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ARRANGING LUGGAGE DELIVERY SERVICE IN DA NANG
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Keywords: logistics process, warehousing, transport, investment procedure.

The purpose of this thesis was to provide recommendations for Bellugg Group Company Ltd to expand their service to Da Nang, Vietnam. The author of this thesis has completed her 6-month practical training at the Bellugg during the summer of 2018. Bellugg is a Logistics and Tourism company offering luggage delivery service for travelers between the airports and hotels in Thailand. The background of this project was based on the insight that over 80% of customers using Bellugg service in Thailand are Koreans, and Da Nang is recently one of the most attractive destinations for Korean travelers. Thus, the project was created for Bellugg to look for a way to expand their services to Da Nang in the near future. So, the first objective of this project is to demonstrate the laws and regulations as well as the required procedure for Bellugg to open their business in Vietnam. The second objective is to organize transport and warehousing processes for luggage delivery service in Da Nang.

The theoretical framework of this thesis was established on process management and design, logistics process planning, and investment law. This was the framework for empirical research. Both qualitative and quantitative methods were chosen as the base for the research. Qualitative research was used to achieved information regarding the organization of operation and forecasted demand through the author's observation during the internship and an in-depth interview with the Bellugg managing director. Meanwhile, quantitative research was conducted by analyzing flight schedules and frequency at Da Nang international airport for the operation planning purpose. Besides, investment law and procedure for foreign investors were also studied to find an appropriate way for Bellugg to enter the Vietnamese market.

According to the findings, the only way for Bellugg to operate in the road transport business is to establish a joint venture with a Vietnamese company. Bellugg should rely on the ASEAN Framework Agreement of Services (AFAS) to be entitled to the investment benefit of the capital contribution ratio up to 70%. As for the logistic process development, it was discussed and found that Da Nang and Bangkok have several similarities in terms of weather, geographical locations as well as main groups of travelers, customer needs are expected to be relatively the same between the two destinations. However, there are still differences that need to consider when designing warehousing and transport processes, such as demand, flight timetable, or location and size of the airport. These differences resulted in different ways of designing warehouse and booth location, planning storage requirement and operating hours, or choosing a suitable transport vehicle. So, with the current operational model that is running in Thailand, it is viable for the company to apply as well as adjust their existing Logistics process appropriately to organize luggage delivery service in Da Nang in the most optimal way.

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1 INTRODUCTION

This project was conducted for the Bellugg Group Company Ltd, to help them to expand their service to Da Nang - a new potential market. The author of this thesis has completed her 6-month practical training at the Bellugg during the summer of 2018. Bellugg is a Logistics and Tourism company offering luggage delivery service for travelers between the airports and hotels in Thailand. Its service aims at assisting and enhancing travelers' experiences by taking care of traveler's luggage from the airport and delivering them directly to the customer's hotel/Airbnb/apartment or picking up luggage from those places and delivering them to the airport after customers check out at hotels. Their luggage will be delivered to and stored at the airport, waiting for the customers coming to pick up at any time.

The background of the thesis is based on the insight that over 80% of customers using Bellugg service in Thailand are Koreans, and Da Nang is recently one of the most attractive destinations for Korean travelers. According to a statistic from a close partner of Bellugg - one of the biggest travel agencies in Korea - Da Nang respectively ranked at 2nd and 1st places in the list of 'Most visited destinations by Korean in 2017 and 2018'. So, the project was created to generate a viable solution for Bellugg to expand their services to Da Nang in the near future.

The structure of the thesis is divided into 9 chapters. Chapter 1 is the introduction that consists of the purpose and structure of the thesis and the project background. Chapter 2 illustrates the research problems and objectives, boundaries of the project and the conceptual framework. The next three chapters present all the theories that are handled in the thesis, including process management, logistics process, and business establishment. Chapter 6 defines the research methodology, in which the data collection methods are determined along with the research validity and reliability. Chapter 7, which is the empirical research, represents the research findings and data analysis. Then, in chapter 8, recommendations are given based on the results from analyzing the collected data. Chapter 9 is the end of the research which includes the conclusion of the overall findings and recommendations, suggestions on further research, along with the author's personal learning after doing the thesis.

2 PROBLEM SETTING AND CONCEPTUAL FRAMEWORK

2.1 Problem settings

2.1.1 Research problems

As a foreign company planning to run business in Vietnam, there would be many restrictions and barriers for Bellugg to enter the Vietnamese market, especially for companies aiming to operate in the Logistics sector. Aside from that, organizing services in Da Nang may be different compared with Bangkok due to differences from demand, area, or size and location of the airport. These are the problems that need to be studied for solutions.

2.1.2 Research objectives

The research questions are determined as follows:

- 1) What is the process of establishing a Logistics company for Bellugg to set up business in Vietnam?
 - a. Investment law
 - b. Procedure
- 2) How to organize the Logistics process for the delivery service?
 - a. Warehousing
 - b. Transport

2.1.3 Boundaries of the project

Even though this project is conducted to help Bellugg to expand their service to Vietnam – a new market, the thesis is not going to focus on marketing strategy and market research of demand or competition, but it will dive into the legal regulations for FDI investments and Logistics process development. Apart from that, some statistical analysis on tourists and Da Nang area will be carried out for operation and service planning.

2.2 Conceptual framework

Based on the topics of this thesis, the author has created the following conceptual framework to illustrate how it all links together. This serves as a guideline for this thesis, all the concepts mentioned in the conceptual framework will be handled within this thesis.

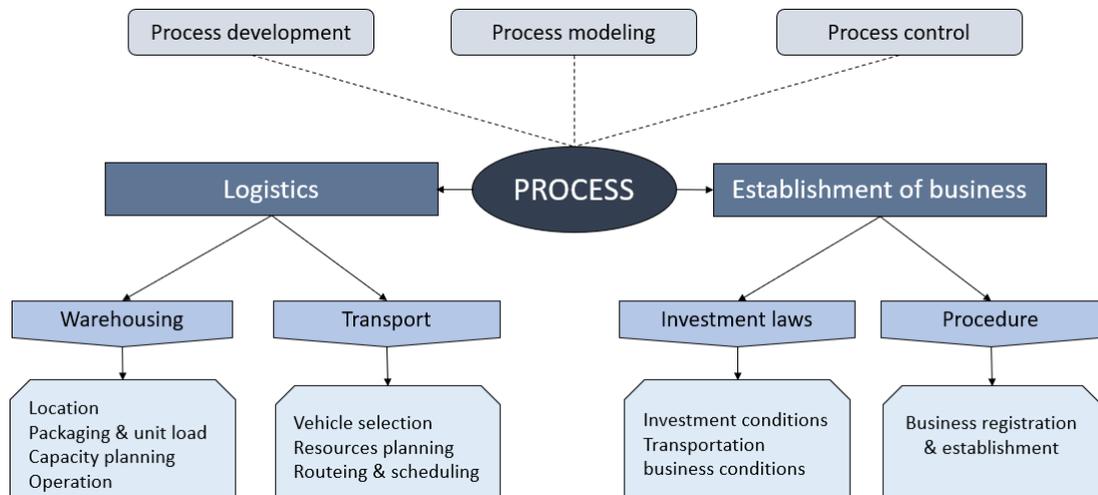


Figure 1. Conceptual framework.

‘Process’ is the central concept governing the whole conceptual framework, it refers to process development, process modeling and process control as the background. There are two key processes that will be studied, i.e. Logistics process and Business establishment process. The establishment of a business is decided by the Vietnamese investment laws, which covers the investment conditions and business conditions to operate in the transportation sector, and the procedure of establishing and registering a business. Logistics process consists of warehousing and transport planning as the key components. Transport planning will cover the aspects related to vehicle selection, resources planning, routing and scheduling, while warehousing study will be focused on decisions on location, packaging and unit load, capacity planning, and warehouse operation.

3 PROCESS MANAGEMENT AND DESIGN

3.1 Process development

A process is identified as a set of logical related activities and resources required to transform inputs to outputs. It is a procedure of actions, a chain of value-adding operations that consists of several interrelated activities. The term ‘process development’ can deal with any part of company business, from innovations, services, production, to distribution, finance and so on. It can be used to improve the current process or design a completely new process. (Laamanen & Tinnilä 2009, 121-125)

Although process development practices can vary in different implementation, typical phases in process development can be defined as follow:

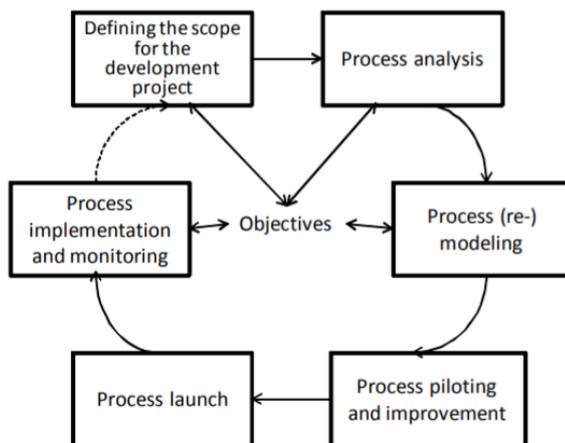


Figure 2. Typical phases in process development. (Martinsuo & Blomqvist 2010, 8)

Before starting a process development project, it is essential to clarify the scope of the process and determine which process(es) will be influenced. The scope of the process is decided based on the objectives of the company. When the scope has been defined, it is important to gather all related data that is necessary for designing and analyzing the process. When designing a new process, the data can be based on how the process has been performed in the previous projects or how it is implemented by other organizations. Data collection method may be carried out in several different ways, for example, through interviews, observation of the process or process simulation. Process modeling is going to be conducted after analyzing the process. Then, the process

should be tested for further improvements before implementation. The process can be piloted by, for example, conducting a simulation of the new process, in which all necessary activities are carried out along with the participant of the employees. The piloting and testing stages usually reveal areas for improvement for the entire process, and it should be conducted before officially launching the process. Furthermore, the competences of the people involved in carrying out the process and adaption of the necessary systems to the process should also be taken into consideration. This can require an information campaign or a training program for different personnel groups, process guidelines targeted at different stakeholders, along with modification of IT systems. Finally, measurement and control are vital for every process. With constant tracking and monitoring, inefficient points can be identified, and improvements can be made to enhance process performance. (Martinsuo & Blomqvist 2010, 8-10)

Process modelling method and process control are going to be discussed in more detail in the following sections.

3.2 Process modelling

Process modelling is about mapping a process by visually capturing the flow of activities of that process from beginning to end, along with all associated information and material flows. It is an analytical and communication tool used to illustrate workflow and all vital steps in the business process with the aim of improving the existing process performance, or to document all necessary activities included in a new process. (Darwish 2011, 45)

There are several different ways of mapping a process, and one of the most commonly used methods is using a flowchart. A flowchart is a visual map of the separate steps of a process in sequential order. This method makes use of a standard symbols system to illustrate a process. The system and an example of a flowchart are shown in Figure 3. Each symbol indicates a different meaning to a process map.

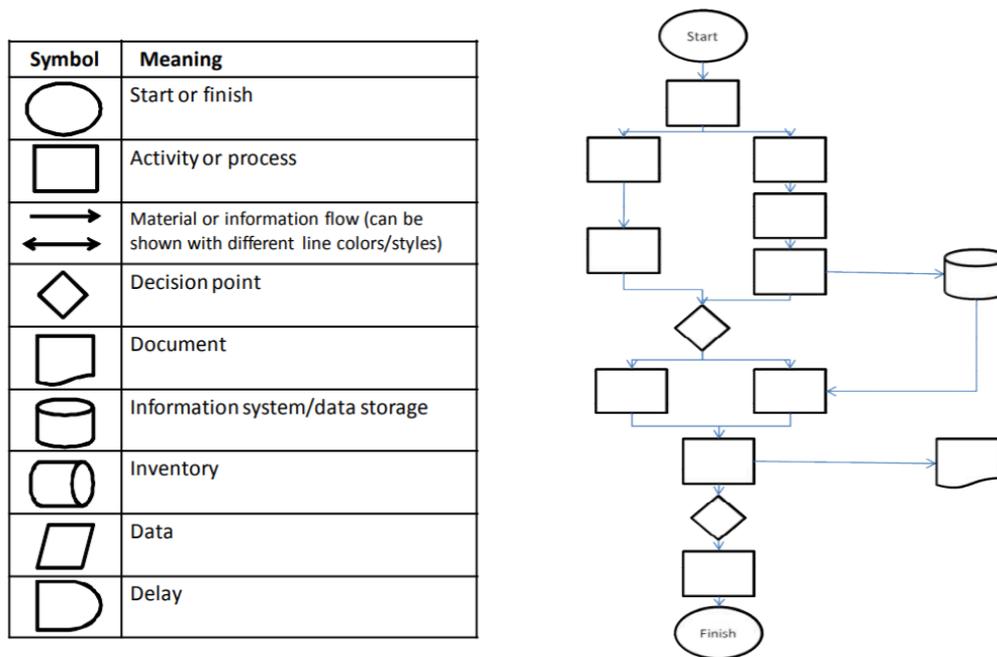


Figure 3. Key symbols used in flowchart process mapping. (Martinsuo & Blomqvist 2010, 15-16)

A flowchart composes of several elements that create a pathway from start to end. Key elements that can be included in a flowchart are: a sequence of activities, materials or services entering or leaving the process (inputs and outputs), decisions that must be made, involved people, or time required at each step. The basic steps for drawing a flowchart is shown in Figure 4.

