Growth Opportunity of A Limited Port in The Shadow of A Dominant Port: A Case Study of Bangkok Port, Thailand

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Abstract

Maritime transportation has traditionally been a crucial part of world economy. Countries which are connected to a seaboard or major river will have the opportunity to develop a port which can provide access to water transportation. When there are two or more ports in the nearby area, customers tend to prefer to use the facilities available at the main ports since goods handling and transfer are more efficient and economical. Nearby ports which receive little or no special support from the government, and are thus overshadowed by the larger ports which inevitably leads to the loss of their market share (Tongzon 2002; Magala 2008). These shadow ports must find ways to survive and prosper in a competitive environment. Indeed, both main and regional ports could become shadow ports of another nearby port.

Generally, ports will grow if they succeed in providing profits to the sellers and the related third-party service providers and delivering value to the buyers (Robinson 2002b; 2003). There are few studies regarding the port competition for growth and survival between two nearby main ports. Difficulties begin to arise if a new main port is established because of limitations or inefficiencies of an existing port which could not provide satisfactory services to customers or contribute to the economic activity of the nation (Limskul 1998). Therefore, with the loss of their market and lack of support from their governments, the existing ports need to find a way to survive. These ports are metaphorically under the shadow of the nearby superior port. Most of these shadow ports are regional ports which are situated near main ports. On the other hand, and of interest to this study, there is a situation where there are two main ports (where one port was built after the other) situated near each other.

Thailand, is one of the countries that have a significant part of its economy reliant on water transportation. Here, the situation of having two main ports close to each other has arisen. These two ports are Bangkok Port (the older main port which is in Bangkok), and Laem Chabang Port (the more recently established main port which is in Chonburi province).

This study focuses on using the Opportunity Capture framework to understand and explain how a main port can manage to grow in the proximity of a nearby predominant main port. The original framework was suggested by Magala (2004). Ansoff's Matrix (Ansoff 1957) and the Noticing, Collecting and Thinking (NCT) model (Seidel 1998) were used with this framework in an attempt to capture the opportunity for shadow ports.

Port experts in Thailand were interviewed regarding their opinion on potential policies that the shadow ports should pursue in order to be viable and competitive. Five categories of experts include personnel from the Thai government, the shipping-related council/federation, logistics providers, relevant business sectors and respected academics who are researching in this area. Semi-structured interviews as a qualitative approach toward the development and understanding were based on the Opportunity Capture framework. The data from the interviews were analyzed qualitatively using the NCT framework in order to highlight important criteria and underlying factors required to create policies for the shadow port. Six findings were extracted from the analysis, and the strategic solution for Bangkok Port was derived from the use of the Opportunity Capture framework and evaluated with Ansoff's Matrix. The findings and the strategy suggested here could be implemented to increase the competitiveness of Bangkok Port and, finally, to allow the port to grow if that is the direction that Thai government wishes for the port.

Finally, this study found that Bangkok Port could gain more profit by adapting itself into a coastal port since there is a plan to establish a coastal port at Laem Chabang Port. Hence, Bangkok Port could use this opportunity to increase its competitiveness by becoming a domestic hub for distributing imported goods inside the country, and by collecting export goods before shipping them to Laem Chabang Port via coastal ships. With this solution, Bangkok Port could gain profit from such strategic directions by: (i) providing the services of domestic port, (ii) offering rental office for third-party logistics providers to use inside the port, and (iii) offering a container freight stations (CFS) service to open and close containers using existing equipment and skills.

Doctor of Philosophy Declaration

"I, Chayakarn Bamrungbutr, declare that the PhD thesis entitled 'Growth Opportunity of A Limited Port in The Shadow of A Dominant Port: A Case Study of Bangkok Port, Thailand' is no more than 100,000 words in length including quotes and exclusive of tables, figures, appendices, bibliography, references and footnotes. This thesis contains no material that has been submitted previously, in whole or in part, for the award of any other academic degree or diploma. Except where otherwise indicated, this thesis is my own work".

Signature  **Date:** 14 September 2020

(Chayakarn Bamrungbutr)

Dedication

I still remember the first day that I met Professor Ross Robinson, I was so excited to meet him because he was a maritime expert and I was so happy that he agreed to be my principal supervisor.

Ross, for one and a half years that I had worked with you, you had taught me countless things not only about my thesis but also how to be a good teacher. I still remember our last meeting that I sat beside your bed in a hospital. You dedicated yourself to my work, although you were unwell with pancreatic cancer.

Although you are in heaven now, I am and I will continue to work and use the knowledge that you guided me to its best. I truly wish that I could make you proud of me.

Furthermore, I would like to send my thoughts to one of my sisters, Tum, who had passed away during a journey of this thesis. She had been by my side and celebrated with me during every step of my past successes except this time. I really miss her a lot. I wish I could have more time to talk to her, laugh with her, and travel more with her. Tum, you will always in my heart and my thoughts. I will always miss you.

Acknowledgements

My doctoral study can be seen as a very long journal and there had been several obstacles and challenges especially in the first two years of my study. I often asked myself ‘what should I do?’, ‘how can I solve the problems?’, however, now I have come to the final step. Reaching this state would not be possible without the support and encouragement of many individuals and organizations.

First of all, I would like to gratefully acknowledge to my principal supervisor and mentor, Associate Professor Jim Sillitoe, for his very helpful advice, much priceless knowledge, constant kind support, and enthusiastic encouragement throughout this work and my doctoral study at the Victoria University. Jim, you are like the knight in shining armour who came to me when I was in a dark and difficult time. You have made the last two years of my study as the wealthiest and memorable moment. I remember that you have told me “It is not easy, but it is worth it!”, Yes, Jim, it is worth it. Thank you so much for believing in me.

Additionally, I would like to send my sincere respect and gratitude to my current and former associate supervisors, Dr Jo Vu, Dr Don Gunasekera, Dr Faraz Bidar, and Dr Hermione Parsons for their guidance and supportive comments during the preparation of this thesis. Next, I am thankful to Joe Monitto for all the help during his work at Victoria University. My grateful thanks are also given to Associate Professor Sophia Everett for her unconditional kindness and valuable advice that given to me even you are not my associate supervisor.

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federation in Thailand, business owners that have participated in the interviews and gave valuable information used in this thesis.

Furthermore, I would like to express my deep gratitude to beloved family members – my parents, my aunts, my uncles, my brother, and my cousins for their love, support, and encouragement always. Last but not the least, a special mention must be made to Sophon Somlor who always stand by my side in all these years of hard works, Thank you for your love, help, encouragement, and belief in me throughout this journey; without you, I would not be able to find success in this long journey.

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Prologue

During my work at Bangkok University, as a staff member in the Logistics Management Department of the School of Business Administration, I had several opportunities to join seminars held by influential national bodies, including the Ministry of Finance, the Port Authority of Thailand, and the Bureau of Logistics of the Department of Primary Industries and Mines. It was as a result of attending these seminars that I became aware of subtle aspects of logistics and transportation practice and policy which were not specifically addressed during my Master's degree studies, and these somewhat oblique perspectives on supply chain matters began to attract my attention.

In the course of pursuing some research on the history of maritime transportation of Thailand, I found that the Thai government has been working on a development plan for this mode of transportation, particularly through its policy agenda, over the last 50 years. The Thai government has continually included the strategic development plan of Thai ports in reportage of the National Economic and Social Development Plan since 1972 (NESDP) (Social Research Institute 2016). Furthermore, it became apparent that water transportation generally has drawn even more Government attention as a result of the recent economic growth of the ASEAN region, and the concomitant expectations of further expansion when the ASEAN Economic Community (AEC) evolves. In this respect, the AEC has been reported as aiming to unify the trading of the region into one unit (Centre for ASEAN Studies 2015). Clearly, it can be implied from the launch of AEC, that further indirect benefits for Thailand will emerge. Thailand is not only a producer of primary goods but can act as a key distribution hub due to its geographical location, increasing the convenience of trans-shipment through Thailand to other countries of the region. As a consequence, supply chain and logistics development in Thailand have gained increasing interest from the Thai government, and this is especially so for water transportation. This is manifest in the increasing development of port infrastructure

and landside facilities which support both domestic and international trade (Logistics digest 2016; Ministry of Transportation 2016).

It was against this background that I have become deeply interested in the future of maritime transport, and I have become aware that there is a significant body of research now related to aspects of this mode of transportation, such as port development, port selection, and port efficiency, particularly in the manner of case study investigations. I found the work of Professor Ross Robinson, who was one of the experts in maritime transportation, to be remarkably inspiring and critically different from other researchers in the field. Having contacted Professor Robinson, I followed his recommendation to read several interesting papers. One of these was the paper based on the Doctoral studies of Magala (2004), which examined the issue of 'shadow ports' in Australia, which specifically focussed on a main and a regional port which were in close proximity.

This concept of a 'shadow port' captured my attention, since this situation is very similar to one in Thailand where there are two main ports which are geographically adjacent, and I thought that this situation might play an important part in the future development of the maritime strategies of the country. These facilities are Bangkok Port (the former main port) and Laem Chabang Port (the current main port). Currently, it is seen that the Thai government provides most of its support to Laem Chabang Port since it is newer, more advanced, has more potential, and appears to have fewer limitations to its growth and development. Nonetheless, Bangkok Port has had a long history of contribution to Thailand's economy and social wellbeing and is critically located on the Chao Phraya River which is in contact with China. I became interested in the long-term balance that could be struck between these ports, and indeed in general between similar ports which are situated in close proximity.

This investigation, therefore, is an in-depth examination of the issues surrounding the on-going development of a main port and a shadow port, by focusing on the case the two main ports of Thailand as a case study. This will put to advantage my being a native Thai citizen and my experience with supply chain and logistics matters, both from an industrial and a business perspective. I can access information written in Thai only, and can conveniently communicate with, and interview, influential Thai

individuals who are working or researching in aspects of maritime interest related to Thai ports. I can thus obtain key comments from National Government sources involved in long-term development, planning and project funding within the port area, Local Council representatives who have concern for social welfare and quality of life issues for the surrounding community, a selected range of Shipping Agents who manage the flow of goods to and from these ports, respected Academics studying relevant aspects related to shadow port development, and Business leaders who represent the economic interests related to the ports.

Lastly, I wish to record that the impetus for this project benefitted significantly from the involvement of Professor Ross Robinson. Not only was he responsible for well-known and significant academic contributions to the field, but he was also always an inspiring, kind-hearted, generous person. Professor Robinson was always available for countless discussions with me, even during the time when he was not well, and I note here my sincere gratitude for his ideas and advice to me, not only on research but on daily life. He will always be remembered, and this project owes much to him.

Chapter 1
Introduction

1.1 Background and context

Maritime transportation has traditionally been a crucial part of world economics. Statistical data show that more than 90% of global trade in 2015 and 2016 was done *via* sea shipping (International Maritime Organization 2016; UNCTAD 2015, 2016). One reason is that water transportation is also the most cost-effective way of product transhipment because it can handle significant amounts of bulk or individual material, and physically large and heavy products (Rimmer 2014).

Countries that are connected to a seaboard or big river will have the opportunity to develop a port to exploit the benefit of water transportation. Most valuable ports are deep sea ports that can handle big ships and river ports where the river is navigable for a considerable distance into the country's interior. Regional ports are ports that are located outside metropolitan and capital cities and facilitate regional trade and serve regional producers. Main ports are ports that possess advanced landside facilities and capabilities. Therefore, they usually gain the most attention from Governments, and this can come in the form of supportive development plans and strategies.

Ports will be able to grow if they can satisfy the needs of shippers with their infrastructure abilities such as capacities, facilities, and services. Moreover, they will grow if they succeed in providing profits to the sellers and the related third-party service providers and delivering value to the buyers (Robinson 2002b; 2003).

Generally, when there are two or more ports in a nearby area, customers would prefer to use the facilities available at the main ports of exporting and importing nations since goods handling, and transfer are more efficient and economical. Eventually, these major ports handle the majority of international and domestic trade. They also continue to receive more attention from their respective governments than other

nearby ports as well as gain advantages from governments' supportive policies and budgets. As a result, the smaller nearby ports receive little or no special support from the government and are thus overshadowed by the larger ports; these smaller ports can be called shadow ports. This kind of situation inevitably leads to the loss of their market share (Tongzon 2002; Magala 2008). Nevertheless, since it is argued that the strategic existence of multiple ports is in the national interest, these shadow ports must find ways to survive and prosper in a competitive environment.

Both main or regional ports could become shadow ports of another port. Many recent researchers have given attention to the growth of regional ports (Hilling & Hoyle 1984; Wand & Slack 2000; Song 2002; Wang 2008). Some of them have specifically focused on several factors that contribute to the port growth, while others have focused on the effect of spatial factors such as port infrastructure and location-related factors on the growth of the port. Further, some studies have been done on port efficiency and productivity (Tongzon 1995, 2002; Micco & Perez 2001; Coelli, Rao, O'Donnell & Battese 2005; Cheon, Dowall & Song 2010). These authors have argued that higher efficiency and productivity could bring shadow ports a competitive advantage over their competitors by providing them with more accessible marketplaces.

Previous studies about major ports have largely focused on identifying factors related to how a port is selected, and why these ports were preferentially chosen. In addition, Bird and Bland (2006) have studied route competition of the main ports of the European Community, which has relevance to this question. Major factors that contribute to the efficiency of the port were also studied, including factors such as quality of service, cost, and capacity of cargo (Rimmer 1998; Cheng, Lee, & Tongzon 2008; Tongzon 2009).

Notwithstanding this work, there are few studies regarding port competition for growth and survival between two nearby major ports, especially if the ports have the same or similar markets. Difficulties begin to arise if a new major port is established as a result of limitations of an existing facility, or perhaps because of the inefficiencies of an existing port which could not provide satisfactory services to customers or make a contribution to the economic activity of the nation (Limskul

1998). There can be limitations that are often difficult to tackle, and barriers include limited land availability for the port's expansion and geographical depth of water in the port's perimeter (Limskul 1998; Anothaisintavee 2004). Therefore, when it comes to the establishment of a newer port, its characteristics such as location, area, infrastructures, and facilities, could be superior to the existing main port. Therefore, with the loss of their market and lack of support from their governments, existing ports require a strategy if they want to be competitive, make profit, and grow. This could be, for example, by improving their functionalities, reducing their disadvantage points, or discovering a new market or a new product to gain new leverage as recommended by Magala's study in 2008 in order to sustain their existence.

Nevertheless, some analyses also shows that attempts to establish a new port may be hindered by the entrenched advantages of the older port. Cullinane, Teng and Wang (2005) argued that Ningbo Port, an old port that was built in 738, has a greater market share when compared to the world's busiest port Shanghai (World Shipping Council 2016). This is due to the natural endowments of Ningbo Port which includes depth of water and also pricing and quality of service.

It can thus be seen that the advent of a newer port has a direct impact on an older port which is located in an adjacent area or shares the same market. However, the shadow port could still create some leverages to compete with the dominant port in order to grow and survive, and this possibility will direct the focus of this investigation.

1.2 Research problem

Main ports usually receive a lot of attention from their owners or their governments. The government often launches policies that benefit the growth of these ports which leads to the expansion of the nation's economy. On the other hand, the ports that have developed under the influence, or under the shadow, of a main port are often neglected or have limited supportive policies from their government.

Most of the shadow ports are regional ports that are situated close to their major ports. These regional ports tend to be bulk ports (Hilling & Hoyle 1984). However, there is no guarantee that relying on bulk goods is sufficient for them to preserve their growth.

Whilst some regional ports have tried to diversify their trade and enter new markets, in the main, new markets have already been dominated by their major ports. Instead, some researchers argue that regional ports should maintain their existing advantage of trading bulk commodities, while also taking advantage of temporary and spatial inefficiencies of the markets and the inefficiencies of the nearby main port in several aspects, such as congestion and stability. (Lundy 1982; Miyajima & Kwak 1989; Haynes, Hsing & Stough 1997; Haezendonck 2001; Notteboom & Winkelmans 2001; Magala 2008).

On the other hand, and of particular interest to this study, there is a situation where there are two main ports (where one port was built after the other) situated near each other. Indeed, a new main port is often established due to some limitations or some inefficiencies of the old port that leads to the unsatisfactory demands of customers or mismatch with the economics of the nation. Therefore, there is no surprise that the characteristics and features of the new port, whether its location, area, infrastructures, or facilities, would be superior to the previously existing port. Moreover, it is most likely in this case that policies from the government will contribute more toward the new major port. As for the old major port, it might still be able to operate effectively if it could maintain its ability to satisfy some demands of markets, but this advantage might be cancelled if the newly established port can fully satisfy all the nation's demands.

In Thailand, as one of the countries that have a significant part of its economy reliant on water transportation, the situation of having two major ports close to each other has arisen. These two ports are Bangkok Port (the older major port which is in Bangkok), and Laem Chabang Port (the more recently established major port which is in Chonburi province). Initially, Bangkok Port was sufficient to handle all the demands of customers, but as demands, and consequently, the size of vessels increased, Bangkok Port could no longer satisfy the need of customers due to the following reasons: (i) it is a river port which has a limitation in the maximum allowable water depth, (ii) it is located in a dense urban area of the capital city where the expansion of land area and rail infrastructure is rarely a feasible option, (iii) the bad traffic conditions in the capital city have hindered the efficiency of freight transportation in and out of the port, and (iv) the further development of road

transportation has changed the behaviour of customers from using river to using road for transporting their goods. These were key reasons why the Thai government built a deep sea port called Laem Chabang Port in Chonburi province (around 200 km away from Bangkok) where further developments (e.g. land expansion, infrastructure upgrade) can be easily done in order to support the higher demands of the customers. Moreover, Laem Chabang Port is also one of the projects that support the Eastern Seaboard Development Plan (ESDP). The objective of the ESDP is to increase the competitiveness in the world market and distribute economic activities from Bangkok. Subsequently, the government has put most of its efforts in the development of Laem Chabang Port and its infrastructure (such as new motorways, railways and inland container depots) while significantly reducing its support for Bangkok Port (Sullivan 2017).

This has resulted in the economic overshadowing of Bangkok port, and there is a growing concern amongst those who wish to see its survival, that without a significant change in government attitude to this port, it will reach a point where it is uneconomic to continue its function. Thus, it is clear that if this former main port is to reverse its current fortunes and begin to grow under the circumstances of it having the continuously developing dominant main port of Laem Chabang in its region, it will be essential that proponents for its continued existence provide some ideas of strategic directions that should be considered. These could be a part of proposal to the government.

1.3 Research question

To have better understanding of the main ports overshadowed by other main ports, we have posed the question:

What are the special attributes and irreplaceable advantages that the main ports overshadowed by other main ports possess that contribute to a compelling argument for their continued survival?

To answer this question, the case study of Bangkok Port is used since the port can be seen as the former main port of Thailand, which is overshadowed by Laem Chabang Port, the current main port of the nation.

1.4 Research methodology

This study focuses on determining possible strategies that might be employed when an ageing but well-placed major port attempts to grow in the proximity of a nearby predominant major port. A case study of Bangkok Port, the former main port, and Laem Chabang Port, the new main port of Thailand, was used in order to see if any emerging ideas or strategies could be useful in this regard.

In order to systematise this study, three well-respected research approaches were used. These were Seidel's Noticing Collecting Thinking (NCT) model (Seidel 1998), Magala's Opportunity Capture framework (2008), and Ansoff's Matrix (Ansoff 1957), which were employed to analyse and focus the data which was gathered from interviews with a carefully selected group of influential professionals working within the Bangkok and Laem Chabang Ports. Each of these approaches will be discussed in detail in the Research Methodology Chapter, but a brief introduction will be provided here in order to give an overview of the research design of the project.

The NCT Model, which was introduced by Seidel (1998) was used in the process of analysing, grouping and categorizing the respondents' opinions in order to determine any consistent underlying perspectives that might be used in the process of finding a direction for growth for Bangkok Port. This model was used because a number of publications in the examined literature (Dede & Lioufko 2010, Rambaree 2013, Rehm 2015, Williams 2015) have indicated that it is a suitable method for qualitative data analysis when a relatively small number of data sources is available. It is described as being a nonlinear analytical process, which experienced qualitative researchers have claimed is a good method for analysing data gathered from semi-structured interviews which could have a wide range of answers (Friese 2011, Friese 2014, Mitręga & Zolkiewski 2012, Ribeiro 2016).

As indicated earlier, this group of interviewees was purposefully selected on the basis of their recognised expertise, profession and status within the industry. Within the group, port development experts from government, shipping-related council/federation, academia, and industry were included. The members of the group were specifically targeted to represent a range of perspectives, incorporating the policy influencing level (government and council/federation), port-related researchers who work in the ports, and customers of the ports.

The Opportunity Capture framework, which was introduced by Magala (2008), was used for two purposes. First, it helped to construct a systematic set of questions for the semi-structured interviews. Using the framework to design the set of questions, aided the focusing of the investigation on the creation of a suite of prompts that could help interviewees to reveal their perspectives on the opportunities that Bangkok Port might exploit and also possible hindrances that stop Bangkok Port from growing. Second, the framework was used to identify a set of potential directions that could assist Bangkok Port in finding its competitive advantages which will be required for any growth or survival, again from the perspectives of the selected interviewees.

Finally, Ansoff's Matrix (Ansoff 1957) was used to assemble the output of the responses stimulated by the Opportunity Framework, into a potential growth strategy for Bangkok Port. As will become clearer later, Bangkok Port has limited resources in several respects, and Ansoff's matrix has facilitated the categorisation of available strategies into four main types. These types are based on the natural existing markets and products that Bangkok might choose to optimise their economic and social objectives, their available resources and advantages, and to minimise potential risks.

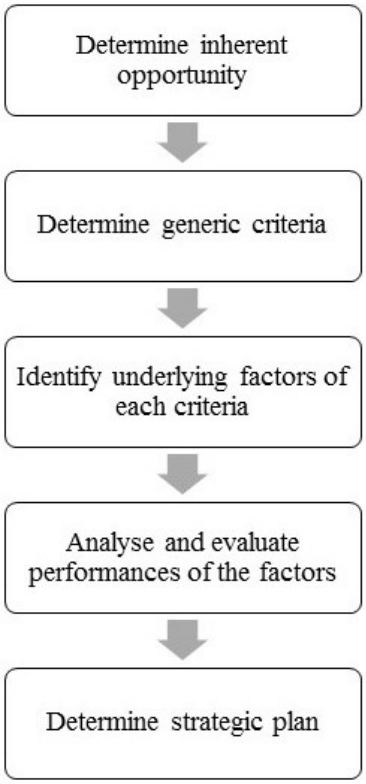


Figure 1.1: An opportunity framework which was designed for the study of shadow ports (Based on Magala (2008), modified by the investigator).

1.5 Significance of the study

In terms of the academic contribution of this thesis, it is in the following aspects. Several other approaches have been applied to the study of port such as port competition, port selection, and port choice modelling (More details on the related work are in Chapter 2). On the contrary, even though the concept of opportunity capture and shadow port are not widely used, it can be considered as an interesting approach to use especially in a different setting. Magala (2004) used this approach for Australian regional ports, finally suggesting that the framework can provide effective growth strategies for shadow port. However, in the case of this thesis, it is about the two capital ports of Thailand; the new port, Laem Chabang port with

substantial government support and the older one, Bangkok Port with several limitations and noticeably less amount of support.

Therefore, it is worthy to see if these two concepts of opportunity capture and shadow port could be used to derive any possibly unobvious plan to assist Bangkok Port to become more profitable and economically sound. Moreover, it is the first time that this approach is used in the research related to Bangkok and Laem Chabang Port. Therefore, it can be said that this research can contribute new knowledge in this aspect.

In terms of the contribution to society, the author hopes that the output of this study will provide government and planning authorities with indications of the opinions of these carefully selected respondents about possibilities for moving the future of Bangkok forward. This will benefit both the shareholders in the port and surrounding enterprises and for the nation, which stands in an ideal position to capitalize on increased maritime activity within the ASEAN region.

It has been one of the strategic plans of the Thai government to gain a competitive advantage to compete with other nations in ASEAN and around the world, as can be seen from several most recent strategies (Office of the National Economic and Social Development Board 2015, 2017; Ministry of Transportation 2016a, 2016b; Office of Transport and Traffic Policy and Planning 2015). The Eighth National Research Policy and Strategy has encouraged research into logistics and transportation (either land, water, or aerial) in order to enhance the capability and the quality of logistics and transportation services both domestically and internationally. It has also aimed to develop the connectivity in transportation networks between Thailand and the ASEAN nations (this is also known as ASEAN Connectivity). Additionally, port-related development has always been a part of the plan in The Twelfth National Economic and Social Development Plan from the Office of the National Economic and Social Development Board (2015), and the policy of Port Authorities of Thailand and Ministry of Transportation (Office of the National Economic and Social Development Board 2015; Pudtaya 2015; Ministry of Transportation 2016a, 2016b; Office of Transport and Traffic Policy and Planning 2015). The project thus fits squarely into the remit of the Institute for Supply Chain and Logistics Management

and will contribute to its mission of providing sound and evidence-based advice to the supply chain and logistics area.

1.6 Structure of the thesis

In the first chapter, the background and research problem in which this study was initiated have been underlined. The background includes the importance of maritime transportation to the world's economic development. The research question, research methodology, and the significance of the study have also been briefly discussed here.

Chapter 2 discusses the existing literature related to this area. It firstly reviews the previous works on port growth opportunities. Chapter 3 discusses the maritime transportation of Southeast Asia and Thailand. The detail of Thailand's two major ports, Bangkok Port and Laem Chabang Port, and port-related strategies of the Thai government and Port Authority of Thailand are described next. Moreover, the current situation of Thai ports is also discussed in this chapter.

Chapter 4 explains the research design which includes the framework of this study, and the data collection step. The detail of the framework, its related theory, and its key factors will be explained. In Chapter 5, a method for data collection, namely, semi-structured interviews, and a data analysis method called the Noticing, Coding, and Thinking or NCT model, are explained. The interview of port experts in Thailand will be done using a set of questions designed prior to the interview. The data collected from the interview will be analysed using this NCT model.

In Chapter 6, the results of the analysis of the collected data from Chapter 5 is shown. General discussions of the results will then be performed. Chapter 7 provides a more in-depth discussion of the analytical results. The findings of this research will be argued and summarized. The implementation of the improved framework will then be discussed.

Finally, Chapter 8, the concluding chapter, justifies the importance of the study and reports the main findings, the implications of the results for policy and practice, and suggests some directions for future research.

Chapter 2
Literature Review

2.1 Introduction

There are many contributions to the literature dealing with issues related to the mechanism of mercantile port management, and many of them are relevant to the focus of this study, which is an examination of a situation that appears to be a case of the survival and growth of a shadow main port. In particular, there are studies on (i) how a port attracts customers, including the ways that they ensure that they get chosen in a competitive area, (ii) aspects of developing efficiency in providing services, (iii) instituting procedures to continually make a profit, and (v) how to grow and develop in new ways to meet the requirements of a changing global economic system, all of which are issues of prime importance to this study. In this chapter, the review of pertinent literature is divided into three main parts for clarity of understanding the relevant issues at hand. The first part deals with recent works regarding port selection, why a certain port is preferred over others, and what factors contribute to the selection of a particular port. For the second part, the concept of competitive advantage and opportunity for growth of firms, including ports, are discussed, whilst the third part looks at possible port cooperation.

2.2 Port competition

Over the past decade or two, the topic of port competition has become an important issue due to the growth of international trade, the increase in reliance on maritime transport, globalization of goods and services, and the changing world economic situation (Heaver et al. 2000; Langen 2007; Rimmer 2014). Against this background, the subject of port competition has become one of the key problems in national policy-making relating to a county's main port when competing against the main ports of other countries. However, whilst many studies provide similar opinions on

the definition of 'port competition', there can never be a single, complete concept because of the complex characteristics attending each individual port. Indeed, the nature and characteristics of port competition depends on such variables as (i) the type of port (local port, transhipment port or main port), and (ii) the type of products that move throughout the ports (containers or solid and liquid bulk) (Heaver 1995; Van De Vorde & Winkelmans 2002; Notteboom & Yap 2012). It has been further suggested that, in fact, port terminals are the actual competing physical units, while port authorities or policymakers have the responsibility to increase port competitiveness by offering good levels of services (Kaselimi, Notteboom, Borger 2011). Tezuka and Ishii (2016, pp. 92-94) introduced three levels of port competition, starting with intra-port competition which represents the competition between two or more port terminals that are located within the same port. The next level they have identified is inter-port competition, which takes place between port terminals of different ports that share the same market. Furthermore, they noted that this competition level can be applied to the regional and national levels. The third level is the port competition that occurs between the port terminals that are located in completely different regions, which means that their customers are totally different.

In addition, there is a growing perception that there is a change in business trend related to the nature of the supply chain. Robinson (2002b) has suggested that ports are no longer stand-alone units that compete solely for their own trades. Instead, when a supply chain is value-driven, ports can be seen as elements that are embedded in the value-driven chain system. Hence, ports have to provide services and offer sustainable values to their customers *vis-à-vis* their competitors. Accordingly, factors that affect port competition also have changed. In the past, individual port services could be considered as the only important factor that ports needed to deal with. However, with shipping lines becoming key players in the port selection, their increasing demand for global-scale integrated logistical services has become more influential. For instance, 'door-to-door' service is gaining more attention in the modern port competition (Langan 2007). In addition, hinterland transport is another service that terminal operating companies or port authorities need to provide to shipping lines or their customers in order to increase the level of connectivity of transhipping goods between ports and freight destinations located around, and further

away from, the ports toward the hinterland. This could also increase the level of integrated logistical services and hence makes the port more attractive for shipping lines (Rimmer 2014).

Langen (2007) and Mueller (2014) note that ports in Europe compete not only as individual elements but also as transport networks and/or whole supply chains. If a seaport wants to attract or retain megacarriers, it has to position itself as an efficient intermodal hub and a logistics service centre with extended transportation support, because there are many countries that are not directly connected with the sea (such as Austria and Hungary). Moreover, the spatial distribution of supply chains has a huge impact on container volumes in ports. The presence of inland nodes (for example an inland container depot) will increase container throughput of seaports. Therefore, competition between European ports focuses mainly on their capacity to attract the maximum container volume in order to justify direct calls.

Furthermore, geographical features are other factors that could significantly affect port competition, but clearly, these are natural factors which are not trivial or often not possible to change. For example, there are three ports located in the Strait of Malacca in Southeast Asia. They are the Port of Singapore, Port Klang, and Tanjung Pelepas. Since the Strait is the shortest passage from the Pacific Ocean to the Indian Ocean, most container vessels need to use this route. As a result, the amount of container throughput of those three ports is very high, even when compared to global rankings. There are also other areas where geographical factors play a major role in port competition such as the Pearl River Delta in East Asia where Hong Kong Port and Shenzhen Port are located, and the Antwerp-Hamburg range in Northwest Europe with the four largest ports of Europe (Rotterdam Port, Hamburg Port, Antwerp Port and Bremerhaven Port) (Langen 2007; Notteboom & Yap 2012; Portstrategy 2016).

2.3 Port selection

In the study of port selection, a key factor is related to the determination of the factors that affect the decision-making process of shipping lines to choose one port over another. Generally, the practical principle used in this process is to achieve the highest

profit for the shipper themselves (as in every business) while still maintaining the satisfaction of their customers (who pay them to ship their freight).

Thus, the study of port selection is usually performed from the perspective of a shipping line to see which factors are critically affecting their port selecting decision. Previous research has indicated that such studies were done by setting up a case study of a specific port in a specific area which is interesting for the researcher. Examples are Slack (1985), who focused on the case study of the transhipment route between the Mid-West and Southern Ontario of America and Western Europe; Lirn, Thanopoulou and Beresford (2003), who studied Taiwanese ports; Tongzon and Sawant (2007), who looked at the ports in Singapore and Malaysia; Ugboma, Ugboma and Ogwude (2006) who investigated port selection in Nigeria; and Chang, Lee, and Tongzon (2008), whose study focused on the Korean international shipping lines.

However, illustrating the complexity of this issue, was the observation that even the literature which focussed on the same group of shippers but was done in different areas or involved different case studies, resulted in factors related to port selection which were quite different. For example, Slack (1985) found that inland transportation rate and frequency of ship sailing are the two most important factors, while Malchow and Kanafani (2001) found that the distance between port and shipping's origin/destination is the major criterion but the frequency of sailing and ship's capacity were not critical. Nir, Lin, and Liang (2003) found that shipping time and cost are the most concerning points, while the results of Lirn, Thanopoulou, and Beresford (2003) showed that the major factors also vary, even among the Taiwanese shippers. This range of differences is understandable since the factors also depend on the nature of the commodity.

It can be concluded that, because in these studies of port selection, each research investigation relied on using a particular port or an individual shipping line as their focus, thus the results of their studies gave different 'most-concerned' factors depending on the shippers in those areas. Interestingly, in any literature found so far, the actual physical capacity of the port has not emerged as a major factor that shippers take into consideration when choosing a destination port.

2.4 Port choice modelling

Mueller (2014) argued that a port with more obvious competitive advantages will be likely to be selected for freight transportation. Hence, the port competition issue tends to be solved with port choice modelling. He further noted that there are twelve factors that affect port selections, and the selection of these factors was based on how often they are recognized as key factors by port choice decision makers, the shipping lines. These factors are: (i) maritime costs, (ii) hinterland costs, (iii) port costs, (iv) maritime transport time, (v) hinterland transport time, (vi) port dwell time, (vii) number of deep sea port calls, (viii) number of short sea services, (ix) water depth (part of port infrastructure), (x) number of inland waterway services, (xi) number of rail services, and (xii) demand for containers. Veldman and Bückmann (2003) confirmed that port access costs, hinterland transport costs, and quality of service are the most important factors for the continental and overseas hinterland of West European container ports. Furthermore, Veldman and Rachman (2008) indicated that there is a difference in the key decision makers of port choice. Merchant transports, shippers and receivers are the main influence in the process of port selection, while for the other transhipments, carriers are directly involved in the port choice.

2.5 Competitive advantage

The notion of the competitive strategy was first introduced by Porter in 1980. Later on, the strategy was developed into 'competitive advantage' and was aimed to be used as a new strategy to develop the value chain (Porter 1980; 1985; 1998a). Competitive advantage is what allows an organization to have more advantage over others in a competitive situation. The advantages can be in a form of capabilities, resources, or some other unique features that other organizations do not possess. Thus, the competitive advantage of a firm can be used as a key concept in strategic management.

