Possibility of Forming Industrial Clusters in Vietnam: Case Study of FPT City Da Nang in Da Nang

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Abstract: Da Nang, which is located about half way between the north and south of Vietnam, is a port city with a population of 1,000,370 (as of late 2013) and an area of 1,283.42 km². The city is the economic and cultural center of the Vietnamese midlands and central plateau region, and its municipality is ruled by the central government. In addition, Da Nang port is the third most important international trade port in Vietnam after the ports of Ho Chi Minh City and Haiphong. As a strategic traffic location connecting east and west on the Indo-China peninsula, Da Nang is the eastern starting point of the East-West Economic Corridor that connects the central plateau region, Myanmar, Thailand, and Laos. There are eight industrial complexes (Including the high-tech Danang IT Park) in Da Nang, and here 72 Japanese-affiliated companies have expanded their business. A Japan Business Association was established in Da Nang in October 2008. Currently about 60 companies in Da Nang and its satellite areas have joined this association. Not only does Da Nang actively accept foreign capital through direct investments; it also invests resources in its industrial clusters of domestic industrial complexes and high-tech parks. Here, I discuss the future possibilities for Da Nang’s industrial cluster, focusing on the case of the “smart” FPT City Da Nang.

Key words: Da Nang; FPT city; industrial cluster; industrial complexes; Vietnam

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1. Introduction

In Asian countries, including China, Vietnam, and India, there is currently an expansion of corporate behavior and dynamic economic activity not found in Japan or in leading Western countries. These countries are also showing high rates of economic growth (Saisho, 2014a).

A commitment to industrial clusters has become the basis for economic growth in Asian countries. However, so far, the development of industrial clusters in Asian countries has taken various forms.

For the future development of industrial clusters in Asian countries, the management strategies and industrial policies used by Japan and leading Western countries will be very helpful. Moreover, the industrial cluster strategies used in Asian countries should represent valuable new business models and regional economic growth models (Saisho, 2009).

However, in the English literature there are very few research reports, including Japanese ones, on industry
clusters in Asian countries such as China, Vietnam and India. The study of industrial clusters in Vietnam is therefore a valuable research topic.

As a strategic traffic location connecting east and west on the Indo-China peninsula, Da Nang is the eastern starting point of the East-West Economic Corridor (EWEC) connecting the central plateau region, Myanmar, Thailand, and Laos.

There are eight industrial complexes (Lien Chieu Industrial Park, Hoa Khanh Industrial Park, Widen Hoa Khanh Industrial Park, Hoa Cam Industrial Park, Da Nang Aquatic Product Service Industrial Park, Da Nang Industrial Park, Da Nang High-Tech Park, and Da Nang IT Park) in Da Nang, where 72 Japanese-affiliated companies (as of late 2013) have expanded their business. A Japan Business Association was established in Da Nang in October 2008. Currently about 60 companies (as of late 2013) in Da Nang City and its satellite areas have joined this association (Saisho, 2014b).

Not only does Da Nang actively accept foreign capital through direct investments; it also invests resources in its industrial clusters of domestic industrial complexes and high-tech parks. Here, on the basis of a field survey, I discuss the future possibilities for Da Nang’s industrial cluster, focusing on the case of the “smart” FPT City Da Nang.

2. Materials and Methods

Previous studies of industrial clusters include those of Silicon Valley, Austin, and San Diego in the United States (USA). There have also been case studies of industrial clusters in leading European countries, including in Cambridge (United Kingdom), Sophia Antipolis (France), and Oulu (Finland).

Most such case studies have therefore been conducted in the West, with very few in Asia. There is a strong need for contributions to academic development in the field of industrial cluster study in Asia; such development would contribute to regional innovation and local revitalization. Study of this field as part of the subject of Business Administration should also be addressed.

Industrial cluster research has been approached from the following theoretical perspectives.

The first viewpoint relates to distance. In previous discussions, the size of an industrial cluster has been defined variously as “a small city, the whole country, or a network of several countries neighboring each other, with a physical distance apart of 200 miles (about 320 km) or less” (Porter, 1998); or “an area of about 100 km in a straight line, as in Silicon Valley and Boston Route 128 in the United States” (Saxenian, 1994); or “a distance that can be covered in 1 or 2 hours by train or car” (Ishikura et al., 2003).