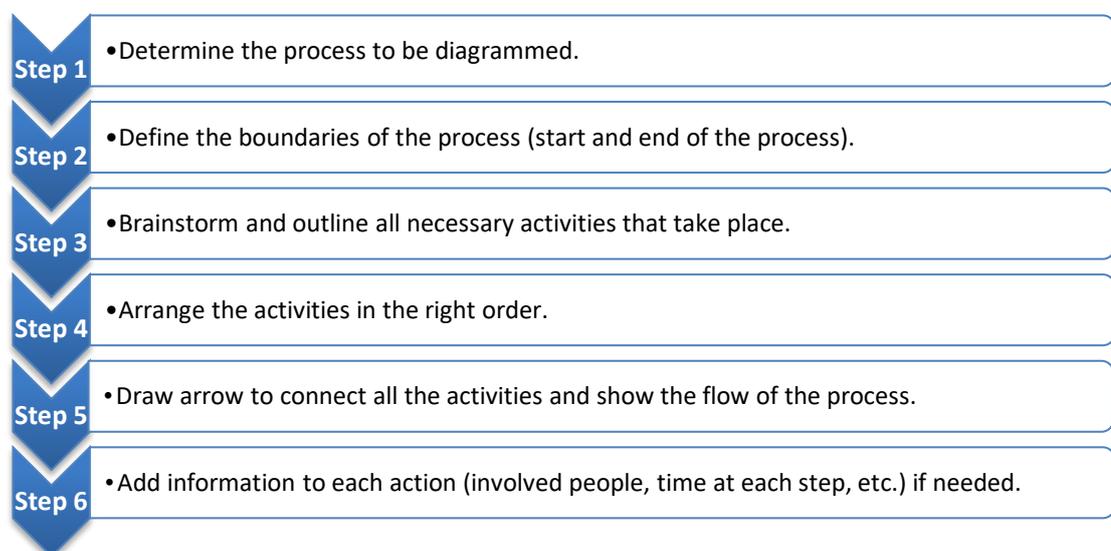


Figure 4. Flowchart basic procedure. (The Website of ASQ, 2019)

3.3 Process control

It is crucial for every company to manage and control its processes to achieve its pre-set objectives. The key to process management is to set goals for processes based on company objectives. Feedback can be efficiently achieved by using appropriate measurements. By setting proper key performance indicators (KPIs) for different part of the process, it enables process owner to capture and understand the 'health' of the process, not only in term of output based performance (Were the pre-set goals achieved?) but also in term of the functionality and quality-based performance (Did the process function properly?). Figure 5 shows an example of a process measurement metrics. KPIs should be identified in the process development stage before the implementation of a new process, in order to ensure the process is always under monitor and control when implementing, as well as to guide operations and facilitate continuous improvement.

Input-related indicators	Process-related indicators	Outcome-related indicators
<ul style="list-style-type: none"> • Resources: workforce, labor hours, material expenses, capacity • Consistency of the inputs to the process (e.g., raw materials) 	<ul style="list-style-type: none"> • Throughput time, time to market • Schedule and expense accuracy (relative to planning); delivery-on-time • Yield • Efficiency (output in relation to input) • Returns and complaints 	<ul style="list-style-type: none"> • Output volume • Output-generated income • Quality of output • Product launch timing

Figure 5. Examples of process metrics. (Martinsuo & Blomqvist 2010, 21)

A monitoring system should consider not only the process inputs and outcomes but also the functionality performed by the process. A good monitoring system consists of indicators that depict the actual performance of the process and take into account all the requirements related to different stakeholders to provide a clear view of the process 'health' through comprehensive measurement metrics. It can be said that a good measurement system only adopts and focus on a small number of key indicators instead of measuring everything and consuming too many resources. Good indicators also need

to be effective and do not require too many resources when setting up and monitoring. (Martinsuo & Blomqvist 2010, 22)

The primary role of monitoring process is to facilitate control and continuous enhancement of the process. Hence, it is important to stay focus on ‘what you want to measure’ and understand that ‘you will get what you measure’. When identifying indicators to measure a process, it is essential to consider and link them to company objectives to ensure the measurement going on the right track. Process objectives should be first identified, then based on those objectives, measurement metrics are defined respectively. (Person 2013, 74-76)

4 LOGISTICS PROCESS

Logistics refers to the process strategically managing the procurement, movement, and storage of materials and information flows from suppliers, through company, and to final customers in a way of satisfying customer requirements and achieving cost-effectiveness and profitability. (Christopher 2016, 3) Logistics processes play an important role in company business activities and supply chain by engaging in the management of the five key activities, including transportation, warehousing and storage, inventory, information technology, and production. (Grant 2012, 2) As a company providing luggage delivery service, logistics is the key process that directly decides the success of the service as well as the service quality, and warehousing and transportation are the two primary activities governing the company operations.

Planning and controlling logistics process require a forecast of demand in order to plan resources and capacity for future economic activities. Forecasting approaches can be divided into two different categories i.e. qualitative and quantitative methods. Qualitative methods are mainly based on expert judgment while quantitative methods are useful if there is enough recorded data available for consideration. Qualitative methods are highly applied when launching new products or services when there is no or not enough data to analyze. (Ghiani, Laporte, & Musmanno 2013, 44-50)

Since the aim of this project is to expand Bellugg service to Da Nang, where the luggage delivery service is still new to the market, there is no historical data about demand or other related information that can be considered. Therefore, the forecast of demand will be based on the management judgment and experience of Bellugg from doing their business in Bangkok, Thailand. The forecast is going to be achieved from the interview with Bellugg managing director.

4.1 Warehousing

Warehousing is a crucial part of the logistics system of any company. It is where raw materials and goods are stored and managed. It provides the manager of the company with the information related to the status, condition, and disposition of all the items being stored. The goals of warehousing are to effectively and efficiently control inbound and outbound stock movement, manage and locate products in a way that utilizes space and labor resources, in turn, facilitate the delivery time and conditions of shipments to customers. As a dispatch point serving the next customer in the supply chain, it plays a vital role in achieving reliability and providing customers with high service levels. (Grant 2012, 79)

Warehouses concern a specific facility and involve in several processes in the supply chain, from sourcing, production to distribution of products. With several changes resulting from recent trends in market characteristics and customer requirements, for example, market volatility is rising, or customers expect shorter lead times, this has significantly affected every part of the supply chain, including warehousing activities. Warehouses need to be (re)designed to adapt these changes and become more flexible and leaner. Nowadays, warehouses are not only simple storage, but a facility that can also perform as a production area, a distribution center, and a combined booth where products are directly sold to customers and stored at the same place. Warehouses require a huge amount of investments in facilities, equipment and human resources needed for operating, therefore their successful planning and management are important to the company when planning logistics systems. (Rushton, Croucher, & Baker 2017, 291-292)

4.1.1 Location

Depends on the supply chain, the nature of warehouses may vary tremendously. Decisions on the location of warehouses are highly affected by several aspects, for example, based on the stage in the supply chain (sourcing, production, distribution, or return), geographic area (global warehouse, regional warehouse), product type (size, characteristics), function (serves as a goods storage, a production area, or a distribution center) or costs (e.g. rent premise, labor rates). (Rushton, Croucher, & Baker 2017, 291-292)

A warehouse should be located where they can best serve the customer. Based on different types of classification, decisions on the location of the warehouse need to be considered carefully to meet with company strategy and facilitate operation. Furthermore, when locating a warehouse, company should also take into account the location of customers, suppliers, logistics providers, and other warehouses in the supply chain, as well as transport accessibility to ensure reaching warehouse can be easy and effective as much as possible for distribution and other logistics-related activities. There are three basics scenarios that every company wants to attain when locating warehouse i.e. close to the market and customer, with a short distance to the production facilities, and near major modal interchange such port or airport. The best scenario is to achieve all these three scenarios at the same time. However, most decisions will be focused on the trade-off analysis among different Logistics functions, such as transport costs, rent premise, or distance to the market and customers. (Grant 2012, 91-92)

4.1.2 Packaging and unit loads

Goods and products are usually packaged when coming or leaving the warehouse. Packaging is necessary to protect and preserve products from damage, as well as facilitate the storage and handling process. There are various levels of packaging, for example, directly enclosing products (primary packaging) are often wrapped in an outer package in order to make transport and handling of products easier (secondary packaging). (Rushton, Croucher, & Baker 2017, 298)

Packaging is designed based on unit load. Unit load is the concept referring to a standard unit or module by which products are loaded or unloaded, stored and transported. Like packaging, unit load may vary at different levels, for example, a number of boxes, each *box* consists of a number of *products*, are placed into a *pallet* for loading into the truck. These 'product', 'box', and 'pallet' are separately determined as different types or levels of unit loads. (Rushton, Croucher, & Baker 2017, 299) The use of unit loads aims at designing a common system for handling, transport, and storage of products, along with reducing handling costs, enhancing handling efficiency as well as minimizing movement and journeys. Therefore, unit load plays a critical role in the warehouse operation and it should be decided early in the design process. Depends on customer requirement, product characteristics and company operational strategies, different modules of unit loads may be adopted. (Grant 2012, 84)

4.1.3 Capacity planning

The total size requirement for a warehouse needs to be determined at the beginning of the warehouse design process to ensure effective planning for the whole logistics system as well as the supply chain. The capacity of the warehouse can be calculated based on a queuing theory relationship called the Little's Law. It illustrates the relationship between the inventory, the flow rate and the flow time within a certain process. In the other words, it can be applied to estimate the total size of storage space needed based on the number of products (or flow units) arrived in the warehouse per day and the average length of time a product spent in the warehouse. The formula is explained as follows: $L = \lambda \cdot W$. L is the gross size of the warehouse, λ refers to the average rate of goods incoming to the warehouse, and W is the average waiting time in the warehouse. (Grant 2012, 85) For example, total estimated incoming volume of a warehouse is 100 pallets per day. On average, pallets are usually stored in the warehouse for one week before being distributed to the customer. The warehouse size L is determined by multiplying the number of incoming pallets per day λ with the average waiting time in the warehouse W . In this case, $L=100*7=700$ pallets. So, the total size requirement for the warehouse is 700 pallets. From this result, the area of the warehouse can be calculated according to the pallet dimension.

4.1.4 Warehouse operation

Each warehouse should be designed based on specific requirements of the supply chain. Although activities can vary in different warehouses, some basic operations are usually carried out in most cases. Figure 7 shows the typical functions and goods flow in a stockholding warehouse and a cross-dock warehouse.

