Operational system development of luggage delivery service

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กระเป๋าสัมภาระมักเป็นปัญหาสำหรับนักเดินทางทุกท่าน ที่จะต้องนำไปเก็บไว้ที่โรงแรมก่อนทุกครั้งหลังจาก ถึงที่หมาย ทั้งยังความยากลำบากในการจัดการกระเป๋าดังกล่าวในวันสุดท้ายหลังจากเช็คเอาท์ออกจากโรงแรม หรือแม้แต่ ปัญหาลักขโมย ลืมสัมภาระต่างๆ ทั้งนี้มีนักท่องเที่ยวเดินทางมายังประเทศไทยเป็นจำนวนมากกว่า 32.6 ล้านคน จาก ข้อมูลในปี พ.ศ. 2559 ซึ่งจากการสำรวจนั้น ยังไม่มีผู้ใดให้บริการที่สามารถแก้ไขปัญหานี้ได้อย่างตรงจุด

จึงได้เกิดบริการที่สามารถแก้ไขปัญหาได้อย่างตรงจุด ทั้งยังไม่ซับซ้อน คือบริการขนส่งสัมภาระ โดยการส่ง มอบสัมภาระภายในวันเดียวกันตามเวลาที่ลูกค้ากำหนด (On-Demand) ด้วยความปลอดภัย ซึ่งต้องใช้ทั้งความรู้ด้านการ จัดการองค์กร การควบคุมประสิทธิภาพ การควบคุมต้นทุน การจัดการระบบขนส่ง การประยุกต์ใช้เทคโนโลยี ทั้งนี้การทำ การตลาดยังพึ่งทฤษฎีการแบ่งกลุ่มลูกค้า การทำโฟกัสกรุ๊ป และยังต้องนำหลักการบริหารผลประโยชน์ระหว่างบริษัท (B2B) มาปรับใช้อีกด้วย

เนื่องจากธุรกิจการให้บริการส่งมอบสัมภาระนี้ เป็นการบริการรูปแบบใหม่ ไม่มีวิธีใดที่สามารถนำมาชี้ เปรียบเทียบเพื่อวัดคุณภาพของระบบหรือผลการดำเนินงานได้ ดังนั้นจึงใช้ ความแตกต่างระหว่างประสิทธิภาพในการ ให้บริการและความคาดหวังของลูกค้าเป็นตัวชี้วัด ซึ่งมีตัวแปรหลายปัจจัยที่จะส่งผลต่อประสบการณ์ในการให้บริการ สำหรับการพัฒนาด้านธุรกิจนั้น จะใช้การกำหนดระบบการทำงานที่เป็นมาตรฐาน และประยุกต์ใช้ความรู้ทางด้านการ จัดการ โปรเจค ช่วยลดความยุ่งยากของงาน ทั้งยังทำให้การทำงานนั้นก่อให้เกิดประสิทธิภาพสูงสุดอีกด้วย จึงได้นำเสนอ ระบบการดำเนินงานใหม่

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Luggage handling is a regular but tiring, time-consuming activity when travelers stay abroad. The solution is designed to be easy, convenient, and helpful for foreigners. The niche market is underdeveloped and its business potential is high. Thailand welcomed more than 32 million foreign travelers in 2016. At the time of research, no business provides the solution in the city.

By integrating market and operational requirements, an operational system can be developed to control costs, quality, and deliverables. Market requirements include customer behavior, market segments, differentiators, and customer expectation of the service. On the other hand, operational requirements are investigated through stakeholder analysis, capacity of logistics, and technologies and defined as operational objectives. Assumptions of market and operational requirements are analyzed and integrated to give an overview of the service.

By applying project management techniques and new operational system, operators can adopt the information to define service scope, operations, organization, and required resources. The service quality is evaluated by the gap between consumer expectation and perceived service performance. The standardized procedures can reduce the variation of the process and secure the quality level. With a structural system, the elements can be investigated and optimized to create further benefits.

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1.1 Business background

    1.1.1   Luggage delivery service

Luggage includes the basic gears and daily products, such as clothes and daily needs, for people traveling from their home. Most of the travelers have to carry additional items to sustain their daily behavior. While transportation services, such as limousine, bus, taxi and public transfers, are available in most of the tourist destination, people need to find a place to drop or deposit their additional belongings before start their main business, traveling or working. As the infrastructure in different countries vary, travelers, especially foreign travelers, have to spend more time to identify or look for the places and destinations. With language barrier, foreigners will put more effort to stay in the other countries. Though there are many types of traveling styles and various groups of travelers, all their common behavior is carrying luggage, suitcase, or bag(s). Carrying additional belongings, luggage, is inconvenient for people to travel and move.

To spend time more efficient and effective and cut off the pain point during moving, delivering luggage ahead to the next destination is very helpful. Traveling without additional luggage can make travelers moving easily as near their home. Nevertheless, no company is providing luggage delivery as a scalable business in Bangkok, Thailand. Besides, several barriers such as making trust among customers, setting services points or delivering luggage haven't been solved in the market. Supported by communication technology, tracking system, and high coverage 4G

signal, the deliverers can keep in touch with the customers without worries. Thus, the idea comes and opportunity for the team to build a startup in the region.

1.1.2 Market information

1.1.2.1 The tourism market

In Thailand, all Thai people speak Thai language. Only those who are well-educated do speak English or the other languages. The phenomenon builds the barrier for international travelers to communicate with the natives. As Thailand is popular for its beautiful beaches, tropical weather, and unique culture, the Kingdom attracts tens of millions of foreign tourists and travelers to visit the country. However, the country doesn't present a positive image for its quality of tertiary industry. Besides, the infrastructure of the city Bangkok needs strong improvement. Traffic jams, unreliable taxi service, and insufficient public transportation system have greatly increase difficulty of traveling for tourists and travelers in the city and country.

Nevertheless, this provides the opportunities for improvements and chances for better service. In 2014, Thailand welcomed 24.7 million foreigners, and 16 million, 66.7%, of them visited Bangkok. Though Thailand had a military coup in the midst of 2014, which deterred tourists and seriously harmed tourism industry, the country revives and has welcomed more tourists than ever in 2016. The statistics of international travelers in Thailand from 2009 to 2015 is shown in Figure 1: Inbound of international tourists in Thailand (Passport, 2015)Figure 1. On the other hand, in 2015, the country welcomed 29.9 million foreign travelers which increased by 21.05% compared to the number in the same period in 2014 (DOT, 2016).
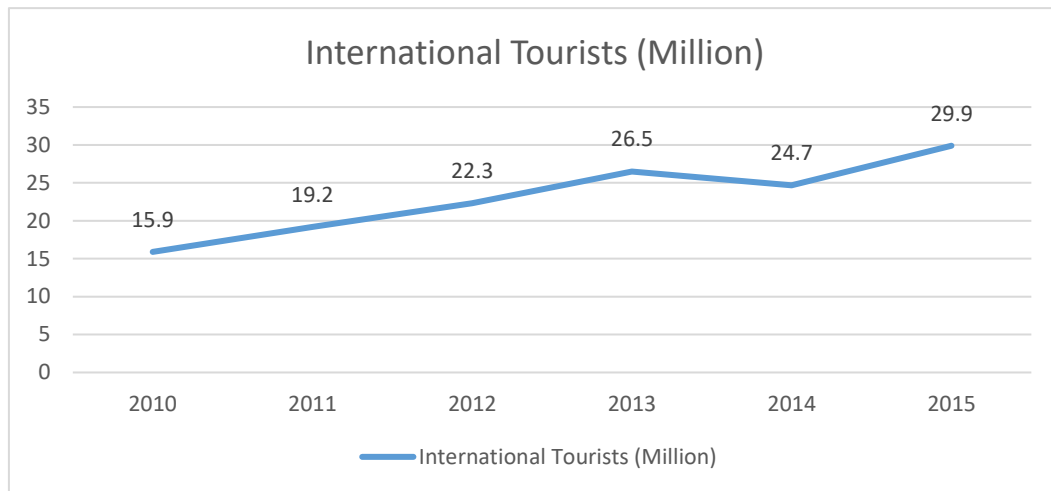
Figure 1: Inbound of international tourists in Thailand (Passport, 2015)

1.1.2.2 Customer behavior

Though flexibility of the service could be needed, reliability is the most critical issue that customers concern. The operations performance should be aligned with marketing requirements. Objectives of operations can be separated by their characteristics as quality, flexibility, reliability, dependability, and cost (Slack and Lewis, 2011). Customers can be categorized into segments. For purposes of the trip, the topics involved are vacation, business, education, family visit, medical treatment, etc. For specific geographical aspects, the segments are East Asia, AEC countries, South Asia, Middle East, Western and Northern Europe, North America, South America, and Oceania.

According to Department of Tourism of Thailand (DOT, 2016), the kingdom had welcomed 24,809,683 international travelers in 2014. Among the numbers, 17,932,662 are independent travelers (72.3%), while 6,877,021 (27.7%) travelled in packed tour (group tour). The most obvious distinctions between grouped tourists and individual travelers are that a tour guide leads and takes care of the group, and the

group usually has a van or coach bus to be the vehicle for transportation during the trip. Among the research of intention of service usage of the service company, 34.8% of respondents are intended to use the service, while 31.5% are depending on the service.

1.1.2.3 Promotion and advertising

The company will provide all partners signage, acrylic, vinyl, and tags to operate the service. These facilities will be placed at the counter of hotels to provide information and play animation. When customers book the hotel room or check out from the lodgment, receptionists or concierge will notice lodgers about the service. The company will also have its own online channels (website, blog, instant messengers, and accounts of social media) to send information. The platform, or channel, will be integrated to support travelers during their trip.

1.1.2.4 Marketing strategy

As the market is uncertain, the company will start with minimum value proposition approach to ensure the quality and performance since reliability of the service is the most critical factor of the business. As the image is built up, the company will start to find partners to cooperate with and endorse the service. With limited resources, the company has to adapt the changing environment, react and response agilely, and grow and learn simultaneously at the moment. Currently, no direct competitor is in the market. The company needs to become dominant in the market and notice travelers about the problem they cloud meet in Bangkok, or Thailand, in advance.

1.1.2.5 Analysis of competitiveness

1. Bargaining power of suppliers – Medium

The operations and cost management will be very critical to the business. Currently, AIRPOTELs will do delivery and outsource the work when the capacity reach the maximum. In the initial stage, the demand for the service could be limited, and the company is going to start from limited capacity. The courier business has been providing standard services in the market for years. There will also be the other alternatives available in the market. Though the bargaining power of suppliers is not high, contracting with a reliable deliverer is critical to the business.

2. Threat of new entrants – High

The concept of the business is relatively simple. The most critical resources of the business are relationship and connection with partners, hotels, airlines, or governmental institutes. In Thai or Asian culture, relationship and connections are the most critical resources of business.

3. Bargaining power of buyers – Low

Since the price is fixed, customers can only accept the service if they want to use it. However, though there are several benefits that customers can acquire, the service isn't a must. Besides, Thailand doesn't stand a bright image of security and fairness for customers as it is a developing country. The company has to make effort on fostering such behavior of customers. Besides convenience, reliability and security will be another important issue when customers concern the service.

4.   Threat of substitutes – High

Currently, no direct rival is in the market of luggage delivery. However, customers may use the other kinds of service to delivery their baggage. Such supplier could be logistic or courier business such as Lala Move, Kerry Express, and SME. For example, DHL and SME have set up service office in BTS stations and popular shopping district such as JJ market. There are also several delivery units, which can help customers to send goods back to their own country via air or sea transportation, near Platinum mall where shoppers and businessmen love to source batches of clothing and accessories as they do in Dongdaemun Market, Seoul, South Korea.

