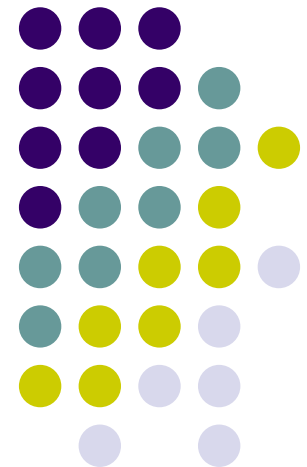


Supplier-Maker Network Structures and Capability Improvement of Suppliers in Newly Emerging Vietnam's Motorcycle Industry

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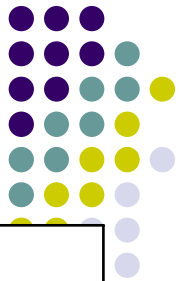


Presentation Contents



- Introduction
- Frameworks on network structure and capabilities of suppliers
- Newly emerging Vietnam's motorcycle industry
- Methodology and case-studies
- Case analysis and result
- Discussion
- Conclusion and further research

Newly Emerging Economies



Newly Emerging Economies

World Ranking	Country	1972 – 2003	2004
36	Korea	... 543.9512 (in 1974) ...	14150.96
38	Taiwan (China)	551.2961 (in 1972) ...	13451.4
62	Malaysia	509.6329 (in 1972) ...	4645.874
76	Brazil	... 565.7519 (in 1973) ...	3325.054
86	Thailand	... 567.6215 (in 1979)...	2521.494
112	China	... 578.115 (in 1995) ...	1272.043
113	Indonesia	... 510.841 (in 1987) ...	1191.259
120	Philippines	... 533.364 (in 1986) ...	1010.117
135	India	... 548.021 (in 2003) ...	622.413
141	Vietnam		534.753
145	Nigeria		499.936
157	Bangladesh		390.762
158	Uzbekistan		375.239

Unit: GDP/Capita (USD in current) . Source: World Economic Outlook, IMF, 2005 (<http://www.imf.org>)

List of emerging countries (accept Vietnam) is taken out from list of 64 emerging countries in Hoskisson 2000

Capability Improvement of Firms in Emerging Economies

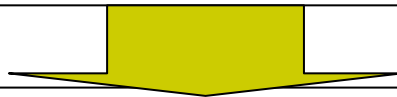


- Recent studies on capability improvement process of firms in developing countries
 - Role of foreign investors, in knowledge transfer
 - In NICs or China mainly with long-term analyses
 - Shortage of studies on suppliers particularly
 - Shortage of studies on firms in newly emerging economy
 - With the enlargement of global and regional production system and the development of local suppliers
 - Competition of new economies
 - Diversification of production system
- ➔ Scarce understanding of how suppliers in newly emerging economies improve capabilities

Research Question

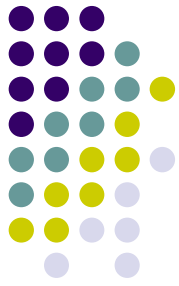


- Suppliers can gain knowledge from external networks (inter-relationships) with customers (Dyer and Wright 1998, Kohno 2002, Nobeoka 1999)
- In emerging economies, different foreign invested firms (from different countries) build different supplier –maker network structures that have different effects on the capabilities improvement of suppliers (Nishiguchi 1994, Fujimoto 1998, Cusumano and Takeishi 1991, Chen and Chen 1998)

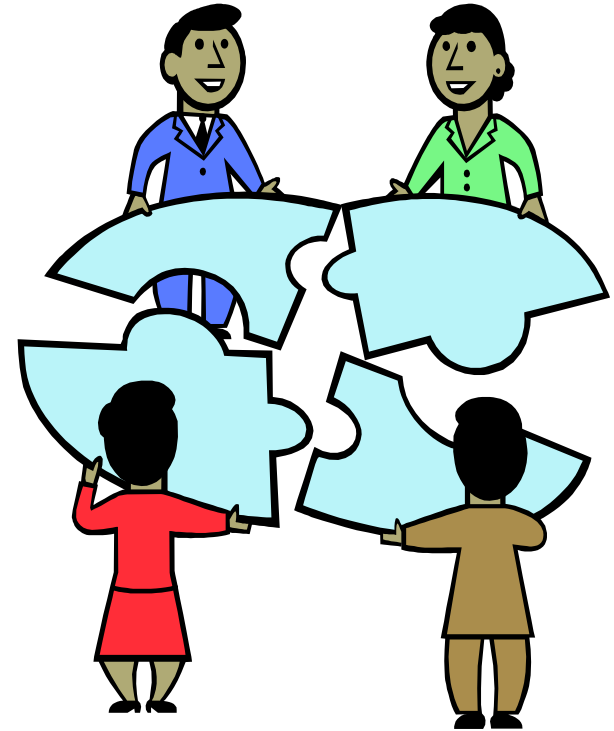


In newly emerging economies having a mix of different network structures, how suppliers can exploit supplier-maker relationships to improve their capabilities and performances?

Network Structures



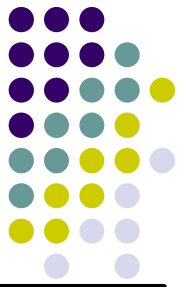
Vs.