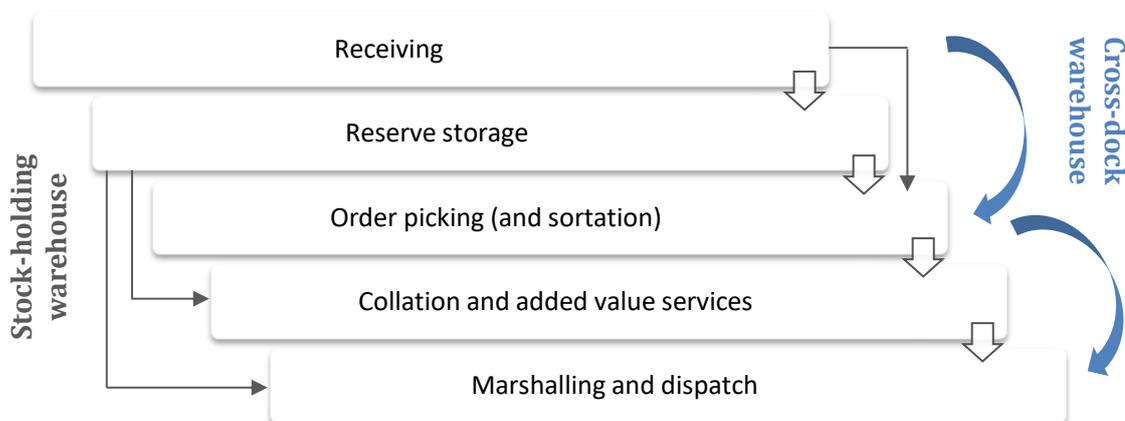


Figure 6. Typical warehouse functions in a stock-holding warehouse and cross-dock warehouse. (Rushton, Croucher, & Baker 2017, 295-297)

Cross-dock warehouse is a warehouse where the incoming products mostly stop for a short time, usually for a few hours, so they will not be placed in the storage zone. **Stock-holding warehouse** performs normal functions of storing products, holding and carrying goods in the storage zone. (Ghani, Laporte, & Musmanno 2013, 211) Due to this difference, cross-dock warehouse only has three basic operations i.e. receiving, sortation, and marshalling and dispatch. Depends on each situation, activities in the warehouse may be modified to fit well with company operation as well as to deal with different types of orders. Typical warehouse functions consist of five basic steps, including receiving, reverse storage, order picking (and sortation), collation added value services, and marshalling and dispatch. *Receiving* means products are unloaded from incoming transport, and quality control checks and inspection may be undertaken to ensure products are received at good quality and do not contain any prohibited substances that may result in any risks when being stored in the warehouse. *Reverse storage* means products are put into the assigned place in the storage zone and ready to be taken out for order picking, collation or marshalling and dispatch depends on the

situation. In case of a cross-dock warehouse, there is no reserve storage function since the product will not be put into the storage but transferred directly to the sortation purpose. *Order picking* refers to the step that products are retrieved from the warehouse according to customer order. Concerning small size of order, order bundling may be useful to combine multiple orders together and conduct picking process as for only one order, then the picked batch is sorted down to individual orders and destinations. Then, products are collated into customer order to be ready for dispatch. In some cases, some added value activities may be conducted before dispatch of order, for example labelling. This step is called *collation added value services*. The last step is *marshalling and dispatch*, meaning products are marshalled into vehicle loads and then loaded on to outbound vehicle for onward dispatch. (Rushton, Croucher, & Baker 2017, 293-296)

4.2 Transport

Transport refers to the movement of goods from one place to another. Freight transport activities play an important role in the logistics system. It significantly influences the service level provided to the customer, as well as involves in different parts of the supply chain. Having an efficient and inexpensive transport system allows production areas can be set up in locations where a low-cost skilled workforce is available, facilitates distribution by reducing costs and delivery time to customer destinations. (Ghiani, Laporte, & Musmanno 2013, 318)

There are five basic modes of transport including air transport, railway, sea transport, pipeline, or road transport. In this project, only road transport will be taken into account since the luggage delivery service only aims at providing short inland transportation within a city or a region.

4.2.1 Vehicle selection

There are several aspects that need to be taken into account when making a decision on choosing the most appropriate vehicle for goods distribution. Vehicle selection should be assessed based on three primary areas i.e. efficiency, economy, and legality.

Efficiency refers to the most effective way to do the job, concerning the nature of operation (travel distance, terrain), the characteristics of the product/or load (physical features, weight, size), and the specification of the vehicle (engine, body type). Economy factors refer to vehicle purchase prices and operating costs such as depreciation, insurance, fuel, or maintenance. The third and final area for consideration when selecting a vehicle is the legality. This concerns legal factors regarding operator licenses, restrictions on weights and dimensions of vehicles or emission controls. (Rushton, Croucher, & Baker 2017, 513-514)

Concerning the short-distance travel with multiple deliveries per day in the city center or urban area, a vehicle involved in this type of operation may have to deal with several constraints and restrictions. Due to narrow streets, congestions, ban on large trucks, and limitations on access at some delivery destinations, small vehicles are the most appropriate choice. Aside from that, the choice of body type should also be considered carefully based on the characteristics of products. Regarding urban delivery, especially for consumer products like food, clothes or packaged items, security and protection are the biggest concerns of logistics companies. In this case, box vans are usually the most common body type that is being used. A box van is an enclosed body that normally has a sliding door at the back or on one side of the box. This ensures high security for the inside products, as well as protects goods from all types of weather and avoids risk of pilferage. (Rushton, Croucher, & Baker 2017, 527-528)

4.2.2 Resources planning

Resources planning aims at identifying the basic resources requirements for transport. Basically, it will answer the question: How many vehicles and drivers needed to carry out the operation for the company? The general approach is to determine the requisite base data for delivery demand and type of vehicle being used and use the manual or computer method to define the routes (routeing), then calculate from these how many vehicles and drivers are needed (Rushton, Croucher, & Baker 2017,). This routeing and scheduling process will be discussed in more detail in the following section.

4.2.3 Routeing and scheduling

Company serving a number of different customers may have to cope with random demand and/or various delivery points when making multiple deliveries a day. However, what is normally fixed is the catchment area where usually attracts a large number of demands. Therefore, concerning this situation, variable route schedules can be created based on area division. In other words, potential catchment area should be first determined and divided into smaller delivery areas regarding geographical basis, then operation and resources schedules will be made and assigned to each area according to forecasted demand and delivery data. (Rushton, Croucher, & Baker 2017, 580)

Manual method of vehicle routeing and scheduling

In this section, the manual method for conducting route schedules is going to be described step by step. This method is usually suitable for a company having a small scale of operation (less than 5 trucks). The outcomes of this method are to create routes and establish an appropriate operational schedule. In the end, these outcomes will be used to calculate overall resources requirements (resources planning). The steps are shown in Figure 6.

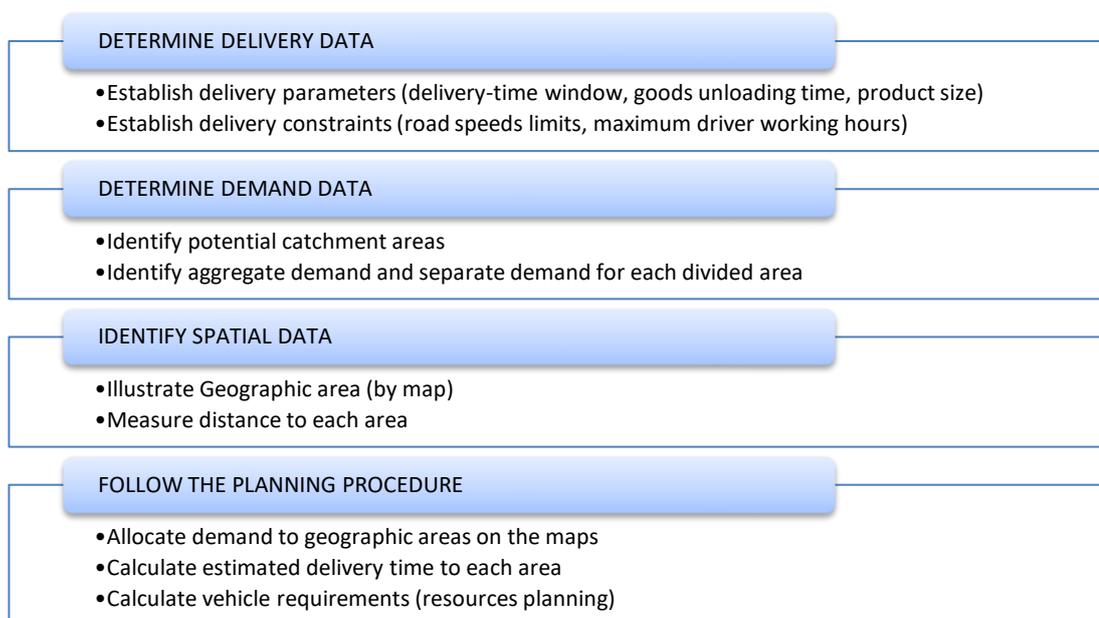


Figure 7. Steps taken to plan routes schedule. (Rushton, Croucher, & Baker 2017, 588)

5 BUSINESS ESTABLISHMENT

5.1 Investment law

Expanding and investing in a foreign market always accompanies with difficulties resulting from the language barrier, lacking knowledge of the market and the business environment, or restrictions on investment conditions for foreign investors. Any company wishing to open a business in a foreign country first needs to understand the investment laws and conditions applied for foreign investors, acknowledge possible forms of investments as well as the procedures of registering and establishing a company. Investors are either individuals or companies. Depends on the nationalities of investors, the investment conditions may vary. This is resulted from different trade agreements or bilateral investment treaties made between two or group of countries, or between a country and a region (or continent). (Dolzer & Schreuer 2012, 81-97)

5.2 Procedure

Procedure illustrates the legal process of establishing and registering business that is prescribed by the government. Information about the business establishment procedure and Vietnamese laws and regulations applied for foreign companies wishing to invest and operate in Logistics sectors are going to be described in more detail in the research findings section.

6 RESEARCH METHODOLOGY

6.1 Data collection method and analysis

In this thesis, both qualitative and quantitative methods are chosen as the base for the research. Depends on purpose, data are going to be collected and analyzed based on qualitative technique or quantitative technique. Quantitative method focuses on numeric (numbers) data while qualitative method relies on using non-numeric (words)

data. Quantitative is mainly applied as a synonym for any data collection method (e.g. questionnaire, survey) or data analysis procedure (e.g. graphs, charts, statistics) that uses and generates numerical data. On the other hand, qualitative is used as a synonym for any data collection method (e.g. interview) or data analysis procedure (e.g. categorizing data) that used and generates non-numerical data. Non-numeric data not only refers to words but also includes pictures or videos. (Saunders, Lewis, & Thornhill 2016, 145)

Since the luggage delivery service is still new to the Vietnamese market, there is no related historical data available for collection and analysis. Therefore, qualitative research was used to achieved information regarding the organization of operation and forecasted demand through participant observation and in-depth (unstructured) interview. Aside from that, as the service aims at serving passengers travelling by airways, quantitative data regarding flight schedule at Da Nang International Airport was collected and analyzed for the operation scheduling purpose.

Participant observation allows the researcher to gain knowledge and experience from participating in the lives and activities of the subject and becoming a part of the group, organization or community. This allows the researchers to observe how everything is carried out and feel the real environment. (Gill & Johnson 2010, 144) During the internship at Bellugg, the author had been working and participating in the operation of the company, and knowledge accumulated from the internship experience was used to analyze and apply for arranging luggage delivery service in Da Nang.

In-depth or unstructured interviews are usually carried out for interviews with the company representatives. This type of interview enables higher flexibility in the way of conducting the interview since it does not require a detailed guide with a list of preset questions. The use of unstructured interview facilitates an open discussion on the chosen topic and encourages interviewees to freely express their ideas and opinions. (Saunders, Lewis, & Thornhill 2016, 312) An in-depth interview was conducted with the Bellugg managing director. By using this method, the author aims at gaining valuable knowledge from the Bellugg experience when starting their business in Thailand, as well as understanding clearly Bellugg expectations for the Da Nang market.

6.2 Validity and reliability

Reliability refers to the degree to which the data collection methods or analysis procedures will generate consistent results. In other words, research is considered reliable if the same results are achieved with a similar observation from other researchers. (Saunders, Lewis, & Thornhill 2016, 149) Data and knowledge captured from the observation are based on the real experience of the author during the time working at Bellugg. Processes and operations organized and carried out at Bellugg always follow specific procedures, so the consistency and reliability of data and research are ensured.

Validity refers to the assessment of the research findings. The research is valid when measurements are made correctly, and the results obtained meets all the requirements that the researcher wants to measure. Validity should be evaluated both internally and externally. Internal validity evaluates whether the outcomes of the research are "*legitimate because of the way the groups were selected, data was recorded, or analysis performed.*" (Handley 2005, 1) In this project, data collection was carried out from the author's observation during the internship in Thailand as well as from the interview with Bellugg managing director through captured photos, recorded audio and written notes. Moreover, data collection and analysis on Da Nang international airport and flight schedules were performed by using multiple reliable sources, such as the official website of the airport or the websites of ministry and government. So, the internal validity of research is proven. External validity concerns the possibility that the results can be generalized. In other words, it refers to how far the conclusions obtained would be applied to other studies. (Sachdeva 2008, 68) Although the process of luggage delivery can be applied to some cases, this thesis focuses on arranging service in a specific market, which is Da Nang, and the planning is also be made based on specific expectations from the case company, so the research result cannot be generalized or applicable for other studies.

7 RESEARCH FINDINGS AND ANALYSIS

In this chapter, the author described the procedures of investment and presented all the data which were collected during the internship and interview with Bellugg managing director. The data would help the author to gain knowledge and experience from the company current operations in Thailand, as well as to understand clearly the expectation of the company for the Da Nang market.