The second viewpoint relates to the concept of network organization in regard to industrial clusters. There have been many such studies (e.g., Inkpen & Tsang, 2005; Whittington et al., 2009). Other studies have further emphasized the concepts of “geographical proximity and location” and “network centrality” (Wakabayashi, 2009; Whittington et al., 2009).

The third viewpoint relates to how industrial clusters are formed. This perspective includes “management of the regional characteristics of resources, such as geographical characteristics”; “the presence of hard-core companies and research institutions”; and “the presence of individual companies and leading organizations” (Ishikura et al., 2003). Thirteen factors associated with the formation of knowledge-intensive clusters in leading countries have been listed (Sternberg, 2010). Examples include (1) a government policy of support (financial, technical, and military); (2) the presence of market consumption (demand); (3) a good living environment (the
The fourth viewpoint is that of knowledge transfer in relation to industrial clusters. The following factors have been listed as cluster features that promote knowledge transfer (Inkpen & Tsang, 2005): (1) being linked (close proximity to other companies and organizations); (2) the form of the network (the presence of weak bonds, a variety of relationship-building strategies, and outside the cluster); (3) network stability (stability of relationships among individuals); (4) shared purpose (formation of a common purpose through collaboration); (5) culture (exchange of knowledge according to informal rules and norms); (6) a relationship of trust (business transaction embedded in human relationships).

3. Overview of Da Nang

Da Nang, which is located midway between the north and south of Vietnam, is a port city with a population of 1,000,370 (as of late 2013). It is 783 km from Hanoi and 967 km from Ho Chi Minh City (Figure 1). It is about 1 hour from Hanoi or Ho Chi Minh City by airplane.

Da Nang lies on the north-south transport axis of land, rail, sea, and air routes. From Da Nang, tourists can conveniently access four famous World Heritage Sites in Vietnam, namely Phong Nha-Ke Bang National Park, Hue Citadel, Hoi An Old Town, and My Son Cham Sanctuary.

Geographically, Da Nang Tien Sa Port is a pivotal part of the EWEC, the gateway to the Pacific Ocean and Laos, Thailand, Myanmar, and central Vietnam. Located on international sea and air routes, Da Nang has an especially convenient and favorable location for rapid and sustainable development. Da Nang is strategically located in the center of not only of Vietnam but also the whole ASEAN region. Da Nang has a natural land area of 1,283.42 km², comprising 241.51 km² of urban districts and 1,041.91 km² of rural districts.

Da Nang’s terrain consists of plains and mountains: high, steep mountains are concentrated in the North West
and West, where many mountains run down to the sea and low hills are interspersed with narrow coastal plains. In the mountains, which are 700 to 1500 m high, there is a high concentration of watershed forests, which are important to protection of the ecological environment of Da Nang. The coastal plain lowlands are influenced by marine salinity; they are the focus of agriculture, industry, services, sightseeing, and casinos and are the functional areas of Da Nang.

Da Nang’s investment environment and infrastructure have the following typical features:

1. First, an advanced local administration.
   - This administration particularly promotes transparency and streamlining of administrative procedures, which include a one-stop service system for investment licensing and e-business registration, e-tax declaration and settlement, and e-customs clearance. The city’s cleaning work is carried out by Da Nang’s local government.
   - Public utilities are provided to the city’s project sites, and the city itself has a safe and comfortable living environment. For example, it has been awarded the 2011 ASEAN City of Sustainable Environment and the 2013 Asian Townscape Award and is among the 2013 Top 10 holiday destinations in Asia (Smart Travel Asia magazine).

2. Second, the presence of advanced human resources.
   - Da Nang has a comprehensive training system of 24 universities and colleges, 19 professional secondary schools, and 59 vocational centers. There is also university cooperation with foreign universities, including the Vietnam Korea Friendship Information Technology College (South Korea), American Pacific University (USA), Singapore International School (Hong Kong), and Pegasus International Uni-College (Singapore).
   - There is also a major university effort to foster highly skilled human resources — for example at The University of Da Nang, University of Technology (4800 grads/year), The University of Da Nang College of Economics (3700 grads/year), the College of Transport II (1600 grads/year), and Da Nang College of Vocational Training (1400 grads/year). Other universities include Duy Tan University and Dong A University.
   - Workers are recruited through contracts with local labor recruitment agencies, by enterprises on the spot, or at monthly job fairs. Companies pay 18% of their total monthly salaries as social insurance and 0.3% as health insurance; 0.1% of monthly salaries goes into unemployment insurance funds. The minimum wage for unskilled labor in the Da Nang area is $120/month.