Arm-length Network

Embedded Network

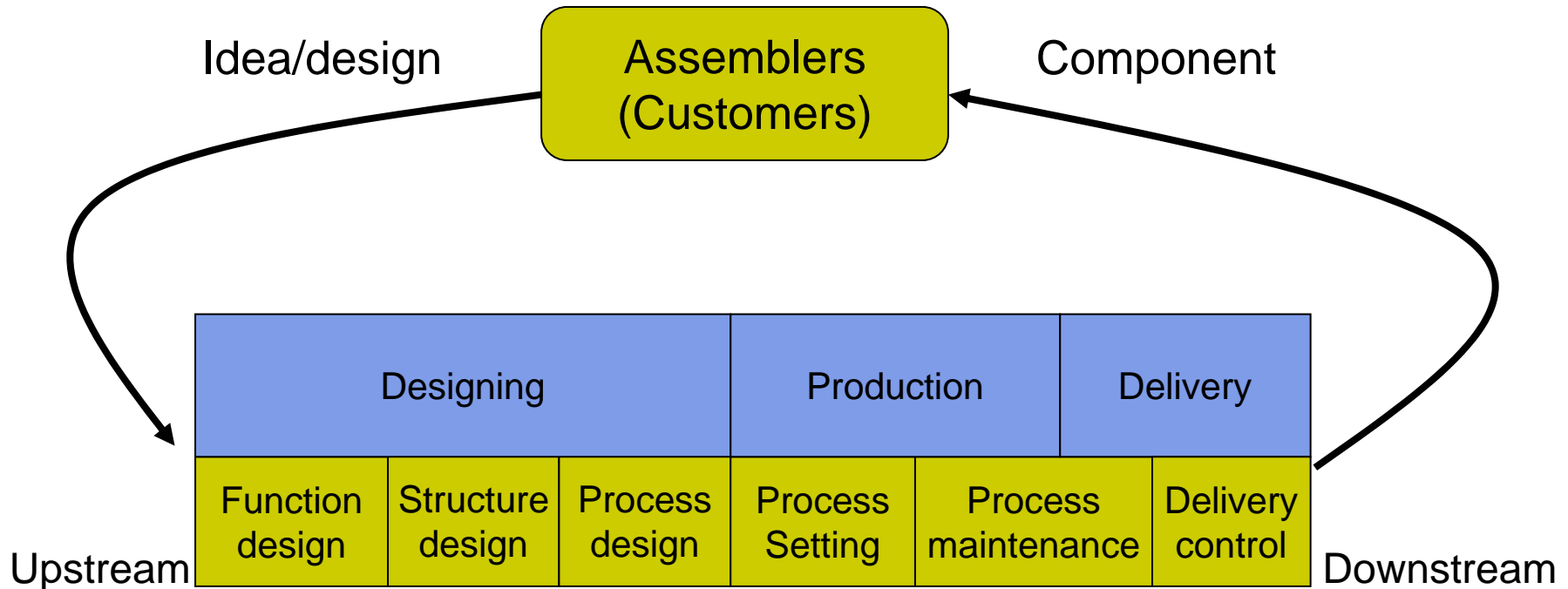
Network Structures Comparison



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

Source: created by the author based on Zander and Kogut 1995, Uzzi 1996, Beckman and Hauschild 2002, Reagans and Mcevily 2003, Dyer and Wright 1998, Nishiguchi 1994, ...

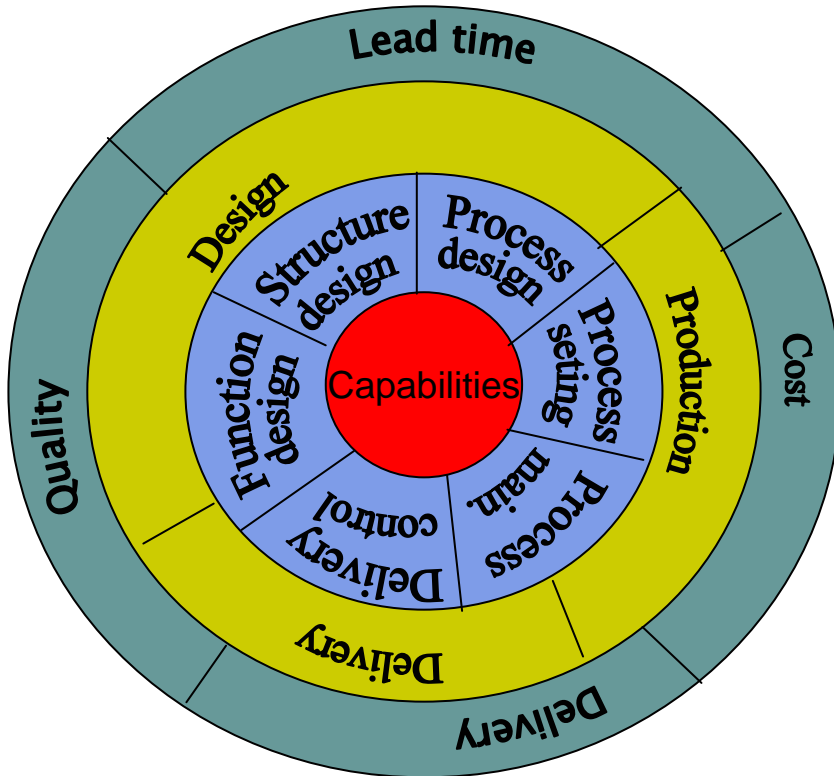
Production Process and Capability Improvement in Suppliers