7.1 Foreign Direct Investments (FDI) in Vietnam

7.1.1 Investment conditions

According to the decree No. 140/2007/ND-CP regarding regulations and conditions for operating in the logistics services business, any business entity engaging in logistic services relating to transportation must satisfy the following conditions: enterprise must have lawful business registration in accordance with the law of Vietnam; enterprise must comply with the conditions applicable to the transportation business as stipulated by the law of Vietnam; a foreign business entity engaging in road transportation services, in addition to satisfying the conditions stipulated above, shall be permitted to establish a joint venture company in which the capital contribution ratio of the foreign investor does not exceed 51%. (The Website of Legal Normative Documents, 2019)

Aside from the common regulations and conditions mentioned, investors from the Association of South-East Asian Nations (ASEAN) shall be permitted to engage in road freight transportation services by *establishing joint ventures with Vietnamese partners, in which foreign investors' capital contribution ratio does not exceed 70%*. (The Website of Foreign Investment Agency Vietnam, 2019) This is based on the ASEAN Framework Agreement of Services (AFAS) which was signed by the ten ASEAN countries, including Vietnam and Thailand, to work toward free flow of trade in service within the region as well as eliminate restrictions to trade in service among ASEAN countries.

7.1.2 Transportation business conditions

According to the decree No. 91/2009/ND-CP regarding business conditions for operating in the road transport business, enterprises engaging in road cargo transport business must satisfy the following conditions: enterprise must register for the road transport business as stipulated by the law; enterprise must ensure the quantity, quality and durable years of the means of transport are appropriate for the business; 100% of drivers must be Vietnamese citizens and have written labor contracts signed with the enterprise, and drivers work a maximum 10-hour day and must not drive continuously for more than 4 hours; the person who directly administers transport activities of enterprises (who is in charge of the following positions: executive director, deputy director, head of transport administration section) must have qualifications of transport from intermediate level or higher, or other college or university degree, have experience in transport management at road transport enterprises for three years or more, and he or she must prove to have sufficient time for direct administration of transport activities. (The Website of Legal Normative Documents, 2019)

7.1.3 Investment procedure

According to the investment law of Vietnam, the establishment of a joint venture requires an investment registration certificate from the Ministry of Investment and Planning. In this case, an investment registration certificate is also a business registration certificate. (The Website of Legal Normative Documents, 2019) Then, in order to open a company for operating luggage delivery services, it is required to apply for a business license regarding road cargo transport. So basically, there are two primary procedures that need to be carried out. The entire process is described in Figure 8 by using the flowchart.

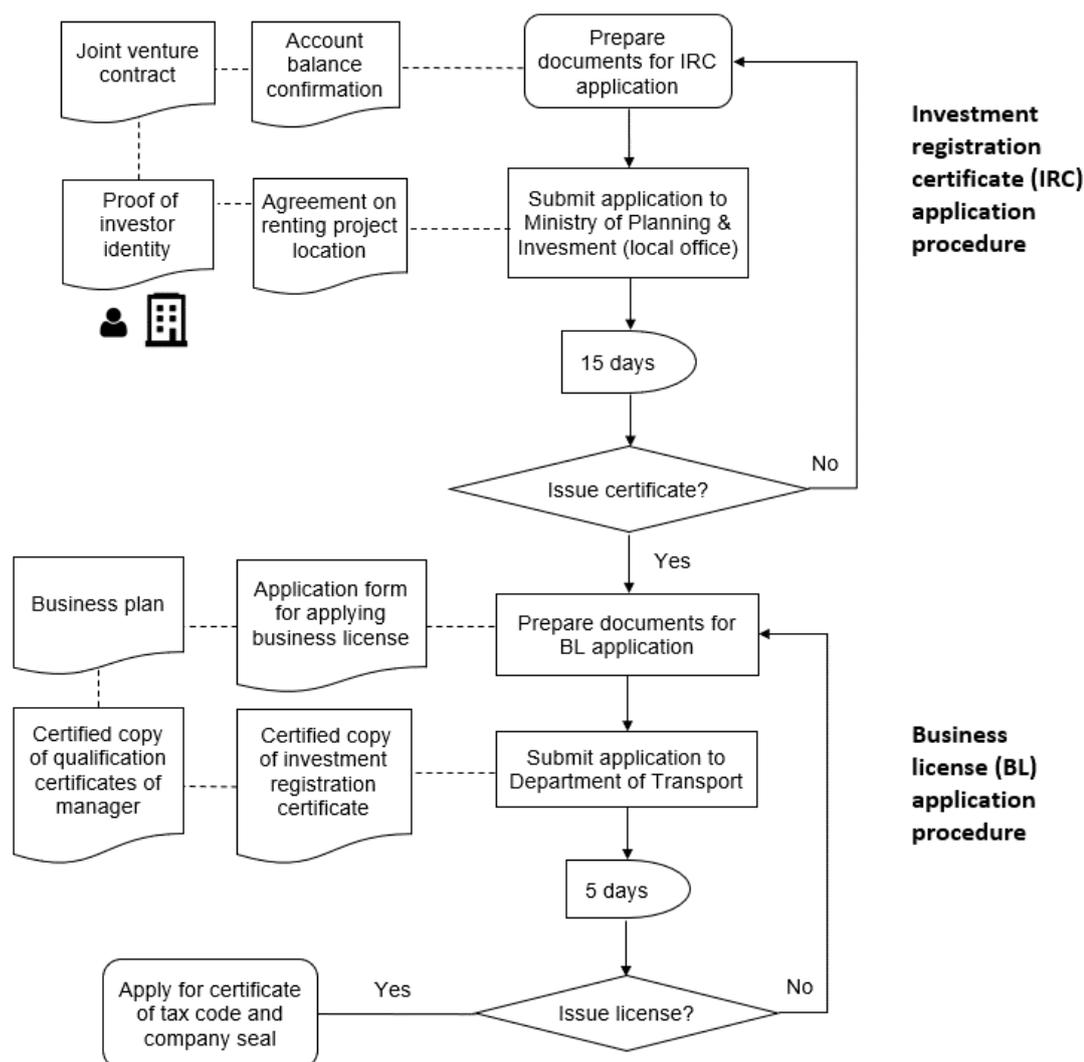


Figure 8. Investment procedure.

It is essential to carefully prepare all the required documents before submitting the application in order to minimize efforts and waiting time. Concerning the application for investment registration certificate (IRC), it is required to submit the joint venture contract between the domestic and foreign investors; a confirmation of account balance corresponding to the registered investment capital to prove the investor's financial capability; proof of investor identity, and a contract/agreement on renting the project location. Regarding proof of investor identity, in case investors are *individuals*, they are required to submit a certified copy of their valid ID/passport. If investor is a *company*, all the following documents also need to be prepared: business registration certificate of the company; certificate of the company tax code; company charter; financial statements of the company in the last 2 years (if any); company's decision on

investment in Vietnam; letter appointed representative of the company in Vietnam; copy of passport of the company's representative; copy of passport of the representative of the company's capital contribution. (The Website of National Administrative Procedures, 2019)

Concerning the application for a business license (BL), the transport enterprise has to submit the application to the Department of Transport. Required documents for the application includes a completed business license application form (see Appendix 1); a business plan that must ensure journey implementation for vehicle along with maintenance and repair time; a certified copy of investment registration certificate (IRC); and a certified copy of diploma or qualification certificate of the transport manager or managing director. In case the documents need to be amended and supplemented, the Department of Transport shall notify the company directly or by paper about the documents that need to be supplemented or amended. Within 5 working days from the date of receipt of the completed application, as prescribed, the Department of Transport shall examine the application and make a decision on granting a business license and approving the business plan. After getting the business license, the company can start applying for a certificate of the company tax code at the municipal tax department and a certificate of company seal at the police department. (The Website of National Administrative Procedures, 2019)

7.2 Observation of Bellugg operation

Since the project has been started from the internship period, the author understands the importance of the knowledge gained from the company's current operating system in Thailand, which can be used as a valuable reference to apply for the organization of service in Da Nang. So, during the time working at Bellugg, the author actively participated in the operation and practically observed the whole process from the receipt of order until the luggage delivered to customer. All information gathered and data collected are demonstrated in this section.

7.2.1 Overall process

Figure 9 illustrates the order fulfillment process that Bellugg is now doing in Thailand. The process contains six basic steps, starting with the receipt of customer order. Then the order is checked for capacity before confirming. After customer checks in, meaning drop-off of luggage, the order will be assigned to the driver who is in charge of the area where the hotel is located. Finally, luggage is picked up and delivered to the airport/ or hotel as required. A detailed operation flowchart is illustrated in Appendix 2.



Figure 9. Operation process at Bellugg.

The company is dealing with three different types of orders in term of delivery time requirement i.e. forward order, normal order, and urgent order. Depends on each type of order, the process may vary between situations for transport and warehousing activities. Forward order refers to the delivery of luggage that is required at a later date from the time of check-in (drop-off of luggage). Normal order concerns the delivery that is in accordance with the company's standard service, meaning that luggage is delivered on the same day within 24 hours from the time of check-in. And, urgent order refers to the express delivery of luggage within 3 hours.

7.2.2 Transport

Luggage delivery service is carried out in two directions: from Airport-to-Hotels (ATH); or from Hotels-to-Airports (HTA). Transport operation is conducted by dividing Bangkok into six different small areas where the density of hotels is high (see Appendix 3.3). These are usually the areas where attract the most demand thanks to the huge number of tourists. Each area is covered by one truck and one driver. When customer places an order with specific information about the pick-up location and destination, the order then is assigned to the driver who is in charge of the area where the hotel is located.

Box vans are used for transport of luggage in order to protect the luggage and ensure high security during the transport process (see Appendix 3.4). A box van can handle up to 30-40 luggage per trip, with the total carrying weight up to 1.5 tons. The distance between Bangkok Suvarnabhumi airport and the city center is about 30-40 km, which may take around 40-50 minutes' drive for a one-way trip at a normal speed, and up to 1.2-1.5 hours in case of congestion. It takes about 15 minutes to load luggage from the warehouse into the truck or from the truck to the warehouse at the airport, and around 5 minutes per time for one drop-off or one pick-up of luggage at the hotel, including parking time and handling time. On average, one order was often booked for delivery of 2-3 pieces of baggage. So, for one round trip between airport and hotels, a truck usually carries about 25-30 pieces and has approximately 9-10 stops in total for drop-off and pick-up of luggage during the journey. The total delivery time for one round trip between the airport and hotel is calculated as 4 hours and 53 minutes from the time the customers leave their luggage. Bellugg promised delivery time for ATH and HTA luggage delivery services is also 5 hours.

There are two delivery windows that are available for ATH and HTA services. As for ATH service, if customers drop their luggage at Bellugg booth at the airport within 8AM-12PM, luggage will be delivered before 5 PM. If the luggage is received during 12PM-4PM, then it will arrive at the hotel by 9 PM. When it comes to HTA service, normal delivery service is only available until 2 PM, meaning that if the customers drop their luggage after 2 PM, they either have to use the express service or the luggage will be shipped on the next day. Express service within 3 hours is done by an outside contractor, if customer books express delivery service, management staffs will call and book service from the Limousine airport transfer partner (the outside contractor) as soon as the order is confirmed. For normal service, customers can leave their belongings at the hotels during the two following windows: from 9AM-11.30AM and luggage will arrive within 5 hours from the drop-off time; and from 11.30AM-2PM then their luggage will be shipped to the airport before 7 PM. Truck is usually parked in the area where the driver is responsible for, and it starts going from the city center to the airport. This is because the major orders are booked for HTA services. Luggage is collected from the hotels in the city area from 9 AM and starts leaving for the airport at about 11.30AM, then drivers transfer luggage at the airport, pick up ATH orders and return to the city center to deliver luggage to hotels.

7.2.3 Warehousing

Bellugg now has a booth and a separate warehouse for storing luggage at Suvarnabhumi airport in Bangkok, which is the biggest airport in South East Asia. Thailand is one of the most famous tourist attractions in the world, and airways are the most popular way for international tourists travelling to Thailand via Bangkok airport, with approximately 35 million passengers coming each year. (The Website of Tourism Thailand, 2019) As a result, the volume of luggage moved through the airports is considerably high. Additionally, Bellugg is also doing luggage storage service at the airport besides the luggage delivery service. Therefore, having a separate warehouse at the airport is appropriate and necessary in order to deal with the high volume as well as to reach and serve customers in the best way.

Luggage is attached with a tag showing the name of the customer and the required delivery/pick-up time and place, depends on the type of order (HTA or ATH). It is also covered in plastics bag after receiving from the customer (see Appendix 3). This helps to protect the luggage from scratch and damage, as well as from the outside weather during the handling and storage. Aside from that, there are three measurement sizes that apply for each type of luggage: S, M and L. S size is less than or equal to a 22-inch suitcase, this type of luggage is usually used for carrying on board. M size is for a suitcase which is from 22-inch to 28-inch height, and L size is for over 28-inch suitcase and sports equipment such as surfboard, TV or bicycle. The idea of dividing and using different unit sizes is to optimize capacity and facilitate better daily operation planning, as well as to make sure that the customers pay the right amount for their luggage.

