. They even took more 70% market share in 2001. The emergence of motorcycle industry of Vietnam has been known as "Chinese shock" due to the expansion of Chinese motorcycles. After the strengthening of localization regulation (to promote component part production inside Vietnam), component parts, particularly non-engine ones, have been increasingly produced in Vietnam.

Vietnam' motorcycle industry has fluctuated a lot during its short history. The development of the industry can be divided into 5 stages. *Stage 1* was before 1993, the stage of CBU (completed built units) production. Supporting industry of motorcycles has not existed this time, except production of repairing components in low quality. *Stage 2*, from 1993 to 1995, was marked by the entrance of the first motorcycle maker, Taiwanese Sangyang (its affiliate in Vietnam is called as VMEP in short). This company rapidly built its component producing network in Vietnam after operation. In this stage, almost suppliers are Taiwanese companies investing in Vietnam. *Stage 3*,

from 1994 to 1998, is the time that Japanese companies started manufacturing in Vietnam. The Japanese makers then developed their own local supporting networks beside encouraging abroad suppliers who have had subcontracting relation with to invest to Vietnam. Motorcycle supplying networks in Vietnam moved to a new stage of development with the diversification of motorcycle makers and suppliers. *Stage 4*, from 1999 to 2002, was the most noticeable in the development of the motorcycle industry in Vietnam. The entrance of low-priced Chinese imported completed motorcycles from 1998 and then components since 1999 pushed the brisk growth of the Vietnam' motorcycle industry. A new group of makers, the Vietnamese local makers, has emerged and built new production systems. Then, partly due to the government's localization regulation, makers adjusted their subcontracting strategies and suppliers were numerous born in Vietnam since 2001. *Stage 5* started since 2003, when the industry has gradually developed stably. "Chinese shock" were over. Foreign invested makers, particularly the Japanese ones, come back to penetrate the market. Besides, several Vietnamese motorcycle makers continuously develop and the diversification of supplier-maker networks retains in the Vietnam's motorcycle industry.

**Figure 2: The emergence of the Vietnam' motorcycle industry**



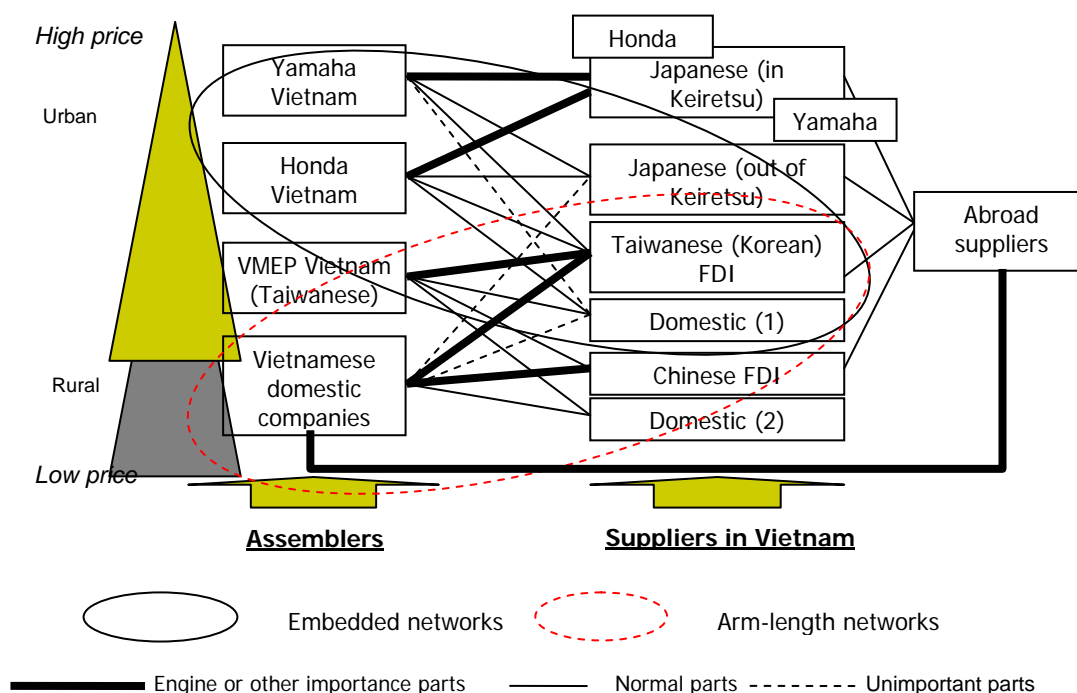
*Source: Ministry of Industry, Ministry of Policy of Vietnam (unpublished data)*