5.   Rivalry of the industry – Low

Currently, there is no business focusing on the luggage delivery business. Though several alternatives are available such as courier businesses, UPS, FedEx and TNT, short-haul transportation, Lala Move and Kerry Express, and postal service, Thailand Post, customer would find that they are either expensive or inconvenient to utilize. The main problems are poor infrastructure of transportation, language for communication, and information transparency. Besides, the country doesn't stand a positive image for fairness and equality. Foreigners usually find troubles when they deal with local or even international businesses in Thailand. The figure of porter 5 force analysis is shown in Figure 2.
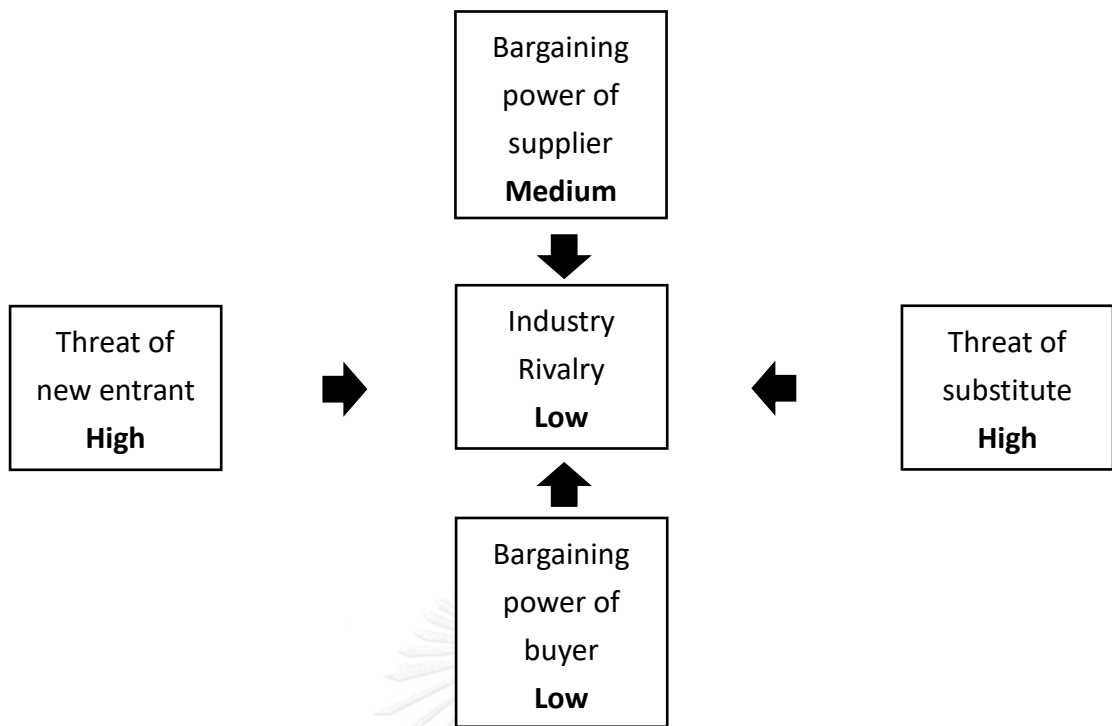
Figure 2: Porter's five force (Porter, 2008)

Figure 3: Baggage in lobby

Figure 4: Baggage in lobby (Source: http://www.tripadvisor.com)

Figure 5: Self-carrying luggage

Figure 6: Self-carrying (Source: http://www.wsj.com)
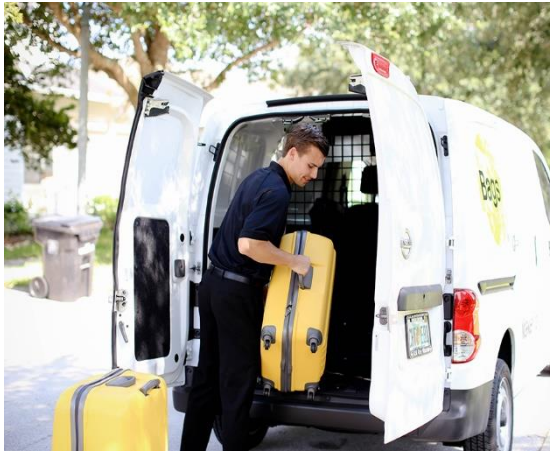
Figure 7: Luggage delivery service in the USA (Source: http://www.bagsinc.com/corporate)   Figure 8: Luggage delivery service in Japan (Source: http://jprail.com/)

1.1.3 Definition of luggage delivery service

The Luggage delivery service is same-day delivery service which deliver travelers' personal belongings (such as suitcase, bags, parcel, etc.) between the reception desk of the company at Suvarnabhumi international airport (IATA code: BKK) and hotels/accommodation through online or offline booking in the Bangkok Metropolis in the duration of the mutually agreed the pick-up time between the company and its customers. Currently, the company provides two-way delivery which is to and from the airport or hotels/accommodation. The pricing of the service is the number of bags/luggage being delivered without bag size and weight restriction and limitation on distance. For customers staying at non-partnered hotels, they need to reserve the service at least 6 hours before luggage pick-up time at the hotel they stay, while lodgers of our partnered hotels can use the service any time before 1 p.m. (cut-off time of delivery). The service is available in the UK and the USA and the comparison are revealed in section 1.1.4. Evidence in the fields are shown Through Figure 3 to Figure 8.

1.1.4   Benchmark

Similar businesses
Airportr (UK)   1. Delivery in 5 hours   2. Real-time tracking by Apps via smartphone   3. Price starting from £15 to £25   4. Heathrow, Gateway and London City Airport   5. Price of the second and following luggage is only £5
All the luggage will be under screen during the time of transportation for security.   The carousel collecting service is only available at London City Airport
Bag Inc. (US)   1. Traveling without claiming at the airport   2. Email notification of luggage status and 24/7 customer service   3. Delivery in 4 hours within 40 miles away from the airport   4. Delivery in 6 hours within 100 miles away from the airport   5. Price starting from $29.95 USD for a bag to $49.95 USD for 3-8 bags
The service is available for all the domestic flights in the USA   The international baggage claiming service can be served in Canada, Caribbean, and Ireland

1.2 Problem statement

The company provides luggage handling services for travelers in Bangkok, Thailand. It needs new capability to serve its customers. In the case, the company lacks an operational system with capable capacity to serve. Additional capabilities and additional capacity should be acquired to be aligned with the business strategy and objectives. With limited time and resources, the company build up its new capabilities by defining these works as projects. Currently, the service is only available to serve in limited areas and capacity with high risks. The target of the stage is to develop a delivery service to cover different zones and provide the delivery service between hotels/accommodations and airports. The objective of these projects is to develop operational system for the business to apply. In order to adapt the dynamic environment, the company should be able to respond to the changes agilely and stay competitive. For the business, several industries and businesses will be involved and coordinated to provide the service. For example, parcel delivery or ground transportation service, hotel and hospitality, aviation industry, communication system, and information technology.

In the initial stage, the company provides only one-way delivery service, from hotel to airport, from few hotels. The further expansion of the service will involve much more complex circumstances; the service needs to be more flexible to respond to the needs; and the operations should be efficient (Ninikas et al., 2014). To cover the network of Bangkok metropolis, the current capacity and operating system of the company is not enough and unclear. Reliable capabilities have to be developed to acquire the opportunities in the market.

Reliability is one of the critical performances of the service. In order to achieve the objective, the process should be well-defined and structured. Starting with project definition, the objectives of the capability building are essential to the planning and selection of approaches. Coordinators or managers have to set up scope and expected objective and identify required resources, jobs and tasks, and proper timeframe. With poorly defined scope and scope changing during implementation, the execution of the project will cost over budget, delay planned schedule, cause poor worker morale, and the other negative results (Sharma and Lutchman, 2006).

From market analysis, the threat from new entrants is high as the concept and requirements of the business are relatively simple. Besides, current capacity of the company is not enough to balance the cost of operations of the business. In order to adapt the dynamic environment, the project team should spend less time and effort on realizing the definition and scope of a new project. Time, one of the most critical resources of projects, is limited, and multi-tasks and sub-objectives have to be achieved to satisfy the requirements for the elements needed. The coordination among all the contents of a project should be well-managed.

According to Allen et al. (2014), learning experiences from the other organization is effective to reduce or avoid costs of failed projects. Characteristics and features of various businesses are very different. By researching and analyzing experience and case studies of related industries, detailed and in-depth information will be revealed and collected. After gathering available information and knowledge, an operational system which is coordinated with features of the market and business strategy of the company has to be developed to operate the service.

1.3 Objective of thesis

To develop operational system by applying project management concepts and techniques.

1.4 Scope of study

The dissertation focuses on operational system development for luggage delivery service. The proposed model will be applied to luggage delivery service of the startup company and be examined by the result of the case. Further business expansion, service marketing, and the other activities that are not directly related to the operations of the business will be excluded and only website, information system, and online channels of which functions that are related to the overall system and network will be partially involved. The scope figure is shown in Figure 9.
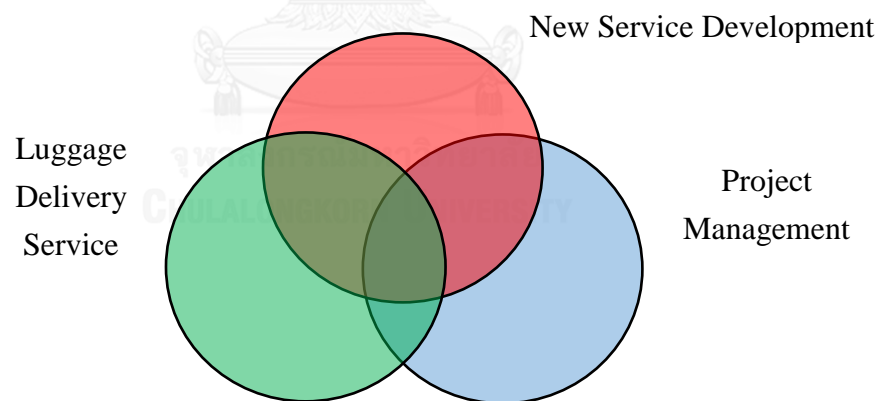
Figure 9: Scope of study

1.5 Proposed methodology

1   Formation of service blueprint

To initiate the idea, basic elements and requirements of the business will be reviewed and collected. Scope of the overall business will be defined in the stage. The thesis itself can be organized under the concept of project management. Thus, different approaches and contents of service can be built up. Starting from the definition and scope outlining, the dissertation aligns with the practical project to research and investigate the availability and performance of the business. Lessons and experience are learnt and input to the loop.

Following the prescriptive approach, the project will be defined from the assumptions, data, and information from marketing and field research. However, the concept of the business is relatively new and focuses on the niche market of the combination of three industries, logistics, hospitality, and aviation. The market of the business is also obscure that the company has to follow adaptive approach to learn and redirect and improve its operations simultaneously. By collecting feedback from both customers and frontline associates, further market information can be acquired and analyzed.

2   Service development

All the information and data from the services will be collected and analyzed to be integrated in the research. By following adaptive approach, the operations, plan, schedule, and resource deployment will be reorganized and corrected during the execution period. The proposed operational system will be examined and improved based on the feedback from the market and further capability development.

Performance of the business expansion will be measured to evaluate the effectiveness of the structure.

3   Result analysis, conclusion, and recommendation

By closing the project, the overall output will be reviewed and analyzed. The final operational system will be developed to be applied to be ordinary operations of the luggage delivery service.

1.6 Expected results

A proper and suitable operational system which is aligned with business strategy and features of the market will be developed to operate the luggage delivery service in Bangkok. With a well-defined structure and process, the operations can be more flawless and effective. The overall operational system should be able to deliver 50 bags, luggage, per day. The result will be applied to be the operational system for luggage delivery service of the case company.

1.7 Expected benefits

1.   Developing an operational system for luggage delivery service with reliable and enough capacity for the business

2.   Improvement of the performance of capability development of the case company

3.   Detecting defects, conflicts, barriers, and problems in the early stage

Chapter 2: Literature review

2.1 New service development, NSD

Companies keep investing in acquiring new capabilities and developing of new deliverables to gain competitiveness and sustain the business. With globalization and improvement of information technology, rivalry and competiveness of businesses in tertiary industry become severe. Products consumed by consumers can be defined into different categories which are based on the core offering and tangibility of a product. For example, fast moving consumer goods, which are without accompanied services and used directly by the consumers, are pure tangible goods, while babysitting is a pure service, which has no tangible output. The features that greatly shaped the design and deliverables of services are intangibility, inseparability, variability, and perishability (Shekar, 2007, Kotler et al., 2014). Services, unlike physical products, are easier to be imitated and can be developed with less effort, costs, and investment. According to the nature of services, they often are produced and consumed simultaneously (Wright and Lovelock, 2002). Success of value proposition of the service is depending on consumer perception. Though an innovative and advanced product is proposed, the profitability of it is assessed by the market response. These intangible products are also difficult to be quantified and have to be well-designed. The differences between similar services aren't obvious. The changes of service contents and process tend to be gradual and incremental. Generally, new service, or new products, is developed faster than customer adoption (Shekar, 2007).

2.1.1   Factors of service success

To succeed a project and create a successful service, supportive environment, utilization of innovative technology, and capability to satisfy and adapt dynamic customer needs are critical for the objective. From the study of Posselt and Förstl (2011), success factors of NSD can be categorized from different stages, antecedents, development process, and final output. Factors in each phase are closely related to each other. However, there is no generally best approach due to the variance and different features and requirements of services. Starting from idea generation and research, each of the process will greatly influence and direct the following path of new service development. By choosing appropriate approaches and measurement method, the output in each stage can be effectively reviewed, defects and disadvantages can be identified. Stated by De Jong and Vermeulen (2003), factors of NSD success are people and structure. As services are people-oriented, frontline workers usually know customer behavior and requirements better than senior management teams. A structural process involves multifunctional members to contribute views and experience from different perspectives. Communication becomes essential to work alignment. With effective coordination between service supplier and customers, the lessons and information can be learnt to improve the output (Shekar, 2007, Stevens and Dimitriadis, 2005, Park et al., 2011). Articles reveal the importance of participation of service staff and consumer.