The warehouse is opened 24/7, which means the customers can pick up or leave their luggage at any time. Although the cost for operating overnight is significantly high, there are many flights departed and arrived throughout the nighttime, so it is necessary to open overnight for the needs of passengers. The warehouse is divided into two zones, one is for long time storage, and the other located near to the door is for luggage which is ready to be shipped or given to the customer on that day. Luggage is sorted based on the required delivery/pick-up time. Luggage delivered or picked up at an earlier date will be put near to the 'ready' zone according to timely order (see Figure

10). Regarding ATH service, if the order requires normal delivery, the luggage will either to be kept at the booth then transferred directly to the truck or it will be moved to the warehouse shortly before being loaded into the truck if there is not enough space available at the booth. As for HTA service, the process is carried out similarly but in the reserve direction, luggage is transferred from the truck to the booth or the warehouse and waiting for the customer to pick up. In case of forward orders, luggage will be moved and stored at the warehouse until the required day of delivery/pick-up. In case of urgent orders, the outside contractor is involved, and the luggage will be directly handled by the contractor as soon as the customers drop off their luggage.

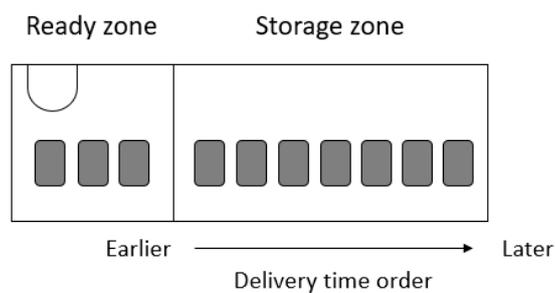


Figure 10. Bellugg warehouse layout and luggage arrangement.

7.3 Result of the interview with the company's representative

The interview was conducted with the Bellugg managing director in late May via Skype meeting. The aim of the interview was to collect valuable knowledge from the Bellugg experience when starting their business in Thailand, as well as to understand clearly Bellugg expectation for the Da Nang market. During the interview, the discussion did not cover all aspects of the business but only focused on a few main topics which are related to this research, including demand forecasting, customer behavior, and performance measurement.

On average, in Bangkok, the company is now dealing with nearly 200 luggage per day, and 80% of total orders coming from Korean tourists, which are mainly booked via their key partner's website - one of the top travel agencies in Korea. Da Nang has recently become one of the most attractive destinations for Koreans as well as international tourists. With a good relationship established with their Korean partner and other

important partners in their network such as airlines or online travel agencies, Bellugg has a positive outlook towards the Da Nang market. Demand forecasting was generated by the Bellugg management judgment based on the researched data and their discussion with their partner, as well as their own experience when doing business in Thailand. In the first stage, they expect to handle on average about 50-60 suitcase on a daily level.

It was also discussed that Da Nang and Bangkok have many common traits, for example, in terms of weather, geographical location, and main groups of travelers. With various similarities, customer needs are estimated to be relatively the same between the two destinations. Based on the sale database and report from the company, it is noticed that on average over 70% of total orders in a day were booked for M size luggage which is from 22-inch to 28-inch height. These orders were mostly from Asian tourists like Korean, Chinese and Japanese - the main customer groups that account for major sales of the service in Thailand. Since 28-inch luggage is the biggest size of luggage that is the most commonly used in Asia, it explains why the major of orders are booked for M size. Furthermore, about 85% of the total sales in Thailand came from HTA services. This is due to the fact that most of the flights from Bangkok to Korea, Japan or China are often departed at late evening or midnight, and the waiting time between the check-out time at the hotel (usually before 12 PM) and the flight departure time is significantly long. Carrying luggage around after checking out at hotel causes a lot of inconvenience and burden for the tourists, so same-day luggage delivery service from hotel to airport is widely used, which in turn resulted in a short storage time of luggage at the warehouse, usually just less than one day.

The topic of measuring process performance was also discussed during the interview. As at the beginning of the business, the organization of operation may not be smooth and well-functioning, it is essential to keep an eye on the performance of the process so that improvements can be made as soon as possible. At the moment, the company does not have a well-established KPI system to monitor their operation, reports are mainly focused on sales and revenue. Thus, they expected to have some suggestions on important indicators which they should keep their eyes on when arranging operations in Da Nang and in Thailand as well.

7.4 Research of Da Nang

7.4.1 Da Nang international airport

Da Nang is the third largest city in Vietnam and located in the central area. Compared with Bangkok, Da Nang is much smaller in terms of size, area or population. The total area of Bangkok is over 7,700 km² with more than 15 million citizens. (The Website of Tourism Thailand, 2019) Meanwhile, the area of Da Nang is only around 1,280 km² with a population of nearly 1.2 million people. (The Website of Ministry of Planning and Investment, 2019) Da Nang new international terminal was opened in 2017, and it has welcomed about 2.8 million passengers in 2018, according to a statistic from the Ministry of Culture, Sports and Tourism of Vietnam. Apart from that, Da Nang airport - the biggest international airport in the center of Vietnam - is the main gateway that connects international passengers with other popular cities for tourists nearby Da Nang such as Hue or Hoi An (Quang Nam).

Different from Bangkok, Da Nang international airport is located close to the city center, which is just about 3-10 km. Da Nang has totally eight districts, in which there are six main districts where major of residents and tourists stay, including Hai Chau, Cam Le, Thanh Khe, Lien Chieu, Ngu Hanh Son, and Son Tra. (The Website of Ministry of Planning and Investment, 2019) The city center or the downtown area contains four districts i.e. Thanh Khe, Hai Chau, Cam Le, and Lien Chieu, while Son Tra and Ngu Hanh Son are the two suburb districts (see Appendix 1). Usually, it only takes around 5-20 minutes' drive to reach the downtown and suburb areas from the airport. During the rush hours, it may take a little longer than normal, about 10 minutes to the central area and 35 minutes to Ngu Hanh Son or Son Tra districts, according to the search results from Google Maps.

The international terminal and the domestic terminal of Da Nang airport are designed as two separate buildings which are located near to each other, which is about 500 meters in distance. The size of the airport is significantly smaller than Suvarnabhumi airport in Bangkok. Da Nang airport has a total area of nearly 70,000 m², in which the areas of the international terminal and domestic terminal are about 48,000 m² and

20,000 m² respectively. (The Website of Danang Airport, 2018) Meanwhile, the total area of the Suvarnabhumi airport in Bangkok is over 560,000 m², about eight times bigger than Da Nang area. (The Website of Suvarnabhumi Airport, 2019)

7.4.2 Flights schedule and frequency analysis at Da Nang airport

The company aims at serving tourists who travel with luggage by offering luggage delivery service between the city and airport – the transportation hub and the gateway for international passengers to connect to the city. A statistical analysis on Da Nang International Airport was conducted through analyzing flight schedules and frequency in order to decide appropriate operating hours. Since the service is still new in Vietnam and the company current network mostly contains international partners like Korean/Chinese/Japanese online travel agencies or Thais' airlines, the analysis only focuses on direct international flights to Da Nang at the international terminal. Data about the schedule and frequency of international flights to Da Nang was collected from the official website of Da Nang International Airport for analysis purpose (see Appendix 4).

Figure 11 shows the analysis of international flights at Da Nang airport by weekly frequency. Flight connecting with Korea has the highest frequency, with 203 flights per week, and constitutes nearly 60% of total flights. Following are the flights from China with 63 flights, Japan with 18 flights, Singapore with 14 flights, or Taiwan with 13 flights. It can be seen that people from other Asian countries, especially from Korea, China and Japan, account for a major part of the total number of passengers traveling to Da Nang.

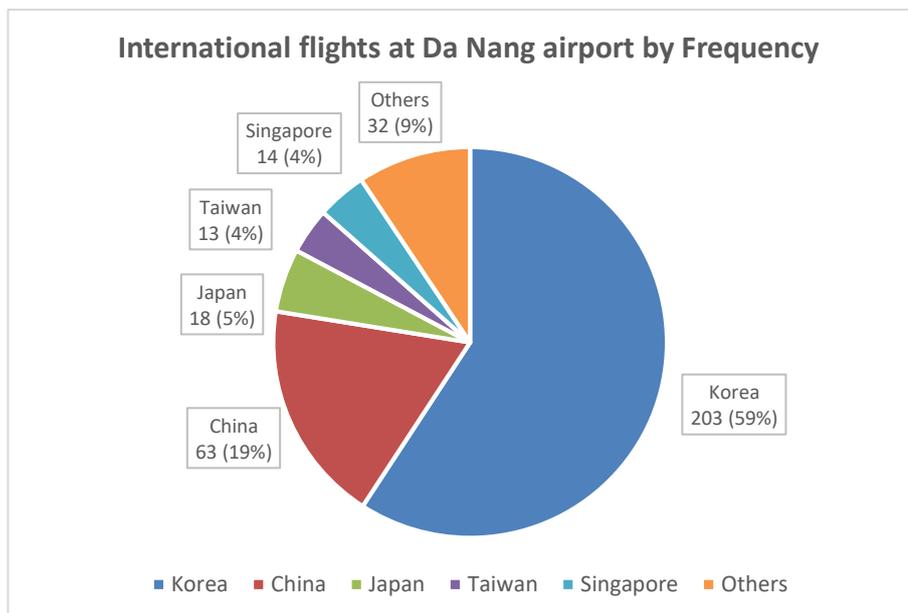


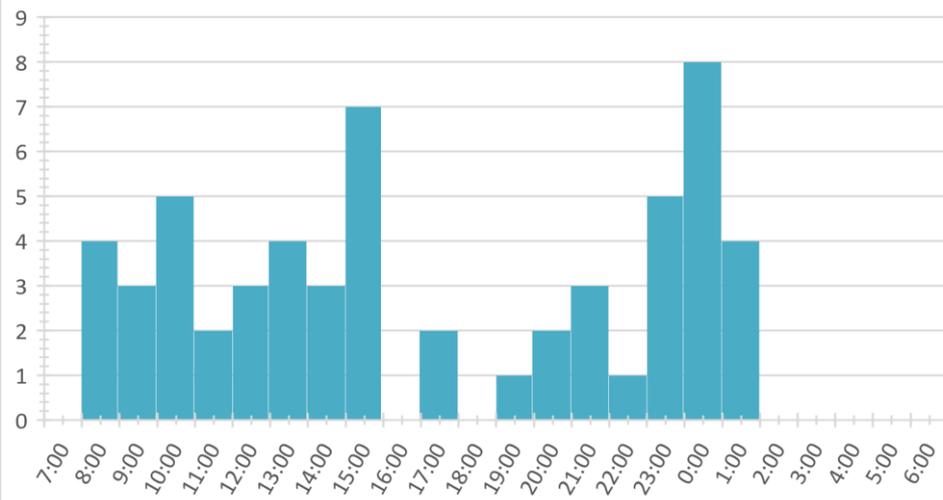
Figure 11. International flights at Da Nang airport by weekly frequency.

Based on the data gained from the interview with Bellugg managing director, Asian tourists like Korean, Chinese and Japanese are the main groups that frequently use luggage delivery service in Thailand. Therefore, with the same customer groups, the data collected from the internship and the interview about the services and customers' preferences in Thailand can be considered and used for planning operations in Da Nang.

Figure 12 shows the flight frequency by hour. It can be seen from the chart that there is no flight departing or arriving during the time from 3 AM to 7 AM. The latest flights depart at around 2 AM and arrive at 8 AM onwards. Besides, arrival flight frequency is highest from 11 PM - 2 AM and 1 PM - 3 PM, while departure time is busiest in the evening and midnight, from 9 PM until 2 AM.

Figure 13 illustrating the flight frequency by time window in a day through the pie charts in order to provide a clearer view of the flight timetable. It is divided into three different time windows: Morning time starting from 6 AM – 12 PM, afternoon time from 12 PM – 6 PM, and evening time from 6 PM onwards.

Arrival flights frequency by Hour



Departure flights frequency by Hour

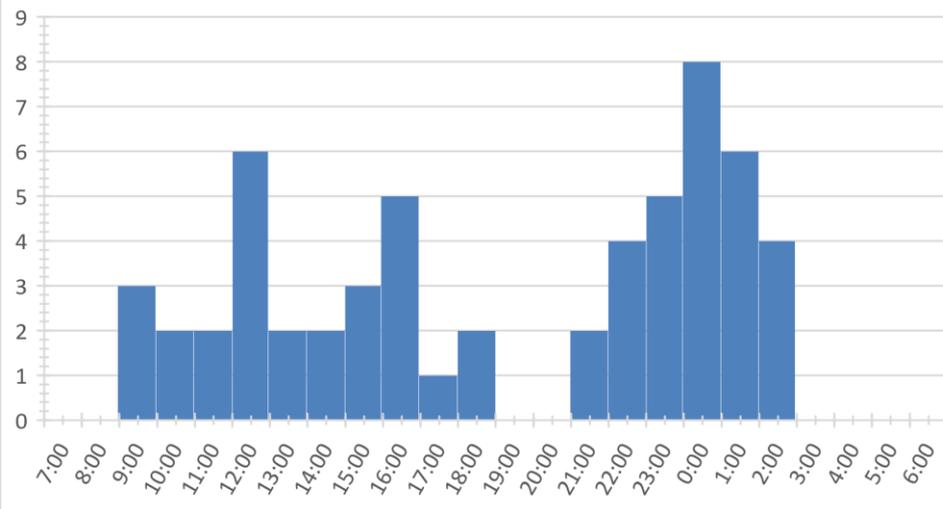


Figure 12. Flight frequency by Hour.