When a firm possesses competitive advantages, it has the potential to dominate and own a major part of market share. This allows the firm to make profits and also to grow in an appropriate direction, therefore all developing firms should try to build

their own competitive advantage in order to compete in a vibrant but aggressive environment. Moreover, it is suggested that the competitive advantage that a firm has built should be sustained in long-term, which will allow the firm to exploit the advantage for which it has invested considerable time and effort to establish. In order to make the advantage sustainable, the firm should constantly re-evaluate its competitive advantage and strengthen it if necessary, because customers and markets are dynamic and can quickly change.

Porter gave three further suggestions that a firm could use to build competitive advantage. These are (i) differentiation, (ii) cost leadership, and (iii) market focus. For market differentiation, the product or service that a firm presents to customers should be transparently different from its competitors in specific aspects, in order to allow the firm to set a higher price for that certain product or service. Regarding the cost leadership, a business that has a low cost could survive in a competitive market, even if it yields a lower profit margin. This low cost of creating a product or service makes other firms difficult to compete with because there is high uncertainty of survival in a low-cost market. Whilst it is risky, therefore, the firm that has a low production cost could eventually dominate the market and enjoy survival and profit. Regarding market focus, Porter suggests that a firm should put its focus on a specific market or a niche market, which will allow the firm to set a higher price because the customers will have a limited choice of product in a restricted environment.

Competitive advantage is one of the critical issues for port growth strategies because the perceived advantages which exist in each port are the elements that attract customers (Robinson 2002b). Magala (2004) suggests that each port can pursue development strategies by focussing on its advantages, and these can include attributes such as a well-developed logistics system, good transport networks within the port, a significant available area for expansion, efficient cargo handling and storage facilities, and an effective configuration of supply chains. These favoured points are unique, and their advantages allow them to create valuable services for its customers. Moreover, there is a perception that it is not only the port's excellent infrastructure or advanced logistics system that are the cornerstones of port competitiveness, but also its external characteristics such as availability of its inland

distribution centres, its accessibility, and the location of marketplaces relative to the port (Notteboom & Rodrigue 2005).

2.6 Port growth

There are several definitions of growth, each depending on the point of view taken. In terms of business, growth means an increase in a company's economic success, and it is the main objective of any business, including ports. Ideally and ultimately, any port would like to possess long-lasting growth potential and successful competitiveness. From the perspective of economics, growth can be referred to as an increment in goods' production, service expansion, and also total revenue gain over time via some economic activities. It has been suggested that the growth of a firm can be determined by the degree of expansion that any firm can undertake within a certain period of time (Penrose 1959). For a port, growth can be defined as an increase in the size of the port or the volume of a port's throughput related to quantity. The growth of the port can also be seen as the quality of its services, level of satisfaction of its customers, or the competitiveness that a port can achieve in a particular time.

Notteboom and Rodriguez (2005) present common factors that restrain a port from growing and increasing or maintaining its efficiency. These factors, which generally reflect the lack of resources, can be limited port area (which implies a lack of expansibility), limited depth of water (which limits the maximum size of a vessel), limited capability of accommodation, traffic congestion of the port, environmental constraints, and local opposition to port development. Among these factors, the one that is significantly difficult to improve is the limitation of the port's available ground area, because there are several influences that need to be taken into consideration (Subhan & Gani 2008). For example, Bangkok Port is located in a business zone in the heart of the capital city of Thailand, and the area is, understandably, surrounded by established local communities. Hence, it is difficult or impossible to find a nearby unoccupied area for expansion (Limskul 1998).

Many studies focused on spatial factors in term of organisational growth, since this is one of the main factors that can help an organisation to grow and draw a share of

the market from others (Mersha & Adlakha 1991; Illeris & Philippe 1993). Industries that are located near resources and markets can reduce their transportation cost and make more profits. The decision of location can dictate success or failure of business because it is not a trivial matter to change its siteing after facilities are built (Hotelling 1929; Melo, Nickel & Gama 2005; Bamrungbutr 2011). Therefore, a port that is located on or near a place where shipping-related activities take place, will enjoy an advantage because it will require less time and less cost to move material from the port to that place, and vice versa (Branch 1996).

A port that possesses competitive resources (resources that can be used to increase market advantages of the port) can use those resources for its future development. These resources can come in various guises; for example, they could be in the form of relative location, environmental resource availability and infrastructure availability. The port of Mombasa in Kenya has opportunities to grow because the port is located at a strategic international maritime transit spot and the port has deep water. These are the port's strong points, especially when compared to adjacent ports (Hoyle 1999). Using an alternative strategy, in order to continue its growth and maintain its competitive advantage without facing the congestion and the difficulty in expanding port's area at its original port, Singapore put its investment into a port in India and uses this port as an external resource (Faizal 2003). Furthermore, the Port of Ningbo in China can gain access to bigger and various kinds of markets as a result of having deep water as its natural advantage (Cullinane, Teng & Wang 2006). These examples show how flexibility and foresight are needed to identify and use these advantages.

The well-known concept of 'core competency', suggested by Hamel and Prahalad (1994), can be used to identify the business abilities of a firm. By definition, the core competencies of an organization are the main value-creating skills, capabilities, and resources that provide the organization with competitive advantages. Core competencies which are exceptional or unique, produce core products or services which produce end products or services which interact in a special way with customers. For example, Honda, a well-known automobile company, has particular expertise in engines. Consequently, Honda's core competency is in the development and production of several kinds of engines, which are consequently embedded in their

end products which are vans and cars, motorcycles, and lawnmowers. Core products or services of a firm are components or elements that contribute to the main value of the recognised end products or end services, and core competency is about a proper combination of technologies, an organization of work to ensure the delivery of valuable products and services to the end customers.

Furthermore, it was proposed by Ansoff (1958), that a firm can pursue its business growth by following either one of the four growth alternatives of his 'product-market strategy'. This concept is well-known as Ansoff's matrix, shown in Figure 2.1, which depicted possible combinations of product and market variation and their respective strategies. These strategies are 'market penetration' (existing product, existing market), 'market development' (existing product, new market), 'product development' (new product, existing market), and 'diversification' (new product, new market). He further mentioned that since diversification requires several updates in several assets (skills, techniques, facilities, organizational changes), one should consider also the possibilities of using the other three alternatives to pursue future growth of the firm.

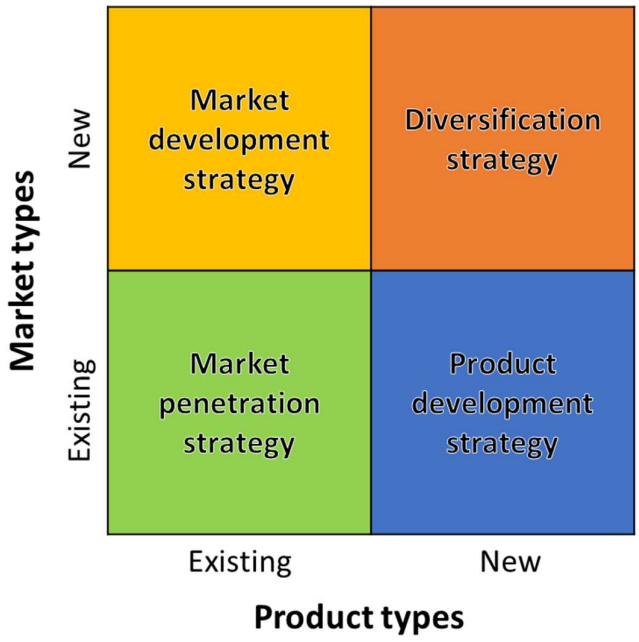


Figure 2.1: The Ansoff Matrix which can be used to determine growth strategy based on market and product types.
Source: adapted from Ansoff (1957), Strategy for Diversification.

2.7 Opportunities for growth

Opportunities for a port to grow can be viewed as any possibility of action and change, or any circumstance that can lead to the growth of a port or an enhancement of the port's competitive advantage. Hamel and Prahalad (1994) suggest that the particular opportunity that a port should pursue is, in general, an unexploited one. This kind of opportunity can be found in the form of unfulfilled customer's needs.

There is also a perception of unarticulated opportunity which exists in the form of affordable resources in a certain area such as low worker cost. This kind of advantage can also lead to port growth. For instance, more affordable labour costs and natural resource costs of Southeast Asia and South China attracts more investments and factory relocation into those regions (Subhan & Gani 2008).

2.7.1 Entrepreneurial opportunity

Shane and Venkataraman (2000) outlined how a firm can gain entrepreneurship advantages through the successful capture of appropriate opportunities. They referred to an earlier statement made by Casson (1982), who said: 'Entrepreneurial opportunities are those situations in which new goods, services, raw materials, and organizing methods can be introduced and sold at greater than their cost of production'(p.x). Entrepreneurial opportunities can be in various forms such as a new product market, which involves the discovery of new products or new technologies (Venkataraman 1997) and also factors in creating products, such as the discovery of new materials (Schumpeter 1934).

Entrepreneurial opportunities are not the same as typical opportunities which are aimed at making a profit and can be obtained from enhancing the efficiency of existing goods or services, raw materials and their organizing method (Shane & Venkataraman, 2000). In this respect, Baumol (1993) argued that entrepreneurial opportunities cannot be made by optimization processes.

2.7.2 Growth/profitable opportunity

Literature in this area has largely focused on opportunities which can allow a firm to develop successful entrepreneurship and has particularly noted opportunities to diverge into a new market with a new product in order to become leaders in the field. However, it can be argued that another way to look at determining opportunity is through the ways that a firm might capture an opportunity in order to grow by increasing profit. This type of opportunity might not necessarily be related to new technology or new products, but it is still opportunity growth.

Searching for opportunities, especially entrepreneurial ones, is not trivial. This requires a significant input of resources and time, and there is no guarantee that the investment of much resource and time will mean that an opportunity will be discovered. Therefore, a firm, especially one which is dominated by, or under the shadow of, a bigger firm, could instead focus on searching for several small-in-profit opportunities which might be easier to distinguish and exploit.

It is suggested that if a port wants to grow, it should do either (i) product development; (ii) market development; or (iii) market penetration (see Figure 2.1). Indeed, a mix of several of these strategies before trying to diversify may be advisable. Diversification requires new skills, new technologies, or new facilities which is an expensive option when compared to the other three strategies. This may mean that a firm will be required to distinctively change its business structure. In this respect, it is inevitable that a firm should diversify in order to compensate for obsolete technology, to distribute risk, or to utilize excess productive capacity. It can be considered that diversification is a long-term or an alternative plan when the other three strategies cannot provide sufficient profit in order to remain a viable concern. Some indicators that a firm should diversify can come from an analysis of business trends and contingencies (for example political stability or economic stability) (Ansoff 1958).

Discovering opportunities

There are several reasons that contribute to the existence of opportunities for growth. Shane (2000) and Kirzner (1997) argued that opportunities exist because people have different beliefs. The incompleteness and the asymmetries of information are also one

of the causes (Kirzener 1973; 1997). Magala perceived that the imperfections of the markets also lead to the existence of opportunities since these add values to the opportunities which could benefit the one who discovers and successfully exploits them. However, the discovery of opportunities is hindered by the non-obviousness of the work, and Magala (2004) argued that opportunity could be discovered through search, recognition, and luck.

The search for opportunities

Empirical researchers have argued that exceptional searching and scanning techniques or advanced information processing capability, all assist in discovering opportunities (Shaver & Scott 1991). A reason that some organizations are likely able to find opportunities is that they search for unsatisfied needs which can be exploited and turned into profit in a competitive environment (also known as a market structure). It seems that the chance to discover unexploited opportunities depends on the willingness and abilities of the searcher to gain information about events and trends in the market structure of a firm (Barringer & Bluedorn 1999; O'Brien & Fadem 1999; Weinzimmer, Nystron & Nystron 1998; Pearce II, Bruce & Fred 1982; Smeltzer, Fann & Nikolaisen 1988).

The recognition of opportunities

Discussions in the literature have posited that an opportunity does not exist until it is found, hence it is impossible to systematically search for something when one does not know that it exists (Kaish & Gilad 1991; Kirzner 1997). Instead, it is suggested that opportunity can be discovered not through search *per se*, but through the recognition of the value of new information (Shane 2000). Prior information and cognitive properties help in recognizing an opportunity, and information about markets, methods needed to serve them, and problems of customers in the markets, all contribute to the discovery of opportunities (Magala 2004).

Shane (2000) interviewed eight entrepreneurs about their business opportunities related to the emergence of three-dimensional printing (3DP) technology. All

respondents claimed that the opportunities of that 3DP technology were not at all obvious. Here, the recognition of an opportunity was based on prior knowledge, mindset and the background of each person (Shane 2000), where one person might see the emergence of an incident as a chance, while others see it as an obstacle. They would thus act differently in such an eventuality. Shane and Venkataraman (2000) discussed that even the recognition of opportunities is subjective, whilst the opportunities themselves are objective.

2.8 Cooperation in port

There is the concept of competitive advantage where a port creates advantages that make it superior to other ports and gain more profit and more market share. Conversely, there is an idea of cooperation, where ports and related parties in transportation cooperate with the aim of gaining more profit – or what some believe to be a bigger profit.

The concept of cooperation was introduced into the field of supply chain by UNCTAD secretariat (1996), Poirier (1999) and Juhel (2000). Cooperation of ports aims to increase the overall benefit that the cooperating ports might be able to achieve compared to competing against each other. UNCTAD secretariat (1996) explained 'cooperation may be found within a port, a country, a region, or between regions. Cooperation in a port can be between a port authority and a port's operators (such as stevedoring companies, terminal operators). In this respect, several terms that are used instead of 'cooperation' are 'partnership', 'alliance' and 'strategic alliance' (UNCTAD secretariat 1996).

Brook et al. (2009) suggested that the main objective in port cooperation strategies can be stated thus: 'The aims of strategic port cooperation are threefold: to better use assets in terms of efficiency, scale, and scope; to improve competencies, and to gain positional advantage…' (Brook et al. 2009, p. 9). Cooperation and coordination are used in dealing with the port's congestion problem, and cooperation of adjacent ports can be used to counterbalance the growing market power in shipping lines. Song (2003) further argued that cooperation of ports is to provide services that are suitable

for shipping lines' strategies, and here, a particular form of competition and cooperation of ports is necessary.

There is a perception that cooperation might lead to a monopoly situation in markets or the reduction of competition. However, UNCTAD secretariat (1996) argued that cooperation might actually facilitate in strengthening the competition because ports could cooperate in one aspect or area while competing with each other in another aspect/area. Hence, cooperation should be treated as a tool to increase competitiveness. Advantages of ports' cooperation include improvement in a port's operation, cost and resource sharing, and information exchange (UNCTAD secretariat 1996).

Division of the types of cooperation between ports can be based on the level of formality; from informal cooperative behaviour such as information exchange to formal agreements such as having a joint venture (UNCTAD secretariat 1996). Brook et al. (2009) further divided the typology of cooperative activities of the port into four categories; marketing and business development, operations, administrative, and regulatory.

Robinson (2015) and Wang et al. (2012) argued that cooperation is still rare. Wang et al. (2012) argued that theoretically, profit from cooperation would be more than from competition, and firms would prefer collusion to the competition. However, practically, this is not trivial in an oligopoly market since there are antitrust legislation and competition laws which are being implemented. Nevertheless, in the context of ports, those laws prohibiting cooperation are not found. Instead, there are several encouragements for ports to cooperate from governments, although in practice, actual cooperation is rarely found.

Robinson (2015) further stated that even since 1999, when researchers argued that cooperation is a solution to capture more mutual gains in supply chain networks, cooperation is neither common nor easy. It is because not only are the supply chains very complex, but the process of cooperating is governed by antitrust legislation and competition policy, which adds a level of difficulty. With reference to the 'single intelligence' framework prior proposed by Greenwald and Kahn (2005), Robinson further argued that at the practical level, cooperation is only suitable for a certain kind

of market; in particular, in the case of a market where firms operate behind high barriers and have a significant competitive advantage. In this case, cooperation might offer chances to capture greater rewards. Cooperation-related behaviours are still rare in that not all chains or markets offer meaningful opportunities for cooperative behaviour.

Wang et al. (2012) discussed the potential future plan for Hong Kong Port introduced due to the growing economy of the ports in the Pearl River Delta Area, a region that includes Shenzhen and Guangzhou ports of China. There was an idea that Hong Kong and Shenzhen ports could work cooperatively, and this was not a trivial concept because of China's 'one country, two systems' policy. In Wang et al.'s research, the analysis of the possibility of cooperation between Hong Kong Port and Shenzhen Port using Game Theory was posited. Under institutional and political constraints, no payment transfer, no mergers, and cross-shareholding were done. It is found that the cooperation might be possible if the two ports agree on some particular condition such as differentiation of their services.

Nonetheless, Brook et al. (2009) showed that cooperation already exists in several ports around the globe. Via search on webs and within trade presses, they found cooperation has already been implemented in several ports, both formally and informally, identifying 21 cases involving 70 ports across five continents. Cooperation of ports in the same geographical region aims for the joint development of infrastructure, regional promotion and marketing, and common approaches to environmental issues. Cooperation between both bigger and smaller ports was found, such as that between New York and New Jersey with smaller ports along the US coast, Amsterdam and North Sea canal ports, and Rotterdam and the Zealand Seaports. Some ports cooperate with the aim to enhance trade corridors, as is found in Algeria; Dover; Calais and Tangiers; Barcelona and the Tunisian Maritime Authority; and Livorno and Tartous (Brook et al. 2009). There is also cooperation between ports separated by geographical distances for training, technical cooperation, assistance in port management. Examples are the cooperation of ports in Africa, the US and China (UNCTAD secretariat 1996). Moreover, Brook et al. (2010) stated that '… inter-port relations are complex and competition frequently accompanies cooperation' (Brook et al. 2010, p. 33) and 'cooperation among ports in high-density

gateways with high centrality is a way to mitigate demands on port's land space and spread the long among neighbouring ports' (Brook et al. 2010, p. 40).

2.9 Conclusion

This chapter has presented discussions taken from the literature regarding three main aspects of port competition, which are port selection, competitive advantage and growth opportunities. From these accounts in the literature, it can be seen that there are several diverse factors that contribute to the selection of a port. A port could grow and gain market share if it can build its own competitive advantage. Opportunities to grow can be divided into profitable and entrepreneurial activities, and it has been clearly stated that the discovery of a growth opportunity is not trivial due to the 'non-obvious' property of opportunities. Ports can either search for and/or attempt to recognize opportunities.

Chapter 3

The context of ports in Thailand and SEA

3.1 Introduction

In this chapter, the overall maritime situation of Southeast Asia and Thailand are discussed to provide the context of this thesis. The discussion in this chapter includes the case of the two main ports of Thailand, Bangkok Port and Laem Chabang Port. The current situation of Thai maritime strategies is also discussed in this chapter.

3.2 Logistics of Southeast Asia

Southeast Asia, because of its position, plays an important role in global transport logistics. It is located between two important oceans – the Pacific and the Indian (known as the West Economic Corridor) which connects with the southern region of China (the North-South Economic Corridor). In addition, countries in the Asia Pacific region have developed strategies to boost their economy, and one of the strategies is cooperating with neighbouring countries. The Association of Southeast Asian Nations or ASEAN, which is a group of ten Southeast Asian countries, is a good example. ASEAN, which was established in 1967, aims to develop the political, security and economic cooperation among its ten members. Currently, the members of ASEAN are Brunei Darussalam, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Vietnam (ASEAN 1991; Banomyong, Cook & Kent 2008; Rimmer 2014). The ASEAN map can be seen in Figure 3.1.

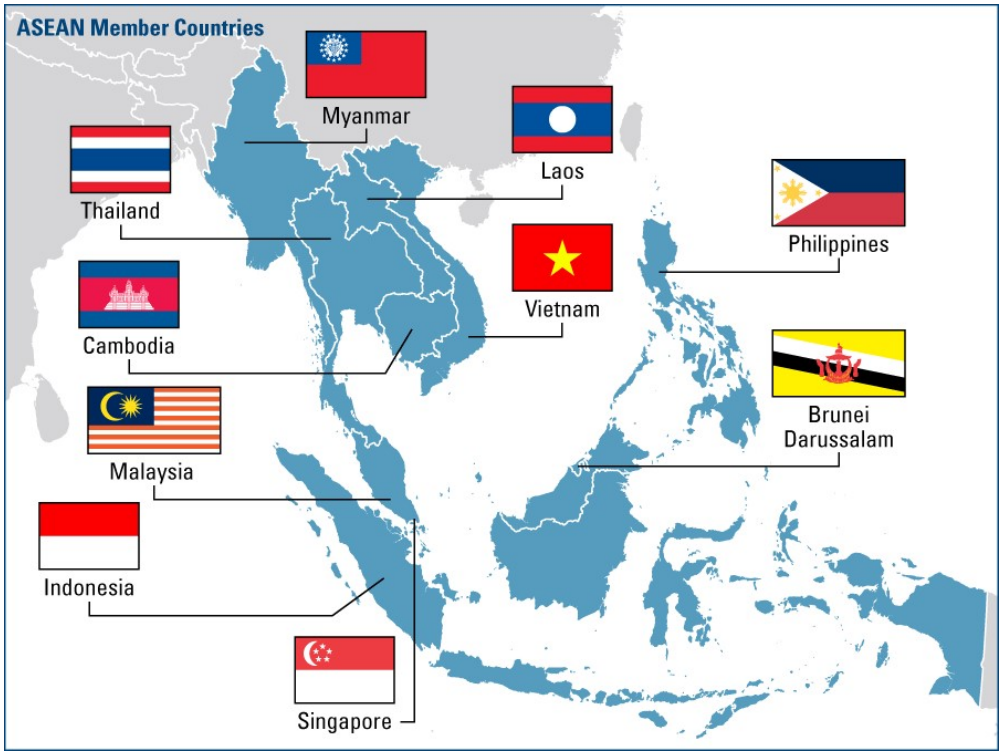


Figure 3.1: ASEAN map

Source: ASEAN Legal Database (http://asean-law.senate.go.th/en/)

ASEAN is argued to have an excellent location because it is surrounded by China, South Korea, and Japan in the northeast, Australia and New Zealand in the south, and India in the west (Rimmer 2014; Burnson 2016). ASEAN is also situated between the Pacific and the Indian Ocean. This positioning implies that if ASEAN can effectively link its neighbours by bridging Asia with Australia and New Zealand, ASEAN could exploit its position and grow significantly. One solution is to improve the logistics system both inside the ASEAN region itself and at the border of ASEAN countries with their neighbours (Pushpanathan 2010; Rimmer 2014). This will clearly improve the connectivity of ASEAN members and hence expand the growth of the economy of the whole ASEAN region. In order to achieve this situation, the logistics service of each country member and logistic networking between member countries needs to be improved and integrated. In the ASEAN region, there are currently 47 ports, including those in Singapore, Malaysia, and Thailand which are considered as

'gateway ports' in the respect of capability for cargo handling (Pushpanathan 2010; Center for ASEAN Studies 2015).

Recently, ASEAN has established the ASEAN Economic Community (AEC), which will potentially lead to huge economic growth in the Southeast Asian region, especially in the critical area of water transportation. This opportunity can benefit Thailand because several member countries are using Thailand as a passage to transport their goods to the other member countries. For instance, Laos transports agricultural products such as tea, coffee and spices to Indonesia *via* Thai ports because Laos is a land-locked country (Rohirattana 2007; Thai-aec n.d.).

When considering the advantage of the geographical location of ASEAN members, Thailand is located at the centre of ASEAN, and this means that Thailand could potentially become the logistics hub of this region. The Thai government is aware of this advantage, and consequently, it has initiated several plans to advance its logistics service (Centre for ASEAN Studies 2015; Mohan 2016).

Thailand has included logistics development into its Twelfth National Economic and Social Development Plan (Office of the National Economic and Social Development Board 2015, 2017), and the Strategy plan of the Ministry of Transportation (Office of the National Economic and Social Development Board 2015; Pudtaya 2015; Ministry of Transportation 2016a, 2016b; Office of Transport and Traffic Policy and Planning 2015). From the perspective of road networks, the government has approved a master plan to construct three new expressways in order to provide new connections to neighbouring countries such as Burma, Laos and Vietnam (Ministry of Transportation 2016 a; 2016b). Regarding the development plan for railways, there is a plan to improve the level of quality of the infrastructures of the national rail network to the global standard level. There is also a collaboration with China (who is a major player in the Asian and global economy) for developing an express train that will travel from the north of Thailand to China (Low, Lan & Tang 2009; Mohan 2016; Burnson 2016). Moreover, the government also has put significant effort into improving the infrastructure of air transportation. This includes the building of an inland container depot at Lat Krabang District in Bangkok, which is close to

Suvarnabhumi International Airport, in order to support the import and export of air freight (Ministry of Transportation 2016a; 2016b).

International and domestic water transport are included in those development plans, especially the plan to further develop Laem Chabang Port to become the newest and the biggest main port of Thailand, by launching the third phase of its expansion. There is an expectation that after the construction of this third phase, the port will be one of the ten most important ports in the world, being currently the 22nd most important port globally (laemchabangportphase3 n.d.; World Shipping Council n.d.). Bangkok Port is also included in the development plans because of its role as another international port and as an important port for domestic transport, especially that of agricultural products.

Another plan is the Eastern Economic Corridor or EEC which is the major strategy for Thailand's economic development that aims to further develop the former Eastern Seaboard project. EEC is involved with three provinces located in the eastern region of Thailand – namely, Chonburi Province, Chachoengsao Province, and Rayong Province. It is easy to develop this area because it has several industrial estates with well-developed transportation and it is located close to import and export points such as the Gulf of Thailand, Bangkok and major airports. Moreover, the development of the Laem Chabang Port is also a part of EEC itself, and there are developments of its transport system outside the port such as the construction of new motorways and a new railway connecting to Laem Chabang Port (Thailand Board of Investment 2016; Sullivan 2017; Sutheechart 2017; Thailand Investment Review 2017; Thai Automotive Institute n.d.).

As mentioned earlier, Bangkok Port is another important port of Thailand, especially in terms of domestic transportation which distributes goods to several regions of Thailand through rivers and also to the neighbouring countries (e.g. Myanmar, Laos and China). Moreover, even though all the recent development plans do not directly involve Bangkok Port, the port could still utilize these plans for its benefit. For example, the new motorway, which aims to connect Dawei Port of Myanmar and Laem Chabang Port, can be used as a passage to transfer shipments of freight from Dawei Port to several regions of Thailand. This will be *via* Bangkok Port and rivers

in Thailand since the new motorway will meet an existing motorway which leads to Laem Chabang Port in Chonburi (Thai PBS 2015; Theparat 2016; Worldmaritimenews n.d.).

Apart from ASEAN, the other regional integrations of Southeast Asian region consist of the following, with their boundaries shown in Figure 3.2:

(i) The Greater Mekong Subregion or GMS - a group of six countries, which includes Cambodia, the People's Republic of China (PRC, specifically Yunnan Province and Guangxi Zhuang Autonomous Region), Lao People's Democratic Republic (Lao PDR), Myanmar, Thailand and Vietnam; all of which are located next to Mekong river;

(ii) The Indonesia-Malaysia-Thailand Growth Triangle or IMT-GT - a group of three countries which consists of Indonesia, Malaysia and Thailand with Asian Development Bank as their Regional Development Partner;

(iii) The Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation or BIMSTEC - a group of seven countries along the coast of the Bay of Bengal in South Asia and Southeast Asia which are Bangladesh, India, Myanmar, Sri Lanka, Thailand, Bhutan and Nepal;

(iv) Ayeyawady-Chao Phraya-Mekong Economic Cooperation Strategy or ACMECS - a cooperation framework among Cambodia, Lao People’s Democratic Republic, Myanmar, Thailand and Vietnam to utilize the diverse strengths of member countries and promote the balanced development in the subregion;

(v) Pan Beipu Wan Quadrangle - a group of three southern provinces of China which are Guangdong, Guangdong, Hainan; and seven countries that consist of Indonesia, Malaysia, Philippine, Singapore and Thailand (Asia Regional Integration Center n.d.; Asian Development Bank n.d.; Sukmanop 2010; Thai Chamber of Commerce 2006).

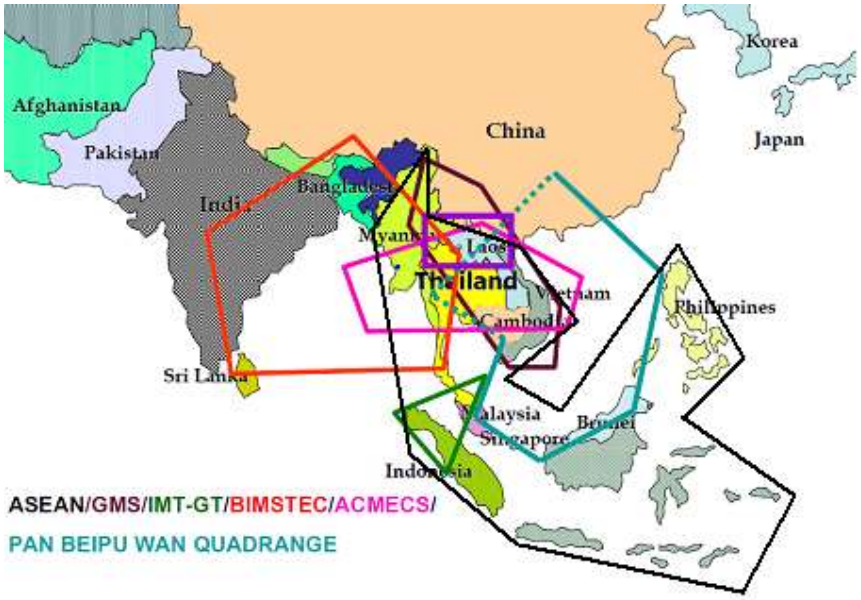


Figure 3.2: The regional cooperation strategy of Southeast Asia

Source: adapted from Sukmanop (2010) regional cooperation

3.3 Main Ports of Thailand

As has been discussed previously, there are two main ports that play crucial roles in the maritime transportation sector in Thailand. The first one is Bangkok Port, which is the former and was the only main port of Thailand from 1951 to 1987. The second port is Laem Chabang Port, where is the major deep-sea port and the busiest commercial port of Thailand. However, these two ports have different identity and limitations, which will be presented below.

3.3.1 Bangkok port

The plan of constructing Bangkok Port was advanced in 1938 due to the desire to support maritime activities by the government in order to allow large ocean liners to conveniently perform goods transhipment. The construction of the port began in 1944, but it was temporarily stopped due to World War 2. The port was officially

opened and ready for operation in 1951, and it has been in continuous use (Limskul 1998; Sukdanon 2001; Anothaisintavee 2004; Bangkok Port n.d.).

The physical perspective of the port

The Bangkok port is in the centre of Bangkok and is located next to the Chao Praya River which is the main river of Thailand as shown in Figure 3.3. The port is 26 kilometres away from the Chao Praya estuary and covers an area of approximately 1,000 acres. However, since Bangkok Port is a river port, it has several limitations, such as being only able to support vessels which are not bigger than 12,000 deadweight tonnages, with a length of not more than 172 metres, and a depth of not more than 8.2 metres (Limskul 1998; Sukdanon 2001; Bangkok Port n.d.).

Bangkok port consists of two quays; the East Quay which has eight berths and the West Quay which has 10 berths. Furthermore, there is a 120-acre storage area. The port has a capacity of approximately 1.6 million TEU[2] (Bangkok Port n.d.).

[2] TEU: Twenty-foot equivalent unit

Figure 3.3: Map of Bangkok Port.

Source: Bangkok Port, Thailand (http://www.bkp.port.co.th).

The economic perspective of the port

Regarding the services that Bangkok port has provided to its customers since the port began its operation in 1951, the number of the ships that use the port has continuously increased for many years as can be seen in Table 3.1. However, in 1993, the number of ships using the Bangkok port reduced due to the fact that the Laem Chabang port, the new port of Thailand, started its operation. Nonetheless, in the year 1994, the number of ships using the Bangkok port rose again (Athaso 2009; Logistics Max 2011; Bangkok Port n.d.). Subsequently, the number of ships has fluctuated from 1996 to 2003 and increased in 2004. The number, however, reduced again in 2009 because of the beginning of the second phase of Laem Chabang port, but the number of ships using the Bangkok ports increased again to more than 3000 ships since 2012 (MGR Online 2011; Kasikorn Research Center 2014).

As for the number of container shipments through the Bangkok port, as can be seen from the data from the Port Authority of Thailand (Table 3.1), the number of containers also continuously increased until 1996. There was a drop of around 15.7% in the export section in 1997 and a drop in the import section of around 33.56% in the following year. This was because the government had limited the maximum allowable number of containers that could go through the Bangkok port to only 1 million TEU in 1996 in order to promote the usage of Laem Chabang port (opened in 1991). However, the number of container shipments had fluctuated until 2009 during which the number of both import and export containers dropped significantly due to the beginning of the operation of the second phase of the Laem Chabang Port.

Table 3.1: Vessel, cargo and containers passed through Bangkok Port

	Import container (T.E.U.)	Export container (T.E.U.)	Total

Fiscal year	Container	Empty container	Total	Container	Empty container	Total	
2015	864,620	32,094	896,714	650,703	11,346	662,049	1,558,763
2016	859,742	24,633	884,375	605,223	15,909	621,132	1,505,507
2017	846,083	22,249	868,333	605,223	15,909	629,132	1,497,919
2018	864,893	16,018	880,911	583,44	33,089	616,533	1,497,444
2019	868,910	11,229	880,139	536,331	34,661	570,992	1,451,131

Source: Port Authority of Thailand (2020).

Limitations of the Bangkok port

Bangkok port has played an important role in Thai domestic transportation since its establishment, especially that which uses Chao Praya River, because the port is located close to the estuary and the Thai Gulf (Suriyamanee 1988; Sukdanon 2001; Sukmanop 2013). Therefore, it is a perfect spot for the transportation of goods which needed to be loaded on and off of a large-sized vessel (Athaso 2009). Nonetheless, there are some problems that hinder the further development of the Bangkok port. One of the major issues is the limited space of the port due to the fact that it is located in the capital city, which means it is close to nearby densely constructed communities (Limskul 1998; Anothaisintavee 2004). In addition, large container vessels cannot access the port due to its limited depth, and the prevailing traffic conditions around the perimeter of the port are a significant issue because Bangkok Port is situated in the Khlong Toei District which is in the centre of the city (Suriyamanee 1988). The traffic conditions in this centrally placed district can be very crowded especially during the rush hours.