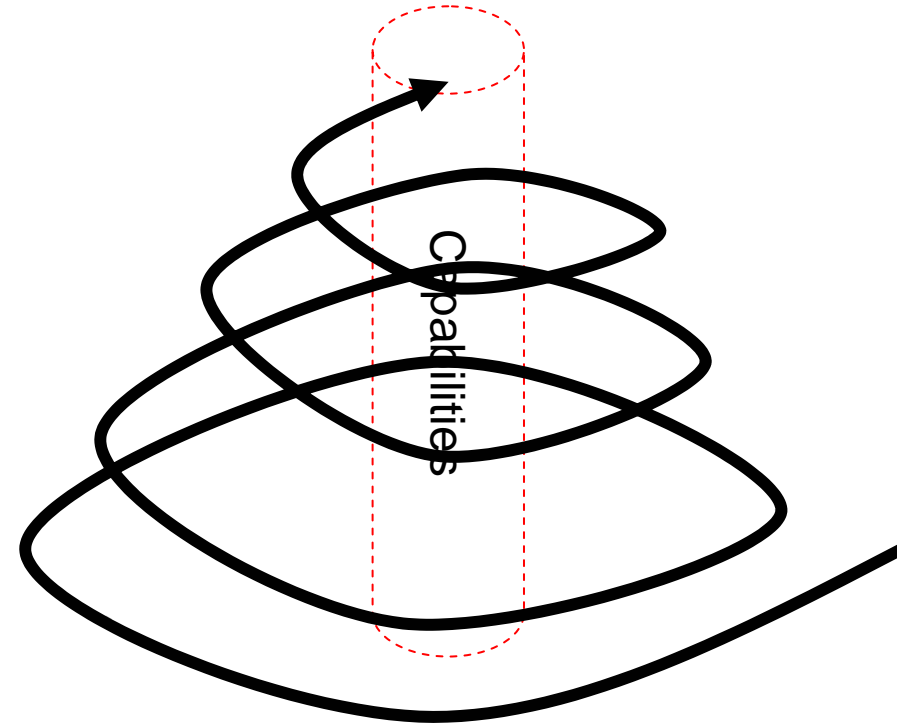
Source: Clark and Fujimoto 1991

Source: Womark et al 1990

Dynamic Process of Capability Improvement



Core capability, functional capabilities, production process and performance



Dynamic capability improvement process

Proposition 1



- In newly emerging economy, suppliers have limited capabilities
- When suppliers have limited capabilities, makers may assist more suppliers by taking charge suppliers' works
- How maker assist supplies is depended on inter-firm relationship

H1: In newly emerging economy, the more embedded relationship with makers the suppliers have, the higher downstream capabilities they can improve

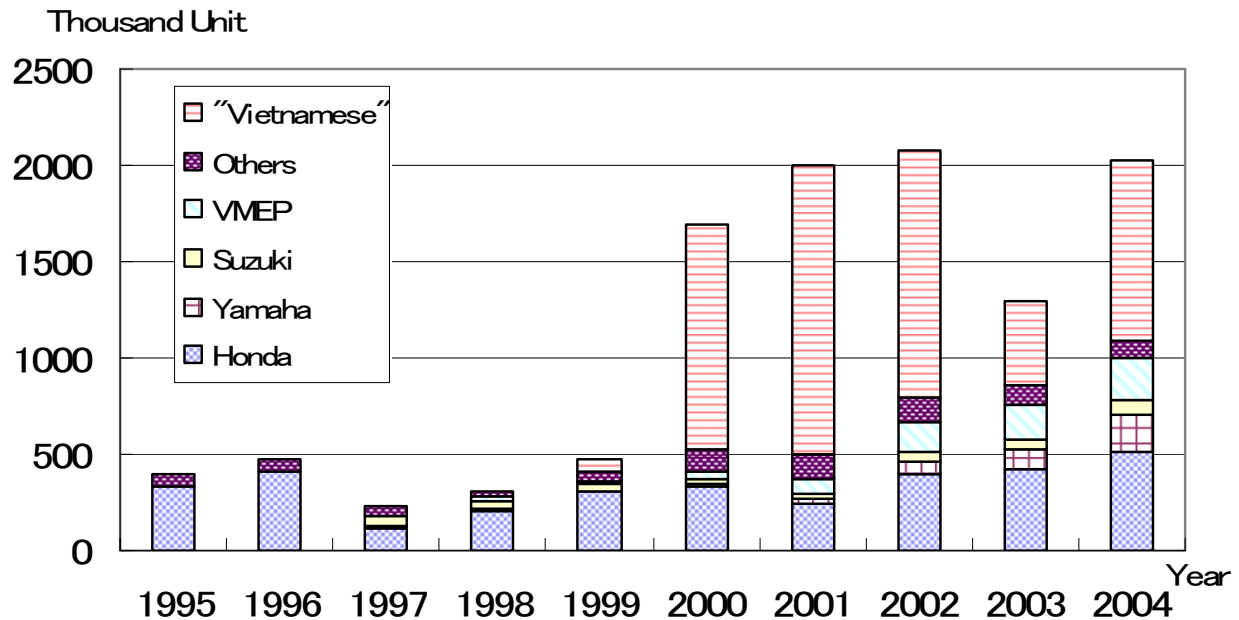
Proposition 2



- Late-coming makers have limited capabilities and ask suppliers to have more independent capabilities
- Due to short-term development, late-coming makers have more arm-length inter-firm relationship
- *Imitation production* allows late-coming suppliers enter an industry in spite of low capabilities
- Upstream capabilities are needed for imitation production