3. Third, a fully equipped transportation network.
   - Da Nang has a network of road, rail, sea, and air routes. Da Nang’s port (Tien Sa Port) had received a total investment of VND 4540 billion by 2012 at the end of completion of Phase I, which has a 400-m quay, a 9-m draft, and a capacity of 1.5 million t/year.
   - An investment project is under way to expand Tien Sa Port Phase II (2012-2015), building a new berth 500 m long and 13 to 14 m deep, with a storage area of 100,000 m² and specialized equipment to meet the requirements of general cargo ships of 50,000 DWT (dead weight tonnage) and container ships of 3000 TEUs (20-foot-equivalent units).
   - In addition to having North-South lines, Da Nang railway station offers local train services to meet the demands of a huge number of passengers traveling between provinces and cities (e.g., Da Nang – Hue, Da Nang – Quang Binh, Da Nang – Vinh, Da Nang – Quy Nhon, and Da Nang – Ho Chi Minh City).
   - Da Nang International Airport is one of the three largest and most modern airports in Vietnam (the others being Noi Bai International Airport and Tan Son Nhat International Airport); it is normally less than a 10-min drive to the city center. The three-story passenger terminal, with a usable area of 36.6000 m², meets the criteria of the
International Air Transport Association and can received from 4 million to 6 million passengers a year.

Da Nang has been strongly invested in by the Vietnamese government with the aim of turning the city into a major telecommunications center on both a national and an international scale, establishing a large-scale and modern network (Information Communications System) of Information and Communications Technology (ICT) infrastructure.

Da Nang’s road network is still being developed. In comparison with the road network of 299,973 km in 1997, by the end of 2010 the city’s road network had expanded to 1002 streets with a total length of 848,473 km.

(4) Fourth, the presence of a tax system.

The corporate income tax rate is 22% (reduced to 20% since 1 January 2016), with a value added tax of 0% to 10% depending on the type of product. The export–import tax varies with the type of product. Personal income tax ranges from 5% to 35% depending on the taxable income.

Foreign experts or individuals can take income out of Vietnam after meeting all tax obligations to the Vietnamese government.

4. Results

FPT City is an industrial cluster with the first “Smart City” feature in Da Nang, including a knowledge hierarchy, universities, and companies.

The following is an overview of the FPT City Da Nang Project (Figure 2):

(1) Investor and developer: FPT City Da Nang Joint Stock Company (JSC).
(2) Location and address: Hoa Hai Ward, Ngu Hanh Son District, Da Nang.
(3) Project total area: 181.6 ha.
(4) Future population size: 50,000 people.
(5) Master planning for: office complexes, commercial complexes, schools, hospital, hotel, residential housing (townhouses, villas, and apartments).
(6) Vision: aim is to become the first smart and green city (industrial cluster) in Da Nang — a creative, sustainable, and eco-friendly city that attracts young professional residents.

Incidentally, Figure 3 is a administrative building of FPT City. Figure 4 is an overall model of the completed FPT City Da Nang Project.

FPT City’s Master Plan was drawn up by Skidmore, Owings & Merrill LLP (SOM; USA), and Cicada Pte. Ltd. (Singapore) was in charge of the landscaping. To promote Da Nang’s natural green space, the SOM plan promises to make FPT City Da Nang value-added and sustainable over time.

FPT City Da Nang has an ideal location and convenient transportation; it is located in the middle of the main tourist attractions at Da Nang and Hoi An.

FPT City is connected to four important main roads and will be connected to the city’s Bus Rapid Transit and Subway systems in the future. It is adjacent to two luxury golf courses and numerous five-star resorts and high-end tourism projects. It is next to three international schools and Da Nang University Village and is also near the International Hospital and Children’s Hospital.

It is possible to move rapidly from FPT City to the main areas around the city. Travel times from FPT City are as follows: 10 min to Da Nang city center; 10 min to Da Nang International Airport; 15 min to Hoi An; 2 min to Non Nuoc Beach; 2 min to the Dunes Golf Course; 3 min to the Montgomerie Links Golf Course; 2 min to
Possibility of Forming Industrial Clusters in Vietnam: Case Study of FPT City Da Nang in Da Nang

Singapore International School (SIS) or Pegasus International Uni-College; 2 min to the American Pacific University (APU); and 3 min to Marble Mountain Cultural Park.