3.3.2 Laem Chabang Port

Thai government introduced the concept of establishing a deepwater seaport in 1948, based on its awareness of several limitations of Bangkok port which could not be seen to satisfy the expected growth of the economy (Limskul 1998; Laemchabangportphase3 n.d.). Those limitations include the insufficient and non-

expandable physical space of the Port area and the shallowness of the port waters. Moreover, it was predicted that the Bangkok port would reach its maximum capacity in 1980, therefore the Thai government understandably investigated the possibilities for the appropriate location of a new deep-sea port over several years. Whilst the unstable situation of the Thai economy and national politics delayed the study, Chonburi Province, which is located in the Eastern part of Thailand and has access to Thai Gulf, was finally selected as the location for constructing the new port (Limskul 1998; Thailand Automotive Institute 2011; Laemchabangportphase3 n.d.). The construction began in 1987 and the port was opened for the first time in 1991. Importantly, the purpose of building Laem Chabang Port was not only to support the growing local economic demand, but the Thai government was also planning to make it become the gateway of Indo-China commerce and the product distribution centre of Southeast Asia (Inter City Motorway Division 2016; Manager online 2016; Charoenssawat 2017).

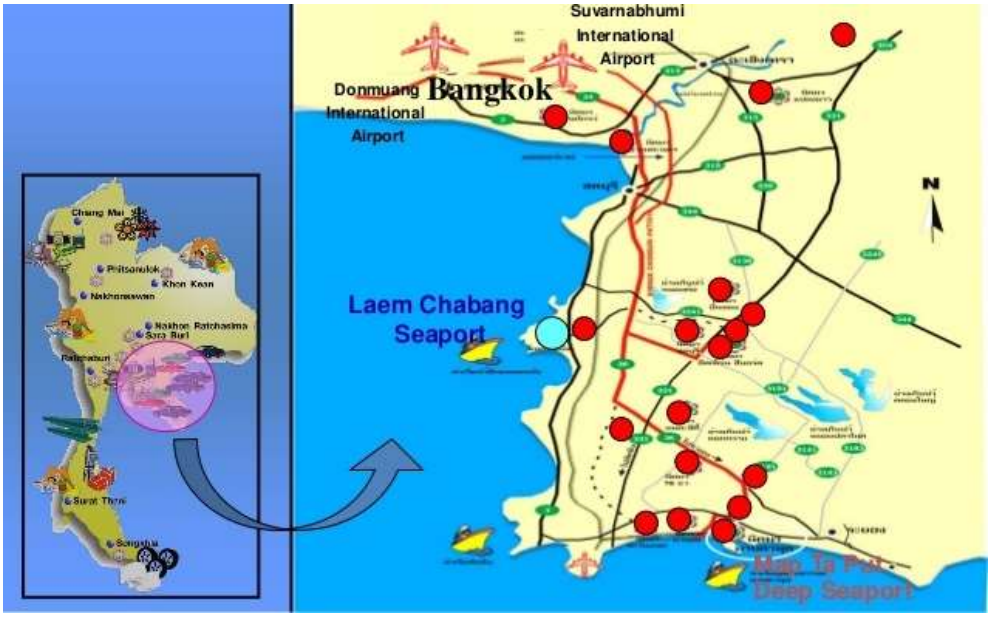


Figure 3.4: Location of Laem Chabang Port.
Source: Pattanapanchai (2014) Thailand: A Prime Destination for Doing Business in Southeast Asia.

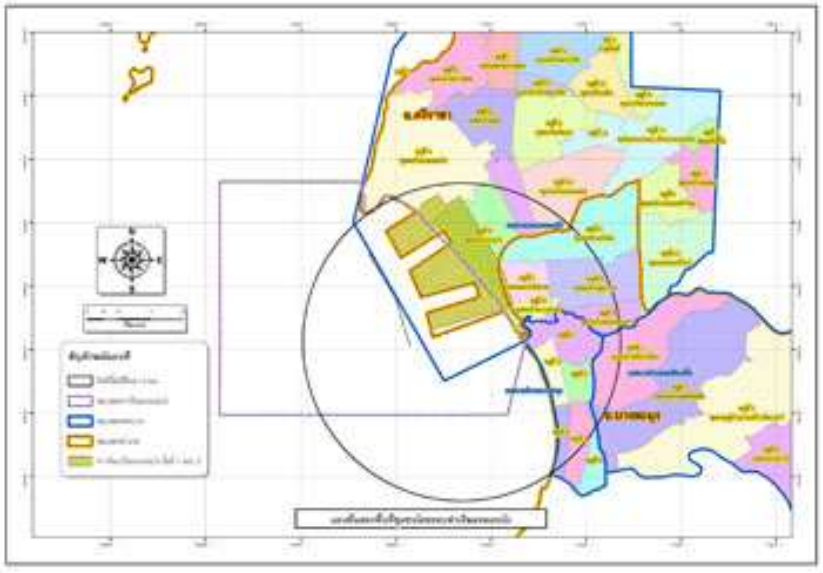


Figure 3.5: Map of Laem Chabang Port.
Source: Laem Chabang Port Phase 3 (http://www.laemchabangportphase3.com).

The physical perspective of the port

Laem Chabang Port is situated in Chonburi Province in the Eastern part of Thailand as shown in Figures 3.4 and 3.5. The port is 130 kilometres from Bangkok and has approximately 2,572 acres of available land area. Extra-large ships such as the Super Post Panamax class can be handled by this port, which is an advantage over Bangkok Port which is too shallow. Currently, two phases of the Laem Chabang port are in operation as shown in Figure 3.6 (Laemchabang Port 2017; Laemchabangportphase3 n.d.). Further details of both phases follow.

Phase 1: The construction of the first phase focused on having a high capacity of container storage space and sufficient space for supporting the docking of large-size vessels which cannot be handled by the Bangkok Port. Phase 1 of Laem Chabang port was built as a U shape with a 450-metre-wide 1600-metre-long profile and having a 14-metre deep basin at mean sea level. It consists of 11 quays and can handle ships up to the Panamax class, which range from 60000 to 80000 Deadweight tonnage (DWT) and have the capacity to carry more than 3000 TEU per ship. This phase of

the port was opened in 1991 (Limskul 1998; Thailand Automotive Institute 2011; Laemchabang Port 2017; Laemchabangportphase3 n.d.).

Phase 2: After the first phase of the port reached its full capacity, the Thai government promptly responded by encouraging the establishment of the second phase of the port in order to increase the overall container capacity. This phase was also designed to have a U-shaped structure similar to that of the first phase but with a width of 500 metres, a length of 1800 metres, and a depth of the basin of 16 metres at mean sea level. Phase 2 consists of seven quays and can handle the ships up to the Post Panamax class which weight at 80000 DWT and each can carry more than 5000 TEU (Laemchabangportnew n.d.).

Furthermore, apart from these two phases, the construction of the third phase of Laem Chabang is under evaluation as shown in Figure 3.7. It is expected that this phase will have a capacity of approximately 8 million TEU and will be able to serve Super Post Panamax class ships with 100000 DWT and have the capacity to carry more than 10000 TEU (Laemchabang Port 2017; Laemchabangportphase3 n.d.).

Figure 3.6: Map of Phase 1 and 2 of Laem Chabang Port.
Source: adapted from Nam Yong Terminal (http://www.namyongterminal.com).

Figure 3.7: Map of Phase 3 of Laem Chabang Port.
Source: Laem Chabang Port (2017) Laem Chabang Port Development Project.

The economic perspective of the port

1991 was the first year of operation of Laem Chabang port, and there were only 110 vessels that used the port (Sukdanon 2011b). However, in the later years, the number of customer ships increased dramatically, with an approximately 178.18% growth. Moreover, as mentioned earlier, the government had limited the maximum allowable number of containers of Bangkok Port in 1996 in order to encourage their customers to use Laem Chabang Port. This resulted in an increasing number of customers for Laem Chabang, giving it 50% growth (Limskul 1998; Anothaisintavee 2004; Sukdanon 2011a). Furthermore, the opening of the second phase of this port led to an increase in the number of ships using the port to more than 6000. The rate of increase in the number of ships that used the port has reduced slightly in recent years, to approximately 10-30 % (Limskul 1998).

Regarding the number of products that are shipped through this port, as can be seen in Table 3.2 this has continuously increased since the start of the port until 2008 with

only a 3.39% drop of import goods in 1998. In 2009, the volume of both the import and export goods was reduced by 17.83% and 8.62%, respectively. This decrease resulted in the construction of a motorway between Bangkok and Chonburi immediately in the same year, and after the motorway was completed, the volume of imports and exports increased again. By the end of 2010, there was more than 20 million tons of import goods and 40 million tons of export goods.

Table 3.2: Vessel, cargo and containers passed through Laem Chabang Port

Fiscal year	Import container (T.E.U.)			Export container (T.E.U.)			Total
	Container	Empty container	Total	Container	Empty container	Total	
2015	1,841,310	1,460,963	3,302,273	3,338,247	72,015	3,410,262	6,712,535
2016	1,957,386	1,469,830	3,427,216	3,501,346	72,345	3,573,691	7,000,907
2017	2,168,898	1,541,675	3,710,573	3,822,600	58,714	3,881,314	7,591,887
2018	2,312,909	1,600,699	3,913,608	3,960,491	58,450	4,018,941	7,932,549
2019	2,473,271	1,482,546	3,955,817	3,941,174	84,685	4,025,859	7,981,676

Source: Port Authority of Thailand (2020).

Issues presented by Laem Chabang

In the beginning phases of Laem Chabang's operation, the number of ships using the port was still low because the port was partially opened and its related infrastructures such as rail, road, and electricity were not completely implemented (Limskul 1998; Sukdanon 2011b). Moreover, there were issues of unfamiliarity with the new port and the fact that some customers had their original base closer to Bangkok port, thus having to relocate or to use the new port which is further away led to more transportation costs and time delay (Anothaisintavee 2004; Laemchabangportphase3 n.d). Subsequently, however, the Thai government had tried to launch several strategies to promote the use of Laem Chabang including the construction of the motorway, railways, and the opening of industrial estates in the nearby provinces, and the number of the customers of this port significantly increased (Prachachat Dhurakit Online 2015; Manager online 2016).

3.4 The maritime situation of Thailand

Thailand has a long history of water transportation, spanning more than 200 years, because of its geographical feature of having several navigable rivers running through the country. The main river of Thailand is Chao Phraya River, which is the confluence of several rivers that flow from the north to the central regions of Thailand before they exit into the Gulf of Thailand (Social Research Institute n.d.). Whilst the development of road systems initially has reduced the popularity of river transportation to 10% of total domestic transport, due to the high cost of road transport, the high density of road traffic, and the increase in the price of fuel, water transportation has regained its popularity for shippers (Logistics digest 2011)

In terms of water transport-related strategy, the Thai government always has had a policy to develop water transport both domestically and internationally, especially in the last 50 years. Evidence of this can be seen in the National Economic and Social Development Plan (NESDP) since the 3rd issue (1972-1976) to the present 12th NESDP issue (2017- 2021). These NESDPs have been launched by the National Economic and Social Development Board (NESDB). In the 3rd to 6th NESDP (1972 - 1991), there was an attempt to increase the depth of Chao Phraya river, but this was not successful due to the continual volume of sand brought in by the flow of the river

itself (Sukmanop 2013; Kietsupa 2017). The channel depth is also drastically reduced during the drought season, therefore there was a plan to build a dam on the river in order to sustainably raise the water level of the river so that ships could use the Chao Phraya river at any time of the year. However, due to economic issues, the plan was postponed. In 2011, this plan was continued again by Ministry of Transport, and dam construction will be started in 2018 (Ministry of Transportation 2011 2013; MGR Online 2011; Logistics max 2013; Marine Department n.d.). In the 5th NESDP (1982 - 1986), the government had started promoting the use of water transport domestically and internationally and reducing the use of road transport in order to reduce consumed energy. There was also an attempt to increase the efficiency of water transport to promote imports and exports for Thailand. The focus was put also onto improving infrastructures such as rail and road, (for example the Motorway called the Bang Na Expressway), and the inland container depot, which is used to promote the use of Laem Chabang Port in the 7th NESDP (1992-1996). The 9th NESDP (2002-2006), revealed Thailand's aim to be the economic gateway of the region, and the Government attempted to develop appropriate Thai transportation systems on land, air and water. There was also an encouragement to use water and rail transport due to the fuel crisis at that time. With water transportation, the focus was still on increasing the capability of Thai ports so that they could support larger vessels. The Thai government invested efforts in developing the water transportation system as can be seen in the 10th NESDP (2007-2011) to counteract the fuel and environment crisis and to pursue sustainable and energy-efficient development (Social Research Institute n.d.). Moreover, in order to be prepared for the entry of ASEAN Economic Community (AEC) which was started in 2016, the Thai government has been aiming to further develop logistics and transportation systems to increase the competitiveness of Thailand, especially to compete with Singapore and Malaysia (Ministry of Transportation 2013; Logistics max 2013; Office of The National Economic and Social Development Board 2015). In this respect, water transportation is more preferable since it needs less volume of fuel per unit, and it can transport more goods per unit time (Social Research Institute n.d.; Ministry of Transportation 2013). At present, the focus of the 12th NESDP is still on domestic and international transportation as in the 10th plan.

Moreover, apart from the NESDPs which consist not only of the development plans related to water transportation, the Thai government also has a specific plan for logistics called "Strategic plan for Thailand's logistic system development" which has been launched by NESDB. The current issue of the plan is the third edition for the years 2017 to 2021. Accordingly, the Ministry of Transport has launched "The Third Strategic Plan of Ministry of Transport to Support Thailand's Logistics System" to further realize goals of these three plans which are to develop water transport systems to support advanced international freight transportation, to improve the level of related services, and to enhance the competitiveness of Thai entrepreneurs (Ministry of Transportation 2017; 2013; NESDB 2013; Logistics max 2013). Additionally, there is also the "Strategy of Ministry of Transport (2016-2020)" which puts focus on reducing the overall cost of Thai logistic systems, developing sustainable transportation (energy saving and environmental conscious), and encouraging the use of rail and water transportation over road transportation (Ministry of Transportation 2016a; 2016b).

Thus, it can be appreciated that water transport has been gaining attention from the Thai government for several years, especially over the last five years where the cost of fuel has been rising. Furthermore, water transportation draws attention as a result of the recent economic growth of the ASEAN region, and the expectation of further economic growth when the AEC evolves. The Thai government has been putting their effort in developing Thai logistic systems by giving related departments such as the Maritime Department, the Ministry of Transport, and the Office of the National Economic and Social Development Board (NESDB) a nation-scale policy guideline, so that every department can approach the same goal. In this way, the government has been aiming to develop an effective logistic system in order to reduce logistics cost for the benefit of all Thai entrepreneurs.

Furthermore, there are also other projects that the Thai government is putting in focus such as the Eastern Economic Corridor Development Project (EEC) and the Thailand 4.0 model. The model is an economic model that aims to push Thailand into the high-income range using technology and innovation (Thailand Board of Investment 2016; Sullivan 2017; Sutheechart 2017; Thailand Investment Review 2017). The model will be supported by the EEC project. The EEC project aims to develop the economic area

of the East region into a 'World Class Economic Zone' to support super cluster industry which can become one of the main gears that will drive the Thai Economy for the next 20 years. It will replace the former Eastern Seaboard Development Plan (ESDP) which was a 30-year-old successful project. There is an expectation that the investment of EEC will expand the economy by 5%. The development of EEC will focus on four main issues which are (i) infrastructure, (ii) business, industrial clusters and innovation hub, (iii) tourism, and (iv) new cities and communities. In terms of infrastructure, Laem Chabang Port Phase 3 is one of the major development plans (Thailand Board of Investment 2016; Thailand Board of Investment 2017; Sullivan 2017; Sukmanop 2010), as shown in Figure 3.9 and 3.10.

The ESDP region consists of the three Eastern provinces of Thailand - Chonburi Province, Chachoengsao Province, and Rayong Province. There are more than 20 Industrial Estates that are located in these three provinces (Industrial Estate Authority of Thailand n.d.; Thailand Board of Investment 2017; Thaipublica 2012). Moreover, Laem Chabang Port in Chonburi Province is also one of the projects that support the ESDP. This is because Laem Chabang Port is the main deep-sea port in the area, it has the potential to facilitate region becoming Thailand's centre of export-oriented industries. The highest value exported products are automobiles, such as Japanese cars and automotive parts. These parts are manufactured in Thailand and are located in this region which is known as the 'Detroit of the East' (Customs 2016; Thailand Board of Investment 2016; Thai Automotive Institute n.d.).

As shown in Figure 3.8, the area related to the EEC is considered as a perfect location for potential economic growth because there are several industrial estates with well-developed infrastructure such as rail, motorways, deep-sea ports and an airport serving these three provinces (Ministry of Industry n.d.; Sukmanop 2010).

Figure 3.8: Three provinces of Eastern Economic Corridor (EEC)

Source: Ministry of Industry (2017) Eastern Economic Corridor Development Project

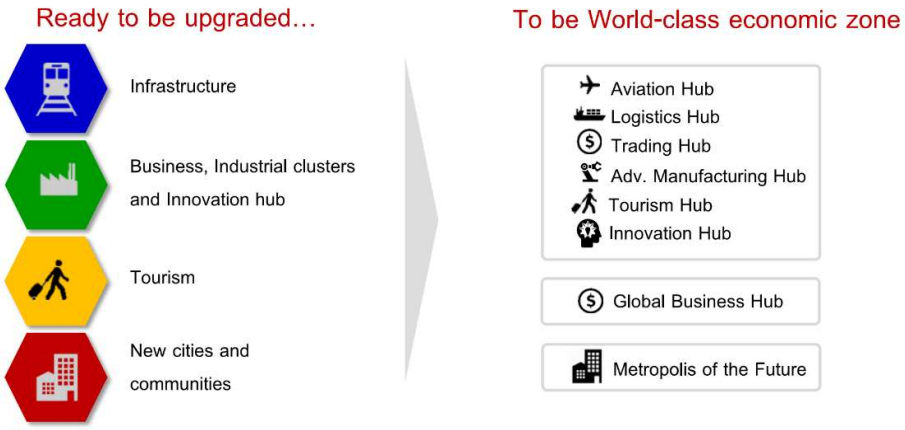


Figure 3.9: Four core development areas of Eastern Economic Corridor (EEC) to be a World-Class Economic Zone.

Source: Ministry of Industry (2017) Eastern Economic Corridor Development Project

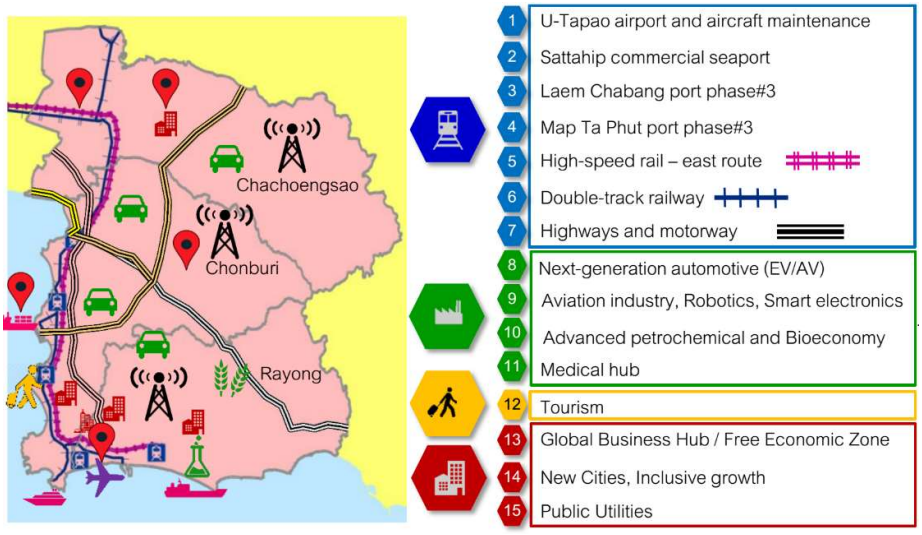


Figure 3.10: Four core development areas and 15 crucial investment projects of Eastern Economic Corridor (EEC)

Source: Ministry of Industry (2017) Eastern Economic Corridor Development Project

3.5 Conclusion

This chapter has presented the maritime situation of ASEAN and Thailand. The Thai government is attempting to compete for a larger share in the maritime transportation of ASEAN and is striving to become the principal hub of Southeast Asia. The initiation of AEC is a strong stimulus to the ASEAN countries, including Thailand, in competing for their share in maritime transportation.

Currently, and of central importance to this thesis, Thailand has Laem Chabang Port as its main port that has been receiving much Government support since its establishment, while Bangkok Port, the former main port, is in a shadow port situation, and is striving to survive. In the next chapters, the investigation will look systematically at the detailed situation of Bangkok Port and whether it has specific opportunities that could be exploited for its long-term viability.

Chapter 4
Methodology: the conceptual framework and qualitative analysis

4.1 Introduction

It is understood that, in a competitive economic context, a firm can grow if it can find unserved and unarticulated opportunities, then succeed in capturing them and turning them into profitable outputs for both the firm and its customers. However, that said, it is not a trivial matter for a firm to discover such opportunities because if it were easy, many firms would be able to find such opportunities and manage growth without the need to commit resources and time into searching for a growth opportunity. Therefore, before a firm can make a profit and grow, it needs to establish an opportunity by determining where to look for it and how to capture it.

A port, as an element in a supply chain, could be considered here as a firm which, in a similar way to that implied above, needs to compete for growth. Indeed, geographically adjacent ports compete with each other in order to be selected by port customers and shippers. In this respect, there are several frameworks which attempt to explain why a port may be chosen over others (details on these frameworks can be seen in Chapter 2). Robinson (2002b), for example, argues that a port is preferentially chosen because it can add more value to its value-driven supply chain, and can deliver a competitive advantage to its customers.

To be able to deliver real competitive advantage, a port should search for and capture the available opportunities that will allow it to flourish. It is not unreasonable to believe, therefore, that a port will use a portion of its resources in a continuing effort to capture profitable economic opportunities. Highly competitive ports manage their resources in a deliberate effort to seize opportunities, while less competitive ports often are not able to do this because of lack of time and financial power (Heaver, Meersman, & Van De Voorde 2001; Notteboom 2004; Hong et al. 2013). This

scenario can become even more challenging for a shadow port, which not only has a lower resource base, but is also in a position of being dominated by an adjacent main port, and often receives little to no support from the Government.

This chapter aims to discuss a framework that can assist the management of a port to find opportunities that could be used to feasibly capture economic and strategic opportunities, particularly with limited availability of resources. This is characteristic of a main port such as Bangkok Port which is in the shadow of the larger Laem Chabang Port. The latter has significant supportive policies and funding at the Government level. The framework which will be discussed here is a modified version of the original Opportunity Capture framework developed by Magala (2004).

This chapter also discusses Ansoff's Matrix (Ansoff 1957) and the Noticing, Collecting and Thinking (NCT) model (Seidel 1998). The Ansoff's Matrix is used to in the opportunity analysis for shadow ports in order to provide more options for profitable opportunities which are less resource-required (see detail in Section 2.7). The NCT model is used in the qualitative data analysis of the answers of the set of questions in order to determine possible directions for growth for Bangkok Port.

4.2 The selection of framework and tools

Regarding the selection of the framework and tools used in this thesis, there have been several researches about the selection and the competition of ports (as discussed in Chapter 2).

Ports are no longer stand-alone units that compete solely for their own trades but an element in a value-driven supply chain. Hence, ports must provide services and offer sustainable values to their customers vis-à-vis their competitors (Robinson, 2002b).

The competition of ports can be viewed from the perspective of competitive advantage which allows a port to have advantage over others. The advantage can be in a form of capabilities, resources, or some other unique features (Porter, 1980; 1985; 1998a). Three suggestions that a firm could use to build competitive advantage are (i) differentiation, (ii) cost leadership, and (iii) market focus. This aligns with the

Ansoff's Matrix (Ansoff, 1958). Additionally, Ansoff suggested that a firm can pursue its business growth by following either one of the four growth alternatives of his 'product-market strategy'.

Ports compete to be selected by shippers so that they can make profits and grow. If a port can offer superior value to its customer, it can capture opportunities to grow. The port will be more likely be able to gain more profit. Opportunities for a port to grow is any possibility of action and change, or any circumstance that can lead to the growth of a port or an enhancement of the port's competitive advantage. Hamel and Prahalad (1994) suggest that an opportunity that a port should pursue is an unexploited one which can be found in the form of unfulfilled customer's needs.

Magala (2004) proposed a framework of Opportunity Capture that a regional port could use to find and capture an opportunity to grow even with the existence of a major port nearby. His framework was applied in the scenario of regional ports of Australia. The result showed that a regional port which is near a major port could capture opportunity if it could provide shippers with better access to market and able to secure resource.

Therefore, it is interesting and worth investigating to what extent the framework would be effective in the scenario of one former capital port and one newer capital port of Thailand. Furthermore, it is worth noting that this is the first time that the opportunity capture framework will be adapted to the situation of Thai ports.

4.3 A conceptual framework regarding the opportunity for growth

Emphasising the importance of this issue, Hamel (2002) asserted that there is a need for a framework that can recognize stochastic opportunities for growth, and which can provide a strategic approach to capture economic opportunities for ports. In this respect and having a particular interest in the growth of shadow regional ports, Magala (2004) derived a framework called 'opportunity capture' that could find and exploit growth opportunities for a regional port from the work of Robinson (2002). In his work, a process for defining and utilizing valuable opportunities for the port which consisted of five steps which he claims 'are critical in determining what

opportunities are available for the port and which opportunities have the potential to offer key benefits to the shippers and the regional port' (Magala 2004, p. 54). The five steps are as follows:

1. Understanding what is an 'opportunity';
2. Discovering opportunities;
3. Evaluating opportunities;
4. Selecting opportunities;
5. Implementing opportunities.

Consequently, Magala demonstrated the applicability of his framework with a case study of regional ports in Australia, which were based on a set of input opportunity criteria. These criteria were able to give a recommendation on whether a port should change from one kind of activity to alternative modes of operation; categories which were particularly considered were a bulk port, a break-bulk port, and a container port (Magala 2004).

A few remarks are made here by the investigator regarding the 'Opportunity Choice Decision Support System' which was built on the framework proposed by Magala (2004). The following questions arise in the context of this study:

- whether there is another possible output, other than changing the type of port?
- instead of diversification (such as changing to another type of port), what other strategies may be pertinent for opportunity capture when referring to Ansoff's Matrix?
- could this alternative approach work for shadow main port?
- might there be other criteria which arise if a port is in the shadow of a main port?

For example, it would be physically difficult for a shadow main port, which is located close to an urban area, to significantly expand its landside footprint. On the other hand, it would be much more feasible for a regional port to expand its land boundary, and this might be critical when considering a change in the nature of the port.

4.4 Implementing the Opportunity Capture Framework

In this research, the Opportunity Capture framework (Magala, 2004) is used for two purposes.

(i) Construction of the systematic set of questions for the semi-structured interviews. Using the framework to design this set of questions aided in maintaining the focus of the investigation on the creation of a suite of prompts that could help interviewees to reveal their perspectives on the opportunities that Bangkok Port might exploit, and also to indicate possible hindrances that might stop Bangkok Port from growing;

(ii) Identifying a set of potential directions that could assist Bangkok Port in finding its competitive advantages which will be required for any growth or survival, which could stimulate comment from the perspectives of the selected interviewees.

4.5 Description of the Opportunity Capture framework

Prior to the discussion of the implementation of this framework, a description of the key elements of the approach has been provided here to establish its applicability to this thesis, and to identify where and how the original framework has been adapted (Figure 4.1). In particular, the notion of 'core competency identification' has been included before 'understanding the opportunity' since the core competency is a unique capability of a port that can be used to increase its competitiveness (see detail in Section 2.6). Moreover, 'profitable opportunity' has been included as a kind of opportunity that a port should consider apart from the established entrepreneurial opportunities since profitable opportunity generally requires less resource and introduces less risks (see details in Section 2.7.2). In order to provide justification for the modification of the framework, each step of the process of opportunity capture is discussed below.

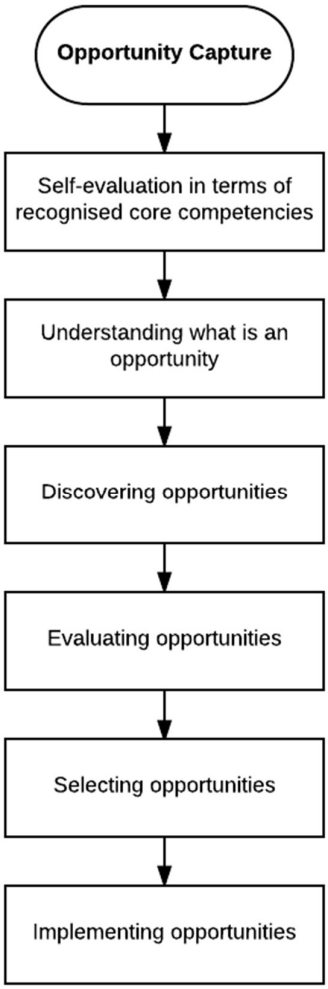


Figure 4.1: The opportunity capture framework

Source: adapted from Magala (2004) opportunity capture framework.

Step 1. Self-evaluation in terms of recognised core competencies

Prior to searching for a growth opportunity, in the ideal situation a firm should be clearly aware of its strong points and/or its competencies. This knowledge can be used to provide an organisation with a foundational understanding of what is it capable of, at least at that particular phase of its growth and in the prevailing environment. It then could, if necessary, develop itself in the pursuit of additional business opportunities or developments.

In this respect, the concept of 'core competency' (Hamel and Prahalad 1998) can be used to identify the business abilities of a firm. The identification of the core competency of a firm means discovering the main value-creating assets of the firm, and it is these assets which should be exploited to gain a competitive advantage over other firms. In a process sense, to identify the core competency of a firm, a reflective exercise of internal analysis could be used to identify the specific assets, skills and work activities which contribute to the uniqueness of the competency of the firm.

Step 2. Understanding what constitutes an opportunity

This is an important step in the framework application because it helps to define what an appropriate 'opportunity' is for the firm, and this will clearly affect the whole process of opportunity capture. Without a clear definition of 'opportunity' in the context of the firm's operation, a firm will not be able to either effectively search for options or, once identified, to seize them. An important question in this current investigation that needs to be answered first is 'What does growth opportunity for ports look like? Could it be in the form of an unobvious shift in freight transportation trends, or a kind of a side effect produced from a global incident? Might it stem from a local incident from the other side of the world, or could it just be some sort of an opportunity that inherently lies inside a peculiar characteristic of a port or of the port's home country?

Hamel and Prahalad (1994), in their well-known work *Competing for the Future,* indicated that a firm needs to look into new markets where customer needs are yet unarticulated and/or unserved customers exist, in order to search for new and unexploited opportunities (see Figure 4.2). Grasping these opportunities could make a substantial profit for the firm that succeeds in recognising them first.

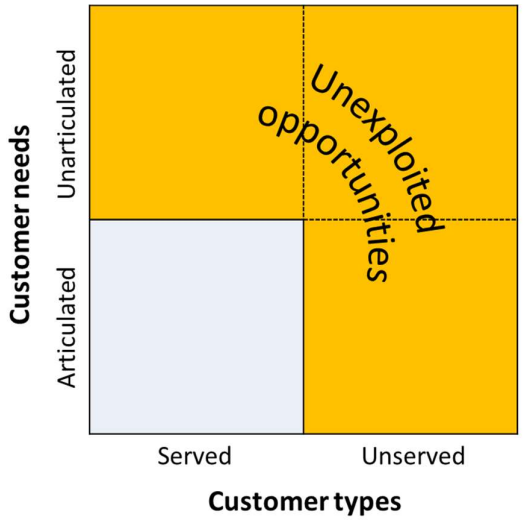


Figure 4.2: The context of unexploited opportunities as defined by Hamel and Prahalad (1994).

Source: adapted from Hamel and Prahalad (1994) *Competing for the Future*.

Entrepreneurial opportunity

Shane and Venkataraman (2000) outlined how a firm can gain entrepreneurship advantages through the successful capture of appropriate opportunities. They referred to an earlier statement made by Casson (1982), who said: 'Entrepreneurial opportunities are those situations in which new goods, services, raw materials, and organizing methods can be introduced and sold at greater than their cost of production' (Shane and Venkataraman 2000, p. 220). They described the steps of how to capture such opportunities, which are: (i) the understanding what is the entrepreneurial opportunity; (ii) the discovery of such an opportunity; (iii) the decision to exploit the opportunity; and (iv) finding out how to exploit that opportunity. Furthermore, they argued that there are differences in entrepreneurial opportunity and other opportunities for profit. The former involves the discovery of new means-ends relationships (from raw material, production until product/service), while the latter involves the optimization of the existing means-ends relationships.

Speaking of opportunity in the context of seaport and its supply chain, port managers perceived that it is not trivial for the supply mechanism to merely satisfy port

customers, since (i) customers' needs are diverse, complex and dynamic, and (ii) it is nearly impossible for any port to have resources to satisfy all the required needs. However, it is this gap between the capability of ports and the needs of their customers that create opportunities which can be utilized by a firm that is seeking profit opportunities (Magala 2004).

Growth/profitable opportunity

In comparison to capturing entrepreneurial opportunities which could significantly improve the competitiveness of a firm, capturing several small but profitable opportunities could facilitate the competitiveness of the firm little by little. These may perhaps be easier to obtain and will offer less risk. An added realisation is that when searching for opportunities, there is no guarantee that an opportunity would successfully make a profit, even though there might be significant input of resources and time which have been expended in the search. Therefore, it might be easier to focus the search on several small-in-profit opportunities which might be easier to exploit than larger, riskier entrepreneurial opportunities.