H2: In newly emerging economy, the more arm-length relationship the suppliers have, the more upstream capabilities the suppliers can improve

Newly Emerging Vietnam's Motorcycle Industry



Market condition and makers' strategy	CBU production	First maker (VMEP) entered	Japanese FDI makers entered, built local production systems	Chinese "shock" and local makers penetrated	FDI makers strengthened localization
Motorcycle supplying industry	Repairing comp. production	Taiwanese Suppliers entered	Vietnamese suppliers entered	Supplying industry boomed	Suppliers diversified

Imitation Production and Supplying Industry



Boramtex
(Korean FDI)

Kaifa
(Tawanese FDI)

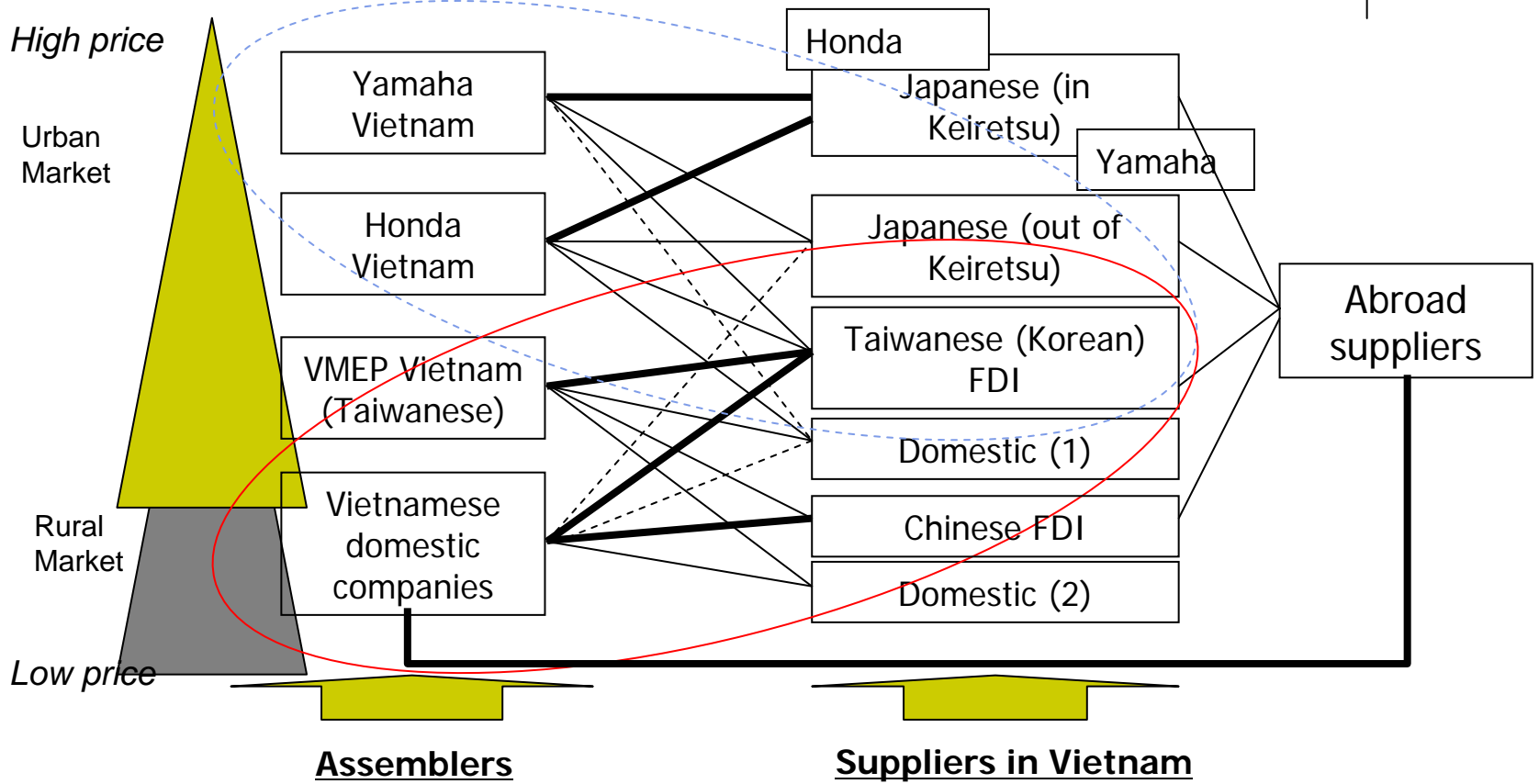
GS Battery
(Japanese FDI)