Concerning international flights schedule at Da Nang airport, the frequency of arrival flights is quite even, with 42% of flights arrive in the evening, 33% in the afternoon and 25% in the morning. Meanwhile, there are over 55% of flights departing after 6 PM, 33% in the afternoon, and only 12% in the morning. Thus, the potential for same-day luggage delivery service from Hotel-to-Airport is predicted to be significantly high since most flights depart in the evening or midnight.

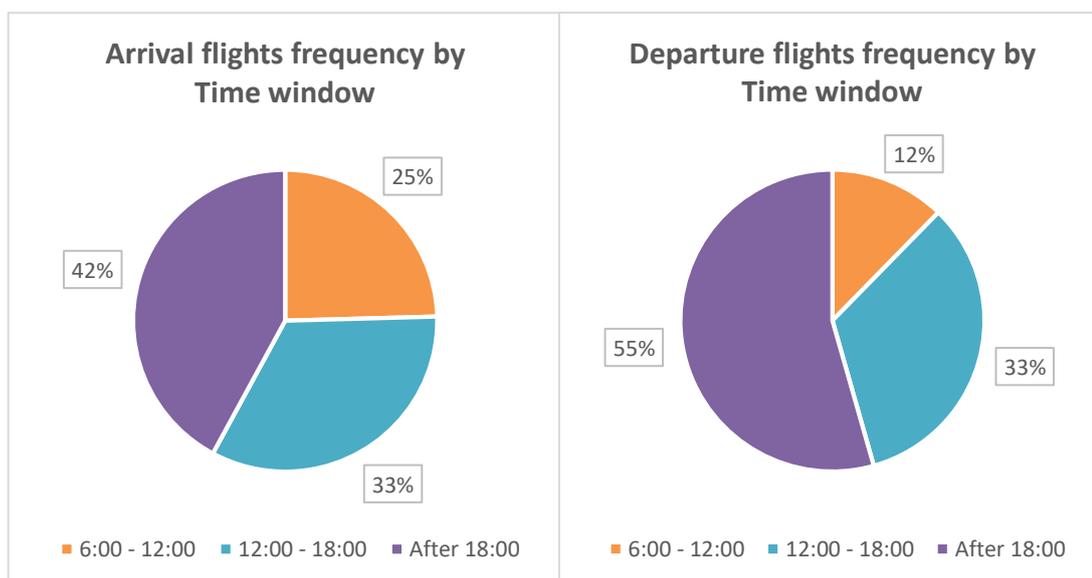


Figure 13. Flight frequency by time window in a day.

7.4.3 Comparison between different types of truck

According to the Decision 29/2014/QĐ-UBND stipulated by People's Committee of Da Nang regarding regulations on route separation and operating time for vehicles participating in road traffic in Da Nang, cargo cars with the tonnage of under 1.5 tons are permitted to operate 24 hours a day on all the roads of the city. Cargo cars with the tonnage of more than 1.5 tons are not allowed to operate on the main roads in the city center during peak hours, within 6 AM-8.30AM and 4PM-7PM. (The Website of Legal Normative Documents, 2019) Therefore, it is clear that using a light truck with payload less than 1.5 tons is more appropriate to move around the Da Nang central areas. Table 1 shows a comparison between three different types of box van that are commonly used for delivery within the city area. Types of truck are classified by the loading capacity, including half-ton truck, one-ton truck and one-half-ton truck. Since the price of trucks may vary tremendously between different brands, and also the research of costs and market prices are out of the boundary of this thesis, so the consideration is only focused on the size and capacity of each type of truck. The comparison is conducted among Suzuki Super Carry, Hyundai Porter II, and Hyundai Porter 150, which is shown in Table 1. According to the baggage rules of Vietnam Airlines, one piece of checked baggage must not exceed 32 kg. (The Website of Vietnam Airlines, 2019) So, based on the maximum loading capacity of each type of truck, the number of pieces of luggage that can be carried by the truck is calculated.

Type of box van	Cargo room measurements (m)			Max loading capacity	
	Length	Width	Height	(Kg)	(Piece)
Half-ton (Suzuki Super Carry)	1.85	1.29	1.3	550	17
One-ton (Hyundai Porter II)	3	1.66	1.77	1000	31
One-half-ton (Hyundai Porter 150)	3.12	1.65	1.83	1450	45

Table 1. Comparison of three common types of city van. (The Websites of Suzuki and Hyundai, 2019)

8 RECOMMENDATION

8.1 Business establishment

According to the research findings, the only way for Bellugg to operate in Vietnam is to establish a joint venture with a Vietnamese company. Since Thailand and Vietnamese also belong to the ASEAN region, Bellugg should rely on the ASEAN Framework Agreement of Services (AFAS) – a trade agreement that was signed by the ten ASEAN countries including Vietnam and Thailand - in order to be entitled to the investment benefit of the capital contribution ratio up to 70%. Additionally, the company should carefully prepare all the required documents before submitting the application in order to minimize efforts and waiting time, as well as follow the investment procedure and comply with all the regulations and conditions stipulated by the law of Vietnam on investing in the road transport business, which were presented in section 7.1.

Apart from that, it is advised to invest as a company instead of contributing capital as individual investors. The investment made by the investor which is a company may require more documents and preparation than individual investment. However, people are more likely to be aware of the company brand rather than pay attention to the name of the manager or founder, especially for SMEs business. Therefore, by investing as a company, with the built image and reputation of the Bellugg brand, this will help to

attract more attention when running the business in a new market like Vietnam, as well as to ensure the reliability of the service in the eyes of the tourists who have previously used or known the Bellugg luggage delivery service from Thailand.

8.2 Logistics process planning

8.2.1 Warehousing

Luggage delivery service aims at serving tourists travelling with luggage, thus locating warehouse at the airport is definitely the best option to reach and serve the customers, especially for international travelers since the airport is the main gateway to connect to Da Nang from other countries. Moreover, the area of Da Nang international terminal is relatively small, so the available space for rent may be limited. Additionally, the type of service is about same-day luggage delivery, meaning that luggage is normally delivered or picked up by the customer within that day. As a result, luggage storage and waiting time at the airport will not be too long. Therefore, in the first stage of the business, it is not necessary to rent additional space for storing luggage. Instead of that, it is advised to combine warehouse and booth into one place, meaning the warehouse is not only for storing luggage but it also functions as the point of sale. This will help to save unnecessary costs as well as to reduce the handling time between the warehouse and the booth. Aside from that, it is better to locate the 'combined warehouse' in the arrival terminal area since it would attract more attention from travelers to the service when they arrive and get out of the airport.

Luggage size should be divided as the same way of doing in Thailand. Apart from facilitating better daily operation planning and ensuring that the travelers pay the right amount for their luggage, this will provide customers with more convenience and simplicity thanks to the synchronization of the booking system. Concerning the packaging, using plastic bags covering luggage is necessary and this idea should also be applied for the operation in Da Nang in order to better protect luggage from damage or scratch during the handling process.

As mentioned in the previous chapter, the company expects to handle about 50-60 luggage per day in the first stage of the business in Da Nang. Along with that, the type of service is about same-day luggage delivery, meaning that luggage is normally delivered or picked up by customer within that day. So, the average luggage storage time at the airport is usually less than one day. Based on the Little's Law relationship and formula, which was present in the theory part of this thesis, total size requirement for storing luggage L is calculated by multiplying the number of luggage handled per day with the average storage time of luggage at the warehouse, in this case, $L=60*1=60$ luggage.

Moreover, according to the data provided by Bellugg managing director from the interview, concerning the most used size of luggage from the group of Asian customers like Korean Chinese or Japanese, M size luggage which has a dimension from 22-inch to 28-inch height are mostly booked. Meanwhile, based on the flight frequency analysis, Asian travelers account for a major part of total tourists coming to Danang. So, the dimension of M size luggage will be used to calculate the area for storing luggage at Da Nang airport. 28-inch baggage has a dimension of 73 cm height, 48 cm length and 29 cm width. (The Website of Bellugg, 2019). With the forecasted demand of 60 luggage per day, the storage area needed is calculated as $60*0.48*0.29=8.352 \text{ m}^2$, approximately 9 m^2 .

Operation

By combining warehouse and booth into one place, the handling process become simpler and faster. Luggage will be quickly moved to the storage zone from the booth or in the reserve direction thanks to the direct connection between the two areas.



Figure 14. Example of 'combined warehouse' layout

From the result of analyzing the flight schedule at Da Nang airport, the latest flights depart at around 2 AM and arrive at 8 AM onwards. So, it is not necessary to open the service 24 hours a day. The opening time should be determined based on flight schedules at the airport. In this case, it is advised for the company to operate at the airport from 8AM-2AM instead of running for the whole day since all scheduled flights depart and arrive during this period.

Although warehouse and booth are suggested to join into one place, this would basically not result in any needed changes or modification to the warehouse operation, the warehouse will still function as it does. Therefore, the operation model can be applied based on the process in Thailand. The process consists of four basic steps (see Figure 15). First, luggage is received from the customer and attached with a tag showing the customer name and required delivery/pick-up time and place. After that, it is sorted in a timely order following the first-in-last-out rules and located into the storage zone. Then it will be picked up and handed to the customer (HTA order) or loaded into the truck for delivery to the customer hotel (ATH order).

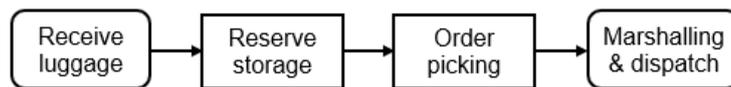


Figure 15. Warehouse process flowchart.

When it comes to monitoring and measuring process, the goal of warehousing is to effectively and efficiently control inbound and outbound stock movement and manage products in a way that utilizes space and resources. So, it is suggested for the company to focus on measuring the capacity utilization rate. This metric is essential since it allows the company to monitor the degree of using inventory storage and give appropriate decisions to reduce unnecessary costs, improve the utilization rates or consider extending the capacity if the utilization rate is excessively high. Capacity utilization rate is calculated by dividing the number of luggage stored per day in the warehouse by the total number of luggage that can be stored (storage capacity).

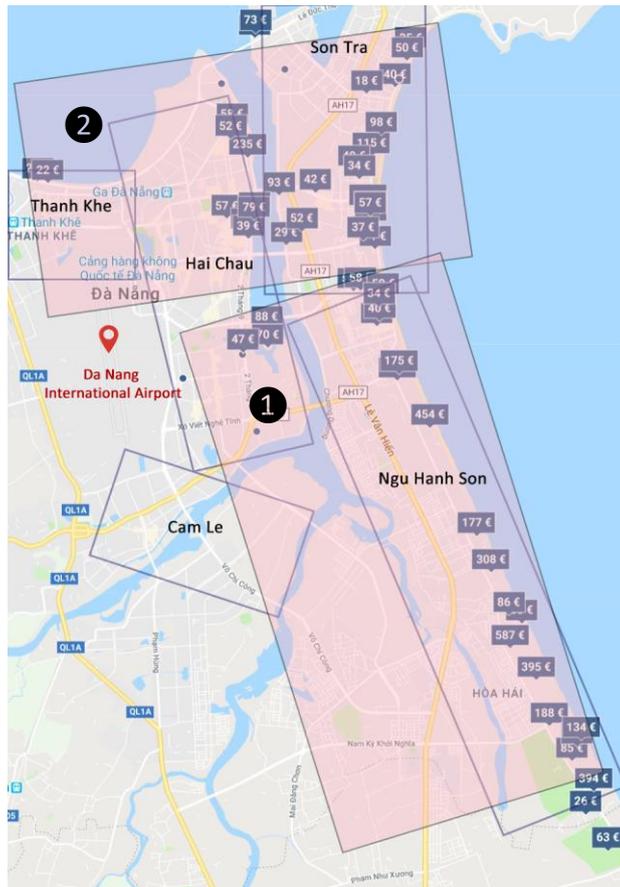
8.2.2 Transport

Doing luggage delivery service between airport and hotel requires operating in the city center where the density of hotel is high. Due to narrow streets, congestions, ban on large trucks, and limitations on access at some delivery destinations, a small truck is usually the most appropriate choice. Aside from that, luggage is the type of product that needs high security since it contains people's property and belongings. So, a truck with an enclosed body like a box van would ensure the security for the inside luggage, as well as protect the luggage better from the outside weather.