A strategy which could be used to look for growth opportunities is Ansoff's Matrix. The matrix shows four possibilities for growth by considering relationships between the product and its market. These four strategies are (i) market penetration (for an existing product in the existing market); (ii) market development (for an existing product in a new market); (iii) product development (for a new product in existing market); and (iv) diversification (for a new product in a new market). Ansoff (1958) suggested that a firm should pursue either or several of either product development, market development or market penetration in order to grow before attempting diversification because the latter requires new skills, new technologies, or new facilities which are an expensive option when compared to the other three strategies.

Step 3. Discovering opportunities

Understanding the context of an opportunity does not guarantee that one will be able to find an opportunity. Several contributions to the literature have argued that opportunities exist because of:

- Different individuals having different beliefs (Shane 2000);
- Asymmetries of information and belief systems (Kirzner 1997);
- Incomplete information (Kirzner 1973);
- The imperfections in the market (Magala 2004).

The above reasons make opportunities valuable and allow the one who discovers them to enjoy the profit which comes from exploiting the opportunity. However, because of the non-obvious nature of this task, it is not easy to find such an opportunity. AS indicated earlier, Magala (2004) argued that an opportunity could be discovered through search, recognition, and luck.

The search for opportunities

Empirical researchers have argued that exceptional searching/scanning techniques or information processing capability, all assist in discovering opportunities (Shaver & Scott 1991). A reason that some organizations are likely able to find opportunities, is because they search for unsatisfied needs which can be exploited and turned into profit in a competitive environment (also known as a market structure). The chance to discover unexploited opportunities depends on the willingness to gain information about events and trends in a market structure of a firm (Barringer & Bluedorn 1999; O'Brien & Fadem 1999; Weinzimmer, Fry & Nystrom 1996; Pearce II, Bruce & Fred 1982; Smeltzer, Fann & Nikolaisen 1988).

Magala (2004) further recommended that '…to discover opportunities through search, regional ports can collect data and analyse shifts in demographics, technology, shipper preferences, competitor value chains and regulations.' (Magala 2004, p. 60). This is because shifts could be considered as an indication that there are new and as yet unsatisfied customer's needs. Several techniques and tools that can be used to recognize patterns related to the emerging of new opportunities were suggested -

these were trend analysis, market research, social networks, industry studies and government reports.

The recognition of opportunities

While a search is necessary for discovering opportunities, it is more important to be able to recognize those opportunities. Some reports (Kaish & Gilad 1991; Kirzner 1997) have argued that opportunity does not exist until it is found, hence it is impossible to search for something when one does not know whether it exists or not. Instead, opportunity can be discovered not through search *per se*, but through the recognition of the value of new information (Shane 2000). Prior information and cognitive properties help in recognizing an opportunity, and information about markets, methods needed to serve them, and problems of customers in the markets, all contribute to the discovery of opportunities (Magala 2004).

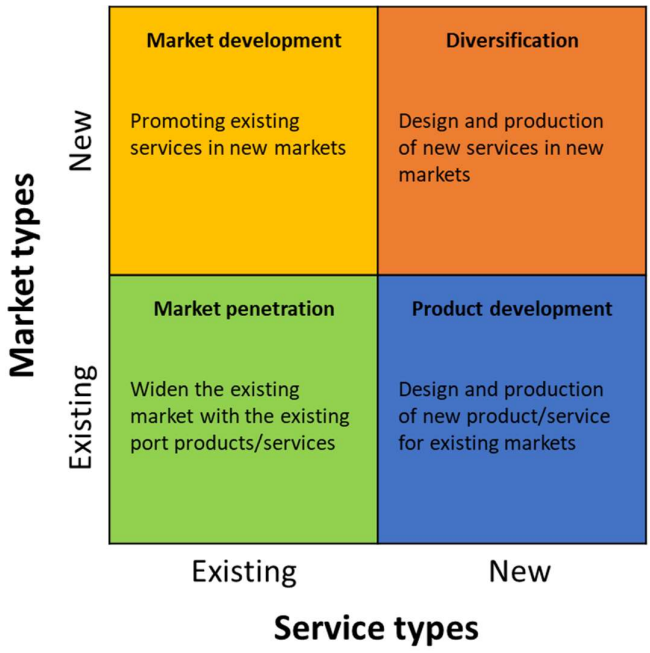


Figure 4.3: The utilization of the Ansoff Matrix in determining possible strategies for a port to grow.
Source: adapted from Chatzivasileiou (2014).

Increasing the possibility of discovering opportunities

It is possible to use Ansoff's Matrix in the search for opportunities for a port to grow since it provides options to new strategies based on the type of market and product. This could give a useful overview of this investigation because the original matrix did not consider only opportunities to diversify (i.e. entrepreneurial opportunities), but also suggested other profitable opportunities. Westwood (2006) argued that port authorities can use the Ansoff Matrix to determine appropriate strategies for a port to grow. Chatzivasileiou (2014) used Ansoff's matrix to outline what strategies are available for a port to pursue growth, in particular, the design of an effective port marketing plan based on the level of risk (Figure 4.3).

Step 4. Evaluating opportunities

When one or more opportunities is/are discovered, a decision needs to be made whether the opportunities should be exploited. But a question that arises is 'How can we know whether the opportunities are worth pursuing or not?' If several opportunities are found in the same period, a firm might need to choose only a few of those opportunities due to some limitations (for example the pool of available resources), but which ones should be chosen, and which need to be put aside? Even if only one opportunity is found, there is a need to carefully evaluate that opportunity in order to justify whether it is worth pursuing, to assure that the resources invested in the activity will not be wasted.

The answer to why, when, and how are some opportunities are chosen to be exploited while others are ignored, can be considered as being related to the nature of the opportunities and that of the perceptions of each manager (Venkataraman 1997). Shane and Venkataraman (2000) believed that the characteristics of an opportunity affect how much a person is willing to exploit the opportunity because these personal characteristics affect the expected value of the opportunity. Literature has shown that people usually prefer to exploit opportunities that have a higher expected value. Preferable opportunities, for example, have large expected demand (Schmookler 1966; Schumpeter 2012), have high-profit margins (Dunne, Roberts, & Samuelson

1988), have the appropriate level of competition (Hannan & Freeman 1984), and have a low cost of capital (Shane 1996).

Indeed, each opportunity has its own strengths and weaknesses. It is the responsibility of a port manager to guarantee that the most valuable opportunities are implemented. For a port manager, the selected opportunities should agree with the desired value of shippers, the goal of the port, and the possibility of implementation. Two key dimensions that can be used to select a preferred opportunity or evaluate an opportunity, are *feasibility* and *attractiveness* (Magala 2004).

Chatzivasileiou (2014) evaluated the chances of potential strategies which may be performed by a port manager or a port authority, together with the associated level of risk, by utilizing Ansoff's Matrix. In this work, a market penetration strategy was regarded as the strategy with the lowest risk, but it was also suggested that a simple strategy, such as lowering prices, could attract more attention from shippers. On the other hand, examples of market development strategies which were considered to be riskier included the modification of the existing port services or creating a new service for existing markets in order to increase port traffic. An even riskier strategic direction is sing product development strategy, and an example of a strategy in this category is promoting the existing port services to new markets. Finally, the riskiest strategy is the diversification, which involves developing a new service for serving a new market, and to increase the chance of success of this approach, a port should carefully recognise and utilise its own core competencies.

Step. 5 Selecting opportunities

After an appropriate evaluation process, it should become obvious which opportunities are most preferable, based on their attractiveness and feasibility. The next step will require the port manager to select the preferred opportunities. Magala (2004) believed that, in general, opportunities are chosen based on the assumption that they are valuable only if they have potential to deliver to both shippers and the port itself, the competitive advantage they desire.

Not all port managers perceive the same expected value of the presented opportunities. The decision to exploit an opportunity relates to the comparison of the value of the opportunity with the cost required for creating that value, together with the cost of creating value in other ways. Costs related to the acquisition of resources needed for exploiting an opportunity also affect the decision to exploit (Shane & Venkataraman 2000).

It has been commented that people make decisions to exploit an opportunity more easily when they have greater financial stability (Evans & Leighton 1989). The transferability of information from prior experiences relating to the opportunity, and the prior experience itself, both increase the chance of exploiting a new opportunity (Cooper, Woo & Dunkelberg 1989; Carroll & Mosakowski 1987). In this complex environment, each individual brings a different mindset, prior knowledge and experience, all of which can affect their decision-making processes. Additionally, the decision to exploit an opportunity is also affected by power struggles and politics inside that firm (Eisenhardt & Zbaracki 1992; Pfeffer 1992; Magala 2002).

Step. 6 Implementing opportunities

When a decision is made regarding which opportunities will be pursued, the next step will be how to 'capture the opportunity' or how to implement the situation and bring it to fruition. The implementation is usually done in a form of strategic plans, initiatives or projects. In general, port managers prefer an opportunity that possesses the highest potentials for (i) maximising the resources used, (ii) generating satisfactory returns, and (iii) which agree with the organization's strategy. Furthermore, as the strategic plan proceeds, regular monitoring of several internal and external factors will be needed. These factors will include ones that are related to regulation, environment, politics, and the economy, and can indicate the changes in customers' or shippers' needs. In addition, they may also prefigure the changes in the importance of the key criteria of the preferred opportunity. It should be noted that it is normal that customers need to change over time, and in this respect, managers need to constantly verify whether the opportunity, as first identified, is still able to satisfy the customers' needs or not.

Once a strategic plan of capturing an opportunity has been initiated, the performance of the plan should be constantly measured; a customer satisfaction survey is a reliable method to evaluate how the customer perceives the value that is being delivered by the port. These practices could lead to new competitive advantages or new and more competitive opportunities. With this knowledge, the port can then keep on capturing these new opportunities, thus keeping the port competitive and on a growth trajectory.

There is no fixed pattern in making or exercising a strategic plan in order to capture an opportunity since it depends very much on the context of each instance within which the opportunity exists. It also depends on the commitment, the available resources, and the policy of the organization, all of which contribute to transforming a given opportunity into a successful investment. There is a perception that strategies that are based on unique competencies and resources of a firm tend to promote success in capturing an opportunity. However, it should be noted that there is still no guarantee that the opportunity would be able to deliver the expected value. Furthermore, it is sometimes more appropriate to discard or postpone a plan for capturing an opportunity when faced with an uncertainty that can potentially lead to a zero-profit or a minus-profit situation. (Magala 2004, Amram & Kulatilaka 1999).

4.6 A qualitative approach to Opportunity Capture: the Noticing, Collecting and Thinking (NCT) model

In this research, the Noticing, Collecting, and Thinking (NCT) model (Figure 4.4), which was firstly introduced by Seidel (1998), is used to handle the Opportunity Capture framework in a qualitative fashion. This model was used because since it is a suitable method for qualitative data analysis when a relatively small number of data sources is available (Dede & Lioufko 2010, Rambaree 2013, Rehm 2015, Williams 2015). In particular, this technique is used to analyse data gathered from qualitative interviews in order to determine any consistently underlying perspectives that might emerge in the process of discussing possible directions for growth for Bangkok Port. In the current project, purposefully selected port experts who are highly experienced from a range of positions in Thailand have been interviewed about their opinions

regarding potential policies that a shadow port might pursue in order to be viable and competitive. Five groups of port-related personal, selected from government, council/federation, academia, logistics providers, and the relevant business sectors, have been interviewed. Further details of the interview process are given in Chapter 4.

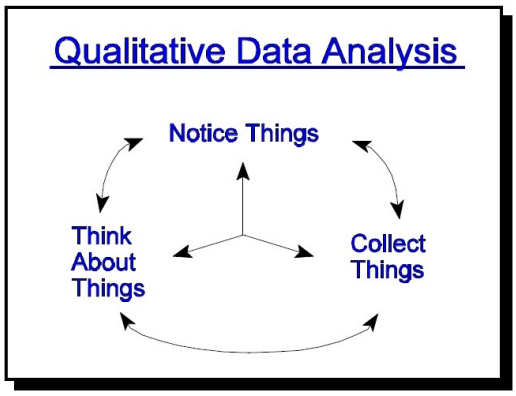


Figure 4.4: Concept of the Noticing, Collecting, and Thinking (NCT) model.

Source: Seidel (1998) NCT model.

The NCT model was designed to assist qualitative data analysis (QDA) by treating the QDA as three connecting processes of N (noticing), C (collecting), and T (thinking) nodes. These do not present as a linear process, as is diagrammed in Figure 3.4. This NCT method has been developed to simplify the rigorous and often complex practices necessary for systematic QDA. The characteristics of the method are that it is: (i) iterative and progressive, (ii) recursive, and (iii) holistic. The order of transition from one node to another is, as indicated, not linear but is rather repetitive and can change when moving from one process to another.

It can be argued that the NCT model is rather a broad conceptual framework which does not have a fixed pattern or flow of processes and can, therefore, contain many possibilities. However, by keeping these three pillars in mind as a guide when analysing any qualitative data, it is believed that it can help to reveal what is inside that data and extract it in an efficient, goal-oriented fashion. Several existing computer-assisted qualitative data analysis software (CAQDAS) packages such as

ATLAS.ti, Nvivo, HyperRESEARCH, QDA Miner Lite, and QUALPRO, fundamentally include this concept in order to guide users to effectively perform Qualitative Data Analysis. The CAQDAS software has consequently been used by several researchers for qualitative data analysis (Appleton 1995; Kelle, Prein & Bird 1995; Mayring 2000; Berg 2007; Wongkiatkajorn 2016).

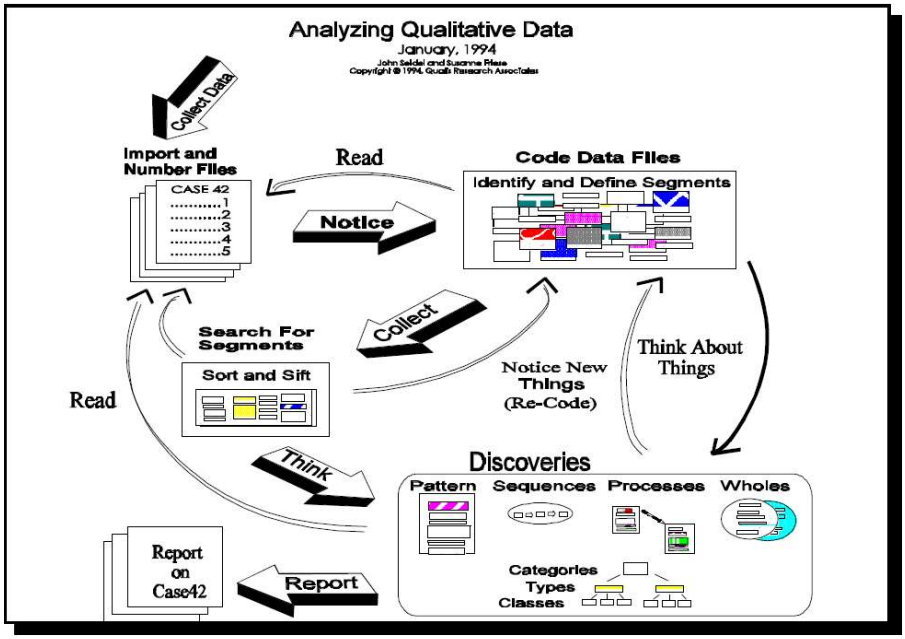


Figure 4.5: An example of a more practical flow of utilizing noticing, coding, and thinking (NCT) model to assist qualitative data analysis (QDA).
Source: Seidel (1998) NCT model.

To further explain about CAQDAS, it is designed to facilitate data analysis by a qualitative approach. The data can be in the form of texts, audio, videos, or graphics. The software provides several functions and tools that make the examination of these data more efficient such as content searching, linking, coding, query, writing, annotation, and mapping (Lewins & Silver 2007). This allows users to iteratively go through transcripts, make annotations and assign codes to those materials. Users then can see the frequency, the distribution and the relationship of the codes they have assigned in the form of a graph. This inductive approach can help users to discover patterns and/or facts from the database more quickly and more easily than by a

manual approach. Fundamentally, the workflow of the QDA software is to import transcripts for a user to read which will facilitate the ability of the user to observe important information which will be coded. A group of codes will then be collected and analysed (or thought about), using tools provided in the software such as graphs, queries and code clusters.

Notwithstanding that there are several CAQDAS package available in the market, most of the programs are sufficiently capable of executing NCT framework because they have some important features related to its structure, including items as follows:

- Text file import;
- Assign codes to texts;
- Add, delete, edit and merge codes;
- Code analysis: code frequency, code charting, code tree grid, code retrieval.

Among the several available forms of CAQDAS software, QDA Miner Lite is used in this thesis because it contains all the important features mentioned above.

4.7 Conclusion

In this chapter, the selection of the frameworks and tools used in this thesis have been explained. The conceptual framework of Opportunity Capture was discussed, and its use in this research was justified. The framework was based on the approach suggested by Magala (2004) who presented it as a convenient six-step process. In this discussion, the important concepts of entrepreneur opportunity and profitable opportunity were introduced. It is appropriate to note here that a profitable opportunity is perceived to be more trivial to implement for shadow ports, where limited resources exist. Moreover, since a profitable opportunity can exist in the existing product and the existing market, it can be seen as a less-competitive opportunity which might be more suitable for shadow port than an entrepreneur opportunity. In this discussion, the use of Ansoff's Matrix to assist the analysis of opportunities for shadow ports has been outlined. The Ansoff's Matrix can provide options for strategies to grow based on the type of market and product. The matrix can be used in search for profitable opportunity. Last but not least, the NCT model

has been introduced to assist in the qualitative data analysis of the responses to the set of questions has been noted. This model is recommended by several literatures that it is suitable for qualitative data analysis when a relatively small number of data sources is available (Dede & Lioufko 2010, Rambaree 2013, Rehm 2015, Williams 2015).

Chapter 5
Qualitative Interview

5.1 Introduction

As previously explained in Chapter 4, the theoretical framework of Opportunity Capture for a shadow main port is used in this research to help to construct a systematic set of questions for the semi-structured interviews, and to identify potential directions that could assist an overshadowed main port such as Bangkok Port in determining its competitive advantages which will be required for any substantial growth or survival. It was determined earlier that the use of this framework for investigating the problems associated with a shadow main port, especially the selected port system in Thailand which has been used as the case study here, would be suited to qualitative interviews, and these will be conducted with critical respondents who are working with, or have experiences regarding, maritime transportation in Thailand.

Therefore, in this chapter, the creation of the set of questions and the selection of the interviewees are discussed. As indicated, the set of questions has been created on the basis of the Opportunity Capture framework and the selection of the interviewees has been based on their field of expertise and their recognised experience regarding the Laem Chabang Port and the Bangkok Port of Thailand. In addition, some comments on the software that has been used to facilitate the qualitative data analysis, are also presented.

5.2 Toward the creation of the set of questions

When assembling the perspectives regarding the research issues already introduced in Chapter 1 and noted in detail in Chapter 2, it is anticipated that some key ideas will be introduced and constructed by the selected interviewees. It is highly appropriate to comment that, ontologically, the knowledge claims made by this thesis are a

relativist, and that these emergent ideas can be epistemologically categorised as constructivist (Stake 1994; Kvale 1996; Marsick & Watkins 1997; Taylor 1998; Wongkiatkajorn 2016). Given this scenario, an appropriate theoretical perspective for underpinning the data collection will be Symbolic Interaction, where it is understood that the perspectives of key informants will be interpreted through symbolic means (in this case, language). A methodology particularly consistent with this view is Qualitative Interviewing, and the data collection method suitable for this will be in-depth, confidential interviews (Stake 1994; Herbert & Rubin 1995; Kvale 1996; Sekaran 2000). Ethics clearance was sought prior to the conduct of interviews, to ensure that the process followed in this research safeguards the confidentiality and anonymity of the respondents.

As indicated above, the methodology which has been preferred to capture the perspectives of key players in the area is Qualitative Interviewing (Wiersma & Jurs 2009; Wongkiatkajorn 2016). This is a reputable data collection methodology which has been used in similar investigations to allow the perspectives and opinions of selected informants to be gathered. The in-depth semi-structured approach of the interviews has been specifically chosen to allow unexpected contributions from the interviewees to emerge. These may fall outside the anticipated responses, which would be hampered if only structured, pre-prepared questions, were used.

As for the limitations of semi-structured interview, it is well known that the major limitations are as follows: (i) it is a time-consuming process, (ii) the amount of interviewees needs to be sufficient in order to make proper conclusions and (iii) the questions could bias the interview if not carefully designed. Thus, to counteract these limitations, the following steps are taken. To prevent the bias due to the leading questions, a common set of questions have been prepared in order to systematise responses rather than to guide the answers. Regarding having a sufficient amount of the interviewees and their valuable experience, it must first be noted that other important factors are the availability of the interviewees, and the limited time frame need to be considered as well. With those factors taken into account, significant effort has gone into finding the balance among those factors. As a result, 15 high-quality participants who were arranged to join the interview group represents an optimum choice between numbers and quality. Additionally, in order to counter-measure the

bias of the interviewees, should there be any, the data acquired from the interviewees are compared with availablec literature, while the possible effect of the Institute that each interviewee works in, has also been taken into consideration.

It is expected that valuable information will be gained from interviewing these experts, and this data will be utilized in developing an understanding of the nature and circumstances of a shadow main port. Relating to the set of questions which will be used in the interview for data collecting, there will be an explanation provided about the situation of the questions in each section. This will help respondents to understand the scope and the objectives of the interviews, and why these questions are being asked.

The Opportunity Capture framework, as explained in Chapter 4 and Figure 4.1, is used as the base for the process of creating a set of questions . This set of questions aims to help interviewees to reveal their perspectives on the opportunities that Bangkok Port might exploit and also to anticipate possible hindrances that stop Bangkok Port from growing. Therefore, in the process of creating the set of questions, the following aspects are to be determined: (i) the inherent competency of a port; (ii) the perceived important criteria in exploiting critical advantages; (iii) an appreciation of their underlying factors; and (iv) potential practical approaches which might be introduced to leverage on those criteria and factors.

The inherent competency of a port needs to be evaluated because we need to understand the level of agreement of the competency of the port in its current manifestation. As explained in Chapter 4, the concept of ‘core competencies’ identifies the uniqueness of the set of skills and knowledge pertaining to a port, which can become its great competitive asset. This could facilitate the quest for establishing the position of a port in a competitive environment by focussing on its core competencies and those inherent attributes which are not trivial, and thus are difficult for other ports to obtain. Furthermore, the important criteria and their underlying factors need to be evaluated because we need to establish which criteria are important for the successful capture of available opportunities. Potential practical approaches need to be evaluated because we need to know how to go about improving the important criteria and factors from a practical viewpoint. This could provide some

suggestions regarding the most advantageous strategic direction in which a port should proceed, in order to maximise the chance to capture any growth opportunities.

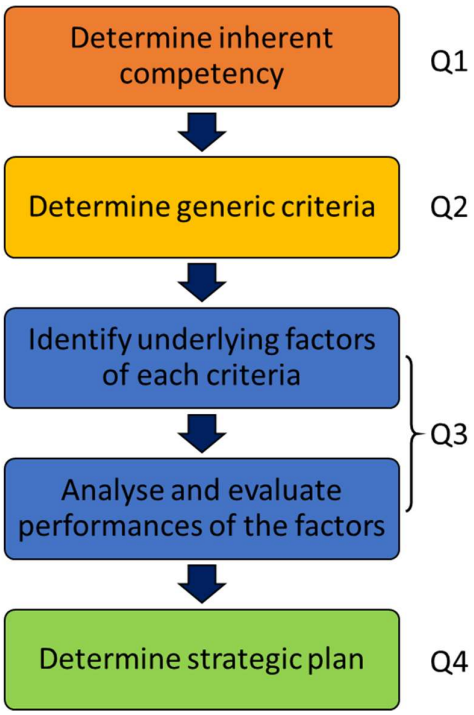


Figure 5.1: A process to evaluate aspects of the investigation using the Opportunity Capture framework.

Source: Adapted from Magala (2004).

Furthermore, when the interviews are completed, the framework is used in the process of data analysis together with the NCT model to identify a set of potential directions that could assist Bangkok Port in finding and exploiting its competitive advantages. These will be required for constructing any growth or survival strategy based on the comments and perspectives of the selected interviewees.

5.3 The questions used in the interview

A set of questions have been structured corresponding to the process outlined in Figure 5.1, and their development has followed using these systematic steps:

1. Determining inherent competency

As can be seen from most policies and strategies which have been launched or are about to be launched by the Thai government, Laem Chabang Port will increasingly enjoy on-going national support. By comparison, since the opening of Laem Chabang Port, Bangkok Port has received little to no support from the Government. Nonetheless, Bangkok Port has been continually operating with consistently high throughput, and respondents will be asked to reflect on this observation and share with us their perceptions of why Bangkok Port is still in operation.

Questions in this section aim to acquire information or insights related to possibly 'unobvious' reasons or factors which are contributing to Bangkok Port' ability to continue to operate and/or allowing the port to be selected by customers, even when it is under the significant shadowing influence of Laem Chabang Port. The questions to be asked are:

1.1. Is there any particular strong point of Bangkok Port that helps it to survive?
1.2. Is there any particular weak point of Bangkok Port that may hinder its performance in growing?
1.3. What are the strong points of Laem Chabang Port?
1.4. What are the weak points of Laem Chabang Port?
1.5. How long would those strong points of Bangkok Port help the port to survive, and why?

2. Determining generic criteria

In order to be selected by shipping lines, ports need to both add value to the supply chain, and to make a profit for themselves. One framework that a port could use to compete for profit (and eventually grow) is to search for and seize valuable opportunities (Magala 2008; Porter 1985). If the port could successfully utilize that opportunity, it could add value to the supply chain and hence it could be preferentially selected by shipping lines, thus leading to its continued operation and growth. Respondents will be asked to share with us their perceptions of what criteria they consider to be important for a port when it searches for and evaluates the available opportunities. The criteria in this context could broadly be described as attractiveness and/or implementability. The questions that will be asked are:

2.1. What are the important criteria in the competition between ports?
2.2. Will these criteria still be valid when a shadow port (Bangkok Port) is concerned?
2.3. If these criteria are not still valid, which criteria are more suitable for the shadow port's growth scenario?
2.4. Which criteria can be considered as weak points for the shadow port (Bangkok Port) when compared to a main port (Laem Chabang Port)?

3. Identifying factors of each criterion

Building on the previous set of questions, the questions here will further explore what participants perceive as being the factors that influence or affect the performance of each criterion. The questions that will be asked are:

3.1. From the criteria mentioned in the previous set of questions, what are the factors that constitute each of those criteria?
3.2. Could you order these factors based on their importance where Bangkok Port is concerned?
3.3. In the case of Bangkok Port, which factors are considered to be favourable, and which factors are considered to be unfavourable?
3.4. What should be the strategies used to improve those favourable factors, and to avoid those unfavourable factors?
3.5. In your opinion, do you think that can Bangkok Port can compete with Laem Chabang Port if the favourable factors are all well-developed?

4. Strategic level

After establishing the criteria and their underlying factors that Bangkok Port could use to search for and evaluate opportunities for its growth, the focus will move to the practical perspectives of how these criteria and factors can be improved. For example, in the realm of strategies which can be used in order to strengthen the port's competitiveness, respondents will be asked:

4.1. What factor is considered to be the most challenging one to improve and why?

4.2. Which factor is the first factor that you would choose to improve the strategic level, particularly in the case of Bangkok Port?
4.3. At a practical level, what would be a recommended strategy for strengthening the favourable factors and for attenuating the unfavourable factors?
4.4. What aspect would be needed to be taken into consideration when a strategy is to be implemented in order to improve a certain factor?
4.5. What would be the major influence or reason that stops a strategy to be implemented in order to improve a certain factor?

5.4 Target respondents in the process of data collection

Having determined that a semi-structured interview approach is to be selected as the data collection method, the next critical step is to define the target respondents and ensure that they are available for a reasonable interview time (Sandelowski 1995; Sekaran 2000; Zikmund 2003; Vongkiatkajorn 2016). Since the objective of this research is to determine the potential strategies that could be used as a guideline for the development of shadow main ports by using ports in Thailand as the focus of the case study, five categories of respondent who relate to the maritime transportation of Thailand have been considered to be the target study population in this research. These categories include personnel from (i) the Thai government, (ii) the shipping-related council/federation, (iii) logistics providers, (iv) relevant business sectors, and (v) experienced academics who are researching in this area.

Regarding the selection criteria for the participants of this interview, they are primarily based on the recognised quality of the participants' experience in this area. Response from high-quality participants is reliable and valuable input for this research. Second, having a reasonable number of participants is what this research has aimed for, since a wider coverage of issues would generally lead to a more evenly distributed and a more reliable source of valuable input to this research. Of particular importance is the availability of the participants because they are generally under significant time-pressure in their workplace, and this introduces another factor into the selection criteria that need to be taken into consideration in this research. With these constraints clearly in mind, 15 high-quality participants have been arranged to

join the interview. These participants include four government staff, two shipping-related council/federation personnel, five second-party and third-party logistics providers, two persons from the business sector, and two researchers from academia. Since the staff from the government and from logistics providers are the ones who are constantly interacting with seaport personnel and will have insights into efficiencies of operation, nine out of 15 participants are from these two categories. It is expected by the author that their responses would provide a valuable and unique source of information for this research.

Detailed reasons that these five categories of interviewees are selected is discussed below. Furthermore, information regarding the participants of the interview is also disclosed in order to show that the quality of the opinions of these participants is based on their recognised expertise and experience.

Government officers are considered as an essential target study population because both Bangkok Port and Laem Chabang Port are under the management of the Government of Thailand (Limskul 1998; Sukdanon 2001; Lopattananon 2016), which means that policies and strategies of both ports and port-related units are determined by the government. There are two ministries which are particularly related to maritime transportation; these are the Ministry of Transport (MOT) and the Ministry of Finance (MOF). Under the direction of MOT, the Maritime Department and the Port Authority of Thailand (PAT), as State enterprises of the Ministry (Ministry of Transportation 2016b), are working directly with the two ports. To represent this area, four government officers have been interviewed in this research. The first interviewee [G1] works in a management team in the Policy and Planning Department at PAT which is responsible for the policies and planning of ports in Thailand. The second one [G2] works at Research and Organization Development Division of PAT. His/her work relates to strategical planning of PAT, especially that related to the development of both Laem Chabang and Bangkok Port. The third interviewee [G3] is a staff member of PAT with 10-year experience who has worked at both ports. Now, he/she is working at the Service Division of Bangkok Port, and it is pertinent that this division is responsible for providing services and convenience to customers of the port, allowing reference to experiences of actual field problems occurred at the port. The last participant in this category [G4] is a staff member of

Thai customs who previously worked at the headquarters of Thai customs and was responsible for the import and export of goods at all ports in Thailand. Now, he/she is a customs technical officer at Customs Bureau at Laem Chabang Port. He/she has experience regarding customs at both Laem Chabang and Bangkok Ports.

Shipping councils and federations are organizations that work in the interface between the government and the business sectors (Baalen, Zuidwijk & Nunen 2009). The councils and federations act as representatives of the business sectors (both exporters and importers) and informs the government about export and import-related issues. The council is also involved with the government, at an intimate level, in the process of shipping strategy identification (Crum & Allen 1990; World Shipping Council n.d.; Thai National Shippers' council n.d.). Furthermore, the councils and federations act as a business supporter and consultant. These organization can contribute to the maritime area by suggesting suitable solutions regarding problems faced by their members, encouraging and advising members on tactics to develop their businesses, and by providing useful information to their members (Crum & Allen 1990; Thai National Shippers' Council n.d.). Two members of shipping council and federation have been interviewed. The first respondent [C1] is a senior international trade and logistics analyst of the Thai National Shippers' Council (TNSC), whose work involves import/export analysis because this council is related directly to Thailand's import and export activities. The second respondent [C2] is a committee of the Thai Federation on Logistics. He/she also has a well-regarded position in the Thai Chamber of Commerce and in number of other Institutes (note that this information has not been disclosed to maintain the anonymous status of the respondent). He/she is a specialist in supply chain management and customs, has 20 years of experience of supply chain and logistics, and was a managing director of a logistics company in Thailand.

The third group which has been interviewed is a group of logistics providers who provide solutions to a firm or a company that prefers to outsource its logistics-related works, including those related directly to export and import matters such as shipping, inventory, warehousing, and packing (for loading to a container). In this study, the second-party and the third-party logistics providers are set as the interview targets. The second-party logistics providers are asset-based carriers, which own, lease or

charter their transportation such as ships, trucks, or aeroplanes (Gunasekaran 2002; Hanus 2013). Second-party logistics providers are firms that only handle the transportation of goods and move parcels from one location to another. If customers want to use the service of these second-party logistics providers, they need to bring their items to the designated area set by the provider. Moreover, in terms of maritime transportation, these carrier companies, who have their own freight ships and provide carriers as their services, often have an office in the area where ships berth. In this role, there is a shipping agent who acts as a shipowner or as representative of the ship owner's company and deals with all necessary procedures, both at the point of departure and arrival. Third-party logistics firms handle logistics-related activities ranging from management, control, and delivery on behalf of the shipper (Hertz & Alfredsson 2003). The third-party logistics provider is involved in the outsourcing of some parts or the whole of the supply chain and logistics operations in each company. These third-party logistics providers service logistics activities such as retail packaging, inventory management, customs clearance, as well as freight and distribution. Activities handled by these companies will differ from one provider to another (Businesseventsthailand 2015; APS fulfillment 2017), thus in this study, the third-party logistics providers, whose work is related to maritime transportation, and who liaise with Bangkok Port or Laem Chabang Port, are the target of the interviews because these providers are the direct interactors with the ports. The third-party logistics providers are involved in the shipping activities on land only; this entails, for example, custom-related paperwork (both import and export) and bringing containers into a port. Meanwhile, a shipping agent handles the loading of those containers on a ship (logisticafe 2009; Bangkok University 2016; marinerthai n.d). Five staff who are working in a second-party or a third-party logistics company are interviewed in this research. The first interviewee [L1] is a sales executive of a third-party logistics provider that has an office in Chonburi Province. This company only uses Laem Chabang Port even though some of their customers are closer to Bangkok Port. Their customers include SMEs located in both Bangkok, its metropolitan area, and nearby Chonburi Province. The second interviewee [L2] is a staff member in the planning management department of a shipping company. He/she has approximately 10-year's port-related working experience and is currently responsible for planning

related to Bangkok Port. The shipping routes of this company are mainly in Asia, and ports in Thailand have been the port of choice of this company for more than 30 years; the ports of choice include Bangkok Port and Laem Chabang Port. The third person [L3] is a senior manager of a third-party logistics provider company in Thailand. The company has provided international transhipment and total logistics services since 1987. It has offices both in Bangkok and Chonburi Province. This company is members of several freight forwarder-related organizations, thus the high status of this company is well recognized. The fourth interviewee [L4] is a project manager of a private company which has obtained a concession to use a berth at Laem Chabang Port for more than 20 years. His/her responsibility is to manage the distribution of goods to available ships. The last person [L5] is a senior port staff member of a private company in a terminal of Laem Chabang Port. He/she has more than five years' experience as a port staff member and several years' experience as an agent of a shipping company. This company has obtained a concession from Laem Chabang Port for several years.