Boramtex
(Korean FDI)

Inoue
(Japanese FDI)

Yaban
(Taiwanese FDI)

Subcontracting Networks in Vietnam's Motorcycle Industry



- Embedded networks
- Arm-length networks
- Engine or other importance parts
- Normal parts
- Unimportant parts

Motorcycle Suppliers and Case-studies



Supplier groups	Part producing for makers	Source of knowledge	Case studies
In keiretsu	1996~	<i>Internal (mother company)</i>	No
Out of keiretsu	1996~	<i>Internal (mother company)</i>	No
Taiwanese, Korea	1993~	Internal and external	Yes
Domestic (1)	1995~	Internal and external	Yes
Chinese	2002~	Internal and external	No
Domestic (2)	1998~	Internal and external	Yes

Cases Studies (1)



	Co. A	Co. B	Co. C
Nationality	Vietnamese	Vietnamese	Vietnamese
Establishment	1963	1969	1985 (and earlier)
Labor	850	2000	400
Motorcycle related Product	Engine gear-wheel, shaft, (Honda 35%, Yamaha 15%, Suzuki 15%, other suppliers 15%)	-Frame parts (for Honda 30%) -Muffler (Suzuki, Yamaha) -Rim (domestics)	-Rollers, handle shaft (Honda 30%) -Rollers, Clutch (Domestics 10%)
Other products	Agriculture used machines , piston ring, piston pin (20%)	-Home used metal ware (60%)	-Bolt-bearing (30%) -Gear box (30%)
Relationship with Honda	1997	1997	2003
Relationship with Domestic	No	2001	1998
Other customers	Japanese companies (Kubota, Morris)	Sweden home-used products (OEM production)	Domestic consumers (other products)

Case studies (2)