Concerning three different types of box van which were considered in Table 1 (section 7.4.3), the area of Da Nang is considerably small, and the airport is also close to the central districts where hotels are mainly located, including Hai Chau, Son Tra and Ngu Hanh Son (see Appendix 4). Traveling time is short so a truck with large capacity is more appropriate and cost-effective than managing several small trucks. A half-ton truck has the most convenient size, but it can only handle a small number of suitcases since the total loading capacity is just 550 kg. One-ton truck and one-half-ton truck have relatively equal sizes, but a one-half-ton truck can transport up to 45 pieces of luggage per trip. Therefore, it is advised for the company to consider using a one-half-ton box van, since it can carry bigger payload and ensure sufficient capacity to deliver heavy luggage as well as to deal well with extra demand on busy days. Additionally, for further vision, with large transport capacity, the company can expand their services by opening more transport routes in the future, e.g. offering luggage delivery services between cities or between Da Nang airport and other nearby tourist-attracted cities like Hue or Hoi An (Quang Nam), instead of just doing within Da Nang area.

An operational plan about the transport route and schedule will be created as recommendations for Bellugg to organize transport activities in Da Nang. As mentioned above, hotels are mainly situated around the three districts including Hai Chau, Son Tra, and Ngu Hanh Son, which are located next to each other. So, based on the geographical location, it is suggested to divide Da Nang into two main delivery areas, as shown in Picture 1. Area 1 contains Ngu Hanh Son district and a half of Hai Chau district including Hoa Cuong Bac ward and Hoa Cuong Nam ward. Area 2 consists of

Son Tra, Thanh Khe, and the other wards in Hai Chau. One truck and one driver needed to cover each area.



Picture 1. Area division of Da Nang.

Concerning the transport schedule, it is required to know the delivery time for one round trip between the airport and hotels in each area in order to plan an appropriate schedule. Delivery data is generated based on the parameter data collected from Bel-lugg operation in Thailand, as well as the information gained from the research of Da Nang (Table 2). Since handling luggage requires the same process, so data about delivery time for one drop-off/pick-up of luggage at hotel and transfer time at the airport are reference from the observed data of transport process in Thailand, which are 5 minutes and 15 minutes respectively. Order size is 2-3 pieces, which is also based on the sales data from Thailand due to the same customer group i.e. Asian travelers. Forecasted demand is about 60 pieces of luggage per day. The two delivery areas are assumed to have similar demand, which is equal to 30 pieces. So, there would be about 10 stops for dropping and picking luggage during the journey. Traveling time to reach the farthest areas in Ngu Hanh Son or Son Tra districts is around 35 minutes in case

of congestion. So, the total delivery time for one round-trip between Da Nang airport and hotels in each delivery area is calculated as the sum of travel time, transfer time at airport and delivery time for 10 drops, which is 2.5 hours. The promised delivery time for Bellugg customer can be made within 3 hours.

Travel time between Da Nang airport and city (one-way/ in congestion)	35 mins
Delivery time for one drop-off/pick-up of luggage at hotel	5 mins
Transfer time at the airport	15 mins
Estimated demand (daily)	60 pieces
Demand for each area (daily)	30 pieces
Order size	3 pieces
Driver's maximum working hour a day	10 hours
Maximum continuous driving time	4 hours
Total delivery time for one round-trip between airport & hotel	2.5 hours

Table 2. Delivery data.

	Activities	12		13		14		15		16		17		18		19		20		
		0	15	30	45	0	15	30	45	0	15	30	45	0	15	30	45	0	15	30
1st round	Pick-up luggage	■																		
	Depart for airport		■																	
	Transfer luggage			■																
	Return to city				■															
	Drop luggage					■														
2nd round	Pick-up luggage					■														
	Depart for airport						■													
	Transfer luggage							■												
	Return to city								■											
	Drop luggage									■										
Break										■										
3rd round	Pick-up luggage											■								
	Depart for airport												■							
	Transfer luggage													■						
	Return to city														■					
	Drop luggage															■				
Parking																				■

Table 3. Suggestion for transport schedule.

According to the result of flight schedule analysis at Da Nang international airport, HTA service is expected to have high potential since over 55% of departure flights departing in the evening or midnight. In addition, based on the information gained from the interview, travelers tend to use HTA service more than ATH service. So, from the generated delivery data, a suggestion on the transport schedule is created to deal

with a higher demand for HTA service. Since the usual checkout time at the hotel is 12 PM, the trip is advised to also start at 12 o'clock by collecting luggage from hotels in the city area and then depart for the airport. Collected luggage is transferred to the booth and ATH luggage will be loaded on the truck for delivery to hotels. As HTA service is estimated to have a higher demand than ATH service, so the time of pick-up of luggage for delivery to the airport is given longer than the time for luggage drop-off at hotels. The total delivery time for one round trip between the airport and hotels is 2.5 hours, as calculated above. So, one driver-one-truck-one area can have up to three rounds in a day depends on the demand. Based on the established transport schedule, the service time is planned in accordance with the operating time at the airport as well as the promised delivery time of 3 hours. As shown in Table 4, there are three-time windows that are available for customer to select. Since the normal delivery time between Da Nang airport and the city area is relatively short, just around 2.5–3 hours, it not necessary to run an express delivery at the beginning of the business. Service time is only planned for a normal delivery service.

HTA		ATH	
Drop-off	Pick-up	Drop-off	Pick-up
10.30 - 12.30	13.30	8.00 - 13.00	14.30
13.00 - 15.00	16.00	13.30 - 15.30	17.00
15.30 - 18.30	19.30	16.00 - 19.00	20.30

Table 4. Planned service time.

Aside from that, since the delivery service and overall operation are similar between Vietnamese market and Thais market, the transport operation can also be implemented based on the current transport process in Thailand. The process consists of six steps. First, luggage is received from the customer at the airport or picked up from hotels. After that, plastic bag will be used to cover and protect the luggage during the delivery process, along with an attached tag showing delivery information including the customer's name and delivery time and place. Concerning ATH transport, luggage is sorted and loaded into truck following the last-in-first-out order based on the information on the tag, meaning luggage which is delivered first will be put at last. So, when it comes to the step of unloading, luggage can be easily taken out of the truck and handed to the hotel without having to remove other bags. As for HTA transport,

information on the tag will be used for locating luggage in the storage after unloading luggage from the truck, before the luggage is handed to the customer

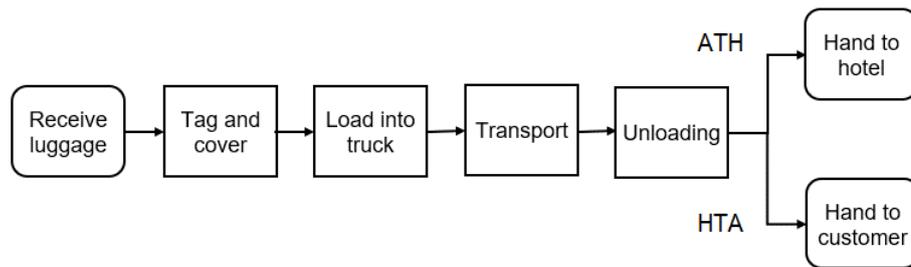


Figure 16. Transport process flowchart.

When it comes to measuring process, transport is the key process of luggage delivery service, and it directly affects the service level provided to customer in term of delivery performance. So, at the beginning of the business, measurement should focus on the performance of the transport process. It is suggested for the company to re-measure the delivery data when launching the services in order to compare and adjust the operation and delivery schedule more appropriately.

9 CONCLUSIONS

The goal of the thesis is to help Bellugg Group Company to expand the luggage delivery service in Da Nang, Vietnam. In order to achieve this goal, knowledge of the logistics process and the business establishment was studied and covered in the theoretical part. Research findings were made on the laws and regulations for foreign investment in Vietnam, along with the data and experience observed from the author's internship at Bellugg and the interview with Bellugg managing director. Moreover, to give appropriate suggestions on opening service in Da Nang, research and analysis of Da Nang international airport and flight schedules and frequency were carried out. Recommendations were made based on the theory and research findings of the form and procedure of investment as well as the organization of warehousing and transport process for luggage delivery service in Da Nang.

According to the findings, the only way for Bellugg to operate in the road transport business is to establish a joint venture with a Vietnamese company. Bellugg should

rely on the ASEAN Framework Agreement of Services (AFAS) to be entitled to the investment benefit of the capital contribution ratio up to 70%. As for the logistic process development, it was discussed and found that Da Nang and Bangkok have several similarities in terms of weather, geographical locations as well as main groups of travelers, customer needs are expected to be relatively the same between the two destinations. However, there are still differences that need to consider when designing warehousing and transport processes, such as demand, flight timetable, or location and size of the airport. These differences resulted in different ways of designing warehouse and booth location, planning storage requirement and operating hours, or choosing a suitable transport vehicle, which was accordingly discussed in the recommendation. With the current operational model that is running in Thailand, it is viable for the company to apply as well as adjust their existing Logistics process appropriately to organize luggage delivery service in Da Nang in the most optimal way. Along with that, it is also suggested for the company to monitor the space utilization rate of the warehouse, as well as re-measure the delivery data when launching the services in order to compare and adjust the operation and delivery schedule more appropriately.

This project was only focused on planning service in Da Nang area. Meanwhile, Da Nang airport is the biggest international airport in the center of Vietnam. It is the main gateway to connect international passengers to the central areas. Thus, further research can be conducted to expand the service to other popular cities for travelers nearby Da Nang such as Hue or Hoi An (Quang Nam), where usually attracts a great number of tourists.

During this project, the author had a chance to gain deeper understandings of the Logistics process development along with the laws and regulations applied for foreign investment in Vietnam. Moreover, working on the topic of this thesis also helped her to learn how to apply knowledge and experience obtained from school and work to a practical project. This has facilitated her to develop data analysis skills as well as improve her ability for organizing and planning business operations. Besides, due to limited information available on the official Vietnamese websites, the findings, somehow, are not indicated practical investment process as in reality. However, information gathered is still sufficient for the company to have an overall picture of what to do if they want to invest in Vietnam.

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APPENDIX 1

Official form (in Vietnamese) for applying for business license regarding road transport business. (The Website of National Administrative Procedures, 2019)

Mẫu:

Tên đơn vị
KDVT:.....

CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM
Độc lập - Tự do - Hạnh phúc

Số:...../.....

....., ngày..... tháng.....năm.....

ĐỀ NGHỊ CẤP
GIẤY PHÉP KINH DOANH VẬN TẢI BẰNG XE Ô TÔ
Kính gửi: Sở GTVT.....

1. Tên đơn vị kinh doanh vận tải:.....
2. Tên giao dịch quốc tế (nếu có):.....
3. Địa chỉ trụ sở:.....
4. Số điện thoại (Fax):.....
5. Giấy chứng nhận đăng ký kinh doanh (hoặc đăng ký doanh nghiệp) số:.....
do.....cấp ngày..... tháng..... năm.....
6. Họ và tên người đại diện hợp pháp:.....
7. Đề nghị cấp phép kinh doanh các loại hình vận tải:

.....
.....

Đơn vị kinh doanh vận tải cam kết những nội dung đăng ký đúng với thực tế của đơn vị.