Ports need to continually attract new customers in order to be able to make profits and to grow. In this respect, the business sector that tranships freight in and out of a port represents a valuable customer. It is known that the satisfaction of customers is always one of the objectives of any firm, and this is also true for seaports in competitive environments (Miremadi, Ghalamkari & Sadeh 2011). The efficiency of a port's services has a direct effect on this business sector, even though many firms tend to outsource their freight transhipment to second-party or third-party logistics providers. A port that has a good management structure, and can deliver containers on time, is most likely to be preferred by customers because their businesses can run smoothly without any delay in the transport of their products. (Mitra 2006; Min & Joo 2006; Vasiliauskas & Jakubauskas 2007). Therefore, in this research, groups of business firms that are using Bangkok Port and/or Laem Chabang Port for transporting their goods are interviewed. These groups will include small and medium enterprises (SMEs), wholesale marketers, and cold storage service companies. Two representatives from the business sectors are interviewed in this research. The first interviewee [C1] has been an owner of both wholesale and retail areas of imported and domestic fruits for more than 20 years. This owner uses ports

for his/her products. The second interviewee [C2] is an owner of a cool store for imported and exported fruits in Pathum Thani (a province next to Bangkok). This cool store distributes fruits to several provinces across Thailand to the border with neighbouring countries, and customers of this cool store also include tenants in Talaad Thai.

The last group that will be interviewed is a group of academic lecturers and researchers who have deep knowledge regarding the ports of Thailand, and also have experience with the ports of other countries in the Southeast Asian region. This group has been specifically selected because of their constant engagement with studies about ports, and also because some of these individuals work on committees involved with the development of strategic planning within the Thai government. Two academic-related persons are interviewed in this research. The first one [A1] has experience as a lecturer in the Logistics Department of a university. He/she also more than five year's research experience on logistics, especially concerning Laem Chabang Port. The second interviewee [A2] has more than 10 years' experience as a logistics researcher and logistics consultant for the Thai government. His/her focus is now on the logistics of SMEs.

Prior to the start of each interview, each interviewee was provided with a covering letter and a consent form allowing the interview to proceed. The covering letter explains the intention of the research, the originating institute in which this research is being performed and introduces the person who will handle the interview (which is the author of this research). In the consent form, it is clearly stated that the interviewees will be referenced with an alias in the research and there will be no negative consequences for the interviewees and their institutes from participating in this interview. The interview invitation letter and a template of the consent form are shown in Appendix B. The interviews were conducted during July and August 2017.

5.5 Conclusion

This chapter has outlined the structure which supports the use of semi-structured interviews as a qualitative data gathering approach, which is aimed toward the

development and understanding based on the Opportunity Capture framework which was discussed in Chapter 4. The selection of the target respondents was justified in detail. Furthermore, the suite of questions which will be used in the interview was also presented. In the next chapter, the data analysis process for this study will be outlined.

Chapter 6
Data analysis

6.1 Introduction

The theoretical framework, as explained in Chapter 4, is used to create and justify the questions used in the interview. To provide data for this investigation, a number of high-profile personnel who have special insight and knowledge regarding the conduct and planning of port futures in Thailand were respectfully approached. The respondents, whose identities have been suppressed in line with the Ethics requirement for conducting sensitive interviews, have work responsibilities related to key planning and decision-making functions associated with national maritime strategies. The associations and related organisations from with which the respondents are concerned are: Laem Chabang Port and Bangkok Port representing perspectives of the main ports of Thailand; the shipping council/federation; logistics providers; relevant business sectors; and respected academics, who together comprise the purposefully-selected interview subjects whose valuable opinions and thoughts on the problem have been gathered. On completion of the interviews, qualitative data analysis using the interview responses was performed using the NCT model. This analysis is intended to identify and investigate potential policies that a shadow port might pursue, in order to be viable and competitive.

This chapter discusses the data gathered from the in-depth interviews with the selected informants and provides a detailed analysis of them. There is a particular focus on the preparation of the collected data bank prior to the analysis, which is carefully outlined in order to establish the veracity of the analysed text. This is then followed by the analysis of the data, which is presented as ‘findings uncovered’ from the interview data.

6.2 Qualitative Data Analysis

6.2.1 Data preparation

Prior to the process of data analysis, some necessary preparation of the acquired data was performed. This process was carried out because, during the interviews, the primary information received from the respondents was recorded, with permission, in the Thai language with a voice recorder. Following the interview, the recorded data was transcribed by the researcher in the Thai language before translation into the English language by a certified translator. This step was carried out in order to assure the integrity of the data. The translated data was then used as the input into the analysis process described in the next section. To further ensure the veracity and trustworthiness of the analysed data, the certification of the translation of the primary data, together with a sample of the translation process, can be found in Appendix C.

6.2.2 Analysis process

After the data preparation, the translated transcriptions were analysed using the Noticing, Coding, and Thinking or NCT approach (Seidel 1998) with the QDA Miner Lite software. This software allows users to code the transcript, group the codes, and visualize the relationship among these codes.

Following the standard instructions of use of the NCT framework, the translated transcripts were first imported into the software and then reviewed by the researcher. When any important or relevant parts of the translated transcriptions are ‘noticed’, it was ‘coded’ using a suitable keyword. After several parts of the transcripts were coded, the codes were ‘collected’ and grouped into cognate collections with descriptive headings such as ‘strong and weak points of each port’, and ‘the reasons that each port is selected’. After several collections of codes were gathered, they were used as input of the process of ‘thinking’, during which the data was comprehended and interpreted to provide meaningful findings. However, since the framework of NCT is not a linear process but rather a non-linear and recursive one. Indeed, there are several instances where the analysis process proceeded in a non-linear fashion:

for example, from Noticing → Collecting → Collecting → Thinking → Collecting → Thinking. This recursive approach allowed the researcher to become more familiar with the data, and to appreciate the emergence of ideas which, as a function of the speculative and somewhat uncertain nature of the matter under investigation, were often not clearly and precisely formulated by the respondent.

Regarding the steps of the data analysis in this research, the following discussion of the analysis is presented in the order determined by the NCT process which informed the analysis, rather than by simply following the order of the questions as presented in the interview.

Throughout the analysis, references to quotes from the interviewees are made. The code determining the owner of the quotes is showed at the end of each quote for the ease of reference. The code starts with a letter that corresponds to the field of professions of the interviewees and is followed by a number. Together these can be used to refer to each individual respondent. For example, G1 is referred to the first interviewee who is a government officer. Note that all codes are defined in section 4.4 along with the background and experience of each of the respondents.

6.2.2.1 Noticing and coding

In the first step, 'noticing', all the translated transcripts were input into the QDA Miner Lite software and reviewed. During this process of review, important parts of the transcripts were noticed and coded. After reviewing and coding all the transcripts, the software was used to highlight groups of data that share the same code. This grouped data was then used as a foundation for the next step, which was a process of collecting.

6.2.2.2 Collecting I: Strong and weak points of the two ports

In this step, called 'collecting', the coded data were conveniently grouped using the software. The first issue which arose from this collected data was the 'strong and weak points of both Bangkok Port and Laem Chabang Ports'. The data in this collection, especially those that relate to the strong points of Bangkok Port, are

potential facilitators of the growth of this port, hence this collection is very important for this investigation and is discussed in detail below.

Analysis of the strong and weak points of the two ports

It is noted here that following the mechanical process of creating this collection, the more subjective analysis of the responses of the interviewees is carried out in order to clarify and focus the responses, and to allow the emergence of any consensus or to determine any significantly contested areas, whether they are accurate or not. The process is shown below.

Location of Bangkok Port

A respondent, who is a staff of Thai National Shippers' Council (TNSC) in Thailand, stated that:

> Location is obviously the strength of Bangkok Port. With its prime location in the city centre, distribution of imported products, especially, to North, Northeast, East, of course, adjacent industrial estates, can be done easily and promptly. Bangkok Port is like a monopoly of the river ports since it is the biggest port in the river area. However, it also has to face traffic congestion, limited space and shallow water. Actually, the shallowness of the water at the port is as of importance as the congested area because it affects the performance of the port. Tide is also another factor because big ships can dock at and depart from the port when the tide is rising. This affects the overall operating time of the port. [Interviewee C1]

A respondent who works as a staff member of a private company in a terminal at Laem Chabang Port stated that:

> An advantage of Bangkok Port is that Government agencies are mostly in Bangkok. This makes it more convenient for customs who use Bangkok Port in the case if they need to interact with such agencies. However, for Customs-

related issues in general, Bangkok Port doesn't have an advantage over Laem Chabang Port. [Interviewee L5]

According to the respondents, that Bangkok Port is located inside Bangkok is recognised as a strong point because this location factor works to benefit the process of product distribution to customers who tend to concentrate in the capital city. This particularly includes SMEs. These small customers could not profitably use Laem Chabang Port because the transport costs and inconvenience would be prohibitive. The small vehicles which are used to transport goods of this sort are not affected by transport bans, and turnover times are very convenient. In addition, the close proximity of the SMEs to each other around the port can allow cooperative container filling when compatible products are capable of container sharing. This is less possible when using Laem Chabang Port because of the distance between the SMEs and the difficulty with container filling as discussed later. It should be noted as well that Laem Chabang Port focuses more on full container load (FCL) rather than container sharing.

There is also a considerable advantage to SMEs who are located within close proximity to the river upon which Bangkok Port is located. Transfer from the river to the container filling area of the port and access to the customs centre is convenient and cost-effective. This transportation is a significant boost to the SME sector which supports around 42% and 43% of the GDP of the country in 2016 and 2018 respectively (OSMEP 2016, 2019). SME export accounts for 30% and 29% of the overall export value of 2016 and 2018. This is an increment of 10% from that of 2015 and 0.51% from that of 2017. On the other hand, SME imports account for 35% and 37% of overall import value of 2016 and 2018. This is an increment of 3% from that of 2015, and 8.51% from that of 2017 (OSMEP 2016, 2019).

However, being in Bangkok can raise arguments that it is also a weak point, particularly when considering that the port will face difficulty in expansion due to the congestion of the old part of the city and the well-known poor traffic conditions. Moreover, because of social demands, the Thai government has enforced regulations that limit the time that big trucks (semi-trailer trucks, eighteen-wheelers, ten-

wheelers) can transport goods. These are from 6 to 9 am and from 3 to 9 pm. This has a significant impact on freight distribution, especially in regard to end customers.

Therefore, since Bangkok Port is in the capital city, it can be both to the port's advantage and disadvantage. Being in Bangkok clearly makes its distribution of shipped goods cost-effective, in terms of relatively small cartage distances, when distributing goods to markets which concentrate in Bangkok, and when collecting goods manufactured in the city area. However, logistic service providers need to have good strategies to overcome the problems related to congested traffic and limited allowable time for large trucks when accepting large loads from more distant centres. However, if these transport problems could be overcome, there is obvious exploitation of the location advantage of the port.

Service fee of Bangkok Port

A respondent who is a staff member in Bangkok Port stated that:

> Another element that attracts customers to use Bangkok Port is the service fee, which is considerably cheaper when compared to other ports. It is also cheaper than that of Laem Chabang Port since the latter port is managed by private entities. [Interviewee G3]

This comment rises from the situation where Bangkok Port is totally run by the government, and the fees required for utilizing the port are relatively affordable and competitive when compare to that of the privately-operated Laem Chabang Port. It is true that Laem Chabang port is owned by the government, but the berths are rented by private companies. It is these companies that decide the fee of using their berths and services. It was noted that the service fee for Bangkok Port has been unchanged in the last 20 years, and this level of affordability is considered to be one of the strongest advantages of Bangkok Port since it clearly helps to attract customers especially ones with a limited budget such as SMEs. The affordable service fee and being in Bangkok make the port very attractive to customers since it is convenient and cost-effective for them. However, as discussed later, the long and frequent delay

of the port hinders the port from being the choice for customers whose goods are perishable and/or have seasonal demands.

Availability of customs agency in Bangkok Port

The first interviewee, who is a government staff member, stated that:

> To put it simply, customers of Bangkok Port can do everything within one single place without the need to go here and there since we have all of the necessary government agencies. Customers or shipping agents will, therefore, proceed with the shipment processes more easily [Interviewee G3].

The second interviewee, who worked at Thai National Shippers' Council (TNSC), commented that:

> Another preferable quality is its availability of the government agencies, such as customs, an inspection of livestock products, quarantine of products, or the agency that is responsible for issuing a certificate of origin –all of which are within Bangkok Port. So, basically, it is like a one-stop service. On the other hand, this availability of the agencies can be considered as a disadvantage as well because the port needs to spare a portion of its area to those agencies in spite of the already limited area [Interviewee C1].

The third interviewee, who works at Thai Federation on Logistics, reported that:

> One of the reasons that customers prefer Bangkok Port is that the availability of the necessary government agencies right inside the port which is very convenient. However, the agencies are not in one single spot; some are in the same building, but some are in different parts of the port. This increases the time taken to finish all the necessary procedures especially for those who are not familiar with these procedures [Interviewee C2].

Since the port is under government control, all relevant government agencies are available inside the port to handle necessary administrative-related procedures and paperwork related to imports and exports. These agencies include the Excise Department, the Office of Agriculture Regulation, and the International

Communicable Disease Control Port. Respondents argued that having these government agencies close at hand is an advantage that sets Bangkok Port apart from other nearby private ports, and is a strong reason for why Bangkok Port is preferable to the more modern and larger ports, and thus partly explains why it can still manage to survive.

However, even though there is a great advantage in the consolidated agencies at Bangkok Port, some customers who used the services of the government agencies noted that the actual execution of the processes at Bangkok Port is less convenient, more complicated, and time-consuming when compared to those of Laem Chabang Port (which also has customs agencies inside the port) even though the basic processes are the same. This is due to the fact that the related agencies are not located in the same area, but rather are distributed across several office buildings in the port's area. In this respect, in a public communique, Lt. JG. Chamnan Chairith, Managing Director of Bangkok Port, mentioned that there are around 10 agencies that need to be contacted in the process of port operation (Port Authority of Thailand 2017a). Therefore, it is not a trivial matter for first-time customers to know which location they need to go to complete the necessary paperwork.

Furthermore, by having the government agencies inside the port means that the ports need to spare some of the port's area, which is already limited, to be the offices of the government agencies. This further reduces the available space of the port that could be used to increase its capacity in relation to container storage and other infrastructure.

Outdated equipment of Bangkok Port

A respondent who works at Thai Federation on Logistics commented that:

> Another factor is the equipment, which is considerably dilapidated. Normally, the port has its own maintenance schedule but sometimes there are unanticipated malfunctions. When the equipment is not ready, there will be a delay in the loading process of containers, which means that a two-day delay might be extended to a one-week delay [Interviewee C2].

Another respondent who is from a shipping company and whose work is related to Bangkok Port stated that:

> In practice, a crane which is not in its maintenance schedule often becomes out of order suddenly, so there are no longer enough cranes for the port to run smoothly. Hence, there is now a delay in the port and ships need to wait for a long period. The delay could last from 2 to 10 days from my experience [Interviewee L2].

A respondent who was a staff of TNSC in Thailand stated that:

> From my experience, cranes at Bangkok Port often go out of order. There is also no information about when the repair will finish. One repair lasted for 2 months. [Interviewee C1]

Clearly, the equipment in the port is relatively outdated, not time-effective and some repairs are often required. This is one of the causes that lead to unfortunate delays in the operation of the port. These infrastructural-related delays could be one of the critical reasons why the more modern ports are preferable, especially for customers with perishable goods and/or seasonal demands. It is more critical for these customers to avoid such delay. Otherwise, their goods cannot yield them the expected profit because their perishable goods become less fresh or spoiled, or the demand for such seasonal goods decreases.

Varieties of imported/exported goods and a substantial area of Laem Chabang Port

A respondent who works in one of the companies in Laem Chabang Port stated that:

> One of the strong points of Laem Chabang Port is the import/export of automobiles. The automobiles manufactured in Thailand and the ones used in Thailand are all transhipped through Laem Chabang Port. Thailand is the fourth largest automobile exporter of the world and the second exporter of Asia. The amount of automobile export has increased every year. Furthermore, there are several car manufacturing factories situated near the port such as Toyota Company which is located in Chachoengsao Province or

> Ford and Mazda Company which are located in Rayong Province [Interviewee L4].

Regarding Laem Chabang Port, one of its strong points is its large area. It has approximately 2,572 acres of available land area (The area of Bangkok Port is around 1,000 acres. This is more than compatible with the future expansion plans for the facility. Moreover, Laem Chabang Port has the Port Authority of Thailand acting as a landlord which allows private companies to lend their berths and freely arrange their own equipment, according to various companies' expertise. This makes the port capable of handling much broader kinds of goods when compared to Bangkok Port. For example, LCB is a company that handles containers only, while Namyong is a company that deals with larger products such as automobiles.

Reliability of Laem Chabang Port

A respondent who works in Bangkok Port noted that:

> Berths in Laem Chabang Port are run by private companies and each of these companies has flexibility in their own budgets. Their equipment is also up to date because they want to attract and satisfy more customers. Hence, delays rarely happen at Laem Chabang Port. Moreover, these companies sometimes offer promotions such as special discounts to their regular customers or a compensation fee for any mistakes they cause. These kinds of things are difficult or take a long time to be implemented at Bangkok Port because it is run by the government [Interviewee G1].

A respondent who was a staff of TNSC in Thailand stated that:

> Laem Chabang Port is equipped with more advanced machinery. For each docking, container loading and unloading must finish in eight hours. Most of the times, this eight-hour limit can be fulfilled without a problem. This is very reliable for customers. Also, the berths are run by private companies. These companies try to provide better services to attract more customers since the competition is high among the berths. As a result, customers can have a high quality and reliable services. Furthermore, since the port is in the Thai Gulf,

> the weather is relatively stable and predictable with less likely to encounter monsoons like ports in Vietnam, Singapore, and Malaysia. [Interview C1]

A respondent who works as a staff member of a private company in a terminal at Laem Chabang Port stated that:

> Laem Chabang Port is protected from harsh weather by the Thai Gulf, so it rarely faces fierce monsoons. This makes Laem Chabang Port a reliable port of call throughout the year. However, the port experiences some delay as well but mostly on land due to a lot of traffic, especially, when a big vessel comes in. A reason for this congested traffic is because there is only one exit gate. There is no problem for export since there are eight entrances to the port. Road works and maintenances also cause traffic congestion. Sometimes need to wait for two hours for container x-ray due to long queues. [Interviewee L5]

Since the individual berths are run by several private companies, they attempt to competitively attract customers who are shipping lines by providing a high satisfactory level of services. Hence, they try to optimize their working systems in order to minimize any possible delay in order to satisfy their customer demands. They also offer discounts to their regular customers so that the customers keep using their berths.

On the other hand, Bangkok Port provides a more affordable fee which has not changed for a long time. However, there appear to be no mechanisms for discounts or special promotions to be made available to its customers. This might be due to the port being totally run by the government, hence offering such discounts would be a difficult policy issue which would need to be approved.

Available public support at Laem Chabang Port

A respondent, who is one of the top managers of the Port Authority of Thailand (PAT), stated to this study that:

> It's obvious that Laem Chabang Port has the advantage of being the main port of Thailand. This can be seen from the government's support in using Laem

> Chabang Port as the main port for nearby industrial estates or various logistics development projects, for example [Interviewee G1].

A respondent who works as a staff member of a private company in a terminal at Laem Chabang Port also stated that:

> For the automotive industry, the government is very supportive since the tax exemption is provided. There are also Industrial Estate Authority of Thailand, and Customs in the port which makes paperwork very convenient. For the road, there is always road improvement and expansion projects that help to facilitate the logistics in and around the port. Furthermore, now we have a double-track train that runs between the port and ICD Ladkrabang. This increase the speed of transferring containers between the two points. [Interviewee L5]

Interviewees agree that, because Laem Chabang Port has the current status of being the main port of Thailand, it is understandable why it has received significant support from the government in many forms. One example is the establishment of industrial estates nearby the port, with the closest industrial estate being located adjacent to the port. This means that Laem Chabang Port can easily attract the custom of companies located inside the industrial estates (Limskul 1998; Industrial Estates in Thailand n.d.; Laem Chabang Industrial Estate n.d.). Furthermore, there are also developments of roads around the port area in order to reduce the problem of traffic congestion. The construction of a junction-crossover directly at the entrance of Laem Chabang Port, and the width-expansion of the roads around the port, are good examples of the infrastructural support from the government (Inter City Motorway Division 2016; Manager online 2016; lamechabangportphase3 n.d.).

Capacity and convenience of customs at Laem Chabang Port

A respondent who is a member of the customs staff in the Customs Bureau at Laem Chabang Port reported that:

> In the aspect of customs, Laem Chabang Port is much more extensive. We have two x-ray inspection stations in the first phase's area and another two in

> the second phase's area for more effective export and import. Each station has two types of machines. The old type can scan 10 containers per hour, while the new type can scan 18 containers per hour. Moreover, there is also one x-ray inspection station for the railway which offers a drive-through inspection service. In overall, Laem Chabang Port can inspect about 500 containers per day. Moreover, in terms of security, Laem Chabang Port is the only port in ASEAN that has both Container Security Initiative (CSI) and Megaports Initiative (MI). These two systems boost the security level of cargo and increase the level of trust. Hence, if containers can clear the Customs at LCP, they will be most likely able to clear the Customs at US ports. Note that, only a few ports in the world that have both systems. [Interviewee G4].

A respondent who works as a staff member of a private company in a terminal at Laem Chabang Port noted that:

> There is also the Industrial Estate Authority of Thailand, and Customs in the port which makes paperwork very convenient. [Interviewee L5]

It needs to be noted that, similar to Bangkok Port, Laem Chabang Port also has government agencies available for customs-related processes. However, because Laem Chabang Port is spacious, these agencies gather at several locations throughout the port. This makes it more convenient for customers to carry out the required import and export processes. For instance, there are two customs offices; one is in the Phase 1's area and another is in the Phase 2's area of the port. Furthermore, in addition to having these government agencies at several locations, they are relatively more unified than those at Bangkok Port according to the interview with a customs staff of Laem Chabang Port. This means that the paperwork of customers can be done in one location with ease when compared to that of Bangkok Port.

Additionally, it should be noted that Laem Chabang Port is not the only port in ASEAN that has both CSI and MI. Port of Singapore, Port Klang and Tanjung Pelepas of Malaysia also have both CSI and MI (Container Security Initiative Office of Field Operations, 2014), ("Singapore Joins U.S. Megaports Initiative | Analysis | NTI", 2005), ("Malaysia to Join U.S. Megaports Initiative | Analysis | NTI", 2005).

Distance of Laem Chabang Port to the capital city

Regarding the weak points of Laem Chabang Port, an incontrovertible issue is that the port is located at a considerable distance from Bangkok, and thus is distanced from the centre of business. The Thai government has tried to alleviate this weak point by constructing a modern motorway and an expressway in order to reduce the travelling time to Bangkok. Big trucks are encouraged to use the motorway and expressways outside the perimeter of Bangkok, but nevertheless, even with the use of these roads, it still takes approximately two hours to travel from the port to Bangkok city. In contrary, Laem Chabang Port is located closer to manufacturing hubs such as the Industrial Estate. Therefore, it can be said that it is convenient to export goods produced from those hubs.

Lack of services for pre/post-container handling in Laem Chabang Port

Another weak point of the port is the lack of services for pre- and post-container loading activities. These are essential activities that must occur before containers are loaded onto ships and after containers are unloaded onto berths. Currently, containers are transported in and out of the port in the loaded condition, since services for stuffing/un-stuffing containers and services for storing empty and full containers, are not available at Laem Chabang Port.

Subsequent to all the necessary paperwork being completed (such as custom-related processes), containers which load and unload at Laem Chabang Port will be filled or emptied at Ladkrabang Inland Container Depot (ICD) or at nearby private companies. Empty and full containers are also stored at the ICD or private companies as well. The ICD Ladkrabang can be considered as the beginning and the final place of transhipment via ports because it is the location where goods are loaded into containers, and where goods are unloaded from containers (Charoenssawat 2017). Moreover, ICD Ladkrabang collects and distributes empty containers to and from Laem Chabang Port and Bangkok Port. Customers who use Laem Chabang Port can

return empty containers directly to the ICD, which can save them the cost of arranging the return of the container to Laem Chabang Port (logisticsmax 2010).

The capacity of ICD Ladkrabang compared to that of Bangkok port

A respondent who worked at Thai National Shippers' Council (TNSC) stated in his/her interview that:

> ICD Ladkrabang is designed to store approximately 400,000 – 600,000 TEUs of containers per year, but at the moment the number of containers stored at the ICD has reached almost 1.5 million TEUs per year and this will likely increase. Furthermore, the traffic congestion inside and around the ICD has caused several delays. Sometimes it has taken around 8-16 hours to transport one container [Interviewee C1].

Another respondent, who works as an academic staff in a university in Thailand, commented that:

> ICD Ladkrabang has already handled containers more than twice of its maximum capacity. This leads to traffic congestion inside and around the ICD [Interviewee A2].

In concurrence with the aforementioned responses, there are articles which specifically mention that ICD Ladkrabang has reached its full capacity, a situation which leads to significant congestion of traffic both inside and adjacent to the ICD (Logisticstime 2016). Hence, it seems that the planned convenience that ICD Ladkrabang could offer to the customers of Laem Chabang Port is not as effective as it used to be. The increased number of containers per year utilising the ICD facilities has caused delays in the operation of Laem Chabang Port (Logisticstime 2016). Nevertheless, it is still the case that the delays associated with Bangkok Port are more severe than that of Laem Chabang Port.

A summary of the recognised strong and weak points of both ports is shown below.

Strong points of Bangkok Port:

- Location: It is located in Bangkok, making it conveniently close to many SMEs and several markets;
- Fees: The service fee is lower and more affordable because Bangkok Port is under government control.

Weak points of Bangkok Port:

- Area: Expansion is severely constrained by existing urban construction;
- Location: It is located in central Bangkok, which has traffic jams and limited schedules for trucks during busy hours;
- Administrative processes: the processes are not convenient and not easy to complete for first-time customers since offices are in different buildings;
- Facilities: These are ageing, and thus are insufficient for modern requirements, and are also not reliable;
- Time of service (punctuality): Because of transfer processes and administration, there can be considerable delays.

Strong points of Laem Chabang Port:

- Product: A wide variety of materials can be handled, not only containers;
- Area: Unexploited land is sufficient for expansion in the near future;
- Time of service (punctuality) is reflected in a good record of no delays;
- Location: It is near to a modern motorway and expressway, and adjacent to many Industrial Estates;
- Available public support: Considerable investment from the national government is assured in the form of policies, infrastructure, roads, rail and ICD;
- Facilities: They are modern because the port is of relatively recent construction.

Weak points of Laem Chabang Port

- Location: It is a considerable distance (around 200 km) from Bangkok;

- Area: There are no areas near the port which are useful for pre- or post-loading activities.

It can be seen that the strong points of Bangkok Port that could potentially be used as a leverage in its competition with Laem Chabang Port, are its location (in Bangkok) and the low, capped fees (very competitive). The major weak point of Laem Chabang Port is that it is required to use ICD Ladkrabang as its container freight station (CFS). Bangkok Port, by comparison, has its own CFS inside the port. Furthermore, ICD Ladkrabang has already reached its maximum capacity, and this has led to increasing time-consuming transport of containers in and out of the ICD.

6.2.2.3 Collecting II: Why is a particular port selected?

In this 'collecting' step, there is another group of data that has shared the same code when extracted from the responses of the interviewees. This collection is related to the factors related to the reason why one port has been selected over the other. This collection is important for analysis because it could reveal what are the critical factors which are seen to contribute to the selection of the port, and to what extent these factors could be modified to influence future selections.

Based on the answers of the respondents, these factors can be divided into (i) ones related to the port's own properties, (ii) preferences of direct and end customers, and (iii) indirect impacts from the government. Under each category, factors that lead to the selection of ports and their attributes (as according to the answers of the respondents) are showed and discussed in Tables 5.1 to 5.5 respectively.

Factors related to the internal properties of the ports

Table 6.1 shows the factors related to port selection regarding the internal properties of the port itself. A discussion of each property follows.

Table 6.1: Properties of the ports (internal properties)

	Bangkok Port	Laem Chabang Port
Service	Complicated process with fewer services – takes a long time. Need to go to several buildings.	Fast, good service (customer first) due to the nature of private companies.
Area	Crowded due to limitation in space; this causes a delay of transhipment in/out of the port. Being next to communities makes it difficult for expansion.	Has sufficient space for the expansion. Already there are plans for Phase 3 expansion.
Facility	Equipment is quite outdated, insufficient, and repaired frequently causing delay to customers.	Sufficient and rather new equipment.
Financial situation	Budget from Government is difficult to receive and takes a considerable time to access.	The utilization of budget is more flexible because berths' owners are private companies.
Operation time	Berths always busy; leads to delay, and some vessels need to skip the port to keep their schedule with other ports. Each crane can handle 24-25 containers/hour.	Delay rarely happens. Each crane can handle 35 containers/ hour. Transhipment usually finishes within six hours. When a berth is busy, the nearby available berth can be used; vessels do not need to wait.
Labour	Staff are hired by government. Training is done periodically.	Training is done periodically.

Fee	Cheap, costs have not changed in the last 20 years. (PAT wants to increase the fee, government declined.)	Normal levels, but has some occasional promotions such as discounts and special offers)

Services of the port

A respondent who regularly uses maritime transportation to export his product stated that:

> Our company does not interact with the port directly but via logistics providers instead because they have experience in using the port. We thought of interacting directly with the port, but the overall process is so complicated, especially with Bangkok Port since it is government-based. It takes quite a long time at each step of the process. Recently, logistics providers have recommended us to use Laem Chabang Port instead since it is more advanced [Interviewee B1].

A respondent who works in Bangkok Port (as of the time the interview) as a government staff member, stated that:

> There was a person who came to retrieve his products at Bangkok Port by himself for the first time without using any logistics providers. He was asking the responsible staff in every procedure. At the end of the day, he could not finish all the procedures yet because sometimes he walked into a wrong building or did a wrong process. Eventually, the staff recommended him to use a logistics provider near the port. Honestly, sometimes the process even confuses some staff [Interviewee G3].

A respondent who is a logistics provider in Thailand reported that:

> A weak point of Bangkok Port is that the port is 100% under the government. This is why the workflow at the port is so complex and time-consuming when compared to private ports [Interviewee L2].

In terms of the services provided by both ports, including the necessary paperwork, the services of Bangkok Port are perceived to be more complicated because a customer needs to go to several different buildings to complete the process. The environment inside Bangkok Port is not as competitive as that in Laem Chabang Port since the former port is 100 per cent operated by the government while the latter has several private companies who run the berths. Berths in the latter port need to compete with each other to attract customers, thus it is perceived that the service at Laem Chabang Port is more convenient due to the competitive nature of each private company.

Port area

A respondent who was a staff of TNSC in Thailand stated that:

> Actually, Bangkok Port can still use its area more effectively. For example, terminal 3 is only used for barges to do bulk transport. However, these barges do not dock at terminal 3 that frequently. Instead, the port should use terminal 3 for a normal cargo ship as well. Bulk transport can be relocated to another area.
>
> Moreover, since Bangkok Port is located on the river in the capital city, not only that the shallow water limits the size of the vessel that can dock at the port, some vessels that can dock also need to wait for the rising tide in order to dock at and depart from the port. This also creates more limitations to the port's operation. The port itself also quite congested, and difficult to expand since there is a big community around the port. [Interviewee C1]

A respondent who is a staff member of the Port Authority of Thailand (PAT), indicated:

> Bangkok Port has been with the community around it since the beginning. The port shares spaces with the community for a long time. Therefore, it is not an easy task to take back the land from them for any expansion. Government agencies that are now in the port are also not easy to be relocated away from the port. [Interviewee G2]

For the port area, it is well known that Bangkok Port is very crowded, and its space cannot be expanded any further due to the adjacent communities, while Laem Chabang Port has sufficient space for future development including the upcoming third phase of its development (Limskul 1998; Logistics Digest 2009; Laemchabangportphase3 n.d.,). Parts of the phase 3's development is being carried out in 2019 (Port Authority of Thailand 2019). It can be seen as well that Laem Chabang Port is more suitable for large vessels since it is a deep-sea port, while Bangkok Port is a river port. Being a river port faces several limitations, including the fact that the water is not deep enough for big vessels to use, and furthermore, some vessels need to wait for the rising tide in order to dock at and depart from the port.

Equipment in the port

An interviewee who is from a shipping company and whose work is related to Bangkok Port stated that:

> There are several instances when equipment at Bangkok Port such as container cranes are out of order. It is true that shipping companies receive maintenance schedule of equipment in the port in advance. However, in practice, a crane which is not in the schedule often becomes out of order in a sudden so there are no longer enough cranes for the port to run smoothly. Hence, there is now a delay in the port and ships need to wait for a long period. The delay could last from two to 10 days from my experience [Interviewee L2]. Check for repeat

Another interviewee, who is a staff of a private company in a terminal at Laem Chabang Port, stated that:

> Tools and equipment of Laem Chabang Port are quite modern. Being run by private companies allows them to flexibly and conveniently spend their budget on purchasing and thoroughly maintenance. Moreover, they put customer's satisfaction very high in their priority, so they need to ensure that there are enough tools and equipment to serve customers [Interviewee L4].

Another interviewee is a staff member who works at Bangkok Port, who commented that:

> As a person who works in Bangkok Port, we do not really experience equipment breakdowns. We have seven terminals and 14 cranes that are manually controlled. But we have a schedule for operating this equipment or cranes, including the operating and resting hours. We also have a clear maintenance schedule, as well as additional projects that outline the purchase of various equipment [Interviewee G3].