FPT City is a sustainably developed industrial cluster with a smart and green city function. There is a high percentage of green space (more than 100 ha of green space, including parks, canals, and lagoons) and public areas, in addition to a natural river and lake.

The city has a low construction footprint and is designed to be eco-friendly and sustainable in accordance with international standards. The master plan and design ensure flood management, prevention of rainwater runoff to surrounding areas, and minimization of the impacts of climate change.

Figure 2 Location and Position of FPT City Da Nang
source: FPT City Da Nang, 2014.
The smart and green infrastructure maximizes the strengths of FPT and its partners in information and telecommunications and software technology and provides smart and green infrastructure for the community.

The smart and green technologies applied include energy reuse, solar energy, eco-friendly materials, home energy management systems, building energy management systems, factory energy management systems, and cluster/community energy management systems.

FPT City Da Nang is designed to be eco-friendly and sustainable in accordance with international standards, with more than 100 ha of green space and public facilities, in addition to the natural river, lake, and designed
canals. The eco-system of parks, lakes, and canals is designed not only as public space for relaxing but also to help manage floods, prevent rainwater runoff into surrounding areas, and provide a source of water for irrigating future landscapes, thus ensuring a safe, cost-effective, and clean living environment.

In addition to the smart and green city function, the plan also incorporates a wide network of smart infrastructure and IT solutions, with the application of FPT’s strengths in information and communications technology and green and energy-saving technology.

The FPT complex and business park, campus, village, villas, town center, school, and sports center area are being developed. The main areas have the following features:

(1) FPT Complex

FPT Complex is being built on an area of 5.9 ha in the Urban FPT City Da Nang, Hai Hoa Ward, Ngu Hanh Son district, Da Nang. The project includes a total floor construction area of 30,950 m², with an investment of 454 billion. FPT Complex is a modern office complex for 10,000 people. It is the first office building in Vietnam to have received an EDGE (Excellence in Design for Greater Efficiencies) Certificate from the World Bank.

The building is designed in two layers to form a six-story-high ring with a drum-shaped core with a diameter of more than 25 m. The project was started officially on 13 August 2014. Phase 1 will be completed in late 2015 and will accommodate 3200 workplaces for staff and employees of FPT Da Nang.

(2) Business Park (Support Industry Park)

The current support industry in Vietnam generally, and in Da Nang specifically, is very poor. Development of the business park (support industry park) will facilitate the growth of the economy in general and the industry sector in particular.

Support industries are encouraged by the government. Policies supporting enterprises specializing in support industries have been issued (Decision 34/2007/QD-BCN of the Ministry of Industry; Decision 12/2011/QD-TTg of the Prime Minister; Circular 96/2011/TT-BTC of the Ministry of Finance). The project is aligned with the development, orientation, and planning of Da Nang (Decision 2574/QD-UBND dated 23 April, 2014 of the Da Nang People’s Committee).

Development of the infrastructure of the support industry park aims to attract more investment into Da Nang. Recently, the city’s industrial parks have become close to capacity.

FPT City’s business park will include the IT industry, informatics and electronics, automobile production and assembly, mechanics, and support industry products for high-tech industries. Major facilities of the business park include the management area, production area (factory), support region, utility facilities, roads, and parking — all in a scenic area.

The main investment costs for manufacturing industry utilities are: power price 0.037 to 0.12 USD/kWh and water price 0.42 USD/m³. For business and services industry utilities the costs are: power price 0.061 to 0.17 USD/kWh and water price 0.64 USD/m³.

(3) Campus (FPT University)

It has been decided that the campus of FPT University will be expanded to FPT City. FPT University is a private information technology university that was established in Hanoi, Vietnam, in 2006. The name comes from that of the managing organization, the Corporation for Financing and Promoting Technology (FPT for short). FPT University was the first private university to be opened in Vietnam, and its FPY City branch aims to recruit 500 students for the first classes.