Market-orientation and synergy must be applied to achieve the target. In different environment and circumstances, challenges and barriers will vary. Adaptation of changes and comprehending difference of cultures and behavior are critical to the success of service development and influential to the initiation of development (Alam,

2014). Customer perceive quality and value as the evaluation of a service. Proposed value of a service is the key factor which satisfies customers (Nefat and Lucic, 2011). Due to the issues, information and implications of market research should be well-applied to service development. Service suppliers, providers, are also critical to the performance and output as they react directly to the consumers. These essential personnel are the most critical resources other than expertise and specific knowledge. For general services, the understanding and capabilities of service supplier will greatly influence the performance of service and customer satisfaction. In addition, new introduced or refined service won't be able to be provided if the supplier lacks the critical capability. With relevant capabilities, a skillful service supplier can revise and optimize the output (Nuojua and Tahtinen, 2013). Human resources and factors are critical to service success. As the service performance is evaluated subjectively by the end-users, the perspective from the consumers is essential to the service success. On the other hand, collecting information and records from consumers isn't straightforward. The managers may learn from the frontline staff or serve the consumers to learn the information from the interaction and service consumption.

2.1.2 New service development

Though the features and nature of intangible service and tangible products are different, they share similar processes of development. The requirements are all from the needs of the end-users, as the business is going to make sales and acquire benefits, such as money, from the transaction and consumption. The most distinctive difference between them is the steps and level of involvement between consumer and service provider during deliverable offering. The concepts of the formalization flow of new service and new product is close related to each other. According to Cooper (1990),

stage-gate system is utilized by various companies to manage their new product

development. The process gives a clear graphic view to the members of a project

team. An easy to understand approach gives less ambiguity, clear idea, and an

environment where participants can work concurrently and share information

(Cooper, 1994). The process is illustrated in Figure 10. With the benefits, the process

of the project can be efficient, precise, and effective. By aligning all the information

and departments who are involved to the project, conflicts and technological barriers

and unsuitable idea can be identified in the early stage, and thus reduce the costs and

waste of an organization. Through the process, each stage follows with a gate to

control and evaluate the output. Therefore, developers can review the performance

and decide the next step, revise strategy, or terminate the development if the loss,

defects, and risks are too high.
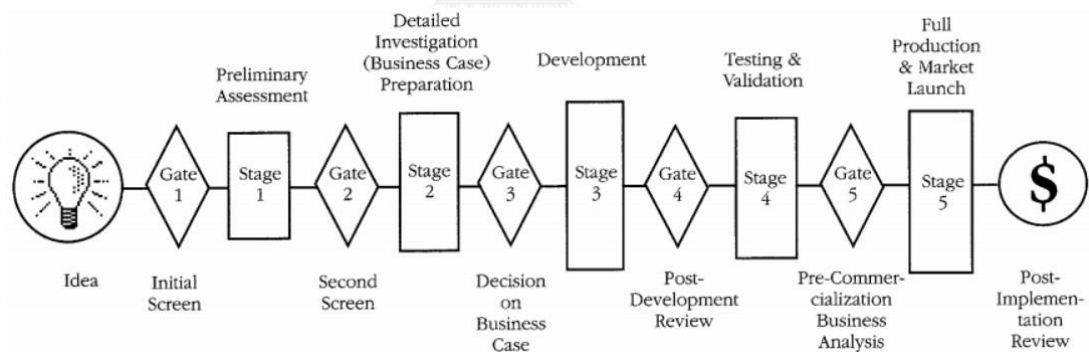
Figure 10: A simple map of stage-gate process (Cooper, 1990)

According to Shostack (1984), a service blueprint is a useful tool for service

development and measurement. With time measurement, the idea and concept can be

effectively evaluated with the blueprint. By inserting cost of each process and

coordinated resources which are needed to provide the service, the cost and

profitability can also be quantified and reviewed. The visualized guideline and

representation support managers and developers to manage, organize and review the

project (Morelli, 2002, Wright and Lovelock, 2002). Shekar (2007) proposed

processes of service development (in Figure 11). In each step of the development,

different factors and stakeholders should be involved and aligned the contents of tasks

and works. Consumers, frontline service provider and mangers are critical to the

development. Starting with service development strategy which is aligned with the

company's business strategy and vision, the developed service can be focused and

ensured that it meets the overall vision of the organization and fits in the businesses.
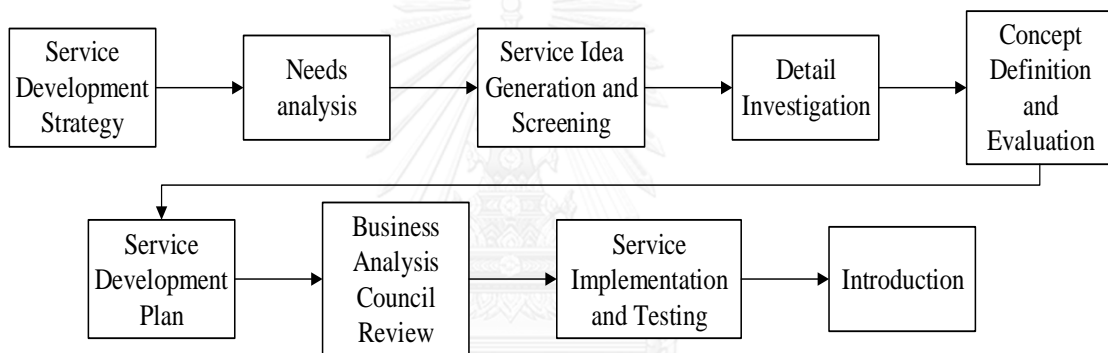
Figure 11: Conceptual framework of service development (Shekar, 2007)

According to Bullinger and Scheer (2006) (quoted from Posselt and Förstl

(2011)), starting from idea generation, analysis of requirements reveals the demanded

resources in terms of costs and time and risk involved. Market research and analysis

and business availability and opportunities are identified and assessed. Definition of

the work, further job description, and specific contents can be built. As the works and

tasks are defined, resources can be allocated to form expected deliverables. At the

stage, the design has to be tested to identify weakness and problems for refinement.

After all, if the proposed service is available and pass the test. The final output can be

introduced to the market. A process model for systematic NSD is in Figure 12.
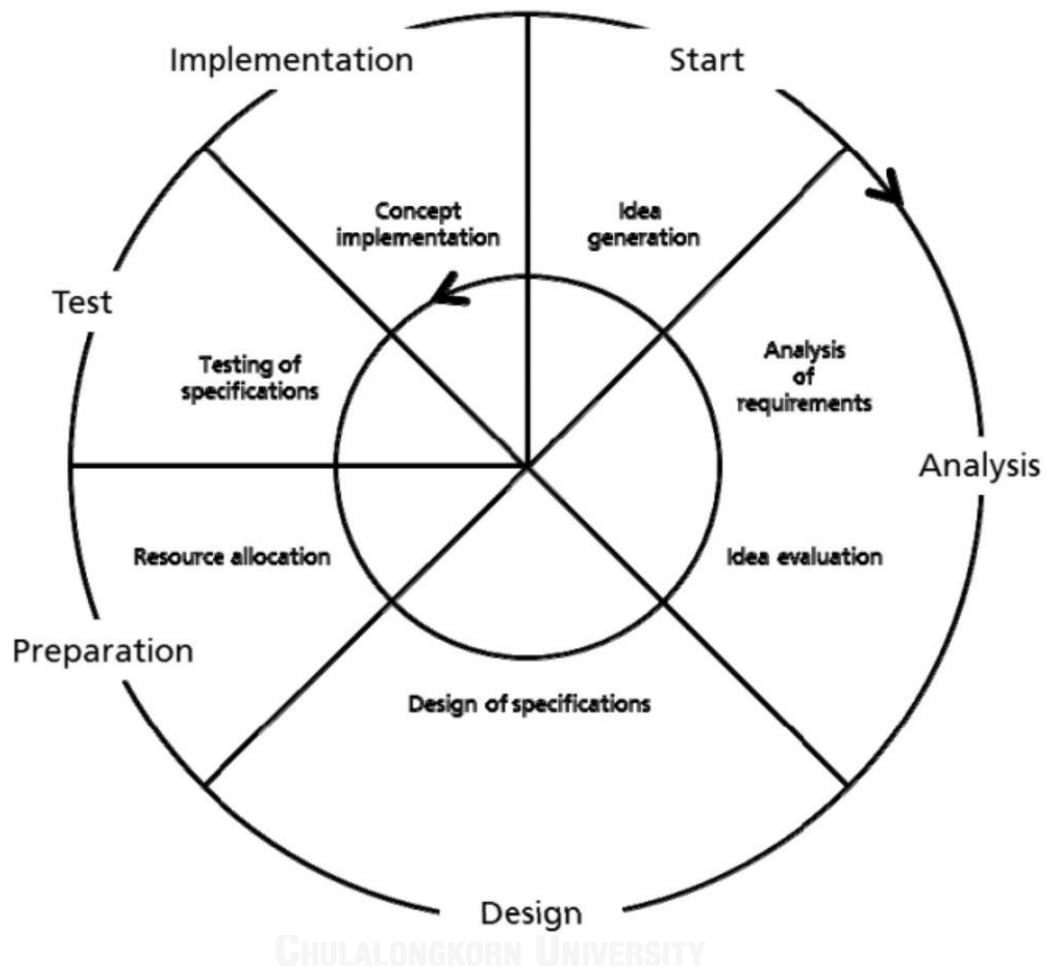
Figure 12: Process model for systematic development of service (Bullinger and

Scheer, 2006) (quoted from Posselt and Förstl (2011))

Companies and organizations can apply six sigma to achieve the objective, reduce waste and variation, and thus reduce waste and keep and sustainable service level. With the process, companies can use statistical measurements and analysis to evaluate the current problems, defects, and substitutable process. The main concept of six sigma is to control the overall output within 6σ. Thus, organizations can ensure that the processes are capable and output are 99.99966% of all opportunities to be free

of defect, only 3.4 defective features per million opportunities. Six sigma concept can be applied to improve existing process and operations by DMAIC (define, measure, analyze, improve, and control). On the other hand, it can also be adopted when developing new product or service with DMADV (define, measure, analyze, design, and verify), or DFSS (design for six sigma), process. With the structured designing process, companies will be able to meet customer requirements when the service launched. According to El-Haik and Roy (2005), DFSS can be broke down into 4 phases - identify, characterize, optimize, and verify. The roadmap is shown in Figure 13. Initially, suppliers have to identify customer and design requirements and prescribe CTSs, critical to satisfaction, to develop corresponding process and operations. Secondly, characterize the concepts, specifications, and technical and project risks. Thirdly, optimize design transfer functions and mitigate risks. Lastly, verify the design does meet the objective.

By applying the concept in early stage, organizations can reduce costs and improve performance in the front-end stage rather than revising and optimizing in the later stage and thus reduce waste. When quality control and design are adopted in the earlier stage of service or product development, cost for such process will be lower and improvement for performance will be higher. Besides, as the negative or poor experience and service have been delivered to consumers, the consequence and impact will make the operations more difficult to be reversed. To develop service with six sigma, data will be applied to develop the service functions in all parts, including human resources, marketing, sales, IT, etc. All internal and external aspects will be correlated to create a suitable process for consumer in the environment of end user. Similar to stage-gate system, tollgates are the points for managers, black belts or

appointed operatives in the six sigma organization hierarchy to review the output and decide whether to proceed the development.
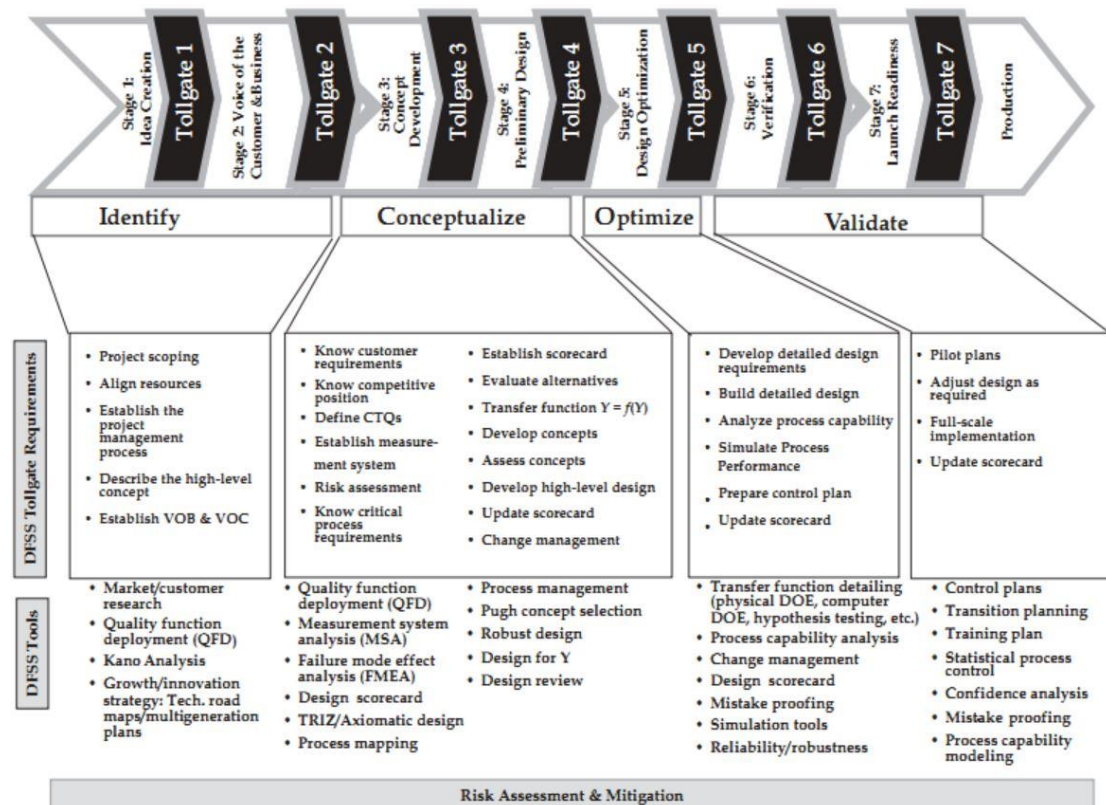
Figure 13: Service DFSS project road map (El-Haik and Roy, 2005)

2.1.3   Value co-creation

Service dominant logic, SDL, has been emerging in the current dynamic market to generate further benefits for organizations (Vargo and Lusch, 2004, Demirkan et al., 2011). Customer as an active participant in value creation has been a growing concern (Smith and Ng, 2012). From the point of view, values are only generated when each service system, entity in stake, gets involved with the value creation. They act, apply resources, and work together in a mutually beneficial way with each other. The value can't be created or embedded when goods are produced. In SDL, knowledge, expertise, and skills are the key competitive advantages for organizations,

while goods are the vehicles to deliver services. By working close to consumers and involving consumer perspective, companies can value features and factors in different views. Thus, companies/suppliers can meet customer requirements and increase satisfaction. The premises of service are listed in Table 1. By understanding the nature of services, developers can focus on the true requirements of the consumers. Like physical products, services should bring the features and functions that are beneficial and supportive to the end-users.