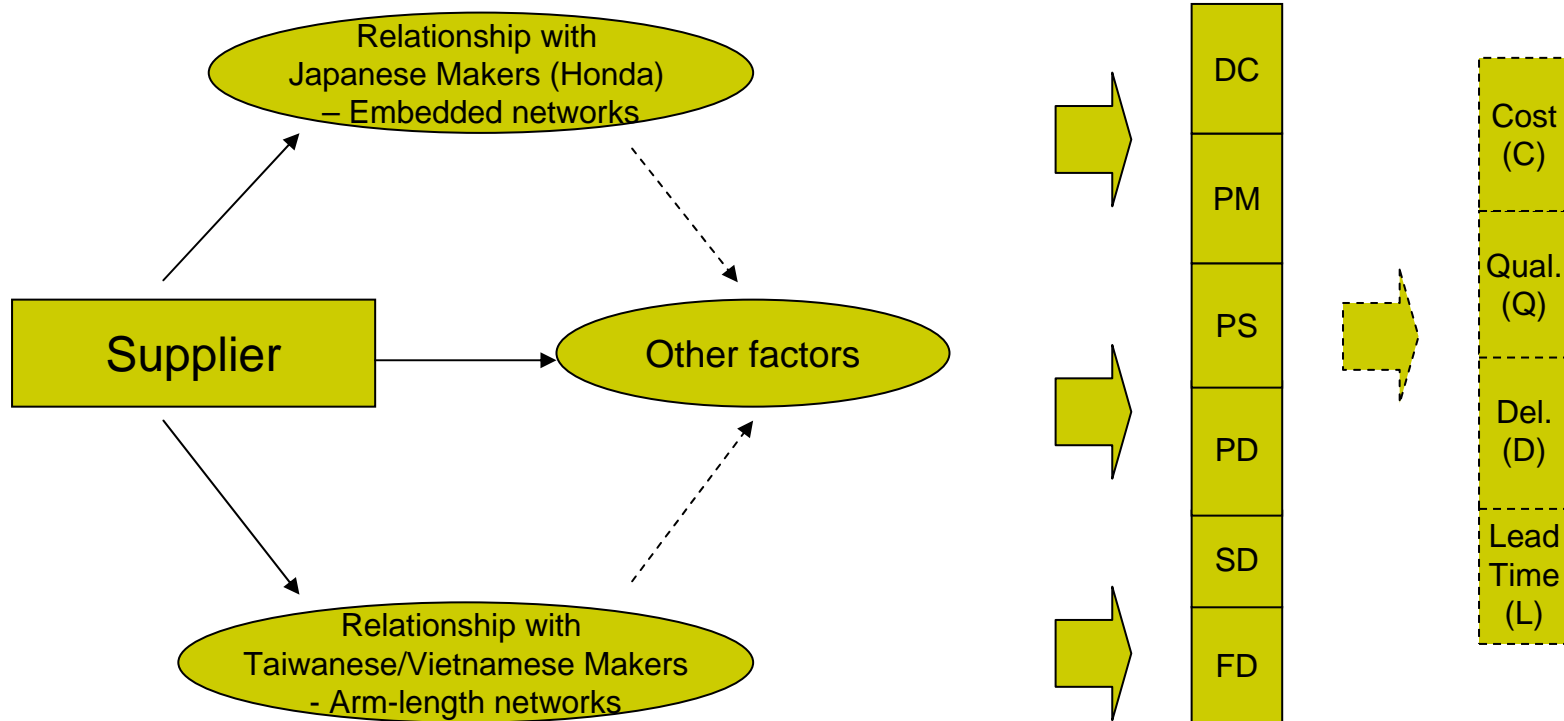


	Co. D	Co. E
Nationality	Vietnamese	Taiwanese
Establishment	1995 (1967)	1994
Labor	350	1200
Motorcycle related Product	-Cylinder, engine related parts, other parts	- Rear forks, main stand, handle pipe comp., pedal comp. fuel tank comp., rim .. (Yamaha, Suzuki) -Fuel tank comp., bracket, frame comp., rim (VMEP) -Rear carrier (Honda), brake comp., (Nisshin)
Other products	No	-4-wheel motorcycle (OEM production) -Spring house (export) -Consuming products
Relationship with FDI makers	Taiwanese VMEP 1999 - 2002	Taiwanese VMEP 1995, Suzuki 1996, Yamaha 2000, Honda 2001)
Relationship with Domestics	1998	2001
Other customers	Repairing motorcycle parts	Plastic comp.

Methodology

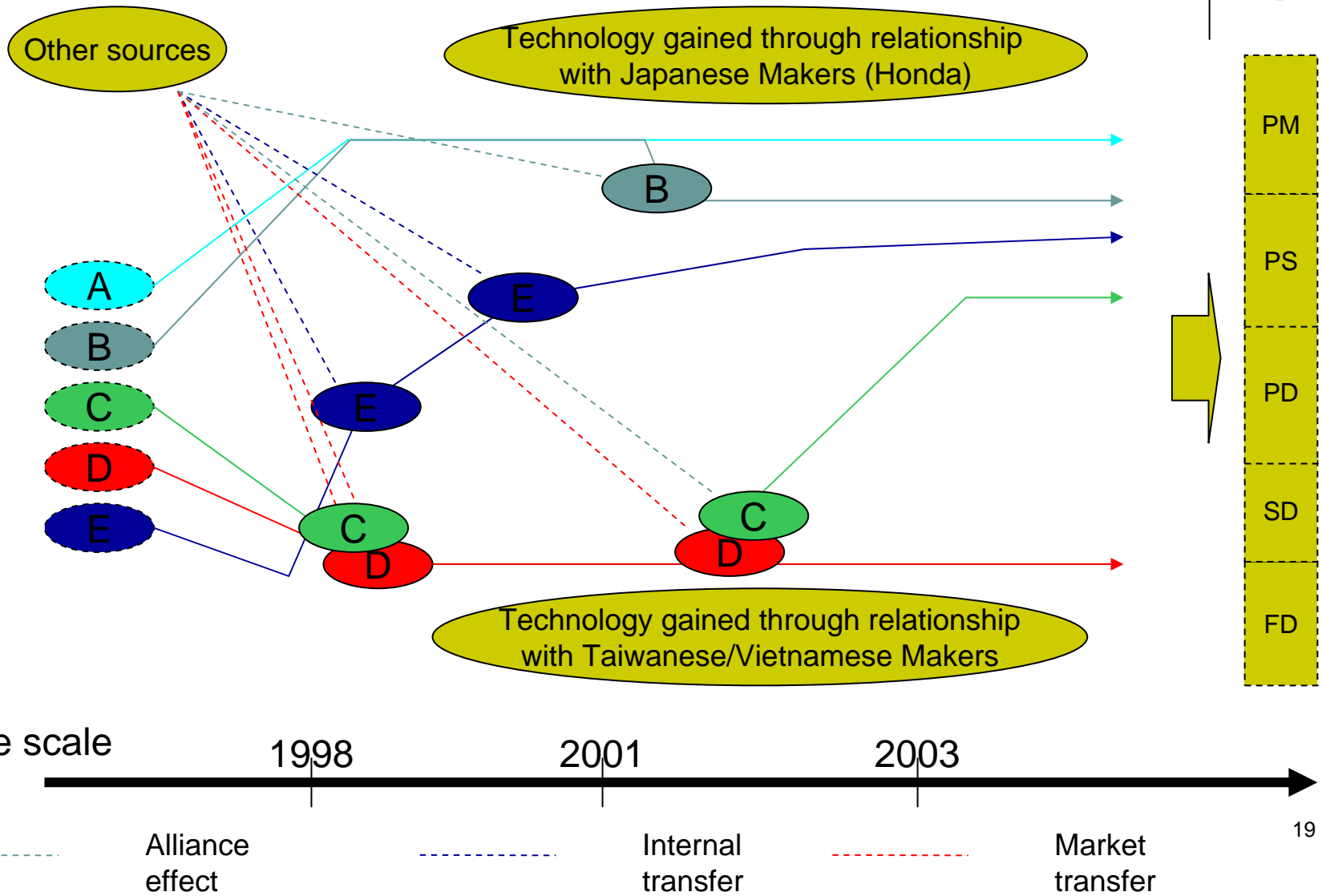


- Parameter 1: Subcontracting relationship and capability improvement of suppliers



- Parameter 2: *Time-scale* analysis (four stages of before 1998, 1998-2001, 2002-2003, after 2003) to investigate the dynamic process of capability improvement.