It seems that, regarding the facilities in the ports, there are non-uniform perceptions toward the condition of the facilities of Bangkok Port. Specifically, customers perceived that there is frequent maintenance of the equipment, and the equipment is quite outdated and insufficient. On the other hand, government officers argued that the equipment is in good condition and sufficient, and there is routine maintenance of equipment according to schedule. Whether the equipment of Bangkok Port is actually having frequent and/or unplanned repairs or not, the delay that happens at the port can be confirmed from the transhipment record shown in Figure 6.1. The detail of the record is explained in the below section where the delay of the port is discussed. On the other hand, Laem Chabang Port is perceived as having equipment that is new and sufficient.

Financial situation

A respondent who works in a section of government stated that:

> Since Bangkok Port is run by the government, there is often a problem with arranging some budgets for the port. The process to acquire some budget could take long. This is very different from private ports; they have more flexibility in arranging their budget, and it tends to be easier for them to acquire a budget for their ports [Interviewee G1].

In terms of the financial situation, it appears that it is difficult, or that it takes a long time, for Bangkok Port to receive its working budget from the government. In comparison, it is relatively easier for the berths in Laem Chabang Port to receive

budget since they are operated by private companies, and there is much more flexibility in the use of the money as is characteristic of private companies.

Operation time and delay

A respondent who worked at TNSC in Thailand stated that:

> For the delay at the port, 2-7 days of delay seems to be common. As a result, some ships need to skip this port in order to maintain their schedules. [Interviewee C1]

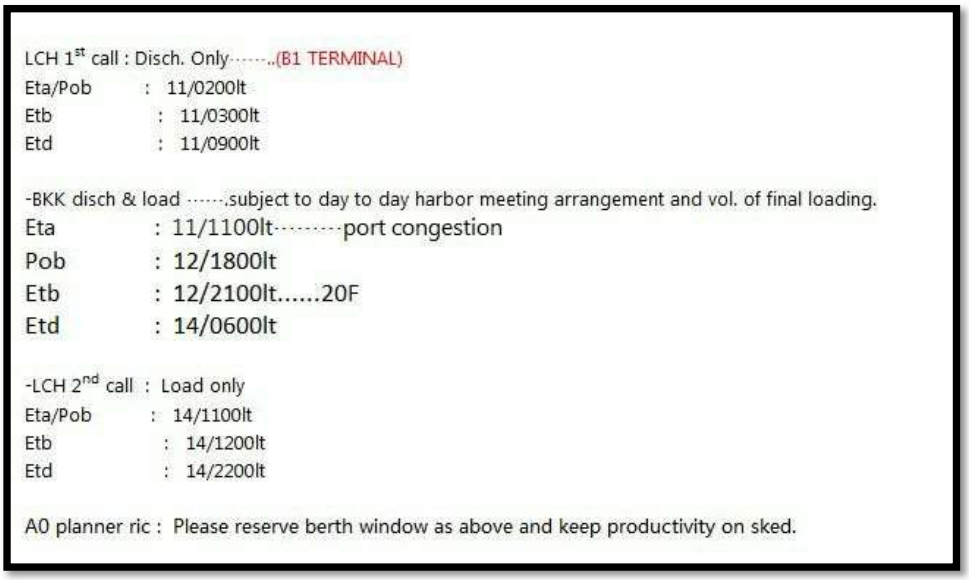
One respondent, who is from the logistics provider section, reported that:

> Since we are a private company, our service fee might be higher than that of a port run by the government. However, we have a 'customers come first' mindset. Thus, our customers will not be kept waiting, and if they need to wait, we will try to keep it as short as possible. If our berth is full, we will ask a company that owns a berth next to ours in order to use their berth temporary so that our customer does not need to wait. Furthermore, we have a rule that each load or unload needs to finish within six hours when the numbers of containers are within our limit. If there are more containers, the time will increase but in a reasonable way [Interviewee L4].

Regarding the operation time taken by each port, Bangkok Port often faces delays since its berths are always busy. Sometimes, a delay can be a few days. Each crane at the port can handle 24-25 containers per hour. An example of such a day is discussed shortly. By comparison, the operating times of Laem Chabang Port are mostly punctual, and transhipment activities are usually finished within six hours. Each of its cranes can handle 35 containers per hour, but if a berth is busy, the owner of that berth can negotiate with, and use, a nearby berth in order to keep to time schedules and meet the level of satisfaction of the customer.

Regarding the delay of operating times at Bangkok Port, an example can be seen in Figure 6.1 which shows a transhipment record of one of the shipping companies that berth their ships at both Laem Chabang Port and Bangkok Port. From this record, the

ship that stopped at Laem Chabang Port was very time-efficient since the estimated time of arrival (Eta) and the pilot onboard (Pob) are identical. It took only one hour to reach a berth according to the estimated time of berthing (Etb). It then took another 6-10 hours for loading and unloading as can be seen from the estimated time of departure (Etd). On the other hand, at Bangkok Port, a ship had a waiting time (or the time difference between Pob and Eta) of 31 hours, and then took seven hours to arrive at a berth. It also took another 33 hours for loading and unloading.


LCH 1st call : Disch. Only·····..(B1 TERMINAL)
Eta/Pob : 11/0200lt
Etb : 11/0300lt
Etd : 11/0900lt

-BKK disch & load ·····.subject to day to day harbor meeting arrangement and vol. of final loading.
Eta : 11/1100lt·····port congestion
Pob : 12/1800lt
Etb : 12/2100lt.....20F
Etd : 14/0600lt

-LCH 2nd call : Load only
Eta/Pob : 14/1100lt
Etb : 14/1200lt
Etd : 14/2200lt

A0 planner ric : Please reserve berth window as above and keep productivity on sked.

Figure 6.1: Time record of shipping at Laem Chabang Port and Bangkok Port.

Source: Supplied by the interviewed shipping company in Thailand.

Furthermore, there is a report that the delay at Bangkok Port leads to the congestion of container yard because container towing trucks cannot wait for the delayed containers when they must head for their next appointed jobs (Oftentimes, container's owner does not own a towing truck but instead hires a truck from a towing service company). Hence, the delayed containers are left at the container yard in the port, sometimes, for several days until a new truck can be appointed. As a result, when the container yard is occupied by these delayed containers, the port faces more difficulty in managing the yard and eventually, the port's entire logistics which can lead to more delay in operation.

Service fee

A respondent who was a member of TNSC reported that:

> Another strength of Bangkok Port is the fee because Bangkok Port has not increased its fee since 1995, so that's about 20 years in total. It's not that the port does not want to increase its fee but because it is 100% under the management of the government, it is difficult to adjust the fee [Interviewee C1].

Regarding the service fee, Bangkok Port provides cheaper and more affordable fees than Laem Chabang Port. The fee for using Bangkok Port has never changed for the last 20 years. While PAT wanted to increase the price, it is not approved by the government. By comparison, the fee at Laem Chabang Port is higher than that of Bangkok Port (PAT 2005, PAT 2016). However, it occasionally comes with some promotions and/or discounts to attract customers.

When looking at Table 6.1, there is clear evidence that helps explain why Laem Chabang Port is mostly more preferable than Bangkok Port. The time of operations within Laem Chabang Port is considerably more punctual and more predictable than that of Bangkok Port, which clearly makes Laem Chabang Port more attractive on the basis of turnover time. Predictable and punctual turnover time is even more important for the products that are perishable and/or have high demand and high value in some seasons. Avoiding delay in delivery of these products means less negative profit to the customers who own the products.

Factors related to direct customer (third-party logistics providers)

Table 6.2 Direct customer: third-party logistics providers

	Bangkok Port	Laem Chabang Port
Relationship with port's staff	Run by Government; complex and time-consuming process.	Run by private companies; more flexible, easier.

Convenience in accessing port*	Renting offices costs more in Bangkok. Traffic condition is not good. Only a few logistics providers choose to be in Bangkok.	Renting offices costs less in Chonburi province (where Laem Chabang Port is located) Traffic condition is better. Preferable for both small and big logistics providers.

*It is noted that logistics providers tend to recommend that their customers use ports near their office because if a problem arises, it can be dealt with in a prompt and straightforward way.

A respondent from the logistics provider section stated that:

> Regarding the port selection, it partly depends on customers because we would recommend ports that we have a connection with and are near our offices. In general, customers choose a company that has experience with the ports they preferred. Customers who only ship a small number of their goods need to rely on third-party shipping companies or third-party logistics providers for shipping their products because the amount is too little for fulfilling one container; they need to share a container with others. The third-party logistics providers can organize products of several customers into one container and decide which products should be in the same container. In practice, end customers do not care which port to use as long as they can get their products shipped to their desired destination in time. This is the case for customers who exporting their products with us [Interviewee L1].

Another respondent from the business section commented on the same issue, suggesting that:

> Since our company is an SME, we do not have our own logistics department. We outsource that to third-party logistics providers to deal with logistics related matters. These third-party logistics providers will come to receive our products directly at our factory and ship the products for us. We just need to specify what we want to ship, when to ship, and when we want to arrive. The selection of shipping lines, ports, and the renting of containers will be dealt with by the third-party logistics providers. For some imported products, our

> suppliers will also ask third party logistics providers to ship their products to our factory; we do not need to interact with port ourselves or anything like that [Interviewee B1].

In the context of this research, direct customers are logistic providers who have a significant impact on which port will be used to ship the products to the end customers. They interpose both direct and indirect suggestions to the end customers regarding which port should they use, indicating the preferred cost that the end customer would like to pay. Direct customers can be divided into second-party logistics providers (shipping companies) and third-party logistics providers, and both of these organisations interact directly with the port to tranship goods for the end customers. Table 6.2 shows the attributes of direct customer: third-party logistics providers, that can affect the selection of ports of call by the end customer. Two respondents commented on the importance of these third-party logistic providers in their role as direct customers of the port.

A respondent from the logistics provider group reported that:

> Most of our customers prefer Laem Chabang Port but if some customers would like to use other private ports or Bangkok Port, we can also respond to their requests. However, most of the time if customers do not specify to use any port, we will recommend them to use Laem Chabang Port because our office is located close to the port, and when there are some problems at the port due to our service, we can immediately reach the port. Moreover, since we have been interacting with the staff of the port, we have a good connection with them. If there is any problem, we could ask them for help. This makes the problem become very easy to solve. Furthermore, since Laem Chabang Port is run by private companies, procedures in the port are relatively simple and flexible including ones that related to the government agencies in the port. For example, if there is a problem of a container, we can call and communicate with the staff inside the port and ask them for suggestions while we are approaching the port. For Bangkok Port, calling them is already difficult. Their processes are also very strict. [Interviewee L1]

For third-party logistics providers, having a good relationship with the port's staff can lead to an easier and faster process, and to facilitate in easing and solving problems when they occur. Since Bangkok Port is owned and run by the government, several strict regulations lead to a complex and time-consuming process, whilst with Laem Chabang Port, which is run by private companies, the process is rather easier, more flexible and more time effective. They clearly attempt to satisfy their customers so that the customers keep using their services, and there are not strict regulations which bind their options.

A respondent who is a third-party logistics provider that has an office in both Bangkok and Chonburi Province stated that:

> Our company is a rather big company; our main office is in Bangkok and we have a branch in Chonburi Province to serve customers who use Laem Chabang Port. Having an office near a port allow us to conveniently interact with that port. That's why we can serve several kinds of customers, but this might be difficult for a small company. If such a company is closed to Laem Chabang Port, they would rarely serve a customer who wants to use Bangkok Port because it is not convenient for them to travel to Bangkok Port. It is not cost-effective for them to rent an office near Bangkok Port if there are not many customers who want to use the port. Hence, most of them recommend Laem Chabang Port to their customers [Interviewee L3].

A respondent who is a third-party logistics provider that has an office in Chonburi Province only stated that:

> I had a thought of opening an office in Bangkok in order to expand our customer base. I had to decline some customers who want to use Bangkok Port because it takes very long to reach the port due to severe traffic jam. There are also extra costs for motorway or expressway and also the department's parking fee because it is difficult to find a parking space in the port. The renting in Bangkok is very expensive so I would recommend most of my customers to choose Laem Chabang Port [Interviewee L1].

According to the interviewed third-party logistic providers, they prefer to have their office located close to the port in which they want to provide services to their customer because if there is any problem occurring at a port in the process of providing services to their customers, third-party logistics providers can immediately reach the port to deal with the problem. The cost to rent an office near Bangkok Port is relatively higher since the port is in the centre of the capital city. The traffic condition around the port is also not good. Hence, third-party logistics providers are reluctant to have their offices near Bangkok Port, consequently, most third-party logistics providers tend to suggest their customers use Laem Chabang Port rather than Bangkok Port in Chonburi Province.

Factors related to direct customer (shipping companies)

Table 6.3: Direct customer: shipping companies (Agent)

	Bangkok Port	Laem Chabang Port
Relationship with port (List of ports of each vessel rarely change)	Some companies do not stop at Bangkok Port - Delays in the past - Large vessels do not fit	Several companies stop at Laem Chabang Port - Delays rarely happen - Can handle big vessels
Need to follow their own schedule	Need to skip port if a delay is too long to keep their schedule other ports. Agents need to compensate for an additional cost for their customer when they skip a port.	Problems rarely occur; if a berth is busy, the company will arrange a nearby berth. Has "Customer comes first" mindset.

In Table 6.3, the factors that another type of direct customer, the shipping lines, use when selecting ports of call, are shown. Shipping companies are a special variety of second-party logistic provider that own shipping vessels for shipping goods for their customers. Each shipping company has a list of ports that they prefer to berth their

ships, and the list is rarely changed over time. If a port could not keep to its schedule and thus cause delay to their ships, the shipping companies have no choice but to not stop at that port otherwise their schedule would be entirely disrupted.

A respondent who is an agent of a shipping company in Thailand stated that:

> Each shipping company will have its own lists of 'ports of call' that the vessel of the company will stop; the list would rarely change. Estimation time required in each port is calculated and the schedule of the vessel is made. However, if a port in the list causes a delay, it would affect the schedule of the ship. If that port often delays, the ship would need to skip a port that has a severe delay, and Bangkok Port is one of the ports that have been skipped very often because the delays it causes are very long (it had delayed for a week sometimes). When Bangkok Port is skipped, the containers that supposed to be put at the port will be put at Laem Chabang Port instead. The additional cost in transporting the containers back is needed to be taking care of by the shipping company. When a port is often skipped, it can be discarded from the list and the ship will no longer stop there [Interviewee L2].

When delay often happens at a particular port, shipping companies may decide to reduce or discard the port from their lists of serviceable ports. This is because when a shipping company is forced to skip a port, it needs to responsible for any additional cost for its customers. Another reason that a port may not be on the list of a shipping company, is that the size of their vessels is too large to fit in the port.

A respondent who works as a staff member of a private company in a terminal at Laem Chabang Port stated that:

> […] ships that stop at Laem Chabang Port belong to many shipping companies because the port can handle huge vessels. Furthermore, the port rarely has delayed, if a delay happens, it is always very short. Apart from having many regular shipping companies, there are also new shipping companies approaching Laem Chabang Port [Interviewee L4].

Another respondent who is a port staff member but at a different company and different terminal commented that:

> Laem Chabang Port is very big and has a sufficient sea depth that can handle big vessels. You can imagine that these ships are getting bigger and bigger, and indeed the uses of smaller ships are reducing. Thus, I think that if Laem Chabang Port can handle this change and if the construction of the Phase 3 development, which is under its way, is finished, the port will be able to handle even bigger ships. And of course, more berths run by private companies means the same high quality of the service and new advanced tools and equipment that Laem Chabang Port could offer its customers because of their high budgets [Interviewee L5].

Therefore, several shipping companies prefer to berth their ships at Laem Chabang Port because delays rarely happen, and their ships can be confidently berthed at the port. In comparison, relatively fewer shipping companies dock their ships at Bangkok Port since delays do happen.

Another reason that several shipping companies choose to berth their ships at Laem Chabang port is that Bangkok Port cannot handle big vessels. Therefore, mainline shipping companies which use big vessels can only berth at Laem Chabang Port but not Bangkok Port.

Factors related to end customer (Business sector)

Table 6.4: End customer (Business sector)

	Bangkok Port	Laem Chabang Port
Able to send or receive products on time	Often has delays. Limited time for truck deliveries and collections (especially during the busy hours).	Always on time, rarely has delays. Trucks can operate at all times.
Fee	Cheap, has not been changed in the last 20 years.	Higher fees, but occasionally has some promotions (discount, special offer).

	PAT wants to increase the fee, but the government has declined.	
Transportation cost	Less cost for customers in and around Bangkok. (Cost depends on distance).	More cost for customers in Bangkok since the port is further from Bangkok.
Able to make profits	Delays often happen; hence difficult to make a profit (especially for perishable product, seasonal fruits). Delay could last for a day or two in some cases.	Products delivered on time which makes it easier to make a profit.

The first interviewee, who is one of the biggest tenants in Talaad Thai (the largest wholesale food market in Southeast Asia), stated that:

> At the moment, 100% of imported and exported fruits of Talaad Thai are from Laem Chabang Port even though Bangkok Port is closer to the market. This is because there are several problems at the port including the limited time that big trucks can run in Bangkok and the slow process. In the past when I used Bangkok Port, goods arrived at night, but I needed to wait until the next morning, it was until that afternoon that the goods left the port. If the process cannot finish before 3 or 4 pm, it would take another six or seven hours before the goods can leave the port. When a delay occurs, it affects the condition of the products in the delayed containers or affects the scheduling of using a cold room of our company. Since our company has many customers, it is challenging for us to set the schedule and arrange our space to be able to serve all of our customers. For example, when we prepared an area and staff to receive a big container, but it turned out that the container did not arrive, this led to extra cost and cause trouble for our business. On the other hand, Laem Chabang Port works very fast and they are also more flexible. More than 95% of the time, I received my products on time, and if there are some delays they

> are only 1-2 hours which caused by road accidents or heavy rain. Somehow, this rarely happens [Interviewee B1].

The second interviewee who is an owner of a cool store for the imported and exported fruits in Bangkok stated that:

> Being on time is more important than being far or close because it can make a big impact on the business, especially if the main products are fruits which are perishable goods and time is a critical factor. For example, when I was using Bangkok Port, and I wanted to sell imported orange during the Chinese New Year which oranges have a high value. However, the oranges were stuck at the port. By being stuck, I mean the ship carried the oranges could not even reach the port. When the oranges left the port, the Chinese New Year was already passed. In the end, I lost all the profit I could have made. At the end of the day, using a port further away might yield a smaller profit but it is predictable [Interviewee B2].

In Table 6.4, the factors that influence the port selection of end customers are shown. When end customers want to ship their goods to their desired destination, they often prefer to use logistic service providers in the transportation process. According to the response of the end customers, they want ports that provide timely service at an affordable price. Often customers put their priority on timely service before cheaper price, especially those whose products are perishable goods or seasonal products (products whose values vary through time such as seasonal fruits and vegetables). Whilst Bangkok Port provides cheaper fees, their service requires more time and is less predictable than those of Laem Chabang Port. Occasionally, the delay at Bangkok Port can last for 1 - 2 days. Hence, the end customers tend to prefer to use the latter port even they are closer to Bangkok Port and need to pay for more transportation cost to ship their product to Bangkok. The following two respondents strongly prefer the importance of being on time since it affects the profit of their business. This issue of gaining profit and reliability are more important than cheap fees or low transportation costs.

Factors related to indirect impact from the government

Table 6.5: Indirect impact of the government

	Bangkok Port	Laem Chabang Port
Government support	Still provides support to the port but relatively less than Laem Chabang.	Fully supported by the government because it is the main port and has obvious potential to grow. Has MI and CSI*; improved container inspection. The government promotes the establishment of new industrial estate near the port ("EEC", n.d.).
Development plan	A development plan is during the feasibility study. A plan to promote domestic water transport (e.g. increase	A plan for the phase 3 expansion. (more roads, crossover bridges over busy junctions, build more entry

	the height of bridges, build more river ports along the river).	gates for a truck with weight scale installed.) Coastal terminal A is being developed to support the growth in coastal shipping (Port Authority of Thailand 2019). A plan to build a new railway to link to ICD Ladkabang (Sullivan 2017).

*MI = Megaport Initiative, CSI = Container Security Initiative.

Table 6.5 shows the indirect influences generated by the Thai government that affect the selection of ports of call. Indirect impacts from the government come in the form of regulations, policies, and development plans. There are three respondents who have made pertinent comments regarding this point.

The first respondent, who is a staff member of the Port Authority of Thailand (PAT), indicated:

> Laem Chabang Port is the main commercial port of Thailand and has a noticeable potential to grow. The Thai government has to move forward into Phase 3 Development to be able to accommodate more containers in the interest of expanding its contributions to the economy of the nation. Now, the PAT has started the Phase 3 development plan of Laem Chabang Port. The port is the 4th busiest port of ASEAN follows the ports in Singapore and Malaysia. I think that if phase 3 of Laem Chabang Port is ready to operate and reach its full capacity, the port could become at least the 3rd busiest port of ASEAN. This is because the Thai government is trying to develop both the infrastructure inside and outside of the port and aims to boost Thailand into the world's top ten countries with the highest port traffic. Moreover, the main goal of Laem Chabang Port's third phase is to enhance the competitiveness of the port by reaffirming the port's position as the gateway port of ASEAN and

> becoming a hub for multi-transportation modes including maritime, land, and air [Interviewee G2].

The second respondent, who is from the academic section, informed us that:

> Thailand is currently involved in the Eastern Economic Corridor (EEC) project. PAT has been assigned to find guidelines for port development that goes along with the plan of the EEC. Laem Chabang Port is located in an area that is directly involved in the project because it is situated in the eastern region of Thailand. Therefore, the Thai government pays a lot of attention to increase the performance of Laem Chabang Port in order to support the EEC project. Moreover, the development plans are in response to the current National Economic and Social Development Plan [Interviewee A1].

The third respondent who is from the logistics provider section stated that:

> The Thai government has approved many projects to expand the potential, efficiency, and performance of Laem Chabang Port. Examples of those projects are the phase 3 of Laem Chabang Port project, construction of a new railway that connects the Laem Chabang Port to ICD Ladkrabang, and a coastal port project. The government has also approved several plans to promote the use of Laem Chabang Port such as a project for building roads and bridges at the intersection in front of the port or a plan to expand existing road to four-lane in order to relieve the congestion of the traffic around the port when Laem Chabang Port's third phase open [Interviewee L3].

According to the responses, it can be seen that Laem Chabang Port has a lot of support from the government. More importantly, the interviewees suggested that such supports can significantly affect the development and the growth of ports, especially those owned by the governments such as Laem Chabang Port and Bangkok Port. Development plans that could affect a ports' performance are not only the plans that dedicated for the ports, but also the plans that are related to roads, rails, and infrastructure that the ports could utilize. On the other hand, some regulations such as those that limit the time trucks could run will hinder the ability of a port to deliver goods to their destination. This can be seen in the case of Bangkok Port because big

trucks can use the roads in Bangkok only at certain hours. Hence, the transhipment into and out of Bangkok Port is affected by city regulations.

A respondent who works at the Customs Bureau at Laem Chabang Port reported that:

> In addition, the customs department at Laem Chabang Port also cooperates with other international agencies, such as the US government in the Container Security Initiative or CSI project and the Megaports Initiative or MI project. These two projects have the mission to identify and inspect weapons including chemical and nuclear-related ones, and radioactive substances. Indeed, Laem Chabang Port is one of the 40 ports around the world that collaborate with the US and we are the only country in the ASEAN region that participates in both MI and CSI projects [Interviewee G4].

Furthermore, Laem Chabang Port is supported not only by the Thai government but also by other nations. The US government has offered a free installation of Megaport Initiative (MI) and Container Security Initiative (CSI) machines at Laem Chabang Port to enhance the security level of transhipping containers to the US (National Nuclear Security Administration 2010; NTI Building A Safer World 2012; U.S. Customs and Border Protection 2011; Homeland Security n.d). These machines are used for identifying radioactive substances and weapons which include chemical and nuclear devices before they enter the US. Laem Chabang Port is the only port in the ASEAN region that possesses these two machines.

Additionally, as mentioned before, Port of Singapore, Port Klang and Tanjung Pelepas of Malaysia also have both CSI and MI (Container Security Initiative Office of Field Operations, 2014), (Singapore Joins U.S. Megaports Initiative | Analysis | NTI, 2005), (Malaysia to Join U.S. Megaports Initiative | Analysis | NTI, 2005).

6.2.2.4 Thinking I: Finding the leverage for Bangkok Port

In this step of 'thinking', the collection of the factors that related to port selection which was previously presented is considered here as a part of the process to determine potential leverage that Bangkok Port could use to build strategies for its growth and survival.

The collection is divided into the factors which provide either advantages or disadvantages for each port as shown in Tables 5.6 to 5.9. Indeed, whilst it can be clearly expected that the number of the advantages of Laem Chabang Port will significantly outweigh those of Bangkok Port, the advantages of Bangkok Port and the disadvantages of Laem Chabang Port which need to be observed, are also revealed. Therefore, this 'thinking' process focuses on the relative 'plus' or the advantages of the Bangkok Port, the relative 'minus' or the disadvantages of the Laem Chabang Port, and the absolute 'minus' of both ports. This concept can be seen in Figure 6.2. Items that could be used as the leverage are highlighted in grey in Tables 5.6 to 5.9 in the order of factors of the ports themselves, of the logistics providers, of the shipping companies, and of the end customer, respectively.

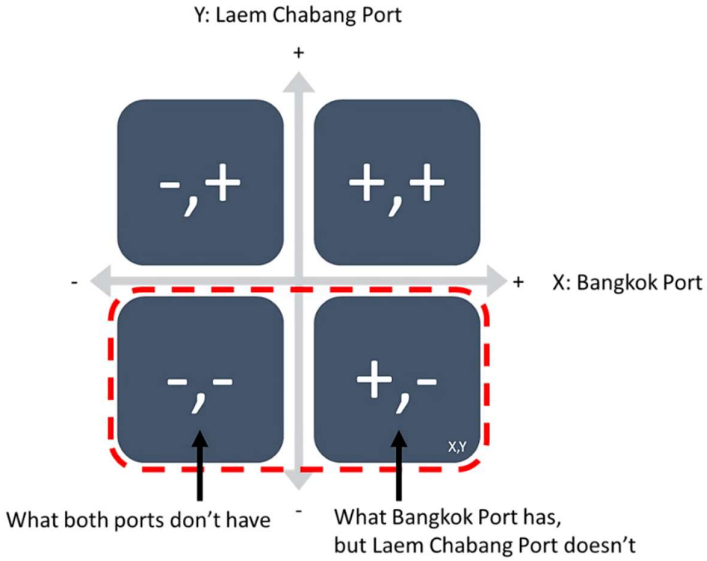


Figure 6.2: Diagram showing the focus of the analysis "leverage of Bangkok Port".

Table 6.6 shows the pros and cons of each port based on the port's internal properties. Even though it is obvious that Laem Chabang Port has more strong points than those Bangkok Port, the strong points of Bangkok Port are unique because they do not exist in Laem Chabang Port. Therefore, these could potentially be used in generating a competitive strategy for the growth for Bangkok Port.

For the disadvantages of both ports, some are not trivial matters which could be changed or improved due to the physical limitations of each port. For example, Bangkok Port is a river port and therefore has limited space and shallow water. It is impossible to change these conditions, and they only arose because the location of the port was determined many years ago. Subsequently, a community was established around the port which has now existed for a considerable period of time. This contrasts sharply with Laem Chabang Port, which was specifically designed to have a number of berths in a deep-water environment. However, there was no space earmarked for pre- and post-container loading activities. Even though the port still has an area for further development and expansion, according to future development, there is still no plan for the establishment of these loading activities.

Table 6.6: Pros and cons based on the properties of the ports

Port	+/-	Detail
Bangkok Port	+	In the centre of the business area.
		Convenient for SMEs in markets in Bangkok.
		Cheap fee.
	-	Limited space (difficult to change).
		Outdated infrastructure.
		Congested port area.
		River port (cannot change).
		Limited valid time of big trucks.
		Congested traffic around the port
		Plans are difficult or take a long time to be approved.
Laem Chabang Port	+	Sufficient area, possible for expansion.
		Modern infrastructure.
		Can handle various products.
		Deepwater seaport.
		It is conveniently near several industrial estates.
		Modern customs stations.

		Has railway x-ray Container Inspection System (34 containers/ train, 28 trains/ day).
		Plans are easy to get approved.
		Several budgets available for the development
		Has ‘Customers come first’ mindset
	-	Distant from Bangkok (two hours by car).
		No services for pre/post-container loading activities (cannot change).

Table 6.7: Pros and cons based on third-party logistics providers

Port	+/-	Detail
Bangkok Port	+	Close to SMEs customers (concentrated in Bangkok's market).
		Cheap fee.
	-	Complex process.
		Difficult to have offices around the port due to expensive rent.
		Congested traffic + prohibitive time for truck = more delay.
		Delay in ship berthing at the port.
		Has only a few shipping companies.
		Occasionally need to change into a smaller ship at LCB = more cost.
Laem Chabang Port	+	Easy to have a good relationship with the staff. Can get help when problems occur (to increase customer satisfaction).
		Operation is mostly on time.
		Has offices near the port (can immediately go to the port when a problem occurs).
		Several shipping companies available.
	-	Far from Bangkok = transportation cost increases. (cannot change).

In Table 6.7, the pros and cons of each port based on the third-party logistics providers are shown. For logistics providers, Laem Chabang Port is preferable for several reasons. These include the fact that their offices are close to the port and have cheaper rent, there are several shipping companies to choose from, meaning that the port has better customer service. Bangkok Port is less attractive for them because it is expensive to rent an office near Bangkok Port, the traffic conditions near the port are not good, there is a limited time where large trucks can service the port, and there are only a few shipping companies to select from.

However, despite the disadvantages of the Bangkok Port as perceived by the logistics providers, Bangkok Port is clearly perceived as possessing some advantages over Laem Chabang Port. The advantages are cheap, competitive fees and being close to SME customers who have their markets around Bangkok.

Table 6.8: Pros and cons based on shipping companies

Port	+/-	Detail
Bangkok Port	+	Still preferred by some customers (e.g. wholesale market in Bangkok and China town).
	-	Berths usually are busy and cause a delay in berthing.
		Occasionally, need to change into a smaller ship at LCB; cost increase.
		Sometimes the port is skipped by ships due to delay.
Laem Chabang Port	+	Operation is mostly on time.
		Can handle big vessels.

Table 6.8 shows the pros and cons of each port based on the shipping companies. Whilst the shipping companies involved in the interviews perceive no negative points for Laem Chabang Port, they have identified several negative points for Bangkok Port. Those negative points of the latter are that the port always busy which leads to delay in berthing and unloading. With several occasions of such delays, the shipping companies eventually need to skip berthing at the port. Furthermore, if a ship is too

big for Bangkok Port, containers need to be transhipped into a smaller ship at Laem Chabang Port before heading to Bangkok port. This kind of incident increases the cost of transportation. Nevertheless, it is reported that Bangkok Port is still preferable by some customers, especially the SMEs and customers in Chinatown. This is because the transportation costs from the port to their establishment is cheaper and more convenient.

Table 6.9: Pros and cons based on end customers

Port	+/-	Detail
Bangkok Port	+	Cheap fee which never changes in the last 20 years.
		Lower transportation cost for a customer in and around Bangkok (cost depends on distance).
	-	Occasionally, customers can't get products on time which reduce their profits. Some changed to use Laem Chabang Port instead.
		Limited valid time for big trucks.
Laem Chabang Port	+	Operation is mostly on time.
		Trucks can run all the time.
		Fee is normal but occasionally has some discounts or special offers.
		Products can be delivered on time which makes customers easier to make a profit.
	-	More cost since the port is far from Bangkok.

In Table 6.9, the pros and cons based on the perspectives of the end customers are shown. The end customers prefer ports that provide timely service at an affordable

price. Some customers put their priority on a timely service before a cheaper price because of the nature of their products. Examples of these products are perishable goods such as vegetables and fruits, and those whose values are season-dependent such as some oranges for which demand rises rapidly during Chinese New Year. Therefore, most of the end customers prefer Laem Chabang Port over Bangkok Port since the former port can provide reliable and timely service. However, a major attribute that can still attract a customer to use Bangkok Port is a cheap and competitive fee. This can be very attractive to some customers, especially the SMEs and customers whose businesses are in the wholesale market. If their products are not perishable nor affected by seasonal demand (e.g. vegetables, fruits, seasonal fruits), they could afford to have a longer lead time to compensate for the delay in transhipment at Bangkok Port.

6.2.2.5 Collecting III: The focal strong and weak of the ports

According to the plus and the minus points of both ports, as shown in Table 6.6 to 6.9 in the previous collection step, Laem Chabang Port is unsurprisingly superior and more preferable by both direct and end customers due to several factors both from the properties of the port itself and the preferences of the customers. For example, Laem Chabang Port has modern facilities, can handle large vessels, and rarely has a delay in its operations while Bangkok Port has older facilities, can only handle limited sizes of vessels, and often has a delay which sometimes could last for a few days.

Nevertheless, Laem Chabang Port also possesses some shortcomings that Bangkok Port could use to create a competitive edge. Those weaknesses include being located far from Bangkok and not having provision for services related to pre and post-container loading activities. Furthermore, Bangkok Port also possesses some advantages over Laem Chabang Port. Those advantages of Bangkok Port are being positioned in the centre of Bangkok, having cheap service fees, and yielding lesser transportation cost especially to the customers such as SMEs and customers from wholesale markets inside Bangkok (such as Yaowarat area (which is known as Chinatown), and Sampeng area (which is known as Little India Market)). These points allow the latter port to attract the customers.

In order to find possible strategies that could help Bangkok Port to gain a more competitive edge, these focal weak points of Laem Chabang Port and these strong points of Bangkok Port were 'collected' as a new collection as showed in Table 6.10. This collection will then be used in the next 'thinking' step to find potential strategies that facilitate the growth of Bangkok Port.

Table 6.10: The focal strong and weak points of the ports

Focal strong points of Bangkok Port	Located inside Bangkok.
	Cheap fee.
	Low transportation cost.
Focal weak points of Laem Chabang Port	Focus only on shipping but not pre/post-container loading activities.
	Located two hours away from Bangkok by road.