Table 1: Foundational premises of SDL (Vargo et al., 2008)

Premise number	Foundational premise
FP 1	Service is the fundamental basis of exchange
FP 2	Indirect exchange masks the fundamental basis of exchange
FP 3	Goods are a distribution mechanism for service provision
FP 4	Operant resources are the fundamental source of competitive advantage
FP 5	All economies are service economies
FP 6	The customer is always a co-creator of value
FP 7	The enterprise cannot deliver value, but only offer value propositions
FP 8	A service-centered view is inherently customer oriented and relational
FP 9	All social and economic actors are resource integrators
FP 10	Value is always uniquely and phenomenologically determined by the beneficiary

While SDL focuses on co-creating value among stakeholders of the value chain, goods dominate logic creates value by producing final products for consumers. Smith (1776) mentioned that values of objects can be categorized by their utility and purchasing power – value-in-use and value-in-exchange. "The things which have the greatest value in use have frequently little or no value in exchange; and, on the contrary, those which have the greatest value in exchange have frequently little or no value in use." Values were created when the final output has been produced. The summary of difference between GDL and SDL are presented in Table 2.

Table 2: Differences between GDL and SDL (Cova and Salle, 2008)

Service Dominant Logic	Goods Dominant Logic
1. Service	1. Goods
2. Experiences	2. Products
3. Solution	3. Feature/attribute
4. Co-creation of value	4. Value-added
5. Financial feedback/learning	5. Profit maximization
6. Value proposition	6. Price
7. Complex adaptive systems	7. Equilibrium system
8. Value-creation network/constellation	8. Supply chain
9. Dialogue	9. Promotion
10. Market with	10. To market
11. Service orientation	11. Product orientation
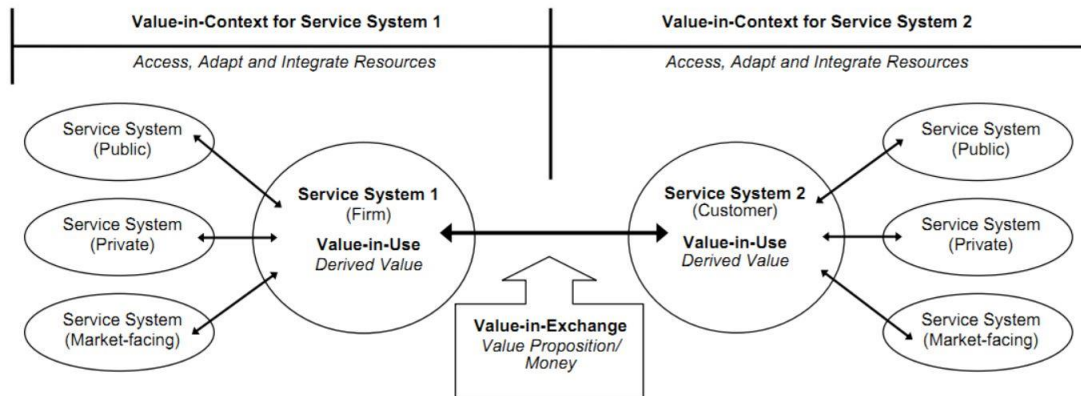
Figure 14: Value co-creation among service systems (Vargo et al., 2008)

According to Hoffman and Bateson (2010), for service-oriented companies, they don't design and provide service but build new value propositions, develop and manage service systems to fulfill and realize the new concepts and values, and ensure that the outputs are favorable, memorable customer experiences. On the other hand, companies can choose to either work closely or get customers involved during the service development to learn real requirements. However, customer may not know exactly what they demand or which new concept of product/service can be beneficial and useful. Besides, the current methodology to acquire customer feedback and insights are very swallow as the methods can be survey or questionnaire which can limit the scope and idea of the takers and focused groups who represent only part of the market or segments. Collecting information is very costly and time-consuming. In addition, test takers may not reveal the real insights of their reasoning and understanding, or the analysists can't notice the implications, signal, or details in the responding. However, without true customer needs and market insights, the service is hard to fit the market and meet the expectation. In such consequence, the company may put much more effort to educate the market.

An innovation, new concept, or new product/service should base on the current products or have strong familiarity with the market. The value itself should improve and upgrade the current solutions in the market and make end-users get used to the new solution easily. Thus, when developing new service/product, companies have to understand the new launching one is incremental or radical innovation. For different types of service development, the R&D team should follow different approaches. Rust and Huang (2014) introduced the framework for relating use information to methods for NSD (in Figure 15)Figure 15: Framework for relating use information to methods for NSD (Rust and Huang, 2014). As for radical innovation, customer and market feedback may hinder the development. In addition, customers' knowledge and experiences can be acquired in different forms. The feedback can be problems and complaints, ideas and suggestions, implications from behavior and emotions, and testing simulation or prototypes. Thus, companies should get back to the core service and evaluate the methods and get the solutions aligned with the innovation approach.

Use situation
(activities and interactions in a specific situation)

	In situ	Ex situ
In context	*The correspondent*, reporting live from the situation	*The reflective practitioner,* reporting from the armchair
Ex context	*The tester*, reporting from the virtual heaven	*The dreamer*, the creative who generates wild and imaginative ideas

Resource context
(resource constellations available to the customer)

Figure 15: Framework for relating use information to methods for NSD (Rust and Huang, 2014)

Besides core service or product, supplementary services that can facilitate and increase value to the consumers can be added and aligned to fulfill and aid the service to satisfy the end-users (Wright and Lovelock, 2002). Flower of service in Figure 16, a visualized figure, can be applied to define the side works that can enhance the services. These supplementary services are categorized into 2 main groups. Facilitating and enhancing services. Though the core or main services of each business vary, they share the common requirements Besides, consumers generate experience among the service process and involve the interaction and touch points to have their perceived service. Consumers will perceive the service when meet the front-end staff, call and ask the service details, experience during the service, complain the performance when it's under expectation or uncertain, and when the service is finished. These facilitating and enhancing services can improve the service experience and make it smoother and easier during the service consumption.
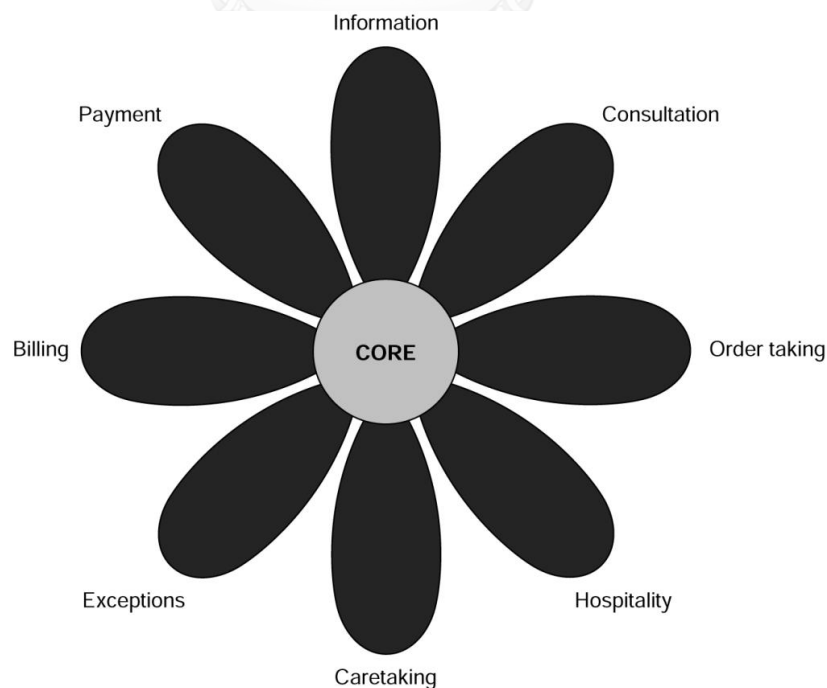
Figure 16: The flower of service (Wright and Lovelock, 2002)

Table 3: The value matrix (Macintyre et al., 2011)

	Hard	Soft
Product Leadership	Innovators	Brand Managers
Operational Excellence	Price Minimisers	Process Simplifiers
Customer Intimacy	Technological Integrators	Socialisors

2.1.4 Service Quality

While manufacturing and good production have been kept improving for ages, services are usually ad hoc and without certain metrics. In such condition, the variations are huge and perception of each service are very different. What customers understand and perceive the products or services are different from the suppliers. Thus, the service and its quality can hardly be improved because of the gap between customer experience and expectation. The gap of quality perception between consumer and supplier will get wider as expectation on each feature such as design, process, operations, or understanding differ. Such difference accumulates and, thus, consumer found unsatisfying when they consume or adopt the service or final product. Any failure of the factors can cause unsatisfying experience and can lead negative image of the business. Besides, consumers usually remember only poor performance and negative results rather than ordinary and good ones. Quality for manufacturing is to conform products to be delivered on time and supporting documentation. For service, quality is about customer expectation, availability and experience of the people interaction with service delivery (Hoffman and Bateson, 2010). Therefore, service suppliers need to focus on what consumer need exactly and follow the right direction to reduce waste, manage resources effectively, and deliver the propositioned value. With a structured and clarified service system and quality management, suppliers can continuously deliver satisfying experience to consumers at

designed or defined level. Adopting six sigma is a top-down process by setting up culture, infrastructure and leadership from the top level of organization and deploy resources and labor accordingly.

Figure 17: The quality gaps (Juran and Godfrey, 1999)
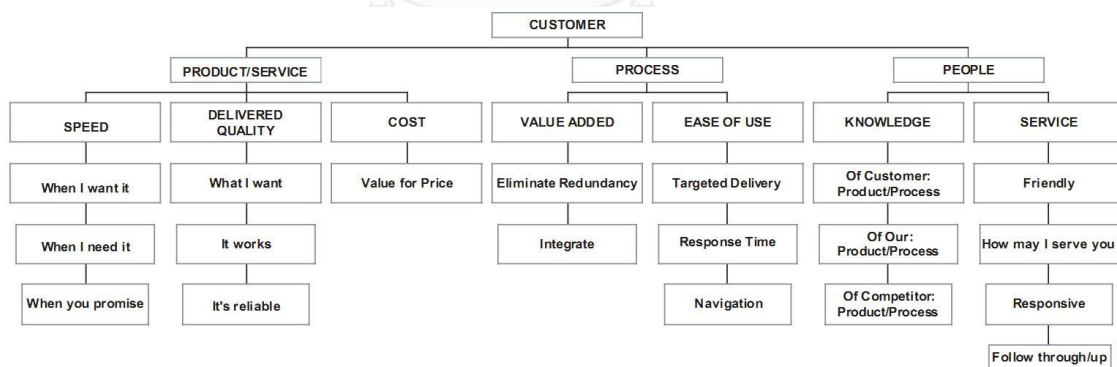
Figure 18: Customer experience channels (El-Haik and Roy, 2005)