Nơi nhận:

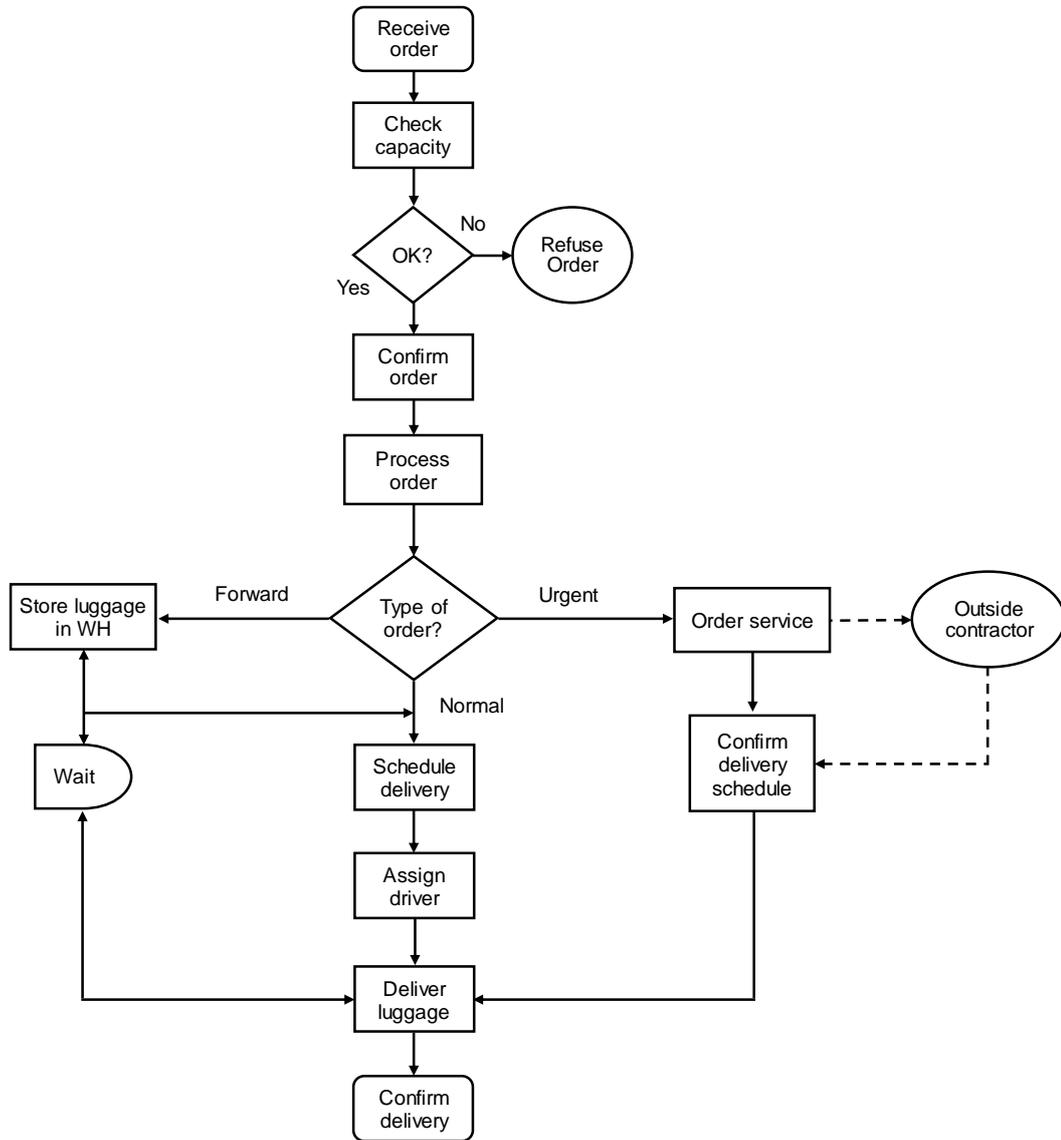
- Như trên;
- Lưu.

Đại diện đơn vị kinh doanh vận tải

(Ký tên, đóng dấu)

APPENDIX 2

Bellugg's operation flowchart.



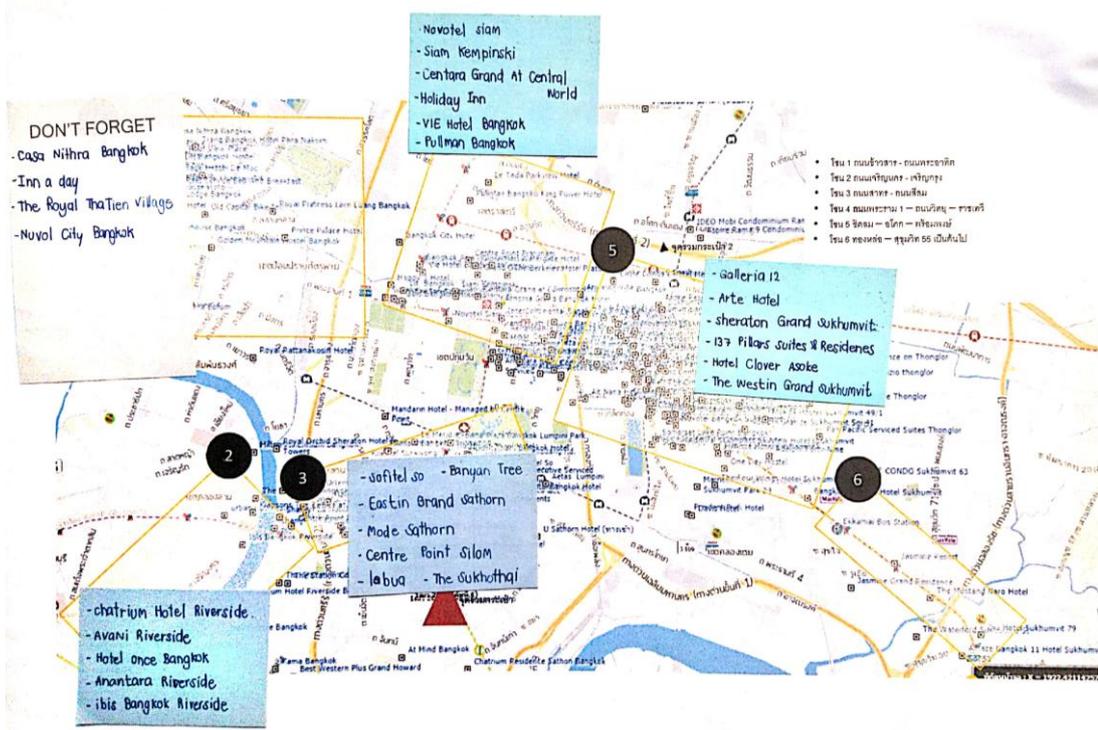
3.1 Bellugg booth and luggage handling.



3.2 Tag for luggage and size table



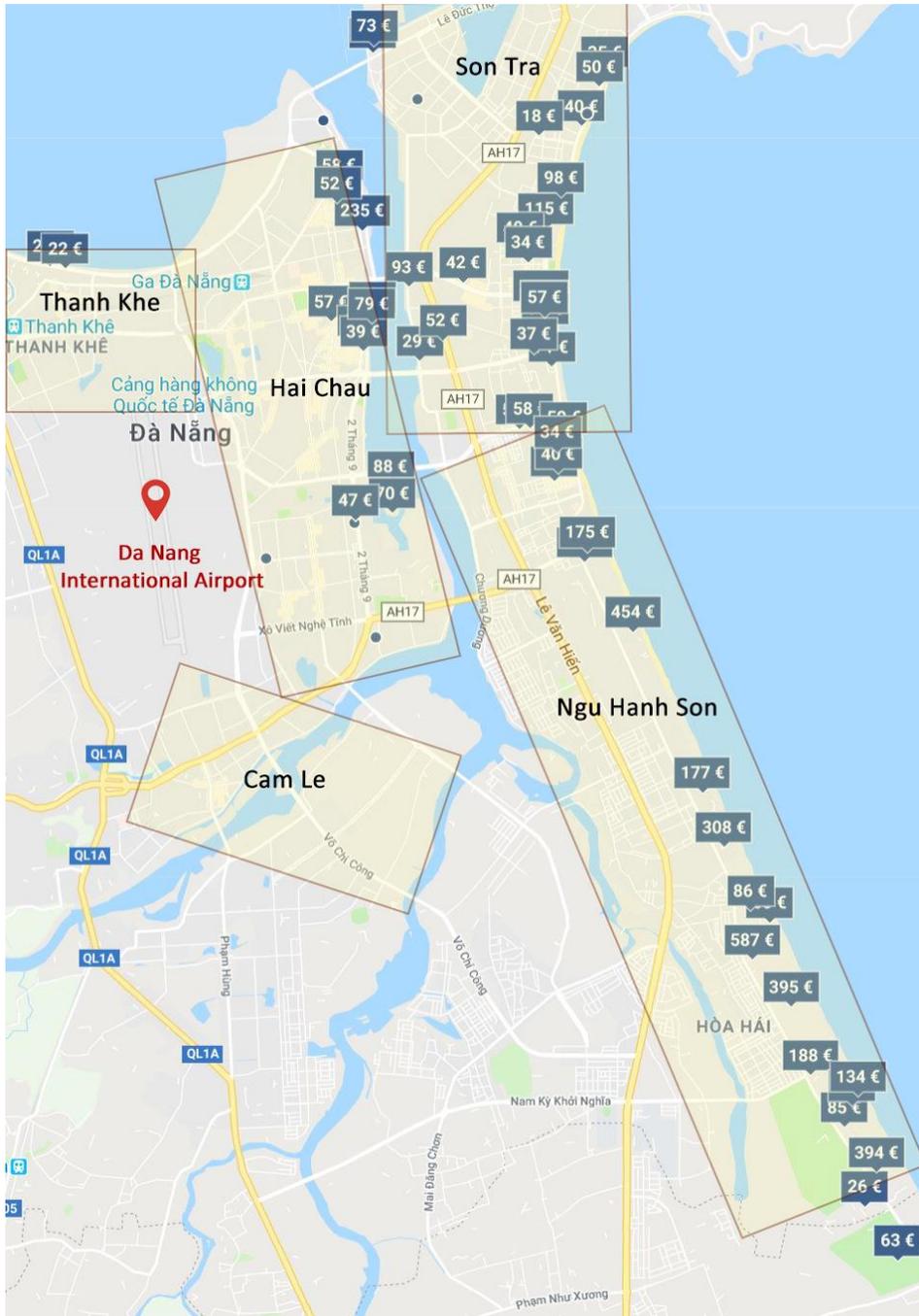
3.3 Area division in Bangkok



3.4 Bellugg truck



Da Nang areas and airport location. (The Website of Google Maps, 2019)



APPENDIX 5

Flight schedule and frequency statistic at Da Nang international airport (The Website of Danang Airport, 2018).

Country	City	Airline	Inbound frequency	Outbound frequency	Arrival time	Departure time
KOREA	Seoul	Korean Air	2/24	2/24	13:55	15:30
					21:25	22:50
		Jeju Air	3/24	3/24	0:05	14:20
					1:30	1:30
					13:20	23:40
		Jin Air	4/24	4/24	10:00	23:10
					0:20	11:30
					20:00	21:00
					23:30	1:35
		T'way Air	2/24	2/24	10:25	11:25
	23:15				0:20	
	Vietjet Air	3/24	3/24	8:55	22:45	
				9:40	23:45	
				1:25	15:30	
	Eastar Jet	2/24	2/24	21:10	22:30	
				23:10	0:10	
	Hahn Air	1/24	1/24	8:55	22:45	
				9:40	23:45	
	Vietnam Airlines	1/24	1/24	14:05	0:15	
				21:35	23:05	
Asiana Airlines	1/24	1/24	21:35	23:05		
Air Seoul	1/24	1/24	1:20	2:20		
Busan	Asiana Airlines	2/24	2/24	0:10	2:15	
				0:30	1:10	
	Korean Air	1/24	1/24	0:15	2:45	
	Jeju Air	1/24	1/24	13:10	13:40	
	T'way	1/24	1/24	0:25	1:25	
	Jin Air	1/24	1/24	0:35	0:30	
	Vietjet Air	1/24	1/24	10:20	0:35	
Daegu	Jeju Air	1/24	1/24	10:10	12:10	
				1:10	2:15	
	Air Busan	1/24	1/24	1:10	2:15	
	T'way	1/24	1/24	23:15	1:50	
JAPAN	Tokyo	Vietnam Airlines	1/24	1/24	14:10	0:55
	Osaka	Vietnam Airlines	1/24	1/24	12:55	0:55
		Jetstar	4/7	4/7	12:00	14:30
CHINA	Hong Kong	HK Express	2/24	2/24	17:10	18:15
					8:45	12:10
		Cathay Dragon	1/24	1/24	8:55	9:50
	Jetstar	5/7	5/7	15:00	10:10	
	Macau	Macau Air	1/24	1/24	20:30	21:50
	Beijing	China Eastern Airlines	4/7	4/7	0:20	1:20
	Changsha	Okay Airways	3/7	3/7	11:25	12:25
	Kunming	China Eastern Airlines	3/7	3/7	15:55	16:55
	Zhengzhou	China Southern Airlines	3/7	3/7	14:30	15:30
	Hangzhou	Vietnam Airlines	4/7	4/7	23:35	16:10
	Guangzhou	Vietnam Airlines	3/7	3/7	22:50	17:25
		China Southern Airlines	1/24	1/24	15:20	16:20
	Bei Hai	China Southern Airlines	3/7	3/7	15:30	16:30
TAIWAN	Taipei	Jetstar	4/7	4/7	15:25	9:15
	Khaohsiung	Far Eastern Air	5/7	5/7	9:30	10:30
		Vietnam Airlines	4/7	4/7	15:30	9:20
THAILAND	Bangkok	Bangkok Airways	1/24	1/24	12:45	13:35
		Air Asia	1/24	1/24	11:30	12:00
MALAYSIA	Kuala Lumpur	Air Asia	1/24	1/24	13:05	12:35
CAMPUCHIA	Siem Reap	Vietnam Airlines	1/24	1/24	17:35	18:25
SINGAPORE	Singapore	Silk Air	2/24	2/24	15:45	12:30
					10:45	16:35
QATAR	Doha	Qatar Airways	4/7	4/7	19:25	0:50