6.2.2.6 Thinking II: Finding points that can help Bangkok Port

In this thinking step, the focal strong points of Bangkok Port and the focal weak points of Laem Chabang Port as shown in Table 6.10 are analysed in order to find

opportunities that can potentially be used for creating some developmental strategies that will assist Bangkok Port to gain more profit and thus allow further growth.

These focal points should be used as the criteria for Bangkok Port in searching for opportunities that are suitable for growth. These strengths of Bangkok Port could be used to find opportunities that complement the focal weaknesses of Laem Chabang Port. A reason that the opportunities that Bangkok search should consider the weak points of Laem Chabang is that the major focus in port development of Thailand would most certainly be Laem Chabang Port for at least until 2025 when the Phase 3 developments are planned to finish. When all three phases of Laem Chabang Port operate, there is an expectation that it will be one of the ten busiest ports in the world. Thus, it can be expected that almost all the support from the government would be given to Laem Chabang Port. This further makes Bangkok Port less able to directly compete with Laem Chabang Port.

Therefore, Bangkok Port should come up with a strategy that utilizes the strong points of itself and also attenuate the weak points of Laem Chabang Port to cooperatively contribute in improving the economy of the country as the whole. Using this cooperative strategy would provide a more practical, more convincing, and economically persuasive argument when asking for the budget required to implement growth support initiatives from the government. Indeed, the exact strategic plan would need to be analysed for its feasibility prior to its implementation which would require the related organizations to work together.

6.3 Conclusion

In this chapter, the NCT framework was used to analyse the recorded data obtained from the interviews with five respondents who are from five different groups of professional careers that relate to Thai ports. Two collections of coded data which were the collection of strong and weak points of both ports and the collection of factors related to port selection were analysed. It is found that (i) it is very challenging for Bangkok Port to compete with Laem Chabang Port since most direct and end customers preferred the larger port over the more restricted Bangkok Port. The major

disadvantages of Bangkok Port are the delays in its operation, which are due to the limitation of the port's area, outdated equipment and the capability to handle big vessels. The first two limitations lead to congestion and significant delays of up to two days; this is not preferable by shipping companies, and often forces them to seek other ports. Another disadvantage of Bangkok Port is being in the capital city where office rent is high, and traffic is congested; this combination is not preferred by logistics providers.

Nonetheless, with all of these factors in mind, the fact that it is close to Bangkok markets and has cheaper service fees, make Bangkok Port a preferable choice of most SMEs and wholesale market customers. Moreover, the weak points of Laem Chabang Port, including its distance from Bangkok and its current unavailability of services for pre/post-container loading activities, are important issues for consideration. These strong points of Bangkok Port and the weak points of Laem Chabang Port will be used in Chapter 6 to create a development strategy that will allow Bangkok Port to grow in the future.

Chapter 7
Research outcomes: findings and strategic suggestions

7.1 Introduction

In the previous chapter, the data gathered from the interview was qualitatively analysed with the Noticing, Collecting and Thinking (NCT) framework. Several relevant perspectives were found during this analysis which were of particular interest to this investigation. These issues related to the major strong points of Bangkok Port and the weak points of Laem Chabang Port, which could be important to finding solutions for the continued growth of Bangkok Port.

Accordingly, in section 7.5, we discuss possible strategies which might be employed when an ageing but well-placed major port attempts to grow in the proximity of a nearby predominant major port. Specifically, a case study of Bangkok Port, the former main port, and Laem Chabang Port, the new main port of Thailand, is used in order to see if any emerging ideas or strategies could be useful in this regard.

However, prior to the discussion in section 7.5, this chapter will first start with the following sections as they will lay the foundation to the explanation in section 7.5. These sections are the salient comments obtained from the analysis in Chapter 6 which focus on the major limitations of Bangkok Port, and the readiness of Bangkok Port for a possible restoration strategy.

7.2 Points arising from major findings

After the analysis process, the findings suggest the four following points for consideration regarding the continued existence of Bangkok Port as a key contributing factor to Thailand's maritime economy and its role as a support to the

larger Port of Laem Chabang. These points are important for considering possible future strategic directions for Bangkok Port:

1. Several findings signify the importance of Laem Chabang Port

Indeed, it is obvious that Laem Chabang Port plays an important role in Thai maritime transport and the economy. A wide range of goods from fruits and vegetables to machinery and automobiles are handled at Laem Chabang Port, being the only port in Thailand that imports and exports automobiles. This port puts Thailand as the second-largest exporter of vehicles in Asia and the fourth largest exporter in the world. The importance of the port can be stressed further by the fact that several automobile manufacturers have their factories near the port for the convenience of import and export. Furthermore, the port is also equipped with advanced machines that increase the capability of the port, including the railway Container Inspection System which accelerates the safety inspection procedure in the port.

Nevertheless, we can learn from the analysis of this study, and some salient aspects related to the importance of this port are discussed here.

One interesting characteristic of Laem Chabang Port is the competition within the port itself. The berths in the port are operated by several private companies. Therefore, these companies need to compete with each other in order to attract customers to use their services, so they put customer satisfaction as a high priority. For example, if a ship of their customer cannot berth at their spot, the company will try to coordinate with the nearby available berth. This can drastically reduce the waiting time of the customer's ship.

In practice, most end-customers, who want to their products to be shipped from point A to B, do not have a preferable port as long as their products can be shipped to their destinations within the reliable delivery time at a reasonable cost. We have learned that the customers are willing to pay for extra costs for inland transportation if that means their products are delivered within the agreed time frame. In this way, they can satisfy their customers, and/or maximize their profit in the market where the value of a product is dynamic. This is a reason why some customers who have the destination of their products in Bangkok prefer Laem Chabang Port over Bangkok

Port. The former port provides a more reliable time frame in its services even though the port is in around 200 km away from Bangkok and requires higher inland transportation fees to send their products to Bangkok.

Moreover, in most of the cases, it is third- and second-party logistics providers who select a port. From the interview, we have learned that most of the third-party logistics providers prefer Laem Chabang Port over Bangkok Port because of convenience and its timely, reliable services. The rent for an office near the latter port is more expensive due to its proximity to the capital city. According to the interviewed shippers, we have learned that Bangkok Port is excluded from the list of ports that those shippers choose to port their ships. One of the reasons is the long delay in berthing Bangkok Port which happens frequently and is difficult to foresee.

2. Bangkok Port is not a traditional shadow port

Prior to the opening of Laem Chabang Port (1991), all maritime imports and exports were mainly done through Bangkok Port. However, when the maritime transport business grew, and customers' demands raised, bigger vessels were built to carry more freight. Bangkok Port cannot serve these big vessels and the increasing demands due to several physical limitations such as insufficient water depth and non-expandable area of the port. Therefore, Laem Chabang Port, a bigger port that can handle larger vessels, was built in order to boost the competitiveness of Thai maritime transport.

Subsequently, the focus of the Thai government shifted to the new port as can be seen from the number of developments which have been put in place to support the rise of Laem Chabang Port. These supports include the establishment of new railways, roads, ICDs and adjacent industrial estates, each of which serves to promote the use of Laem Chabang Port as the new main port of Thailand (Sullivan 2017; Chachoengsao to get new inland container depot 2018; EEC n.d.). The development of Laem Chabang Port is still an ongoing project, with the Phase 3 development planned to further expand the capability of the port in order to become the number one port in the Southeast Asian region. Following the opening of Laem Chabang Port,

a number of imported and exported products have been shifted to use Laem Chabang Port in addition to the original market of automobiles and other large machinery.

Furthermore, according to the interviews conducted in this research, perishable goods (fruits and vegetables) and products with seasonal demand have been re-routed to use Laem Chabang Port even though Bangkok Port is located closer to the main markets of these goods such as Talaad Thai market, and Yaowarat (as known as Chinatown). One of the main reasons of this rerouting is the current difficult-to-predict delays characteristic of Bangkok Port. The level of delay can sometimes be very severe. some records showing delays that have lasted for a week. The delays are not easy to foresee. Such delays can significantly reduce the quality of these perishable products and reduce the profit that could have been made of the products with seasonal demands. Therefore, customers are willing to pay extra transportation costs in exchange for a more punctual, more reliable transport offered by Laem Chabang Port.

Nevertheless, some customers who have small turnovers and limited profit margins prefer Bangkok Port due to its more affordable fee and less transportation cost. These customers, for example, are SMEs and merchants in wholesale markets in and around Bangkok such as Yaowarat, Pahurat (as known as Little India), and Sampeng. The products of these customers include non-perishable and low-value/high-volume goods. Hence, the customers can afford longer shipment time with a possible delay to a certain extent.

According to Thai Custom's import/export statistics for both ports from 2014 to 2016 (see Appendix E), it can be seen that only one of the top ten imported and exported products from both ports are identical. One could argue that this shows that Bangkok Port is not in the shadow of Laem Chabang Port. However, this could be due to the adaptation of the port, and the mechanism of the market where customers search for the port that could satisfy their needs. That is why customers who prefer predictable delivery and service time prefer Laem Chabang Port even it means higher service fees and higher transportation costs. On the other hand, customers who prefer to minimize their cost and are content with some delays, prefer Bangkok Port.

Therefore, it appears that Bangkok Port is not a traditional shadow port of Laem Chabang Port since its market is not 100 per cent dominated by the larger port (the

definition of shadow port is explained in 1.1). It is rather seen as a 'partial shadow port' where only some of its market is dominated by Laem Chabang Port.

3. SMEs and wholesale markets: the niche markets of Bangkok Port

A considerable portion of the economic activity of a country such as Thailand is concerned with small and medium-sized enterprises, which, individually, have small turnovers and limited profit margins (OSMEP 2016). It is this combination of large numbers of individual customers and the importance of strict cost control that gives Bangkok Port a critical advantage.

According to the interview, most of the SMEs and merchants in the wholesale markets in and around Bangkok (e.g. Yaowarat, Pahurat, Sampeng) prefer Bangkok Port over Laem Chabang Port because the former port offers more affordable fees. This affordable fee is important for them because they do not have large budgets. Furthermore, their products, especially those of the retailers in wholesale markets, are non-perishable and low-value/high-volume goods such as textiles from India, dried foods and stationery from China. These products do not have high value and do not offer a high profit. Hence, retailers must seek any avenue to reduce transportation costs as far as possible. Another group of customers that prefer Bangkok Port are the manufacturers of small electronic devices such as cameras, hard disk drives and electronics components, whose factories are located in Bangkok and its metropolitan area.

In addition, there are many SMEs producing export goods which are located in the city district amongst the high population of available workers. These SMEs need economical and convenient transport of goods to export facilities. Bangkok Port is ideal as a focus for these numerous unrelated enterprises since it can provide essential third-party logistics provider services. These export quantities from individual SMEs are usually relatively small and cannot fill a single container. Furthermore, since most of them do not have their own logistics department, they need to rely on third-party logistics providers to responsible for container loading/unloading. Moreover, these

customers prefer and are often recommended to use third-party logistics providers instead.

Recently, in recognition of the important contribution of SMEs to the economy, the Thai government has started initiatives to assist SMEs to expand their business and to increase their growth (Oxford Business Group 2017). These initiatives encourage the start of new SMEs and could lead to the increased usage of Bangkok Port.

Another reason that makes Bangkok Port a preferable choice for these customers is its location. The port is in the heart of Bangkok, the capital city of Thailand, where major business districts of the nation such as Silom District and Sukhumvit District are located. There are several headquarters of key government offices and influential private companies in these city districts. Despite the nearby frequent traffic jams, the port is adjacent to several expressways and the Industrial Ring Road which shortens the time needed to travel around Bangkok and to nearby provinces. These roadways are also convenient for transport going to the provinces in the North and the Northeast of Thailand. Distributing goods from the port to these important areas can be done with ease, especially in the case where goods are transportable with trucks whose sizes are within regulation limits for operating over a 24 hours cycle.

4. It will be less likely that Bangkok Port will be shut down

Bangkok Port is one of the only few ports in the world that is solely managed by the national government. Bangkok Port is operated by Port Authority of Thailand, a body of the Thai government and is strictly governed by the rules and procedures related to national well-being.

During the interview, some respondents noted that Bangkok Port cannot be shut down because the port's staff are all government-employed and has a strong trade union. There are more than 2000 employees who are trained and hired by the government. If the port is to attempt to close through industrial action or due to internal disruption, the authorities would face significant pressure from the employees. In addition, the government cannot initiate closure because they would face significant community backlash.

Therefore, if the port cannot be shut down, it should contribute more to the stability of the economy of the nation. Such contribution could be in a form of supporting Laem Chabang Port by complementing areas that Laem Chabang Port lacks.

7.3 Major limitations of Bangkok Port

Even though it is recognized that (i) Bangkok Port cannot be closed because it is owned and operated by the Thai government, (ii) it is the preferred choice of many nearby SMEs and wholesale market stallholders, (iii) and it is considered as being in a good location (central Bangkok), being in Bangkok can be, paradoxically, also considered as one of the major limitations of the port.

1. Bangkok Port is located among local communities which have grown together with the port since its establishment. Its growth, in such a restricted area, has inevitably led to the port utilizing all of its available land inside the port boundaries, while the local communities have grown dense in the surrounding region. This makes the port unable to expand to allow any sort of future growth. The port is left with the limited and congested area inside the port, being physically unable to expand outward. A possible option is to re-organize its facilities in the port to increase its efficiency and/or its capacity if it wants to remain competitive.

2. The congestion in the port has led to delays in the operation of the port which is a well-perceived problem of the port by customers. It is also perceived that equipment in the port is often under repair or requires urgent maintenance. Some berths, therefore, need to close for periodic maintenance, while some require sudden repairs, and insufficient equipment availability cannot adequately and time-efficiently handle incoming and outgoing ships. With no extra developmental space available in the port, it is difficult to arrange the introduction of modern equipment. Also, complex processes for paperwork related to import and export can act to hinder the flow of transhipped goods. This leads to inefficient operation and congestion of containers in the port.

3. Moreover, there is also a regulation that big trucks such as semi-trailer trucks, eighteen-wheelers, and ten-wheelers are not allowed to run in the city during

a certain period of a day, which inevitably lengthens product trans-shipping delays. Therefore, it is understandable that customers whose products are perishable choose Laem Chabang Port because the delivery time is more predictable than using Bangkok Port. The imposed necessity of using an temperature-controlled container to maintain the condition of fresh products in the face of long delays will lead to unfavourable additional costs for small importers.

7.4 Readiness of Bangkok Port

Despite the major limitations of Bangkok Port as previously discussed, there are also some properties of the port that could be used as a leverage to gain a more competitive advantage. Focussing on the existing capabilities of the port and anticipating upcoming projects that could be most beneficial, Bangkok Port could adapt its role by further utilizing its strong points of being close to Bangkok and of being the preferred choice for SMEs and wholesale markets. The following aspects could form a basis for this adaptation:

1. Bangkok Port already possesses a complete complement of equipment for a small port's operation, such as cranes and transport to handle containers. Even though there is a perception from customers that the equipment is often in need of repair and is rather old, this could be due to the port being always busy and congested. This makes it difficult for the port to extensively repair or replace the equipment, especially when there is not much financial support available. If the port were less congested, the existing equipment could be better maintained and require less frequent repair.

2. Bangkok Port could be involved with a new cooperative project to build a coastal terminal at Laem Chabang Port. Comparing to transhipment with trucks, a coastal ship can carry more weight than a truck and is more cost-effective and is environmentally friendly. This option would allow significant load sharing to and from Laem Chabang as the export port, and the coastal link to Bangkok would facilitate distribution and collection of small amounts of specialized goods under the auspices of a general third-party logistics provider.

Regarding the second aspect mentioned above, coastal terminal A was developed by the Port Authority of Thailand to support the growth of coastal shippings in the country, especially, between Laem Chabang Port and Bangkok Port (Port Authority of Thailand 2019). Moreover, as of March 2020, the coastal berth project, "berth A", was open for operation at Laem Chabang Port in (Tinarak 2020). There are also plans to build more coastal berths at the port in the future given there are plenty of open spaces available at the port.

7.5 Toward a possible solution for Bangkok Port

At this point in the discussion, on the basis of the analysis of respondents' perceptions, we have a better understanding of the individual situations of Bangkok Port and Laem Chabang Port and the relationship between them. From these discussions, several important points have emerged which are (i) Laem Chabang Port is an important part of Thai's economy and it will continue to receive much developmental support from the government, (ii) Bangkok Port is still a preferable choice for SMEs and customers in wholesale markets but it is not a preferable choice for others mainly because of its difficult-to-predict delays.

Nonetheless, it can be argued that there is a possibility to increase the competitiveness and the attractiveness of Bangkok Port. Here, the Opportunity Capture Framework (Magala 2004) and Ansoff's Matrix (Ansoff 1957) are used to determine feasible strategies that the port might be able to use to increase its competitive advantage and grow its market share. The focus of using the framework here is to find an opportunity that Bangkok Port can potentially use to grow under several limitations and penalties (i.e. little or no support from the government). The application of the framework to Bangkok Port can be seen in Figure 7.1.

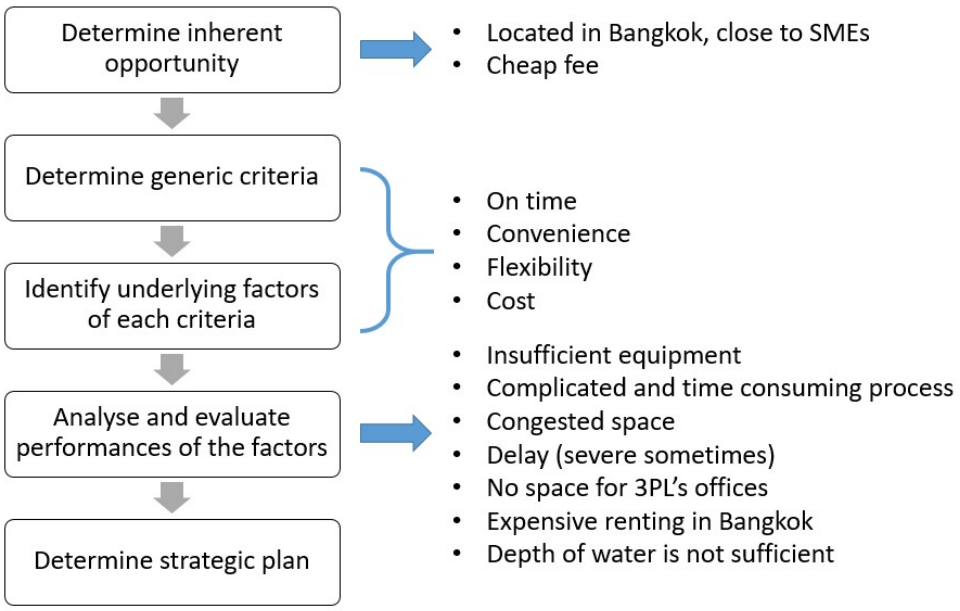


Figure 7.1: The relationship between the Opportunity Capture Framework and the criteria and their performance of Bangkok Port found in this study.
Source: adapted from Magala (2004) Opportunity Capture Framework.

First, Bangkok Port has a number of strong points; it is located physically in Bangkok, which is close to many SMEs and has cheap fee structures, which are its inherent opportunity or competencies which the port can exploit.

Second, from the interviews, it can be seen that both direct and end customers prefer a port that operates on a schedule, which provides convenient and flexible processes, and charges reasonable fees. The customers put a priority on these attributes when they choose a port, and this is usually in the order: on-time service > convenience and flexibility > cost. This indicates that some customers are willing to pay for extra transportation costs to ship their products from Laem Chabang Port to Bangkok in order to get their products delivered on time. This is especially for customers with perishable and/or seasonal-dependent-demand goods where a delay could significantly affect their profits.

Next, by evaluating the performance of Bangkok Port, it can be seen that due to insufficient equipment, time-consuming and complicated processes related to import

and export, and the congestion in the port, delays often happen at the port which sometimes could last for a day or two.

Furthermore, due to the congested space at Bangkok Port, there is no available area for rent inside the port for third-party logistics providers. It is also expensive for a third-party logistics provider to rent an office in the area because there are business districts nearby. This is a factor which makes Bangkok Port less attractive to third-party logistics providers because they prefer to have their offices near the port where they provide their services to their customers. They will hence be able to provide immediate responses when customers' goods have some issues that need to be solved. On the other hand, office renting fees near Laem Chabang Port are relatively more affordable, hence several third-party logistics providers tend to recommend their customers to use Laem Chabang Port.

Another weak point for Bangkok Port is the depth of water at the port is not sufficient to handle big vessels (12,000 deadweight tonnes is the maximum size that can be handled at the port). Nevertheless, as mentioned earlier, a new project constructing a coastal port at Laem Chabang Port will be ready for operation by 2018 (Ministry of the Environment 2018). This can be a good opportunity for Bangkok Port to execute strategies that could increase its profit and growth.

Therefore, as one workable solution, Bangkok could work to utilize the opportunity of the coastal port project, whilst minimizing its weaknesses related to congestion and complex processes.

7.6 Suggested strategy: becoming a coastal port

This solution changes the nature of Bangkok Port to a 'coastal port' that closely cooperates, through its coastal link, with Laem Chabang Port. The idea for the new operation of Bangkok Port is as follows. For exports, Bangkok Port will collect goods from many sources, load them onto a coastal ship, which will then tranship the goods to Laem Chabang Port. At Laem Chabang Port, goods will pass through the necessary processes and paperwork related to export, and the goods will be exported to their destination. For imports, Bangkok Port will receive imported containers which are

already cleared by Customs at Laem Chabang Port via a coastal ship. The containers will then be opened, and the goods will be organized into small trucks (that can run across 24 hours) and delivered to their destinations.

By becoming a coastal port, several problems that the port currently faces could be lessened or solved. A coastal port would not have necessity for government agencies (whose work is related to import and export) to be in the port, and the area used for the existing offices of those agencies can be freed up. This is because the export and import related work can be done at Laem Chabang Port instead. At the moment, only 50 per cent of the port's area is used for actual port activities, 35 per cent is used for the offices, and 15 per cent is used for roads and local communities (i.e. houses and schools). Politically, the space used by the communities is a very sensitive issue and would be challenging to retrieve. The area formerly used for the government offices, in comparison, can be used to reduce the congestion problem. These offices could be rented to third-party logistics providers at a reasonable price. There will be a need to attract more third-party logistics providers to the port with the advent of coastal shipping. This means that there would be more recommendations from the logistics providers to use Bangkok Port.

In terms of the size of vessels, coastal transportation can be done by a barge which is relatively smaller with just around 50 metres in length. This makes the berthing very flexible, and easier to acquire a port window. Loading and unloading can be done in less than eight hours (Port Authority of Thailand 2018a).

Moreover, becoming a coastal port will increase the attractiveness of both Bangkok Port and Laem Chabang Port by increasing the connectivity with neighbouring countries. Myanmar, Cambodia and Malaysia can use coastal shipping service to ship their export containers to large vessels via the two Thai ports which can be more time-efficient and cost-effective. At the moment, Cambodia's main port, Sihanoukville, cannot accommodate large vessels and needs to transport their containers via Singapore by feeder-vessel (Cambodia Trade Corridor Performance Assessment, 2014)(Shibasaki, Suzuki & Shimada 2014). Bintulu Port of East Malaysia also cannot accommodate large vessels, so they can use motorized barges to transfer their containers to Bangkok Port before forwarding them to larger vessels at Laem

Chabang Port. Furthermore, Ayutthaya, a province north of Bangkok can become a domestic hub that relay freights from the north and northeast of Thailand, transport them to Bangkok Port and eventually export them at Laem Chabang Port. This can boost the Thai economy and save time and cost for road transport (Port Authority of Thailand 2018a).

Additionally, if there are still some areas available, Bangkok Port can increase its efficiency by installing new container freight stations (CFS) to increase the capacity and the speed in opening and closing containers to load and unload freight onto and off trucks. This can increase the container throughput and increase the profit of the port.

Furthermore, the above solution can be appreciated using Ansoff's Matrix (1957), which can be used to divide it into sub-strategies (Figure 7.2). The solution can be analysed as follows:

- Market penetration: change into a domestic hub;
- Market development: provide office rental for third-party logistics providers;
- Service development: can cooperate with the coastal port of Laem Chabang Port, provide office rental for third-party logistics providers, and use existing skills of port staff.

Whilst none of these sub-strategies is a 'diversification strategy', they do not involve resource-expensive strategy, which is the least preferable direction for Bangkok Port with its limited resources and limited financial support from its government. However, the problem of double handling should be taken into consideration especially when a port has a limited loading resource. If there are blockages, the necessary double handling would be wasteful of time and money.

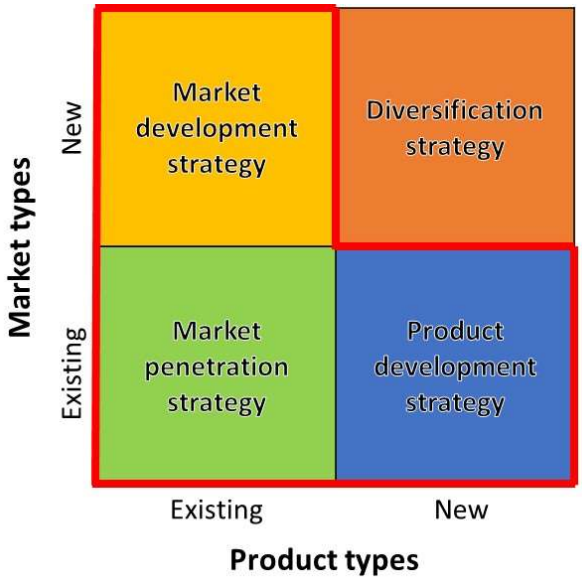


Figure 7.2: The Ansoff matrix with the potential strategies highlighted in red. Source: adapted from Ansoff (1957) Strategy for Diversification.

As a side note, this is not the first time that the Bangkok Port has acted as a coastal transhipment activity with Laem Chabang Port. However, previously, coastal vessels had to share berths with international vessels, and this has caused significant delays in the port.

7.7 Conclusion

In this chapter, four important findings learned during the analysis in Chapter 5 were explained. These findings showed crucial characteristics of both Laem Chabang Port and Bangkok Port. The major limitations and the readiness of Bangkok Port were then stressed and discussed to show what Bangkok Port lacks and what it possesses.

The findings, the major limitations, and the Port's readiness were then used to identify a feasible solution for Bangkok Port to increase its profit and its growth. A solution of changing Bangkok Port into a domestic hub was proposed, with its implementation based on the Opportunity Capture framework. This strategy allows the port to utilize

its strengths and at the same time solve some of the major problems such as being in a congested port area.

The strategic solution was divided and categorized into three sub-strategies. Using Ansoff's Matrix, it was shown that these three sub-strategies are not a diversification plan which is the most cost-expensive and high risk option. This means that the strategies are more suitable for Bangkok Port which has limited resources in terms of finance and physical infrastructure, and the port can still use its expertise in realising the strategies because the three sub-strategies lay in either the existing market and/or existing services.

In conclusion, the four points from the findings were extracted from the analysis using the NCT framework, the strategic solution for Bangkok Port was derived from the use of Opportunity framework, and then evaluated with Ansoff's Matrix. The findings and the strategy suggested here could be implemented to increase the competitiveness of Bangkok Port and finally, to allow the port to grow.

Chapter 8
Conclusion

8.1 Introduction

This chapter draws together the findings of this study and highlights the crucial points of the research. The focus of the study will be recapitulated, followed by a discussion on the theoretical contributions of this research. Finally, the limitations of this study, the recommendations and possibilities for future work will be discussed. The chapter then ends with a final conclusion.

8.2 The focus of this study

This study focuses on understanding how an overshadowed main port can operate, grow or survive under the shadow of another main port which is more advanced, has more capabilities and receives more support from the government.

It is recognised that maritime transport is the main mode of goods exchange for international trade and the global economy (UNCTAD 2016). Many countries put a lot of effort into maritime transportation development in order to compete for this high-value market. Southeast Asia is one of the highly competitive economic facilitating areas because it is between the Pacific and the Indian Ocean and links the trading centres in these regions. ASEAN brings together such trading partners as India with USA, Australia and New Zealand. Moreover, among the countries in Southeast Asia, there is a perception that Thailand could potentially become the central logistics hub of ASEAN because it is located in the centre of this region and can connect directly with China, which is one of the most important markets in the world. Hence, one of Thailand's national logistics strategies focuses on port development, and there are many plans that support this scheme.

8.3 Theoretical Contributions

A significant contribution has been made by this thesis to the theoretical understanding of port-related research in that it is the first time that the Opportunity Capture framework has been used in the context of Thai main ports. It is a deliberate attempt to understand and determine possible strategies that a shadow port such as Bangkok Port could use to (i) ensure its continued position in the supply chain structure of Thailand, (ii) increase its profits as a port and assist its clients to consolidate their positions in the trade network, and (iii) provide a greater contribution to the National economy. In the process of using this framework, the notion of profitable opportunity is the key focus since it represents a more feasible approach to implement development within a shadow port. This opportunity can arise from the existing services and markets which makes it a more suitable option than seeking an entrepreneurial opportunity.

It is claimed that veracity of the research outcomes is strengthened by the status and general industry respect for the selected 15 respondents of this study. Consisting of representatives from Government staff, the shipping council/federation, second- and third-party logistics providers, the business sector and researchers from academia, a wide range of pertinent perspectives were obtained. Theoretical support for the findings was provided by the use of the NCT model in the qualitative data analysis of the responses of the interviewees, and Ansoff's Matrix was used to assist the analysis of opportunities for shadow ports to find opportunities that exist in the existing service and market. During the process of data analysis, the following points were found.

Unobvious factors that affect the port selection

In the process of analysing the factors that affect port selection by shipping companies and their agents, we found some factors which were not obvious at the beginning of this research. These included the limited legal running times for large trucks, the on-costs of office renting fees (for third-party logistics providers), the degree of influence that third-party logistics providers have on decisions regarding port selection in Thailand, and the physical distance between third-party logistics providers and the port. Large trucks can only run on roads inside Bangkok during certain prescribed

hours, and this limitation further increases the time of delivery to and from Bangkok Port. This is in addition to the existing overheads arising from the unavoidable delays inside the port. Expensive rent levels and restricted rental options in Bangkok significantly hinder third-party logistics providers in their efforts to situate close to the port. Third-party logistics providers have been found to significantly affect the port selection process, and it has been suggested that customers might be required to find another third-party logistics provider if they insist on using a port that third-party logistics provider does not prefer. According to the interviews, third-party logistics providers in Thailand prefer, and therefore tend to recommend, a port that is located near their offices. This is clearly driven by the convenience in accessing an adjacent port when demands require them to attend in person. This impact is more significant in the case when the customers are SMEs, who have a limited budget, and who prefer to use affordable third-party logistics providers. These providers also have limited budgets and reduce their costs by choosing cheaper rental options near Laem Chabang Port rather than a position near Bangkok Port.

Importance of some criteria

It is also found that some factors are not as important as expected. For example, the distance between a port and a destination market is not as important to some customers as either the value that a product can generate or the total delivery time for port selection. It was revealed in the interviews, that customers who sell fruit at Talad Thai Market, prefer Laem Chabang Port due to its reliable delivery time despite the port being more distant from the market than Bangkok Port. This it can be said that one of the important barriers for Bangkok Port is its lack of reliability. Customers who need to sell their seasonal fruits during the high demand period, want their products to be delivered just before the period, not after that period when the demand drops.

8.4 Conclusion on Research Question

This research aimed to find a possible strategy that a shadow port, which has several limitations hindering its capacity to grow, could use for making a profit and survive

in the situation of having a nearby dominant port. In the case under study, the dominant port is more advanced in several factors (e.g. better location, deeper water level, and provision of timely service), and also receives relatively more support from its government such as upcoming plans for its development of the Phase 3 development, and guaranteed development of nearby roads and industrial estates.

In the semi-structured interviews, it became clear that Laem Chabang Port is one of the important elements for the national economy. There are many strategic plans for logistics and economic development in Thailand because of its geographical location and that it possesses several key attributes such as having reliable infrastructure services and being preferred by several logistics providers.

By comparison, Bangkok Port has suffered a number of tactical setbacks since the opening of Laem Chabang Port. Customers have tended to choose the more distant Laem Chabang Port for their business due to the consistent timely and reliable delivery, the reliability and readiness of infrastructure and container handling equipment, and the more convenient and more flexible services which have been established at the new port. Notwithstanding these developments, Bangkok Port is recognised as having its own strengths. It is located in the centre of the city, which is most convenient for distributing goods, having expressways and an Industrial Ring Road nearby the port. It also has a cheaper, more affordable fee structure for customers. Bangkok Port has, with these small advantages, created its own important niche market. Its main customers are SMEs and merchants in wholesale markets (such as Yaowarat and Pahurat) in Bangkok and the wider metropolitan area. Since the value-added margin of the products of these customers is not high, customers prefer Bangkok Port in order to save costs, especially the costs related to port services and transportation. Additionally, in terms of reliability, it would be very unlikely that Bangkok Port will be closed because the port is wholly operated by, and the staff in the port are hired by, the Thai government. It is not a trivial task to relocate goods and staff if a port should be closed. Moreover, there is also a strong union supporting the port workers. Thus it would seem that capitalising on this niche market would see the port contribute more to the economy of the nation through the important SME area.

The findings discussed in this study show that Bangkok Port still has the potential to make substantial profits and to show modest growth. By taking into consideration the balance of the limitations and the readiness of Bangkok Port, it appears that potential strategies can be made in order to increase the profit of the port in its shadow role.

One of the feasible strategies is to change the focus on the port to be a predominantly domestic-only port as suggested in detail in section 7.6. This will not only reduce the area necessary need for import/export administrative procedures, but the area can be used as rentable offices for third-party logistics provides in order to satisfy their needs of having their offices near a port in which they willing to provide their services.

8.5 Limitations

Whilst the study focused on the two main ports of Thailand, Laem Chabang Port and Bangkok Port, it is known there are other nearby ports owned by private companies. There are also other ports with similar characteristics in adjacent nations. This group of ports could significantly influence the economy and the growth of both Bangkok Port and Laem Chabang Port, which is not a trivial issue. However, it would have been very challenging and complex to access all the important and relevant information regarding the other ports. More human resources will be required to work on such a large scale.