On the other hand, the dynamic and competitive market has kept companies improving and providing superior experience that beyond expectation. However, as time goes on, customers get used to what they have perceived and experienced so far. Advantages in the past may become disadvantages in the future. When Blue Ocean

turns into Red, only companies with continuous improvement and optimization of the operations and output can survive. According to Wright and Lovelock (2002), service quality is customers' long-term, cognitive evaluations of a firm's service delivery. For different perceptions, service quality can interchangeable to the concept of customer satisfaction, but it can also be one of the factors to satisfy customers. Furthermore, Grönroos (1984) argued that the service company should learn how consumers perceive the service quality and how the service quality can be influenced. On the other hand, consumers tend to memorize, express, and share the perceived expressive attributes, or the way how the service is proceeded. The behavior can be adopted and support the company work on word of mouth marketing strategy.
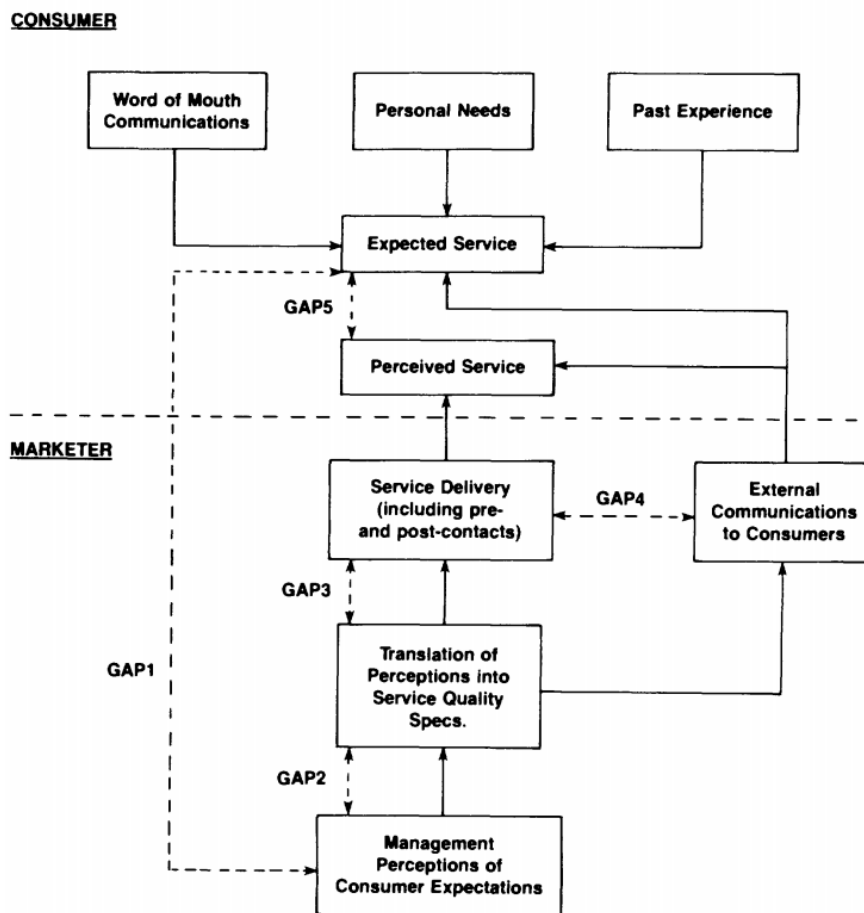
Figure 19: Service quality model (Parasuraman et al., 1985)

Parasuraman et al. (1985) introduced 5 gaps which are gap between customer expectation and management perception, gap between management perception and service quality specification, gap between service quality specification and service delivery, gap between service delivery and external communications, and gap between consumer expected service and perceived service as shown in Figure 19. Through product or service innovation, the common concept is to identify the unsatisfied requirements in the market. However, the information revealed and discovered in the market can be bias. Marketers may not identify the true demands or understand the requirements improperly. Besides, the requirements of each individual vary and are subjective. With trade-off and limitations, the product or service can't 100% fulfill or satisfy its consumers. The service company's capacity and capability can also influence the consumers view. Referring to the core service, the operations and service features should be obvious and match to customer's needs. However, as services can be labor intensive and every single customer have different requirements which make the process complex. For example, for delivery service, the logistics company has to learn what is the goods and the time to collect and deliver to the destination. For service call center, the attendants have to answer various kinds of questions. With limited resources, capacity, and human resources, it's hard to design a flawless or zero-defect service process. In addition, the variety of demands in different season will make the organization difficult the generate standardized service with the inflexible capacity. On the other hand, personnel training and understanding about the service are critical of perceived service, as the standard for every person is different.

The perceived service experience will be influenced by the initial expectation. The external communications as the marketing campaign and events will lead and affect the consumer expectation in advance. Any service company shouldn't give any guarantee that is out of service scope or the company's capability. With higher consumer expectation at the first place, the gap between expectation and perceived performance will be widened and seriously deteriorate the perceived service output. Furthermore, some experience and effect can hardly be evaluated even the consumer use the service. They have little knowledge about the expertise or can't differentiate the difference between before and after using the service, as the output isn't obvious or doesn't directly impact to consumers' regular behavior. Overall, the components and process leading to the service experience create the gap between consumer expectation and perceived service. Therefore, a service company should focus on giving correct and precise information to the market and the audience and align its service output to match consumer expectation and minimize the discrepancy and gap.

From the gaps between expected and perceived service, 10 general determinants in Figure 20 are introduced for the management team to evaluate the service design and its quality (Parasuraman et al., 1985). Before consumer use the service, only tangibles such as appearance of the facility, staff, and design and credibility can be evaluated by referring the information in the market or the company's marketing activities. On the other hand, consumers tend to reevaluate the service which they perceive because of the heterogeneity of services. Each consumer will face not exactly the same experience due to their unique, personal requests. Therefore, each consumer will mostly rely on their own experience and understanding to evaluate the service quality.

According to Grönroos (1984), the service quality depends on 2 variables, expected service and perceived service. When customers firstly view and evaluate the service via the online channels, they will learn the features of the service and what are the promises the service company guarantees. The information and the promises can be given via marketing and communication process; previous service experience; customers' own culture, behavior, and reasoning; and similar service products or concept. From marketing channels, the service company will present the service in both physical and virtual ways. The service quality model is introduced in Figure 21.
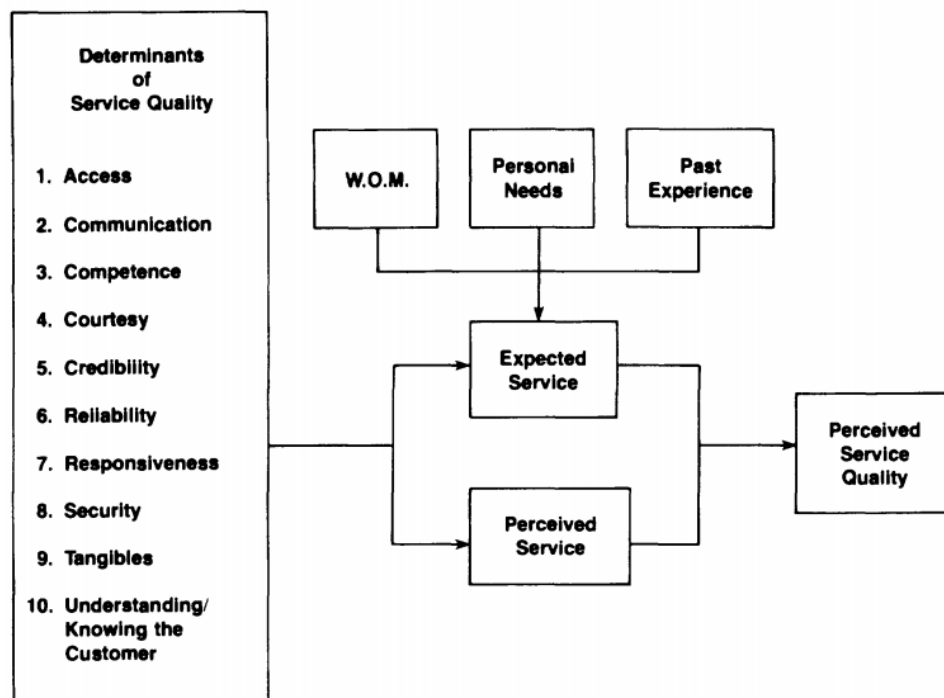
Figure 20: Determinants of perceived service quality (Parasuraman et al., 1985)

However, the value and the service itself are hard to describe and be visualized. The design, contents, words, color, and description will provide different feeling and expectation to the end-user. The company applies yellow, gold, and black color to

build up luxury, reliable, and modern feelings. The perceived performance can be divided into 2 parts, instrumental and expressive performance. In this research, the instrumental performance of the service is transferring customer luggage from the origin to the destination. The delivered luggage should be in pristine and safe condition. On the other hand, the expressive performance is the experience during customer proceed the service and the physical evidence, activities, and resources that the customers face or interact to. Though instrumental performance, the output that customers are looking from the service, is the important, it is the prerequisite of service success and positive customer experience. As services involve high interaction between the customer and the service supplier, only fulfilling the ultimate purpose and output of the service isn't enough to satisfy customers or reach customer expectation. Besides, most of the experience will be provided during processing the service to generate the output. Interactions between customers or view service environment can be influential.
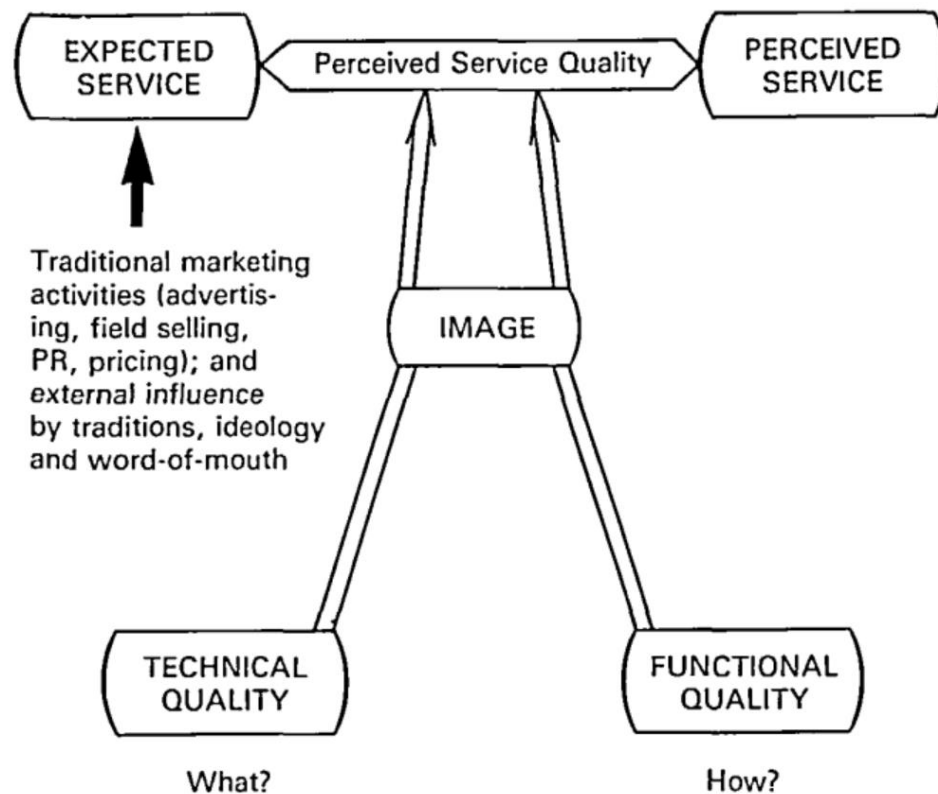
Figure 21: The service quality model (Grönroos, 1984)

2.1.5   Service blueprint

According to Wright and Lovelock (2002), service blueprint is a visual map of the sequence of activities required for service delivery that specify frontstage and backstage elements and the linkages between them. Service design requires an understanding of integrating of core and supplementary service to meet the requirements. The tool is easier for managers and service designers to clarify the relationship and interaction between activities and stakeholders and identify the problems preemptively and become customer-focused. Furthermore, frontline staff can understand their liability and roles clearly by the visualized figure. Thus, for each stakeholder, applying service blueprint can be very beneficial. Looking the service process as an overview, designers, or engineers, can identify the touch-points, fail-points, defects, of the process, and risks. Thus, new technology and operations can be

applied to optimize the service. According to Bitner et al. (2008), a typical service blueprint includes:

1. Customer actions

2. Onstage/Visible contact employee actions

3. Backstage/invisible contact employee actions

4. Support process

5. Physical evidence

Customer actions are all the steps the customer take part in the service delivery process. Unlink the other kinds of flowchart. Service blueprint is customer centric and starting from the actions of customers. Onstage/visible contact actions are critical in the next step that it is the moment of truth and usually takes a large stake of first customer impression. While the above actions can be perceived by customers and provide physical evidence, the following section is backstage actions that staff are getting prepared for the service delivery and support process. However, according to Hoffman and Bateson (2010), the management team should be aware of making one-sided blueprint which includes only one perspective from the manager's perception. The ideal and biased sequence will make the organizer overlook the real encounters and what and how consumer perceive the service and journey. In addition, employees' perspective is equally important to design a successful service blueprint. With the communication skills and framework discussed in value co-creation, both consumer and employee scripts, feedback, can be collected, analyzed and applied to identify potential or existing problem. The tools can be adopted in service improvement or

new service development to test the assumption with a visualized structure.

