Supporting Role in Global R&D Networks

Automotive Technology Centres in Viet Nam

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June 12, 2019

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Background

❖ Extensive research on R&D (Pearce/Papanastassiou 1997; von Zedtwitz/Gassmann 2002) and production networks (Ferdows 1997; Vereecke et al. 2006; Ferdows et al. 2016)

❖ Reinforcing, positive linkages between R&D and production

❖ Scarce research on potential co-evolution of R&D and production networks

Network Globalisation Typology

❖ Cheng and colleagues (2015) conducted explorative case studies on network globalisation linkage and identified three interaction patterns:

a) Interactive globalisation

b) Separated globalisation

c) Possible combination

Methodology

❖ Research employed purposive theoretical sampling in order to address issues with existing research

a) Change industry setting ⇒ Existing research covers only machinery and pharma industry

b) Circumvent "market pull" logic ⇒ Existing research documented cases where production is initially paired with R&D for the large, local market and R&D is gradually upgraded to regional or global responsibility

Company A (1)

- ❖ 53 global sites (3 in Viet Nam)
- ❖ Japan remains main source of R&D
- ❖ Remaining R&D sites are divided into two groups, one that acts as liaison to customers and another that supports Japanese R&D headquarters

Company A (2)

- ❖ Despite close proximity between three Vietnamese subsidiaries (manufacturing, component R&D, and software R&D) in Ho Chi Minh City, no interaction between subsidiaries exists

- ❖ Manufacturing mainly produces for export

- ❖ Component R&D mainly works on motorcycle parts. Tasks are defined by Japanese HQ

- ❖ Software R&D develops code plus supports database creation for Model-based Development in Japan

Company A (3)

- ❖ Bottlenecks prevent local R&D to engage in higher level functions:
  - ❖ Skill gap
  - ❖ Language barrier
- ❖ Company A considers to address issues by extending training in Japan from currently one to two or three years
- ❖ Potential upgrading of the R&D function does not foresee closer cooperation with local manufacturing unit
- ❖ Company A's Vietnamese subsidiaries are clearly a case of separated globalisation

Company B (1)

❖ More than 200 sites (2 in Viet Nam)

❖ Japan remains main source of R&D

❖ Remaining sites can be divided into two groups, just like in case of Company A

❖ However, there is an important difference in the group of support R&D sites:

❖ Some sites are purely supporting Japanese R&D

❖ Some sites such as a Thai subsidiary have regional market development mandates, i.e. they neither engage in pure homologation with local customers nor in supporting Japan

Company B (2)

❖ Despite co-location in Hanoi, R&D and manufacturing functions are completely separated

❖ Manufacturing aims at the global market, which more than 80 per cent export share of production

❖ R&D engages in parts development, mainly performing basic CAD tasks such as dimension checks and performing failure mode and effects analysis (FMEA)

❖ R&D tasks are defined by higher level sites, e.g. in Japan or Thailand. Work typically does not aim at locally made products

Company B (3)

❖ The skill gap between Japan and Viet Nam is the main bottleneck for upgrading local R&D. Lack of understanding both customer requirements and component interactions are the main weakness of Vietnamese engineering staff

❖ Aside from cooperation with a local university, Company B does not plan any steps to upgrade local R&D

❖ Company B's Vietnamese subsidiaries are clearly a case of separated globalisation

Findings and implications

❖ In case of Viet Nam, co-located manufacturing and R&D subsidiaries have no linkages. Instead, both functions are used to optimise global performance of their respective functional departments

❖ This suggests that supporting local R&D through incentives may have limited effects

❖ In case of automotive firms, networks contain subsidiaries that fit several interaction types instead of just one

❖ Therefore, it appears useful to simply map networks in a matrix. This may also be useful when comparing research on different industries

Company A

Country	Network Globalisation Type		
	Interactive	Separated	Possible combination
China	X		
France	X		
Germany	X		
India	X		
Italy	X		
Philippines		X	
USA	X		
Viet Nam		X	

Company B

Country	Network Globalisation Type		
	Interactive	Separated	Possible combination
China	X	X	
Germany	X		
India		X	
Indonesia		X	
Philippines		X	
Singapore		X	
Thailand		X	
USA	X		
Viet Nam		X	

Summary

- ❖ Automotive R&D sites in Viet Nam represent the separated globalisation type

- ❖ Vietnamese sites are mainly used to reduce costs and lower the workload at advanced sites

- ❖ Studied suppliers adopt dissimilar combinations of interactive and separated globalisation

- ❖ However, even interactive locations are mainly engaging in homologation of existing technology and may lack global development mandates