Additionally, in this study, only the activities of the port involving goods transportation and container transport are considered. While the port's activities involving sightseeing cruises are not considered due to our focus on the supply chains in both Bangkok Port and Laem Chabang Port, these pleasure cruises could contribute significantly to the Thai economy.

This research thus focuses on the main industrial activity of both ports in order to simplify and focus on the main research question. Indeed, it is noted that there are already some shortsea sightseeing cruises that use Bangkok Port as a port of call to provide an alternative to tourists who want to visit Bangkok, which is one of the most popular tourist destinations in Asia. However, these cruises are not regular customers of the port and they now need to share berths with container-carrying vessels.

Lastly, this research was conducted in Bangkok and Chonburi provinces of Thailand, where the Bangkok Port and Laem Chabang Port are located. The main data used in this research was collected *via* the interviews of participants whose professions are related to the two ports. As mentioned in section 4.4 regarding the selection of the participants of the interview, second to having high-quality participants, having a high number of participants is preferable and more ideal. However, the availability of participants is another important factor that affects how many participants can join the interview, and the 15 high-quality participants who were arranged to join the interview group represents an optimum choice between numbers and quality.

8.6 Recommendations and comparisons to the real scenario

In this research, we suggest a possible strategy for Bangkok Port for providing more contribution to Thailand's economic strength is to become a dedicated coastal port. This dedicated coastal port will forward freight to bigger vessels at Laem Chabang Port using a ship with a draught that is compatible with Bangkok Port. The detailed discussion of this suggestion is in Chapter 7.

In concurrence with this recommendation, Bangkok Port has indeed opened its 20G berth as a dedicated coastal port in April 2018, with the objective to improve the transportation of containers between Laem Chabang Port and Bangkok Port (Port Authority of Thailand 2018c). There is thus an expectation of increased demand for coastal vessels from Laem Chabang Port (Port Authority of Thailand 2017b). This 20G berth will also promote further connectivity between Thailand and its neighbouring countries (Port Authority of Thailand 2018c).

This 20G berth is 250 metres long and can handle up to three 60-metre-long barges simultaneously. It is also equipped with two rail-mounted gantry cranes each of which can handle up to 40-ton containers and are able to handle 60 TEUS per vessel. The 20G berth can serve up to 2500 vessels per year which equal approximately 240,000 TEUs of containers annually.

This coastal port project will not only promote efficient container transportation, but it will also reduce traffic congestion, especially inland transportation because of the

reduced amount of cargo truck travel required between Laem Chabang Port and Bangkok Port. Using coastal vessels between the two ports is also more convenient since there is no traffic ban near Bangkok Port during rush hours as exists in road transport.

It is further noted that PAT has decided to keep a Customs presence at Bangkok Port to facilitate exports and to allow Bangkok Port to act as a Release Port. In doing so, containers which need to be exported will pass through the necessary export procedures at Bangkok Port. Hence, the containers that have been cleared by the Customs will not need to be rechecked again once they reach Laem Chabang Port. This approach will facilitate a more time-efficient operation, especially at Laem Chabang Port (Port Authority of Thailand 2018c) and is a small but important contribution of Bangkok Port to the overall movement of materials.

It is appropriate to comment that while this project has not developed a specific theory suitable for guiding the future of Bangkok Port, the fact that a number of suggestions made by this thesis have recently been implemented implies that the methodology and approach followed in this thesis has the potential to advise future strategies. Furthermore, it can be seen that this is still an important area of concern because Bangkok Port still wants to grow and bring economic benefits to the nation (Port Authority of Thailand 2017a).

8.7 Areas of Future Research

This research has demonstrated an initial step for analysing the developmental opportunities of Bangkok Port, which will always be a (partial) shadow port of Laem Chabang Port. The research has proposed potential strategies that Bangkok Port could use to increase its profit and grow using the Opportunity Capture framework, Ansoff's Matrix, and NCT framework. With the aforementioned limitations and recommendations, future directions which could further expand this study and increase its impact are as follows.

Regarding future study on ports in Thailand, especially ones that are related to Bangkok Port, a study on the natural advantages of Bangkok Port should be carried

out because the port is situated on the Chao Phraya River, the main waterway of Thailand, which runs from the north to the central region of the nation. The river might be more heavily exploited to promote domestic water transport, which is more cost-effective and environmental-friendly mode than land transport.

Furthermore, a study on the relationships between SMEs in Bangkok and nearby provinces with Bangkok Port should be carried out. This assertion comes from the observations that (i) SMEs are considered to be the main customers of Bangkok Port, (ii) the interest in SMEs shown by the Thai government is steadily increasing., and (iii) SMEs are a growing proportion of national economic strength.

To increase the generality of the research, we suggest that a study of another shadow port in another region should be done. Indeed, a study on a traditional shadow port could be very interesting to have, since a comparative analysis of the results from a traditional shadow port and a partial shadow port (Bangkok Port) would provide very interesting information.

Lastly, experience from this study has indicated that it is very important that a researcher should be able to access relevant information related to port developmental strategies from all corresponding government agencies because embryonic policies, initiatives and investment plans coming from different perspectives are an essential source for crafting highly-effective and practical strategies in order to generate a workable and efficient work plan.

8.8 Conclusion

This chapter has summarized the contribution, limitations, recommendations and ideas for future research that have emerged from the study. This work has focused on understanding how a historically important main port can operate, grow, or indeed survive under the shadow of a modern main port, which has become the current main port of the nation, and which is more technologically advanced, has more capabilities, and receives more financial and political support from the government.

A significant contribution has been made to the theoretical and methodological practice of port-related research in that it is the first time that the Opportunity Capture framework has been used in the context of Thai main port network. Arising from this work, in terms of a specific research conclusion, this study has suggested that Bangkok Port could gain more profit and contribute more to the economics of the nation in the future by adapting itself as a domestic port, utilizing its opportunity as a shadow port by establishing itself as a coastal port serving Laem Chabang Port.

As for future research, it is emphasised that further studies, related to the potential of Bangkok Port, should be carried out in order to further determine core competencies and intrinsic advantages of this currently shadowed port. The emphasising of these advantages would certainly add weight to the competitiveness of the port, and exploitation of these areas would allow the port to flourish in a parallel, rather than competitive trajectory, to Laem Chabang Port.

Lastly, even though Laem Chabang Port is clearly one of the crucial gears that will drive the Thai economy in the future, Bangkok Port can act as an important subsidiary element in the new Thai economic mechanism and could increase its contribution to the overall national strength by adjusting its strategies to complement those of the main port.

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Appendix A

Candidature Confirmation & Ethical Application Approval

Candidature Confirmation

Tina Jeggo <Tina.Jeggo@vu.edu.au>

Fri 11/11/2016 11:17 AM

To:Chayakarn Bamrungbutr <chayakarn.bamrungbutr@live.vu.edu.au>;

Cc:Jim Sillitoe <James.Sillitoe@vu.edu.au>; Don Gunasekera <Don.Gunasekera@vu.edu.au>; Sian Ellett <Sian.Ellett@vu.edu.au>;

Dear Eve,

I am writing to confirm that the Director (Research and Research Training), College of Business has approved your application for candidature.

Thesis Title: Developing a Shadow Port in the Asean Hub: A Case Study of Bangkok Port, a Limited Port Adjacent to Laem Chabang Port, Thailand
Principal Supervisor: Associate Professor Jim Sillitoe
Associate Supervisor: Dr Don Gunasekera
Associate Supervisor: TBC once paperwork is received

Expected completion date: March 2018
If additional time is required as indicated on your current timeline, you will be able to seek a further extension closer to the date.

Congratulations, Eve!

If you have any questions in relation to the above, please do not hesitate to contact me.

Kind regards,
Tina
Tina Jeggo
Senior Officer, Graduate Research (Colleges)
Graduate Research Centre
Phone 03 9919 4653
Fax 03 9919 4559
CRICOS Provider No. 00124K (Melbourne)
CRICOS Provider No. 02475D (Sydney)

CELEBRATING A CENTENARY OF OPPORTUNITY 2016
VICTORIA UNIVERSITY

Quest Ethics Notification - Application Process Finalised - Application Approved

quest.noreply@vu.edu.au

Fri 10/03/2017 10:36 AM

To: Jim.Sillitoe@vu.edu.au <Jim.Sillitoe@vu.edu.au>;

Cc: Chayakarn Bamrungbutr <chayakarn.bamrungbutr@live.vu.edu.au>; jo.vu@vu.edu.au <jo.vu@vu.edu.au>;

Dear ASPR JIM SILLITOE,

Your ethics application has been formally reviewed and finalised.

» Application ID: HRE17-040
» Chief Investigator: ASPR JIM SILLITOE
» Other Investigators: DR JO VU, MISS Chayakarn Bamrungbutr
» Application Title: SUSTAINING A SHADOW PORT IN THE ASEAN HUB: A CASE STUDY OF BANGKOK PORT, A LIMITED PORT ADJACENT TO LAEM CHABANG PORT, THAILAND
» Form Version: 13-07

The application has been accepted and deemed to meet the requirements of the National Health and Medical Research Council (NHMRC) 'National Statement on Ethical Conduct in Human Research (2007)' by the Victoria University Human Research Ethics Committee. Approval has been granted for two (2) years from the approval date; 10/03/2017.

Continued approval of this research project by the Victoria University Human Research Ethics Committee (VUHREC) is conditional upon the provision of a report within 12 months of the above approval date or upon the completion of the project (if earlier). A report proforma may be downloaded from the Office for Research website at: http://research.vu.edu.au/hrec.php.

Please note that the Human Research Ethics Committee must be informed of the following: any changes to the approved research protocol, project timelines, any serious events or adverse and/or unforeseen events that may affect continued ethical acceptability of the project. In these unlikely events, researchers must immediately cease all data collection until the Committee has approved the changes. Researchers are also reminded of the need to notify the approving HREC of changes to personnel in research projects via a request for a minor amendment. It should also be noted that it is the Chief Investigators' responsibility to ensure the research project is conducted in line with the recommendations outlined in the National Health and Medical Research Council (NHMRC) 'National Statement on Ethical Conduct in Human Research (2007).'

On behalf of the Committee, I wish you all the best for the conduct of the project.

Secretary, Human Research Ethics Committee
Phone: 9919 4781 or 9919 4461
Email: researchethics@vu.edu.au

This is an automated email from an unattended email address. Do not reply to this address.

Appendix B

Interview Invitation Letter & Consent Form for Participants

VICTORIA UNIVERSITY MELBOURNE AUSTRALIA | INSTITUTE FOR SUPPLY CHAIN AND LOGISTICS

Associate Prof James Sillitoe
PRINCIPAL SUPERVISOR
INSTITUTE FOR SUPPLY CHAIN AND LOGISTICS

CITY FLINDERS CAMPUS
LEVEL11, 300 FLINDERS STREET
PO BOX 14428 MELBOURNE
VICTORIA 8001 AUSTRALIA
PHONE +61 3 9919 6255
vu.edu.au/iscl

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Invitation to a PhD Research Interview with Chayakarn Bamrungbutr

Dear Mr. Pongcharush Watanagaivanvong

Chayakarn Bamrungbutr is a PhD student of Institute for Supply Chain and Logistics (ISCL), Victoria University, Australia. Her thesis research is focusing on the port development opportunities related to Thai's capital city port (shadow port) which is located near the other capital city port which has a bigger area, a better location or has more advanced facilities. This study will use Bangkok port and Laem Chabang port in Thailand as a case study where Bangkok port is the shadow port of Laem Chabang (see attached file). Chayakarn is being supervised by Associate Professor James Sillitoe, Principal Supervisor, Institute for Supply Chain and Logistics (ISCL), Victoria University, Australia.

Chayakarn needs to ask for assistance from port experts so that she can consolidate her research and complete her thesis. As your organisation is a participant in the maritime transportation in Thailand, you have been identified as a possible candidate for an interview.

I hope that you will be able to afford Chayakarn around 60-90 minutes of your time so that she can complete this phase of her research.

Chayakarn will contact you in the near future to seek your cooperation and will then make an appointment to see you at a mutually suitable time.

Thank you in anticipation.

Yours sincerely

Associate Professor James Sillitoe
Principal Supervisor
Institute for Supply Chain and Logistics (ISCL)
Victoria University

VICTORIA UNIVERSITY
MELBOURNE AUSTRALIA

CONSENT FORM FOR PARTICIPANTS INVOLVED IN RESEARCH

INFORMATION TO PARTICIPANTS:

We would like to invite you to be a part of a study that focuses on the growth of a capital city port which is under the shadow of an adjacent capital city port by using a situation of Thailand where Bangkok port is a former main port and is under the dominance of the current main port, Laem Chabang port. This project aims to determine a potential strategy that a capital city port could use in order to sustain its trade and compete for growth while being in a shadow of an adjacent, more advanced capital city port. In the process of data collecting, port experts will be interviewed about opportunities that could provide a shadow capital city port, Bangkok port, a way to growth. The data then will be qualitatively analysed and concluded as a potential strategy. By its nature, this research is an individual non-pilot study that does not involve clinical trial nor the use of therapeutic techniques. The research will only involve the port experts who are have experience in maritime transport of Thailand in the form of face-to-face interview that consists only professional-oriented port-related topics which will have cause no risk to the participants in any circumstance. The data collected from the interview will be protected and only accessible by the Chief investigator (Associate Professor James Sillitoe) and his student researcher (Chayakarn Bamrungbutr)

CERTIFICATION BY PARTICIPANT

I, ...
of .....

certify that I am at least 18 years old and that I am voluntarily giving my consent to participate in the study: *Sustaining a Shadow Port in the Asean Hub: A Case Study of Bangkok Port, a Limited Port Adjacent to Laem Chabang Port, Thailand* being conducted at Victoria University by: Associate Professor James Sillitoe

I certify that the objectives of the study, together with any risks and safeguards associated with the procedures listed hereunder to be carried out in the research, have been fully explained to me by: Chayakarn Bamrungbutr

and that I freely consent to participation involving the below mentioned procedures:

- Face-to-face interview on the topic related to possible growth opportunity of a shadow capital city port, Bangkok port in particular.
- Questions used in the interview consists of 4 main parts: 1) Determining inherent opportunities, 2) Determine generic criteria, 3) Identify factors of each criterion, and 4) Strategic level

I certify that I have had the opportunity to have any questions answered and that I understand that I can withdraw from this study at any time and that this withdrawal will not jeopardise me in any way.

I have been informed that the information I provide will be kept confidential.

Signed: .....

Date: .....

Any queries about your participation in this project may be directed to the researcher
Associate Professor James Sillitoe
+61 3 9919 4273

If you have any queries or complaints about the way you have been treated, you may contact the Ethics Secretary, Victoria University Human Research Ethics Committee, Office for Research, Victoria University, PO Box 14428, Melbourne, VIC, 8001, email Researchethics@vu.edu.au or phone (03) 9919 4781 or 4461.

Appendix C

Translation of Interview Script

PARROT GROUP COMPANY LIMITED
118/2-3 Soi Pramot 2, Mahaesak Road, Suriyawongse Sub-district,
Bang Rak District, Bangkok 10500 Thailand
Tel. (+66) 81 401 3449, Fax. (+66) 2 237 5512
Registration No. 0105560049190

Certification of Translation Accuracy

Translation of **"Interview Scripts in This Thesis"** from **"Thai"** to **"English"**

We, **Parrot Group Co., Ltd.**, a professional translation company, hereby certify that the above-mentioned documents have been translated by experienced and qualified translators and that, in our best judgment, the translated text truly reflects the content, meaning, and style of the original text and constitutes in every respect a correct and true translation of the original document.

This is to certify the correctness of the translation only. We do not guarantee that the original is a genuine document, or that the statements contained in the original documents are true. In addition, **Parrot Group Co., Ltd** assumes no liability for the way in which the translation is used by the customer or any third party, including end users of the translation.

[redacted]

Mr. Kittitach Atiyudhakul
CEO of Parrot Group Co., Ltd.
June 1, 2017

Parrot Group Co., Ltd.

Translation of interview script:

Eve:	งานวิจัยนี้จะเกี่ยวกับการศึกษาแนวทางในการกำหนดยุทธศาสตร์ที่อาจเป็นไปได้ของการเติบโตของ Shadow Port หรือ ท่าเรือในเงา โดยใช้ท่าเรือกรุงเทพ และท่าเรือแหลมฉบังเป็นกรณีศึกษา ในส่วนแรกแรกจะเกี่ยวกับเหตุผลที่ท่าเรือกรุงเทพยังสามารถดำเนินการอยู่ได้ ทั้งที่ๆนโยบาลและกลยุทธ์ส่วนใหญ่ของรัฐบาลเน้นไปที่ท่าเรือแหลมฉบังมากกว่า โดยอยากทราบว่าท่านคิดว่าอะไรคือจุดแข็งและจุดอ่อน ของท่าเรือกรุงเทพ	The study is to determinate a potential strategy that a shadow port could use in order to maintain its trade and continue to grow by using Bangkok Port and Laem Chabang Port as case study. The first part will focus on the reason that keeps Bangkok Port operating, even though the majority of the government policies and strategies emphasize on Laem Chabang Port. I would like to know the strengths and weaknesses of Bangkok Port.
Interviewee 4:	จริงๆดิฉันมองว่ารัฐบาลก็พยายามที่จะสนับสนุนท่าเรือกรุงเทพ แต่ด้วยตัวท่าเรือกรุงเทพมีปัญหาทางด้านขนาดพื้นที่ที่จำกัด ย้ายที่จะสามารถรองรับตู้คอนเทรนเนอร์ได้มาก ทำให้รัฐต้องพยายามที่จะจำกัด capacity ให้อยู่ที่ 1ล้าน TEU แล้วก็เพิ่มมาเป็น 1.3ล้าน TEU แต่ถ้าดูจากการเติบโตตู้คอนเทรนเนอร์ ทีผ่านท่าเรือกรุงเทพจะเห็นเลยว่าจำกัดยังไงก็เกิน เพราะ ความต้องการสูงมาก อีกมุมหนึ่งก็คือความเก่าของท่าเรือกรุงเทพ ทั้งในส่วนของอุปกรณ์	Actually, I believe that the government is also trying to promote Bangkok Port. But with the limited area, it cannot support large volume of containers. As such, the government has to limit the capacity to 1M TEU, which later increases to 1.3M TEU. However, if we look at the increase in the number of containers that pass through

	เครื่องมือ ต่างๆ ที่ต้องการการซ่อมบำรุงอยู่เรื่อยๆ หรือแม้แต่ระบบงานที่ก็ยังคงใช้ paper ซึ่งกว่าจะผ่านแต่ละส่วนใช้เวลานานมาก	Bangkok Port, along with high demand, it is certainly exceeding the limited capacity. Another element is the obsolescence of Bangkok Port, including various equipment that require regular maintenance and repair, or even some systems that are still paper-based, which take a long time to process.
	ในส่วนของจุดแข็ง จุดอ่อนนั้น ซึ่งแน่นอนว่าเรื่อง location เป็นจุดแข็งที่สุดของท่าเรือกรุงเทพเลย เพราะด้วย location ที่อยู่ใจกลางเมืองทำให้ง่ายต่อการกระจายสินค้าที่นำเข้ามาได้เร็ว แต่ก็จะมีปัญหาเรื่องการจราจรเข้ามาแทน อีกส่วนก็เป็นในส่วนของความพร้อมทางด้านหน่วยงานให้บริการของราชการ ทั้ง ศุลกากร, หน่วยตรวจสินค้าประเภทสัตว์, ด้านกักสินค้า หรือหน่วยงานที่มีหน้าที่ในการออกใบรับรองสินค้าต่างๆ ก็อยู่ภายในท่าเรือกรุงเทพ เหมือนจะเป็น one stop service เลยทีเดียว แต่ด้วยการดำเนินงานที่ยังคงใช้ระบบเอกสาร ก็ยังต้องใช้เวลาระดับหนึ่งกว่าจะผ่านครบทุกหน่วยงานที่ต้องการ จุดแข็งอีกเรื่องของท่าเรือกรุงเทพคือเรื่องของค่าธรรมเนียม เพราะท่าเรือกรุงทพไม่ได้มีการปรับธรรมเนียมมาตั้งแต่ปี 2538 แล้ว รวมๆ 20 กว่าปีเลย ไม่ใช่ว่าทางการท่าเรือไม่อยากขึ้นนะ แต่ด้วยอยู่ภายใต้การ	In the aspects of strengths and weaknesses, location is obviously the strength of Bangkok Port. With its prime location in the city center, it is easy and fast to distribute imported products. However, it also has to face with the traffic issue. Another quality is its readiness in terms of the government agencies, such as custom, inspection of livestock products, quarantine of products, or agency that is responsible for issuing the certificate of origin –all of which are within Bangkok Port. So, basically it is like a one-stop service. But with the paper-based operations, it requires a

	บริหารของรัฐบาล 100% ทำให้มันยากต่อการที่จะปรับ เพราะรัฐบาลเองก็ต้องนโยบายส่งเสริมการทำธุรกิจต่างๆ โดยเฉพาะพวก SME เป็นต้น อีกข้อนึงก็เป็นในส่วนนิสัยของคนไทยที่เคยชินกับสิ่งใดก็ยังใช้อยู่อย่างนั้น ลูกค้าของท่าเรือกรุงเทพส่วนใหญ่ก็อยู่ในบริเวณรอบๆท่าเรือหรือจังหวัดที่ใกล้เคียง ถ้าคุ้นเคยกับระบบ หรือสายเรือที่เข้าท่าเรือกรุงเทพ ก็จะยังใช้อยู่อย่างงั้นไม่ค่อยเปลี่ยน ยิ่งพวกเจ้าเก่าๆ หากเปลี่ยนไปใช้ท่าเรือเอกชนหรือท่าเรือแหลมฉบังไปเจอกวย e-custom เอยอะไรเลย หรือไปเจอระบบล่มเขาก็บอกว่ายุ่งยาก สู้กระดาษเขียนเอาง่ายกว่า ในส่วนของจุดอ่อนเนี่ย เรื่องตำแหน่งที่ตั้ง ที่อยู่ในกรุงเทพ ก็เป็นจุดอ่อนด้วยเหมือนกัน	certain amount of time to pass through all of the relevant units. Another strength of Bangkok Port is the fee because Bangkok Port has not increased its fee since 1995, so that's about 20 years in total. It's not that the port does not want to increase its fee; but because it is 100% under management of the government, it is difficult to adjust the fee. Likewise, the government has to provide initiatives to support various businesses, in particular the SMEs. Another element is the personality of Thai people, in which Thai people typically use things that they are familiar with. Most of the customers at Bangkok Port are actually from the area around the port or neighboring province. Once they are familiar with the system or the shipping routes of Bangkok Port, they are unlikely to change. Even more so for old customers when they switch to the private port or Laem Chabang Port and have to be adapted to the e-custom system or faced with the system failure,

	เหมือนที่กล่าวไปแล้วว่ามีปัญหาเรื่องการจราจรในกรุงเทพ, มีการจำกัดเวลาวิ่งของรถบรรทุก ห้ามวิ่งในชั่งโมงเร่งด่วน เช่น ถบรรทุก 10 ล้อ ขึ้นไป ห้ามเวลา 06.00 -10.00 น. และ 15.00 - 21.00 น. นอกจากนั้นตำแหน่งที่ตั้งของท่าเรือกรุงเทพเนี่ย จะอยู่ติดกับแม่น้ำเจ้าพระยา คือเป็น river port การที่เรือจะเข้าท่าเรือ บางทีต้องรอ น้ำขึ้น-น้ำลง ซึ่งมันก็เสี่ยงนะที่เรือจะ delay หากต้องรอนาน จุดอ่อนอีกเรื่องก็คงเป็รในส่วนของอุปกรณ์ต่างๆ ซึ่งเอาจริงๆมันค่อนข้างเก่าแล้ว แล้วโดยปกติท่าเรือก็จะมี แผนการซ่อมบำรุงอยู่ว่าจะมีการปิดซ่อม แต่มันก็มีบางส่วนที่เกิดใช้การไม่ได้กระทันหัน พออุปกรณ์ไม่พร้อม มันก็เกิดการล่าช้าในการขนตู้ ขึ้น-ลง จากที่ล่าช้าแค่ 2 วัน กลายเป็นล่าช้าไปเป็นอาทิตย์ไปเลยก็มี	they find it more convenient to use the paper-based system. In terms of weaknesses, location is also a weakness of Bangkok Port. In addition to what was mentioned earlier regarding the traffic issue, the port is also faced with time restrictions on the truck schedule, which prohibit trucks to be on the road during the busy hours. For instance, a truck with 10 wheels or more cannot be driven during 06.00-10.00 hrs. and 15.00-21.00 hrs. Moreover, since Bangkok Port is located next to Chao Phraya River, it is considered as a river port. When ships enter the port, sometimes it is necessary to wait for the tidal currents, which make it risky that the ship will delay. Another factor is the equipment, which are considerably dilapidated. Normally, the port will have its own maintenance plan but sometimes there are unanticipated malfunctions. When the equipment are not ready, there will be a delay in the loading process of

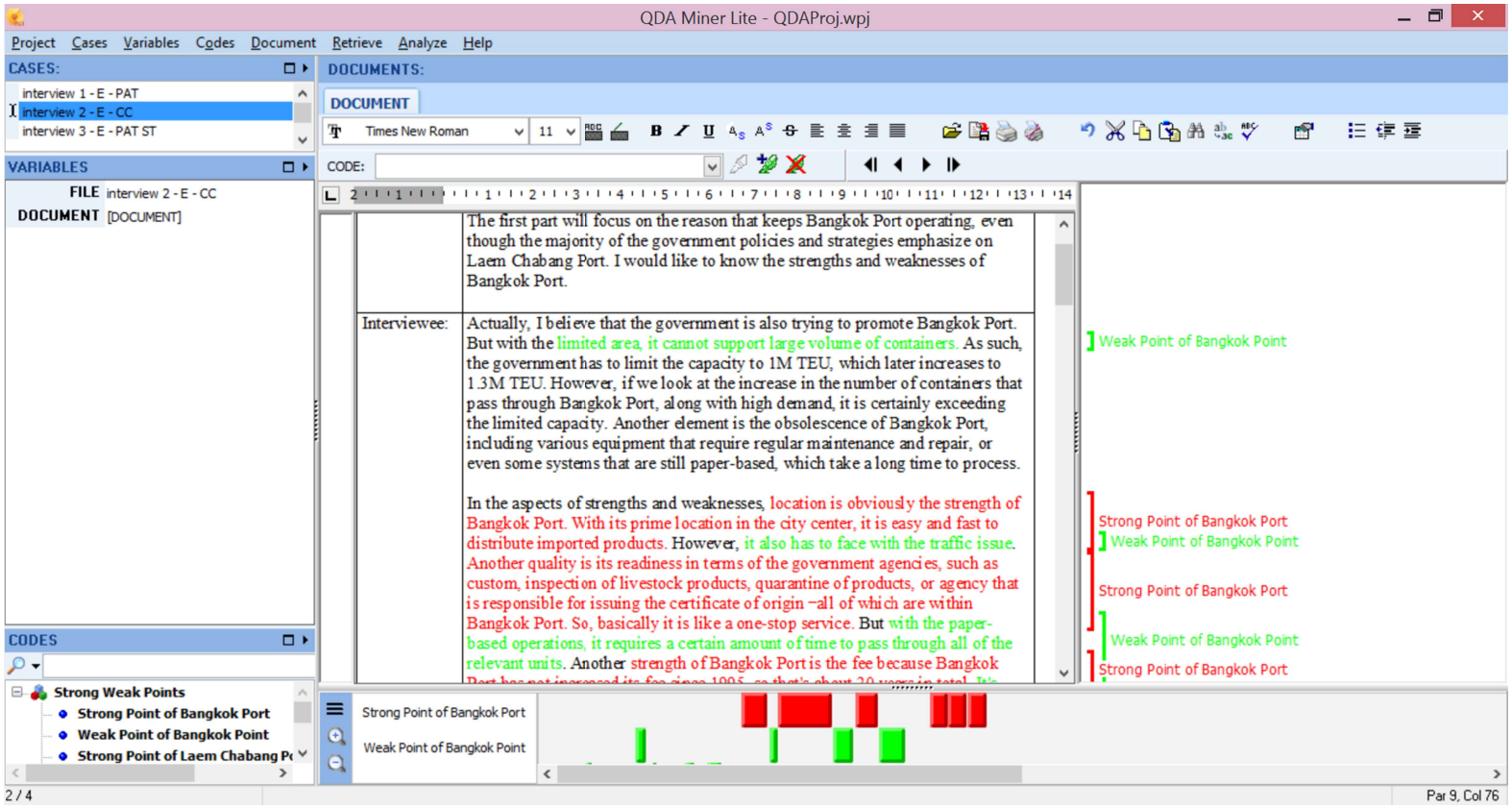
		containers, which means that a two-day delay might be extended to a one-week delay.
Eve:	แล้วคุณคิดว่าจุดแข็งของท่าเรือกรุงเทพ ไม่ว่าจะเป็น เรื่องตำแหน่งที่ตั้ง เรื่องค่าบริการที่ถูกเนี่ย จะสามารถทำให้ท่าเรือกรุงเทพเปิดบริการอยู่ต่อไปได้นานแค่ไหน เพราะอะไรคะ	According to your previous assertion of the strengths of Bangkok Port, whether they are the location or the affordable service fees, how long do you think these strengths will keep the port operating? And why?
Interviewee 4:	ดิฉันคิดว่าท่าเรือกรุงเทพคงไม่ปิดตัวลงหรอ ด้วยอยู่ภายใต้รัฐบาล เป็นอีกหน่วยงานนึงเลยนะที่ทำรายได้ให้ภาครัฐ แล้วไหนจะพนักงานภายใต้การท่าเรืออีก เพราะพนักงานที่ท่าเรือกรุงเทพเป็น พนักงานรัฐทั้งหมด และด้วยตำแหน่งที่ตั้งที่อยู่ใจกลางกรุงเทพเนี่ย ยังไงก็ไม่ปิดตัวแน่นอน แต่คิดว่ายังไงท่าเรือกรุงเทพก็ยังคงอยู่ต่อไป เพียงแต่อาจจะต้องมีการปรับปรุงไม่ว่าจะเป็นในส่วนของประสิทธิภาพการให้บริการ อุปกรณ์ต่างๆ ซึ่งท่าเรือกรุงเทพเขาก็มีนโยบายในการพัฒนานะ เช่น มีแผนจะนำ IT เข้ามาใช้, พยายามทำแผนเลยว่าเรือที่เข้าท่าต้องออกให้ได้ภายในกี่วันๆ หรือ การสร้าง CFS (Container Freight Station) สำหรับการนำสินค้าเข้าหรือออกจากตู้ ซึ่งตรงนี้ก็เห็นว่าทำอยู่นะ ถ้าทำเสร็จจริงๆน่าจะโอเคเลย เพราะลูกค้าท่าเรือกรุงเทพเนี่ยจะแตกต่างจากแหลมฉบัง แหลมฉบังจะเป็น FCL	Personally, I don't think that Bangkok Port will be shut down because it is under the government's supervision. Indeed, it is one of the units that provides income to the government. Moreover, there's the issue of employees, whom are all government employees, and considering the location of the port that is right at the center of Bangkok, it will not shut down for sure. I believe that Bangkok Port will continue to operate but there may need to be some improvements in terms of the efficiency in delivering the service and equipment. With that respect, Bangkok Port has various development plans, such as the integration of IT into the system, the plan for the

	(full container load) มาเป็นตู้เลยขึ้นขึ้นหรือลงเรือได้ทันที แต่ที่ท่าเรือกรุงเทพส่วนใหญ่จะเป็นแบบ LCL (less container load) คือมาแบบไม่เต็มตู้ อาจจะมีการแชร์พื้นที่ตู้กันของหลายๆเจ้าเพื่อนให้เต็มตู้ มันเลยจำเป็นต้องมีพื้นที่ในการนพสินค้าเข้าหรือออกจากตู้ ซึ่งหากมี CFS ลูกค้าก็น่าจะโอเคกับท่าเรือกรุงเทพมาก เพราพอมี CFS นั้นคือสินค้าเขาก็ไม่ต้องไปตากแดดเพื่อนรอการนำเข้าหรือออกจากตู้ เป็นต้น	shipping schedule that states the period that each ship has to leave the port, or even the construction of container freight station (CFS) for loading imported goods into or out of the containers. I can see that they are building the CFS. Once the construction is complete, it will certainly be perfect for customers since Bangkok Port's customers are different from Laem Chabang Port's customers. Laem Chabang Port offers a full container load (FCL) shipping service, which means that the containers are ready to be loaded. On the other hand, Bangkok Port offers a less container load (LCL) shipping, so there may be some sharing of space between customers. Thus, there needs to be an area for loading goods into or out of the container. With the CFS in place, customers will be highly satisfied with using Bangkok Port, since their goods will not have to be left outside and exposed to sunlight while waiting to be loaded or unloaded.

Should you require a full version of the interview's transcript, please contact chayakarn.bamrungbutr@live.vu.edu.au

Appendix D

QDA Miner Lite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The first part will focus on the reason that keeps Bangkok Port operating, even though the majority of the government policies and strategies emphasize on Laem Chabang Port. I would like to know the strengths and weaknesses of Bangkok Port.
Interviewee:
Actually, I believe that the government is also trying to promote Bangkok Port. But with the limited area, it cannot support large volume of containers. As such, the government has to limit the capacity to 1M TEU, which later increases to 1.3M TEU. However, if we look at the increase in the number of containers that pass through Bangkok Port, along with high demand, it is certainly exceeding the limited capacity. Another element is the obsolescence of Bangkok Port, including various equipment that require regular maintenance and repair, or even some systems that are still paper-based, which take a long time to process.
In the aspects of strengths and weaknesses, location is obviously the strength of Bangkok Port. With its prime location in the city center, it is easy and fast to distribute imported products. However, it also has to face with the traffic issue. Another quality is its readiness in terms of the government agencies, such as custom, inspection of livestock products, quarantine of products, or agency that is responsible for issuing the certificate of origin –all of which are within Bangkok Port. So, basically it is like a one-stop service. But with the paper-based operations, it requires a certain amount of time to pass through all of the relevant units. Another strength of Bangkok Port is the fee because Bangkok
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