All lecturers at FPT university will be required to have at least 2 years’ experience working in the IT industry.
and will have to sit an entrance examination. Foreign language teaching will form an integral part of the
curriculum, and the aim is to recruit native-speaking foreign language lecturers and subject area lecturers. After 1
year of language preparation, a foreign language will be used as the medium for instruction for all courses.
English will not be the only such language used: the Vietnam Software Association is working with the school’s
embedded software faculty to establish a Japanese language programmer.

(4) Village and Villas

The village and villas project includes the major buildings (apartments, villas, medical center) and support
facilities (leisure and entertainment facilities, internal roads, parking lot), covering 300,000 m².

Construction costs (Ref. Price, 2014) are, for a mid-tier apartment 377 USD/m², high-tier apartment 637
USD/m², villa 770 USD/m², and internal roads 142 USD/m².

Power is provided by the nearby 110-kV power line, which is connected to the 500-kV national power grid.
Water is supplied by the city water plants, which have a current total capacity of 205,000 m³/day & night. A
wastewater treatment facility needs to be built at the project site to treat wastewater.

5. Discussion

(1) FPT City’s problem with universities and research facilities.

Universities and research institutes and science and technology facilities such as R&D departments are
located in industry clusters, and FPT City has already been chosen as a site for the expansion of FPT University.
However, FPT University is an IT college and research is not its main function.

Moreover, at FPT City there is no plan to establish universities and research facilities other than FPT
University. In terms of inter-organizational relationships within FPT City there is currently no research and
development and technology transfer; similarly, there is no competition and collaboration or cooperation in areas
such as human resources development.

(2) FPT City’s problem with procurement of funds and effective use of the funds.

To develop FPT City there is a need enormous amounts of investment funding. Because FPT City is a
development by one private sector company in Vietnam, there is expected to be difficulty with financing in the
future. In addition, at the moment, details of the suppliers of funds, the scale of those funds, and their distribution
and destination have not been published. It is feared that there will be a decline in financial efficiency as a result
of investment by this one private sector company.

(3) FPT City’s problem with human resources specializing in regional innovation.

In industrial clusters, regional innovation is expected for the formation of companies and IPO (Initial Public
Offering) companies, and, for this, business professionals are needed. However, specially talented people such as
venture capitalists, business consultants, incubation managers, catalysts, and financial analysts are scarce.

6. Conclusion

Not only does Da Nang actively accept foreign capital through direct investment; it is also investing
resources in the industrial cluster at FPT City Da Nang.

In reality, the industrial cluster strategy at FPT City has just started, whereas the smart and green aspect of
FPT City is in the middle stages of a development process aimed at innovation. However, it does not match the
industrial cluster concept presented by Professor Porter (1998) in which “it belongs to a certain specific field, and
the company and the various organizations relevant to mutual focus geographically, and it is cooperating simultaneously competing”.

In Da Nang, along with the aggressive foreign acceptance of FDI (Foreign Direct Investment), commitment to the industry cluster strategy can be seen in the accumulation of industries, for example at FPT City, Da Nang Hi-Tech Park, and Da Nang IT Park. However, the actual strategy of formation of an industrial cluster by industry accumulation has only just started at FPT City. Nevertheless, FPT City is in the middle stages of development as a smart and green city with the aim of creating innovation. For example, analysis of previous studies of the industrial cluster strategy of FPT City Da Nang in terms of the six main form factors presented by Sternberg gives the following realities:

1. There is currently government policy support for FPT City, but not financial support by the Vietnam central government or the Da Nang City government.
2. FPT City is a long way from the large-scale markets of Hanoi and Ho Chi Minh City and is in a region of relatively modest consumption and demand.
3. The living environment of FPT City is comfortable: it is a resort-style region in which a large number of people from all over the world have gathered.
4. Infrastructure development in research and education at FPT City means that FPT University is now the IT sector university of the future. However, the cluster does not have universities and research institutions specializing in other areas of research, and as yet there are no plans to establish them.
5. A core research and development base is offered only in the IT field and only by one company at FPT City; companies for other industries do not yet exist there, and there are no plans to introduce them.
6. In regard to capital to support the venture company at FPT City, there is no system of venture development and no capital provider for the venture.

At FPT City Da Nang, various related organizations will come together to master many subjects, thus developing a future industrial cluster. A synergistic effect that builds a win-win relationship for each organization will be achieved; the productivity of the area is improved and innovation is assured.

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