The blueprint can also be used as a platform to review the process and design the service, customer journey, and service innovation. By learning the pathway, the supplier can understand defects and identify potential areas to develop both strategic and tactical innovation. Besides, not only operations, frontline staff, or the other direct stakeholders can attend the service process, but also indirect departments, such as marketing and business development, can get involved and co-create the customer journey and identify further potentials and opportunities. The blueprint can present the visualized view between competitors. Thus, the management team can compare the services between competitors to review the service and create differentiating strategy to acquire advantages in the competitive market. The layout of the blueprint is shown in Table 4.
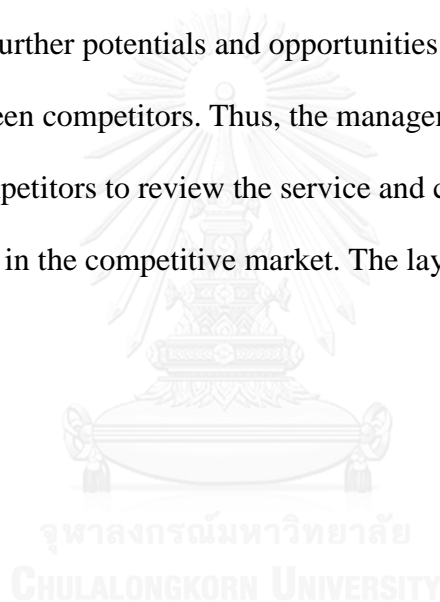
Table 4: Service blueprint components (Bitner et al., 2008)

Service Blueprint Components	
Physical evidence	
Customer Actions	Line of Interaction
Onstage/Visible contact employee actions	Line of Visibility
Backstage/invisible contact employee actions	Line of Internal Interaction
Support Processes	

2.1.6   Operations strategy and management

For any company, operations are the most critical elements of the transform or convert inputs, resources, into output, products or services. Organizations have to align objectives, marketing strategy and resources to develop proper operations strategy to allocate resources effectively (Slack and Lewis, 2011). By following the phase of planning and analysis, companies can set up their goals and objectives and evaluate their current situation to follow appropriate directions and decisions. In each stage, companies can apply several tools to understand their internal and external environment and resources. With the framework in Figure 22, the supplier can firstly understand the market needs and align its resources and operations capacity to provide its unique service or conquer niche market segments. By understanding the signals

and required operations performance, the organization can allocate and deploy its resources properly to fit the market needs. The roadmap is shown in Figure 23.

Starting from understanding the market, a company can set up the goals and objectives for future improvement and growth. To be competitive in the market, factors and required performance have to be evaluated and designed. Order qualifiers are the basic and critical demand to influence consumers' decision and company performance. Without the qualifiers, consumers will perceive huge gap between expectation and output and perceive the performance negatively, while winner factors give incentives for the consumers to use the service and acquire positive experience or values beyond expectation. Generally, 5 performance objectives, price, speed, dependability, flexibility, and quality can be introduced for strategic planning. However, due to the uniqueness of different services, the factors vary and the other critical factors should be involved to provide a proper point of view. Thus, the organization can decide whether to acquire new capabilities or outsource the works to secure service quality with limited resources, acquire flexibility, and reduce risks. On the other hand, the service is interrelated with its process. To manage both service and process effectively, they should be considered and planned concurrently. For service nature, the service is consumed when it is under procedure. From different perspective, the process and service design can start from market requirements, as shown in Figure 24, or the resource-based view, the company's operations capability and capacity.

Corporate Objectives	Marketing Strategy	How do Products win Orders in the Marketplace	Manufacturing / Production Strategy	
			Structure	Infrastructure

• Strategic intent
• Corporate Vision / Mission
• Objectives
• Goals
• Specific Targets
  • Growth
  • Survival
  • Profit
  • ROI
  • Other Financial Measures
	• Markets & Segments
	• PLC
	• Range / Mix / Vol
	• Standardisation vs customisation
	• Level of innovation
	• Leader vs Follower
	• BCG Matrix
	• Ansoff Matrix
	• Puttick Grid
	• PLC
		• Puttick Grid
		• PLC
		• Order winners / Qualifiers / Less Imp Objectives
		• 4V's
		• 5 Performance Objectives
			• Vertical Integration
			  • Outsourcing
			  • Sourcing
			• Capacity
			  • Size/Vol/Time
			  • Location
			  • Adjustment
			  • Role of Inventory
			• Choice of process
			• Trade offs / productivity
			• Process tech
			• Information tech
				• Production Planning & Control
				• Quality
				• Human Resources / Workers
				• Organisation
				• Product & Process Development
				• Resource Allocation & Capital Budgeting
				• Measurement & Review

1 → 2 → 3 → 4 → 5 →

This question links Corporate and Operations Strategy

Figure 22: Modified Terry Hill's framework (Watt, 2015)
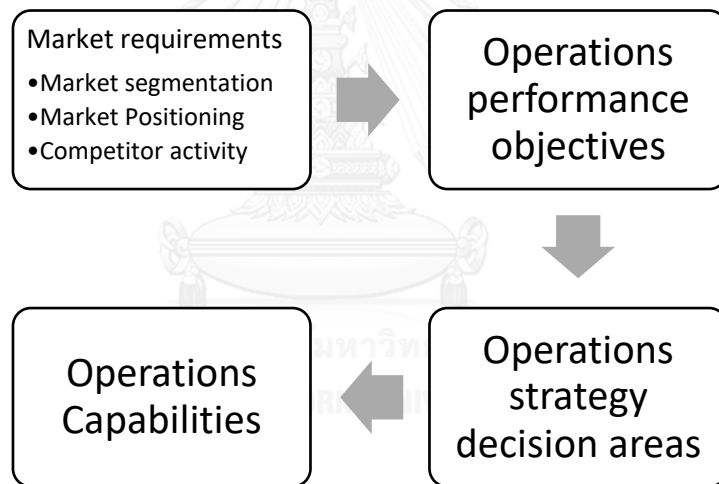
Figure 23: Align operations resources with market requirements (Slack and Lewis, 2011)
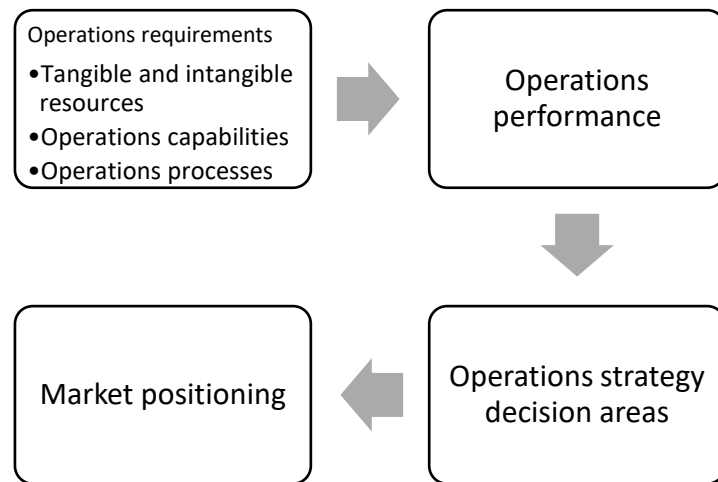
Figure 24: Align market positioning with operations resources capabilities (Slack and

Lewis, 2011)

Table 5: Major design trade-offs in high- and low-contact systems (Hoffman and

Bateson, 2010)

Decision	High-contact system	Low-contact system
Facility location	Operations must be near the customer	Operations may be placed near supply, transportation, or labor
Facility layout	Facility should accommodate the customer's physical and psychological needs and expectations	Facility should enhance production
Product design	Environment as well as the physical product define the nature of the service	Customer is not in the service environment so the product can be defined by fewer attributes
Process design	Stages of production process have a direct immediate effect on the customer	Customer is not involved in the majority of processing steps
Scheduling	Customer is in the production schedule and must be accommodated	Customer is concerned mainly with completion dates
Production planning	Orders cannot be stored, so smoothing production flow will result in loss of business	Both backlogging and production smoothing are possible
Worker skills	Direct workforce makes up a major part of the service product and so	Direct workforce need have only technical skills

	must be able to interact well with the public	
Quality control	Quality standards are often in the eye of the beholder and, hence, variable	Quality standards are generally measureable and, hence, fixed
Time standards	Service time depends on customer needs, so time standards are inherently loose	Work is performed on customer surrogates (e.g., forms), and time standards can be tight
Wage payments	Variable output requires time-based wage systems	"Fixable" output permits output-based wage systems
Capacity planning	To avoid lost sales, capacity must be set to match peak demand	Storable output permits setting capacity at some average demand level
Forecasting	Forecasts are short-term, time oriented	Forecasts are long-term, output oriented

2.2 Operational system development

2.2.1   Output of project management

Over the years, the concept of project management has been utilized by human for a long time. However, systematic and efficient investigation and management just started to become an individual academic, "modern project management", since the latter half of 20th century (Weaver, 2007). Stated by Lester (2006), unlike the other types of management, such as business management, which is an usual and continuous process, project management stands especially for management of change that is rather small-scale and unique. However, in the current dynamic environment, the variations have made the management works become thorny.

On the other hand, as the concept is universal, modified models, processes, and tools can be adopted. According to PMI (2008), a project is a temporary endeavor which is made to achieve a certain or unique result in a definite period. A project will

be finished as the objective is met or become unable to achieve. The definition reveals that a project team or participants have only limited resources, time, money, and human power, to implement the project. On the other hand, Prabhakar (2009) mentioned several definitions and reviews from several scholars. Though these academic works are not exactly the same, they share some common illustrations and features.

1. A start and a finish

2. A time frame for completion

3. An involvement of several people on an ad hoc basis

4. A limited set of resources

5. A sequencing activities and phases

Thus, all resources have to be prepared and well-utilized to ensure that the team can achieve the objective. According to Schwalbe (2013) and Prabhakar (2009), in order to develop project plan, all the information involved should be coordinated and aligned. A project manager has to coordinate all the important elements of a project (works, plans, people, resources, etc.); focus on the big picture; and communicate critical information to top management. The traditional approach and concept of project management are revealed in Figure 25.
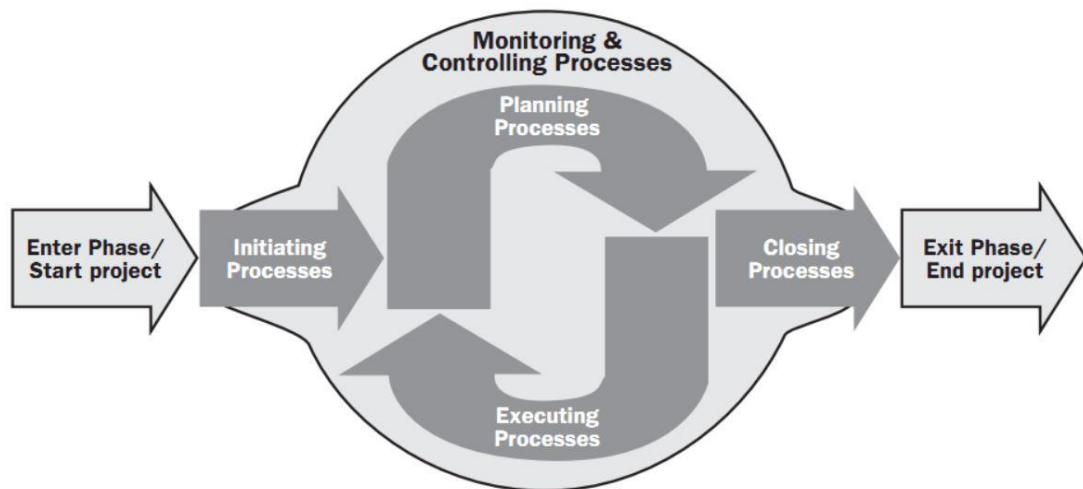
Figure 25: Project management process *(PMI, 2008)*

According to Lock (2014), projects can also be categorized into four different headings by their features and characteristics: Civil engineering and constructions, Manufacturing, Management, and Research projects. By understanding the requirements, projects can be planned more effectively, able to draw the pre-structure, and define the three basic elements - time, cost, and output (or quality) – to learn the constraints of the execution or implementation of the project (Allen et al., 2015). From the study of Mintzberg et al. (2005), business strategies can be defined as prescriptive and descriptive schools by their features, and project management and approaches can also be defined under these two schools, prescriptive and adaptive approach. Due to the innovation of technology, dynamic of the environment becomes intense. Increasing level of uncertainty and changing have increased the difficulty of management. The project team should be able to face the instant changes and risk in the environment. Both the schools have their advantages and disadvantages. By integrating the solutions and plan for proactive and reactive activities, the resources can be applied properly with little waste.

By implementing the scheduled and organized plan, deliverables, experience, and expected outputs (tangible deliverables or intangible benefits) are formed and become the resources and knowledge of the project team and company. Established information, data, results can be recorded as the input for the control and monitoring system. In the structure several knowledge areas are applied. According to PMI (2008), knowledge areas are scope, time, cost, quality, human resource, communication, risk, and procurement management. For each area, the project team has to find suitable and proper approaches to manage the elements as every project is different from the other. All the knowledge area is critical to the objectives of the project. With appropriate knowledge management, outputs can be delivered successfully (Yun et al., 2011).