The mix between different supplier-maker networks in the Vietnam' motorcycle industry can be seen clearly since 2002. Different production networks of different makers can be sorted into two groups. The Japanese motorcycle makers in Vietnam

(Honda, Yamaha, and Suzuki) have embedded supplier-maker networks. Although there are little changes in these networks since 2002, they are still embedded. In contrast, supplier-maker networks of local Vietnamese motorcycle makers are arm-length. The same structure of network exists in Taiwanese invested VMEP company although this company has created its own supplier networks for long time with the participation of Taiwanese invested suppliers (Pham 2005).

The brisk development of the Vietnam's motorcycle industry has challenged suppliers to have efficient strategy to exploit resource from supplier-maker networks to improve capabilities. The following session analyzes case studies of suppliers in the Vietnam's motorcycle industry to explore the effects of network structures to capability improvement of suppliers.

**Figure 3: Different supplier-maker networks in the Vietnam's motorcycle industry**



Source: created by the author based on interviews

## 4. Methodology

Case-studies of five suppliers in the Vietnam's motorcycle industry are provided to test the framework proposed in Session two. (For more details on this method, see Yin, 1994). In-depth interviews (including repeated interviews) with managers of these suppliers, the Japanese motorcycle makers in Vietnam and local Vietnamese makers were carried out in 2004, 2005. Each interview lasted from 90 to 150 minutes, including factory visits. The five suppliers were chosen from six groups of supplier. Suppliers *in Keiretsu* and *out of Keiretsu* (but in Japanese companies' *Kyoryokukai*<sup>4</sup>) have been taken out of the analysis because they are affiliates of abroad suppliers, who have possessed matured capabilities. Most of capabilities of these suppliers are transferred from their headquarters. Taiwanese suppliers, whose headquarters are latecomers being in the processes of accumulating capabilities have not been dropped out. Moreover, for the purpose of time-scale analysis, Chinese invested suppliers have not been taken into account because most of them came to Vietnam since 2001 or 2002.

Four of the five case-studies are Vietnamese companies. All of them have decades of development in mechanical industry and established in 1960s. Companies A, B, C are state-owned, with labors of 850, 2000 and 400 people. They inherit large investment of the government and well-training labors, particularly during 1960s-1980s, before Vietnam switches to market economy. Companies A and B are Honda Vietnam Company's suppliers as soon as Honda started operating in Vietnam in 1997. Then they became suppliers of Yamaha and Suzuki in Vietnam. Company C participated in the industry since 1998 and set up the relationships with the Japanese makers since 2003. Company D is a private company, has 350 labors and is the earliest company entering motorcycle component production since 1960s. Recently, products of this company are mainly for motorcycle repairing market and it has not had any subcontracting relation with the Japanese makers.

Company E is Taiwanese, invested in Vietnam since 1994. With 1200 workers, this affiliate in Vietnam is even bigger than its headquarter in Taiwan. The company started

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<sup>4</sup> *Kyoryokukai* is Japanese style subcontracting and production system (*shitauke seisan sisutemu*), organized in both integral (*suichokuteki*) and pyramidal structures. Under this system, suppliers and the core producer cooperate as if they constituted one organization. *Keiretsu* is defined as a collection of Japanese enterprises with a long-term mutual relationship and inter-dependence in capital and technology. This study uses the stock holding relationship to determine whether a firm belongs to *keiretsu*. (See more Pham 2005)

subcontracting business with Taiwanese VMEP in 1994 and then Suzuki, Yamaha and Honda in Vietnam before buying components to local makers since 2001. Although all products (components) of these five companies are metal ware, company A produces more engine related components than companies B, C and E. Following are companies B and E. Meanwhile, D company produces various components for repairing market.