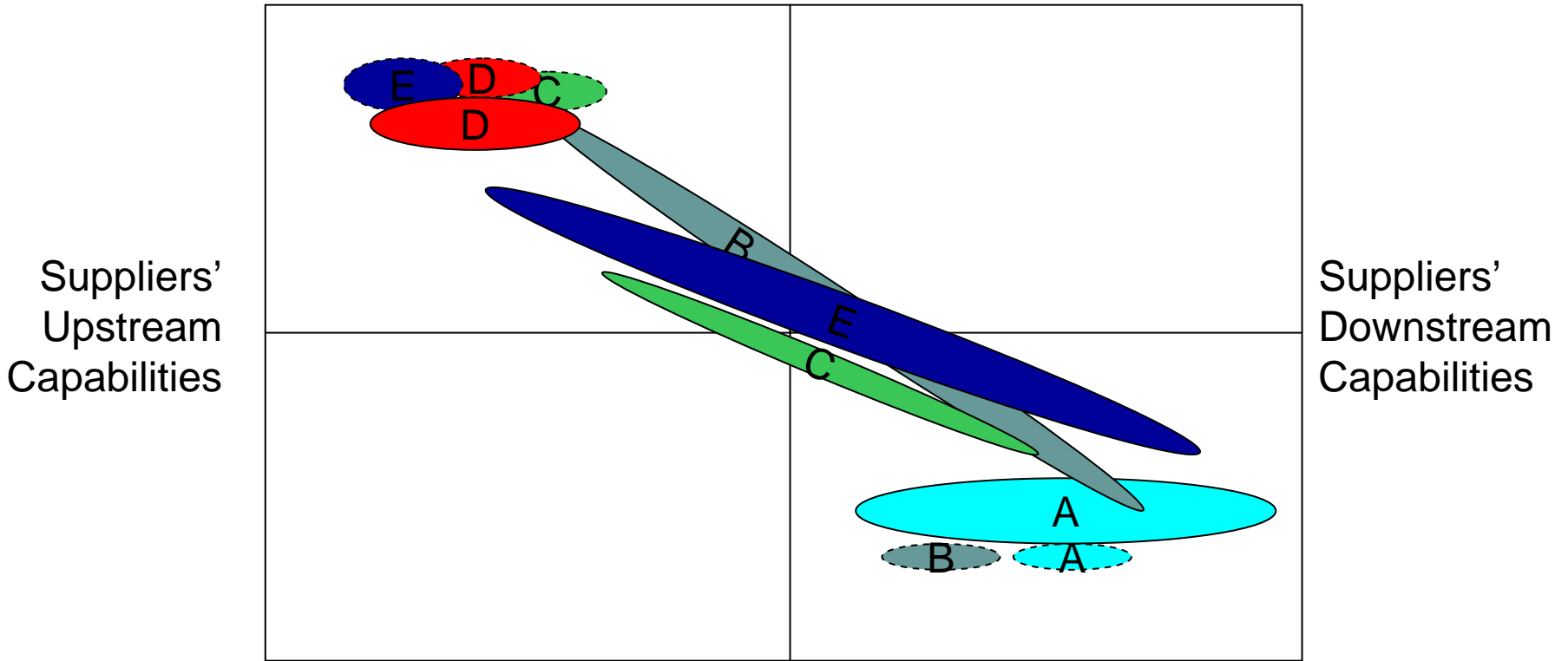
Case Analysis



Two Patterns of Capability Improvement of Suppliers



Arm-Length Networks



Embedded Networks



Capability before 1998



Capability after 2003

Discussions



- Two patterns of capability improvement of suppliers in newly emerging economy:
 - Involve in only one kind of production system
 - Develop functional capabilities asymmetrically
 - Reduce the ability to meet new customers' requirements
 - Switch dynamically from involving in one kind to two kinds production system
 - Develop functional capabilities symmetrically
 - Depended on suppliers' strategies and technological orientation
- Beside embedded network, alliance or other source to diffuse tacit is critical for suppliers in long term

Conclusion



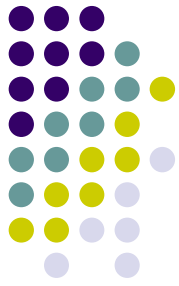
- In short term, suppliers in emerging economies can participate in markets without close inter-firm relationships with foreign makers due to the development of global production and technology sources
- Due to the cycle-style of capability improvement, and the diversification of knowledge, strategy for setting and changing inter-firm relationships is important
- Deciding functional capabilities for stepwise improvement is important

Further Researches



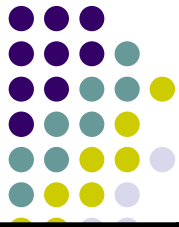
- How are strategies processes in different companies
- How is the organizational structure for improving different functional capabilities
- What are the roles of managers in capability improving process
- Different capability improvement patterns and firms' performance