For each capability, Crawford (2007) mentioned that a maturity model can be introduced to review and assess the effectiveness of the execution. By learning from the output and lessons from the real results, plan and schedule can be refined to adapt the change in the environment and be sustainable. As those for planning, approaches of control systems are aligned with circumstances and related factors or elements. After all the process and procedure are finished, stakeholders realize and acknowledge the benefits or results of the project. A project is intended to close. Lessons and experience are learned and documented. These historical data and information can be organized to build up new templates for future projects to apply.

2.2.2   Importance of scope management and project definition

For profit-oriented organizations, stable cash flow and appropriate cost control are critical to the sustainability of the business. Without cash, no business will be able

to operate. The successful rate of project execution is essential to a business. To implement a project, an organization has to allocate certain resources (time, equipment, human labor, etc.) and budget to support the development (Nahod, 2012). To ensure a project success, proper scope has to be well-defined. The output can provide a clear picture to the organizer to evaluate and identify further information, implications, and details (Lagace, 2006). The definition and scope of a project is essential that it will give the factors and standards to map and plan the project in the initial stage, measurements for control and monitoring during project execution, and evaluate the output when the project is closed.

According to PMI (2008), defining scope is the process of developing detailed and specific description of the project or product. The outputs of the works are identified and documented assumptions, constraints, and major deliverables of the project. The ultimate output of project scoping is WBS which involves all the tasks and deliverables the project required and aligned with related code accounts. Without appropriate definition and scope, further planning and management in the other knowledge areas (such as scheduling, cost estimation, and resources allocation) cannot be built. By understanding the definition, the project team can learn a clear objective to achieve (Abdullah et al., 2010). Costs, schedule, quality can therefore be monitored under required standards and measurements (Kraus and Cressman, 1992).

The scope and definition of a project can greatly affect the output or deliverable and lead the project either to success or fail. As a project cannot be done by the project manager him/herself, cooperative partners and participants need to learn the mutual benefits and objectives from a project to achieve their target. The job of a project manager is to identify, plan, organize, and monitor the overall project. As

available resources for a project are limited, project managers have to properly

allocate and assign these critical resources to finish the works. Without clear

definition, misunderstanding and misconception will distract them from doing correct

and precise works, delay schedule, deteriorate expected output, increase unnecessary

costs, and eventually lead them to failure (Green, 2013).

2.2.3   Scoping and planning of a project

By identifying the internal and external stakeholders, the project team will

learn the exact requirements and the existing and potential supporters or barriers of a

project. As every entity is unique, benefits and influences for every individual or

organization related to the project will be different. In this stage, fundamental

requirements should be acknowledged. Without involvements of stakeholders, some

requirements and essential deliverables may be overlooked. An incomplete scope

definition and dynamic of scope change are the critical causes of increase of budget,

delayed schedule, and project failure (Sharma and Lutchman, 2006). The review and

investigation organizational assets and environmental infrastructure is also critical in

the beginning of a project. By collecting the requirements and learned concerns from

stakeholders, the scope of the project can be defined. In order to organize and manage

the scope, a project team can follow the sequence: initiation, verification or

inspection, and control (Khan, 2006). The control of scope should be introduced in the

initial stage to prevent unauthorized change which can cause deterioration or

cancellation.

In order to initiate a new project, an organization or a team has to identify the

overall objective(s), available resources, time frame, internal and external

stakeholders, etc. to define a proper scope. According to Ranf (2011), modern project management not only focus on the traditional scheduling, planning, executing, and controlling themselves, but has to be coordinated with business factors and adapt dynamic environment to become sustainable. Project success are not only about the project itself but also meet the other objectives or requirements for business success or organization (Ralf Müller et al., 2014, Fahrenkrog et al., 2003). By realizing the factors and circumstances, a project team would be able to figure out the appropriate solution(s) for its project(s). On the other hand, due to the dynamic environment, the scope would need to be modified to answer the additional or changing requirements. However, the variation will be risky to the project as it brings unidentified risks, uncertainties, and additional works (Adler, 2015).

Generally, projects consist numerous works and activities. WBS, work breakdown structure, is a useful tool to decompose and list out all the needed activities and deliverables in a structural view. The structure is a model that organize the tasks into a hierarchy (Norman et al., 2010). The WBS of a project can be viewed as the skeleton which outline and define the works of the project. The structure starts from a general concept to very specific details. By breaking the whole project into separated elements, managers would be able to understand and well-managed the overall project. Tools and the other analysis techniques or breakdown structure with specific information can be investigated to learn the details and implications of the requirements. Similarities and relevance between different tools can also support project managers to learn and build up the work breakdown structure with less effort (Jia et al., 2012). The basic elements, work packages, can be seen as a small project (Wu et al., 2010).

By defining the WBS, further breakdown structure as organization, cost, and resources breakdown structures will be formed and coordinated based on the information of WBS. In organization structure, required tasks, skills, qualifications will be defined aligned with the jobs of the project. Furthermore, requirements and necessities of hardware and equipment will be learned. Lastly, cost accounts of each activity, resource, and requirements can be introduced as cost breakdown structure aligned with the other elements. Therefore, an overall breakdown structure can be organized and formed (Rad and Cioffi, 2004, De Marco, 2011, Söderland et al., 2012).

2.2.4   Breakdown structures

According to PMI (2006), work breakdown structure clearly describe the deliverables and scope of a project – "what" of a project. It is not a description of process and schedule, but rather is specifically limited to describing and detailing the output and scope of a project. Work breakdown structure is a deliverable-oriented hierarchical decomposition of the work to be executed by the project team to accomplish the project objectives and create the required deliverables (PMI, 2008). OBS is able to decompose the needed human resources to implement the project. Organizational breakdown structure is arranged according to an organization's existing departments, units, or teams with the project activities or work packages listed under each department. By aligning WBS and OBS, RAM (responsibility assignment matrix) can be defined and provide a clear view of the allocation and appointment of human resources (Allen et al., 2014).

Resources breakdown structure is another hierarchical chart used to break down the project by types of resources. The resource breakdown structure is helpful in tracking project costs and can be aligned with the organization's accounting system (PMI, 2008). It can contain resource categories other than human resources. However, in the case company, the critical resources are its human resources. As the business is different from those in the other industries, additional human labor or personnel would not be required to execute the project. Aligned with control accounts, each work package also reveals the information of cost structure and can be summed up to learn the overall budget of a project. Project managers can use the structure to track expenditure of the project and evaluate the progress. However, it doesn't cover the ordinary overhead of business operations.

According to De Marco (2011), cost breakdown structure can be defined in two ways. Firstly, the structure can be the same as WBS. Each work package is directly linked to a cost account. From this approach, activity based costing, ABC, is applied. The method is clear when project managers track back the expenditure as the project progress. Nevertheless, when specialized subcontractor introduced into the project with detailed spends, complexity and uncertainties start to enter accounting works. The approach is usually utilized by companies who do have specific cost control accounting system. On the other hand, when a firm has multiple projects to execute simultaneously, it has various WBS for each project. By utilizing firm-specific or standardized coding system, each activity of WBS is associated with a cost account.

2.2.5   Risk management

As new concept, method, equipment, or technology can often be applied in a project, the project team can't avoid taking risks because the project is very unique. Besides, risk are the events which haven't happened yet. A proper risk management is to proactively plan the solutions and preventions rather than work out reactive activities (Kerzner, 2013). According to PMI (2008), the objectives of risk management are to increase the probability and impact of positive event and decrease the probability and impact of negative event. To develop a risk management plan, the scope and areas should be defined to evaluate and assess the possible consequences. Therefore, the project can identify and define project risks. After identifying risks, the team analyze the risk and plan for responses. After all, the risk management should be applied to monitor and control the whole project. Effective risk management is to minimize the overall business through systematic approach which responds the changes of both internal and external business environments. Hong et al. (2012) argued that enterprise-wide risk management includes organizational preventive activities, organizational responsive activities associated with actual product accidents and quality defects, and system improvement activities after product accidents and quality defects. Though all factors should be considered to develop preventive activities and its following and referring solutions, the scope and perspective of risk management need to be reexamine. Management team may focus only on the continuing or keeping the supply chain and thus focus only on the factors which may disrupt the supply chain. On the other hand, lower level managers and senior or executive level managers may focus on the different factors from different views. Higher level managers usually focus on the overall view which are mostly high-level,

external, organizational, and long-term factors, while lower level or front-end managers will focus on lower-level risks associated with user involvement and requirements.

According to Choi et al. (2016), 4 areas are introduced in logistics and supply chain systems: Disruption risk management, operational risk control, disaster and emergency management, and logistics risk analysis. The disruption risk management includes proactive, preventive activities to prepare for crisis and disasters in advance. Usually these strategies or solutions are agile, adaptive, and responding. Controlling operational risks requires understanding the source of the risks and getting the right optimization objectives. The company can adopt the performance of outsourcing company in different perspectives to evaluate the organization. For example, its financial performance, sales, records, and current operational systems and model can be investigated for reviewing. For the logistics service, the relationship between supplier and customers are essential to the operations and the logistics service company has to provide the service in a flexible organization. Besides, the responds and reactive activities are timely, especially for disaster and emergency conditions. Such factors are critical as they also influence the customer expectation and perceived service. Tsai et al. (2008) mentioned that uncertainty have 2 forms, behavioral and environmental uncertainty. The risks of outsourcing logistics (in Table 7) can be separated in to 3 categories, assets, relationship, and competence. Based on TCT, transaction cost theory, hidden costs of assets and relationship can be identified, while competence risks can be evaluated by RBV, resource based view. However, due to the difference between environment, culture, and infrastructure, the factors which influence the risks and management decision will vary, as they rely on the

stakeholders and special requirements in different market, region, or country. On the other hand, risks are evaluated in inner layer, risks in tourism, and outer layer, absolute risks, risk perceptions in various value chains, and risk management in various service field. In other words, the risks perceptions are either from the point of view of supplier or customer. According to Gjerald and Lyngstad (2015), from the upper stream of the value chain, the risks are uncalibrated service quality, competence lack, product constraint and product associated cost, and market expectation and information. From their research, the risk management strategies are market analysis and communication, control and enhancement of value co-creation, competence development, and diversification. The types of risk on the tourism value chain are summarized in Table 6.

Table 6: Types of risk conceptualized on the tourism value chain (Gjerald and Lyngstad, 2015)

Risk types/Value chain position	Upstream	Downstream
Absolute (Suppliers/Agents)	Financial, functional, operational, performance, physical, psychological, reputation, social, strategic time	Equipment risk, financial, physical, psychological, satisfaction, social, time.
Absolute (Intermediaries/Clients)	Political instability, terrorism and war, health, crime	Political instability, terrorism and war, health, crime, cultural difficulties
Subjective (Suppliers/Agents)	Uncalibrated service quality, competence lack, product constraint and product associated cost, and market expectation and information.	Exogenous, tourist-induced, tour leader, self-induced
Subjective (Intermediaries/Clients)		Perceived food risks, risk-taking behaviour of tourists, perceived tourists' risks in adventure tourism

Table 7: Risks events of outsourcing logistics service (Tsai et al., 2008)

Main events	Sub-events	Brief descriptions
Asset risk	Information risk	Loss resulting from unavailable, incomplete, inaccurate, inconsistent, and unsecured business information through outsourcing
	Employee resistance	Loss of skilled personnel, or reduction of workforce, or even sabotage of the process due to employee insecurity
	Loss of control	Loss of management control over logistics activities, or lack of orderly process for their separation
	Inactive logistics facility	Low or no utilization of existing logistics facility/technology throughout outsourcing
Relationship risk	Vendor opportunism	Vendors withhold or distort information to technically misinterpret contract, or to use dependence of outsourcers for price increase
	Contractual violation	Vendor legally breaks (terminates or amends) the contract, leading to dispute and litigation expenses
	Poor communication	Vendor's over-promising and under-delivery leads to an increase of monitoring cost
	Lack of shared goals	Different business vision, style, and bureaucracy degree between the two parties leads to cost increase in integration
Competence risk	Poor competence leverage	Failure in maintaining existing logistics performance due to deficiency in resources or capabilities
	Poor competence in supporting strategic development	Failure in developing strategic resource to support outsourcers' business flexibility and innovation in response to the changing market
	Poor competence in supporting customer services	Failure in developing resource and capabilities to support outsourcers' customer service and marketing practices
	Poor competence protection	Failure in safeguarding resources and capabilities from being imitated, or vendors replace outsourcer into its business domain

Chapter 3: Research methodology

3.1 Introduction

The service company lack of standardized organization, clear service flow, and operational system. Without such guideline and standards, the management team and front-ends won't be able to sustain the service quality. With such consequence, the marketing department is hard to provide aligned information and campaign to build company image. As the capacity and performance are fluctuated, the operations team can't provide the service as expected or serve all customers introduced by the marketing activities. The loop will become a vicious circle and seriously harm the business. Aligning with theories, literature review, and case studies, the operational system will be design and developed to fit the unique market needs with enough capacity and capability to provide same-day, same-town luggage delivery service in the region. The service company should firstly identify its core advantage and capacity to design available service scope and align the availabilities to market needs. To be aware of the gap between consumer expected and perceived service, any company who gives a relatively high expectation but doesn't provide what it commits will suffer from deteriorated consumer experience. Clear service objectives and operational system are required to provide stable service quality.