Two dimensions are used in the case analysis. The first is subcontracting relationship and its effects on capability improvement of suppliers. Further evaluation of performance (cost, product quality, delivery and lead-time of new product development) is used additionally to make clear the process of improving capabilities. The second dimension is time-scale, due to the accumulation of capabilities in firms. Effects of supplier-maker networks are examined in four stages of development of the motorcycle industry in Vietnam. The first stage, before 1993, has been eliminated since motorcycle supplying industry has not existed in Vietnam at that time.

## 5. Case analysis

Since 1998, the five investigated suppliers have improved capabilities remarkably by the evaluation of themselves and, more importantly, by the evaluation of the makers in the Vietnam's motorcycle industry. However, which capability and how much they can improve are depended on which makers they deal with and how they retain these subcontracting relationships. Based on relationship with kind of makers (i.e. kind of network) three groups of suppliers are categorized.

Group one includes suppliers having subcontracting with Japanese motorcycle makers, it means, belong to embedded networks. Company A and company B (before 2002) are in this group. These two suppliers started subcontracting with Honda Vietnam Company (HVN) since 1997. In the beginning, they received full support from Honda through groups of dispatching engineers who brought structure designs (with technical drawings) to the suppliers and assist them to design production process. These engineers were staying for several months in the suppliers to control the production processes; to transfer knowledge related to production process maintenance and delivery control until "the companies can get the standard of Honda"<sup>(\*)</sup>. After these long-term visits, HVN

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<sup>(\*)</sup> quoted from interviews.

needs only short frequent visits, which last for a couple of hours for every month and longer time visits for cooperating in solving trouble if they occur. In 2002, when HVN ordered new components, it sent only one engineer for each of these two suppliers and the engineers stayed for one or two weeks. The improvement of process design, process setting, process maintenance, delivery control has been appreciated by HVN. However, up to now (for Company A) an up to 2002 (for Company B, when it started dealing with Taiwanese and local makers), the two suppliers have not had function and structure designing capabilities. These two suppliers receive drawings (white and blue drawings) from Japanese companies like HVN.

Group two includes suppliers dealing with local Vietnamese or Taiwanese makers (Company D, Company C before 2003, company E before 1998). These suppliers belong to arm-length networks. Different to suppliers in group one, those in group two need to have capability of design when they enter motorcycle supplying industry and deal with local Vietnamese and Taiwanese makers. This capability enable the firms to carry out *reverse engineering*, reversely design drawings from existing components, then manufacture imitating components. Although the suppliers in group two do not have function designing capability, they have structure and particularly process designing capabilities independently. For the case of company E (Taiwanese), capabilities are transferred from the headquarter in Taiwan. For Vietnamese suppliers, designing related capabilities are accumulated by purchasing machinery from manufacturers in China and Taiwan and diffusing technologies from these manufacturers. Upstream capabilities are also developed internally such as in the case of company C. However, downstream capabilities are improved slowly. The suppliers in group two can produce with low cost but it is mainly because of the use of low quality materials. Quality and delivery are lowly evaluated by makers. “They can not keep their quality”, “quality of the first 500 units is alright, but the next 500 units or 30.000 units are really low”, “to prepare for peak season, we need to buy components for several months before”<sup>(\*)</sup> are common comments of local makers to suppliers in group two. These comments reduce recently not because of “remarkable improvement of the suppliers” but because a lot of suppliers in group two are moving to group three (dealing with both arm-length and embedded networks) like company C and E. The situation is worse in company D, when it can not involve in any embedded network. The company gradually loses their customers as makers and return to preparing market.

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<sup>(\*)</sup> quoted from interviews.

Dealing with arm-length networks limits the suppliers to improve downstream capabilities.

Group three includes suppliers dealing with both local and Taiwanese makers; and Japanese makers. It means, these suppliers involve in both arm-length and embedded networks. We can see the cases of company B (since 2002), company C (since 2003) and company E (since 1998) in this group. With the history of having subcontracting relationship with suppliers in arm-length or embedded networks, the suppliers in group three have had only upstream or downstream capabilities separately. By setting up relationship with new kind of network, the suppliers can improve capabilities entirely. Company B, for example, has strongly invested in Project Department since 2000 to research and develop a new product (rim) to local makers. It took nearly two years with a lot of *trail-and-error* until this product can successfully be developed. As a result, the capability of this Project Department was improved significantly and the company can develop other new motorcycle components and other non-motorcycle products. This situation can also be seen in company E. The company is able to develop various products for arm-length networks, produce OEM motorcycles for overseas markets and quickly fulfill QCD (quality, cost, delivery) requirements of HVN in 2002. Company C also said that “getting subcontracting relationship with HVN, we can learn a lot about quality and delivery management” and “we know that your production process still have a lot of problem. We are receiving a lot of comments of HVN and researching to improve our system” (\*). Improving entirely capabilities allows the suppliers to meet new customers. Makers in one kind of network require similar capabilities of suppliers. That is why the suppliers in group three can rapidly enlarge their markets and fulfilled the makers’ diversified requirements.