Appendix



Detailed analyses of capability improvement processes in 5 case studies

Company A



	Relationship Characteristic	Learning activities	Results (effects)
Before 1998	-Start subcontracting with Honda	-Receive experts from Honda in to build technological progress, layout	-Get Honda's QCD in 1998 → PD, PS, PM, DC
1998 – 2001	-Start subcontracting with Suzuki, Sumitex (Honda), VMEP, Kubota	-Receive comments of Honda, Yamaha, Suzuki, Sumitex in new product (process) development -Receive 3 experts of Kubota in 2000 to teach about 5S -Get ISO-9000 in 2000 -Consequent visit of Honda experts (once/1-2 month) and Honda Vietnam factory visits	-Good performance in developing news product (process) → PD, PS -Changes in thinking of employees (particularly managers) about workshop management → PM, DC
2002 – 2003	-Stop relationship with VMEP -Relationship with Yamaha	-Receive assistances of Japanese customers to improve worker's manufacturing and checking instructions. Repeated visits by customers -Purchase new machines	-Create internal designing capability for worker's instruction with computer-based method → PD, SD (partly)
2003 – now	-Increase Japanese customers	-Corporate with new customers to develop new products (process), retain factory visits and corporation in trouble shouting with customers	- Improve internal capabilities in process setting and maintenance → PD, PS, PM, DC

Company B



	Relationship Characteristic	Learning activities	Results (effects)
Bef. 1998	-Start subcontracting with Honda	-Receive 3 experts in 2 months from Honda in to build technological progress, layout -Create Joint-venture with Honda Keiretsu's member	-Get Honda's QCD requirement in 1998 → PD, PS, PM
1998 – 2001	-Start subcontracting with Yamaha, Suzuki,	-Receive comments of Honda, Yamaha, Suzuki in new product (process) development -Consequent visit of Honda experts (once/1-2 months) and Honda Vietnam factory visits -Diffuse technology from Joint-venture -Get ISO 9001	-Good performance in developing news product (process) → PD, PS -Improve QCD → PM, DC
2002– 2003	-Develop new product (rim) for domesitcs -Retain Japanese cus.	-Receive technology from Taiwan through importing engine; Diffuse technology from Joint-venture about new products -Receive assistances of Japanese customers to improve worker's manufacturing and checking instructions, Repeated visits by customers -Corporate more with Honda in changing design or specs of comp.	-Create project dept., successfully develop new product s → SD -More proposals were accepted → SD, PD -Build new factory with new layout, worker's instruction ... → PM, PS, PD, DC
2003 – now	-Increase non-motor customers		-Improve the capability of project dept.

Company C



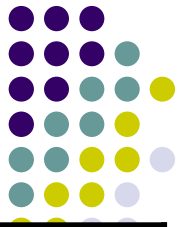
	Relationship Characteristic	Learning activities	Results (effects)
Bef. 1998	-Produce mechanical products	-Technology before 1985 from Russia and other East European countries	
1998 – 2001	-Start subcontracting with domestics	-Import engines from Taiwan, China, Japan (second hand) and learning through engine setting up and seller's factory visits	-Developed various motorcycle components →SD, PD (mainly), PM, DC , PS (partly)
2002 – 2003	-Specialize in several components	-Improve capabilities through learning by doing. -Diffuse technology though mother's company (VEAM – state-run corporation) -Diffuse production related technology through JETRO's program (Japanese organization)	-Upgrade new product development (copying design) →SD, PD -Change workers' and managers' attitude and skill→PM, DC
2003 – now	-Set up relationship with Honda, then Yamaha (2005) -Reduce sub. with domestics	-Honda experts come and assist in 2 months -Corporate in developing workers' instructions and	-Improve production layout, delivery, process →PM, DC, PS, PD

Company D



	Relationship Characteristic	Learning activities	Results (effects)
Bef. 1998	-Repairing market	-Learning by doing	
1998 – 2001	-Start subcontracting with domestics, VMEP	-Import engines from Taiwan, China and get technological transfer through engines purchasing and seller factory visits	-Developed various motorcycle components →SD, PD (mainly) PM, DC , PS (partly)
2002 – 2003	-Retain sub contracting with domestics but then stop that with VMEP	-Import machines from Taiwan, China and get technological transfer through machines purchasing -Learning by doing	-Upgrade new product development (copying design) →SD, PD -Can not upgrade quality, cost and delivery
2003 – now	-Reduce sub. with domestics -Return to repairing market	-Learning by doing and through importing machines	-Upgrade new product development (copying design) →SD, PD -Can not upgrade quality, cost and delivery

Company E



	Relationship Characteristic	Learning activities	Results (effects)
Bef. 1998	-Start subcontracting with VMEP, Suzuki	-Technology transfer from mother company in Taiwan	-Quickly fulfill the requirement of VMEP and Suzuki
1998 – 2001	-Start subcontracting with Yamaha then domestics -OEM production of motorcycle and other products (to export)	-Receive comments of Yamaha, (Suzuki) in new product (process) development -Diffuse technology from mother company in Taiwan	-Good performance in developing news product (process) → PD, SD -Improve QCD → PM, DC
2002– 2003	-Start subcontracting with Honda	-Receive assistances of Japanese customers to improve worker's manufacturing and checking instructions. Repeated visits by customers -Diffuse technology from mother company in Taiwan	-Build new factory with new layout, worker's instruction ... → PM, DC, PS, PD, SD
2003 – now	-Retain subcontracting with Japanese, Taiwanese and foreign customers	- Learning through development corporation with customers and diversification	-R&D capabilities with non-motorcycle products → SD (FD, partly)