## 6. Discussions

Five case-studies of suppliers in newly emerging Vietnam’s motorcycle industry provide evidences for two propositions in Session two. Different to suppliers in matured emerging or developed economies, supplier in newly emerging economies have limited capabilities and they need to select the way to improve capabilities. The emergence of late-coming makers creates more chance for suppliers to enter the industry. Suppliers in

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(\*) quoted from interviews.

newly emerging economies have more chance to improve capabilities by exploiting supplier-maker networks. Arm-length networks tend to have more effects on improving upstream capabilities which are related to design functions. Embedded networks, on the other hand, support significantly suppliers in improving downstream capabilities.

The case-studies in newly emerging Vietnam's motorcycle industry also propose two patterns of capability improvement of suppliers in newly emerging economy. In the first pattern, suppliers involve in only one kind of production system, either arm-length or embedded. This pattern can be call as *one-pole* pattern through which the suppliers can develop different capabilities asymmetrically. However, suppliers in this pattern are slow in reacting against the changes in business environment of emerging economies. This pattern reduces the ability of suppliers to meet new customers' requirements.

Switching dynamically from involving in one kind to two kinds of production system is the other pattern, which can be called as *double-pole* pattern. Advantage of this pattern is to develop capabilities symmetrically and allows companies to meet different customers' needs. To have this strategy of capability improvement, suppliers need to have long-term strategy. Case studies show the strong orientations to long-term development of top managers of the suppliers.

Beside the direct and indirect influences of supplier-maker networks, which can be seen as market-factors, other non-market factors have also shown their strong effects in capability improving process of suppliers. Embedded network is known to have significant effects on capability improvement of suppliers, particularly capability related to tacit knowledge (Reagans and McEvily 2003). But it is not exclusive source. Joint-venture or cooperation between companies in the same corporation, for example, are also an important sources of tacit knowledge transfers. This can be seen clearly in companies B and C. In the case of company B, knowledge diffused from its joint-venture with a Japanese company helps the company to develop new product successfully. In company C, a new general manager come from company A (company A and C are in the same state-run corporation), brings a lot of tacit knowledge. With this knowledge, new strategy has been created, production system has been changed toward improving and the company targeted to relationship with HVN. In company E, knowledge resource from headquarter plays an important role in the process to develop downstream technology.



## **7. Concluding remarks**

Nowadays business environment has been changing under the effects of technology advance and globalization. The development of matured emerging economies makes competition more severe with diversified production systems. All of these changes can be seen in newly emerging economies and promote new strategies of firms in newly emerging economy.

Suppliers in newly emerging economy have more chance to enter the new market with different patterns exploiting supplier-maker networks. They can engage to embedded networks of foreign invested makers or participate in arm-length networks created by other foreign or even newly-coming local makers. In short term, suppliers in newly emerging economies can participate in markets without close inter-firm relationship with foreign makers.

However, capabilities of firms are diversified and develop in cycle-style. Due to limited resource, while a firm gets an acceptable level of a capability, it will change its focus and reserve resources for improving other capabilities. It will turn back to improve the previous capability when the other capabilities have reached to new acceptable levels. Since each kind of inter-firm network (arm-length or embedded) has more effect on a group kind of capability, firms need to have a strategy for setting and changing inter-firm relations. Deciding which capabilities to improve in each stage of development is one part of company strategy.

This exploration paper suggests a lot of interesting research on the strategy of firms in newly emerging economies. For example how are the strategy processes to improve capabilities in different companies, how is the organizational structure for improving different kinds of capabilities, what are the roles of managers in capability improving processes. Question can also be put on the relationship between different capability improvement patterns and firms' performance.

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