3.2 Company profile

3.2.1   Company background

The company is aiming at providing solutions and supporting travelers in Thailand. The features of tourism industry of Thailand have provided several opportunities for businesses. Constraints and inconvenience in the city have promoted

the need for traveling supports. The proposed concept of the business includes luggage delivery and handling, information of travelling and entertainment, and one-stop service. Starting with luggage delivery service, which is a problem for travelers that hasn't had an easy solution in the region, the company is aiming at penetrating into tourism industry with a different approach and focusing on niche market. Currently, the business objective is to make luggage delivery service as a standard service in hotels of Bangkok region and keep travelers be aware of such service.

- **Product/Service**

Luggage delivery service to and from international airport, hotels, or accommodation in the Bangkok metropolis.

- **Objective**

The purpose of the business is to provide convenience to the users by saving their time, money, and energy and make them enjoy their trips. The integrated service will combine promotion and integration of the other activities. Starting with luggage delivery, the business is targeting at solving the problems that travellers will meet. By utilizing the system, travellers can greatly reduce their effort on information sourcing and take less effort to transfer between places in Bangkok. The business will also be a channel, or platform, for advertisement and promotion.

- **Criteria of service**

On-time and accurate delivery

100% successful rate of delivery

- **Luggage delivery service**

Charging users by delivering their luggage from dropping points (airports or accommodations including hotels, hostels, home, office and shopping mall) to the destinations (hotels or airports).

The company has limited resources and build only basic infrastructure with little equipment at the service counter at the airport and the shopping mall. Currently, the company applies pre-made order management system aligned with company website to receive bookings from customers. Customers reservation and deliveries are managed manually with little tech-support and without structural operational system. Only few standards and benchmarks are introduced to the operations. Therefore, the organization is struggling to control and manage the performance and quality of service without SOPs and to perform sustained service level.

Having and managing vehicles and drivers or having own fleets is very costly. Without enough experience and expertise in logistics part, the company decide to outsource the logistics and transportation part to professional third party to reduce fixed operational costs. Most of the resources will be applied to develop operational system with new online platform and customized backend management system and increase customer service level. However, without proper and sufficient standard requirements, the company can't coordinate its needs to the standards of its partners and keep service quality continuously.

3.2.2   Company structure

The company has 4 co-founders who are in the executive level and responsible for business development, marketing, technology and operations. To align all departments in the same direction, all the top managers have to work closely. In addition, due to limited human resource, all members in the organization are overlapping each other's duty to support and help. According to Figure 26, 3 main departments are under the managing director and led by 3 managers.

- Managing director

  ➢ Coordinate all departments with the same direction, do business development and sales, and support all managers on their tasks and duties.

1. Marketing manager

  ➢ Promote the business to reach more potential and target groups of travelers and audience; manage customer service, call center and CRM; support operations.

  • Administrative Officer

  ➢ Support the manager for marketing implementation; do customer service via online communication tools including email, phone, instant messengers; assist operations.

2. Operations manager

➢ Manage and direct all front-end staff; manage and monitor transportation and logistics; and provide customer service through online and offline channels.

• Front-end Staff

➢ Greet customers at the destination; proceed delivery service for emergency cases; manage counters at the airport and shopping mall; monitor delivery and transportation; manage luggage and storage at the destination; and communicate with driver, customers, and hotel receptions.

3. Technology manager

➢ Building customized, digital and online communication system, website, and backend system for the company and guide developers.

• Developers

➢ Support the manger to develop communication and backend system and website.
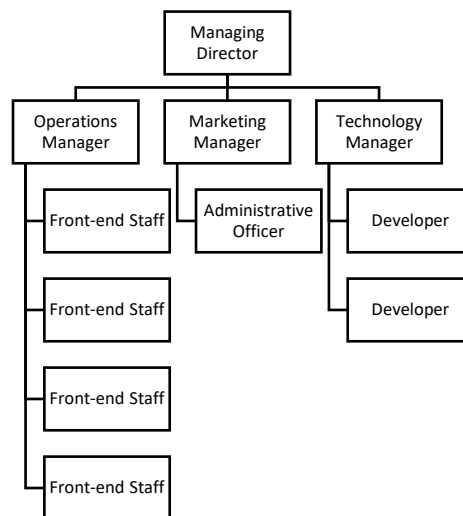
Figure 26: Organization structure of the company

3.3 Service design and development

The service should be built to match customer requirements and meet customer expectation. Besides, the purpose to build up the business is to generate profit for the organization. The cost control to provide reliable service and secure service level, all the risks should be concerned and minimized at the first place. In addition, the value of the service is co-created by the supplier and the consumer. On the other hand, the team should step to evaluate the objectives and direction that whether the marketing and operations are coordinated and can support each other. In addition, the technology department should develop system and tools to support both front-end and back-end operators to manage orders and customer communication. Operations strategies and management include useful tools and evaluating technique to design and align all the requirements from different parts of the organization and business.

Customers can order the service online and deliver their luggage from any accommodation with reception or person who can manage the luggage and wait for service company's courier in the Bangkok metropolis to Suvarnabhumi or Don Mueang airport. Each delivery can be done as fast as in 4 hours or upon customer's requirements. Customers can check delivery status or be updated by the service supplier. For service companies, labor, front-end and human resources are the most critical part as most of the service organizations are labor intensive, especially off-line service with intensive physical demanding and customer interaction. Services blueprint will be introduced to show the overall process with a visualized form.

3.3.1   Input: Service design and requirements

Based on the theories reviewed, the service objectives, scope, and requirements will be defined. Aligned with market fits, customer requirements, and how the value is created by both consumer and supplier, the core service can be built and structured. On the other hand, the service quality should be able to track and manage. The gap between consumer expectation and perceived service should be minimized and provide a relatively smooth and secure delivery service that is convenient and reliable for consumers to apply on the last day on their journey before they go to the airport. With visualized service blueprint and investigation on customer journey, failure point can easily be identified, and risks can be minimized in advance. Besides, the management team can investigate the flow and integrate the process with advanced technology to improve service performance and optimize the experience.

3.3.2   Service process and operations

Operations, procedures, and the system are the most important for the delivery business. To provide luggage delivery service with the features listed in service design, the followings are required to build up the overall operational system. Besides, the service is provided concurrently by both the service supplier and its consumer. Operations strategies and management will be introduced and applied to choose the proper method and solution to build up the system to meet the requirements and service standards. By providing appropriate management concept and choosing proper solutions, the company can provide the services with a clear and

cost-saving direction and reach customer expectation. A flowchart will be developed to give an overall view of the service operations.

For service or intangible products, the quality of the service is given, defined, and evaluated by the end-user or consumer. In other words, the feeling and experience is very subjective, and it's various among the customers with different background. Besides physical equipment and appearance, human factors are the most critical to customer evaluation of the service consumption. To allocate personnel properly and work on the best use of limited resources, systematic approach can be adopted and kept optimizing to improve the overall supply chain, customer journey, and customer experience and reduce cost. In addition, setting the benchmark and quantify and digitize the process can reduce the workload of front-end staff and improve service workflow. Service quality is the core and the competitiveness for a company in the market. To control quality is to ensure the operations and process deliver what customers want and expect. Though the company can provide flexible service to reach any potential customers, the quality control is certainly required to provide proper services, meet customer expectation, and sustain service level. The company shouldn't provide any promise and service beyond service scope to secure service quality.

Services includes labor intensive works. Customers may choose to leave and give negative reviews and feedback to the company. Besides, as the information can be spread easily and instantly, potential users can learn from the company performance from its previous users. Without appropriate branding and customer engagement, the company has to put more effort and allocate much more resources to rebrand, solve problems, and educate the market.

3.3.3 Service quality control and risk management

Following by each process, the possible failure point, problems, uncertainties and potential accidents can be identified in early stage. For service company, the risk should be minimized and prevented as the consumer can learn from the problem easily and thus deteriorate the overall experience and perceived service. The potential risks and description will be investigated, and solution will be prescribed with the aim to solve the problem in time. For the service, most of the service risk will come from communication and logistics part of the overall process. In addition, not only supplier's point view but customers' have to be analyzed to proceed the risk management. By following customer journey mapping, service blueprint, and process workflow, both operators', stakeholders' and consumers' perspectives can be evaluated to identify the problems and risks which will be faced by each of the parties. Thus, the solutions and proactive activities can be developed and coordinated to be suitable for the operational system. On the other hand, with technology advancing and increasing customer requirements, customers won't be satisfied with the same standard and will look for services and products with higher or better performance. For any organization, keeping improving is critical to business success. The system has to be concrete to reduce and minimize the risks but flexible to be updated and increase more capacity in the future.

3.3.4 Deliverables: Service operational system

To start a design and system development, the scope and objectives have to be set to follow. With such techniques, the team or organization can plan the process and reach the goal in a defined time frame. The breakdown structures of project

management are useful presentations to provide an overall view which includes all required resources – work breakdown structure to show all the tasks required to accomplish the service and customer requirements, organization structure to show the human resources and roles in the team to arrange duty and share the workload accordingly, and resource breakdown structure to show the hardware and software that the organization/team owns. The integrated structure will be used to demonstrate the summary of resources deployment of the company with align tasks and members involved. For service companies, the most critical resources are the personnel. With the visualized and integrated form, the manager and operators can clarify with the tasks and duties.

Table 8: Summary of development of service operational system

Input	Process	Output

- Market requirements
   ■ Consumer behaviour
   ■ Competitiveness / differentiation
   ■ Market segments
   ■ Customer expectation
- Operations objectives
   ■ Stakeholder analysis
   ■ Technology / Equipment
   ■ Capacity of logistics
   ■ Features and trade-off
	- Service blueprinting
	- Service scope definition
	- Service process and working flowchart
	- Work breakdown structure
	- Organization breakdown structure
	- Communication system
	- Quality and risk management
		Luggage delivery service operational system

3.4 System validation and verification

According to PMI (2008), verification is the evaluation of whether or not a product, service, or system complies with a regulation, requirement, specification, or imposed condition. It is often an internal process. On the other hand, validation is the assurance that a product, service, or system meets the needs of the customer and other identified stakeholders. It often involves acceptance and suitability with external customer. To evaluate the service and its system, both internal and external performance need to be investigated to identify the defects and problems. The operational system will be reviewed by its performance of costs of logistics, which is the biggest portion of costs of operations, and time spending and success rate of each process.
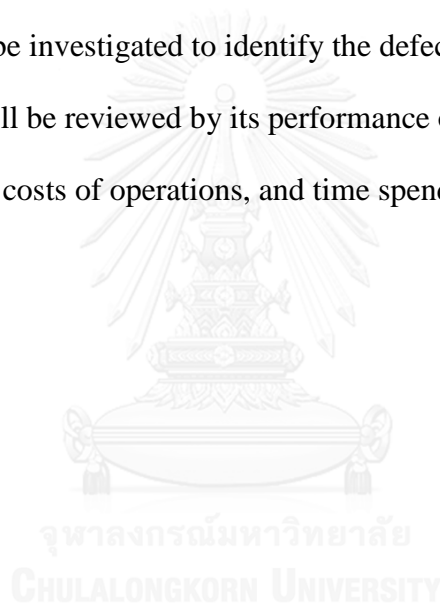
Chapter 4: System development, verification, and validation

4.1 Summary of operational system development

The market information will be introduced and analyzed to bring a deeper view of the customer requirements of the service. Aligning with customer behavior in targeted market segments. By investigating the substitution of the solution, differentiators can be revealed. Customer expectation of the service will be aligned with the channels introduced by El-Haik and Roy (2005) in Figure 18. Based on the market information, operational objectives will be created and all resources of the organization will be reviewed to match the market requirements and develop the operational system. Service blueprint and customer journey mapping will be applied to show the roadmap and summary of the service. With the blueprinting, further system will be revealed in flowchart to present the process, work breakdown structure to describe each of the processes, organization breakdown structure to show the deployment of human resources, communication system to present the information flow between stakeholders, and risk plan for prevention and reaction of potential problems and disasters. The expected results and actual performance of the system will be summarized to be evaluated for future improvement and optimization.

4.2 Market requirements

4.2.1   Customer behavior

The purpose to provide the service is to give its consumers a more flexible way to do schedule, plan the trip, and spend their time in the foreign country effectively without problems and efforts. For most of the travelers, who carry luggage during traveling, on the last of the trip, they share the similar behavior to either deposit their

luggage at hotel concierge and return to the hotel to collect it or carry the luggage before heading to the airport. In Bangkok, the downtown area where foreign travelers go is accessible by public transport or taxi service. However, the traffic congestion and infrastructure of the environment are easy for travelers carrying large luggage with them. The public transports lack of escalator or lift while the stations are on the second floor. Therefore, people need to climb on staircases to reach the stations or attractions. On the other hand, for travelers getting back to collect luggage, they may have to reserve more than 2 hours to travel between the places. The journey of regular traveler behavior is presented in Figure 27.

Check out from the hotel	Check out from the hotel
↓	↓
Carry luggage	Deposit luggage at the hotel
↓	↓
Travel in the city	Travel in the city
↓	↓
Go the airport	Get back to the hotel and collect luggage
	↓
	Go to the airport
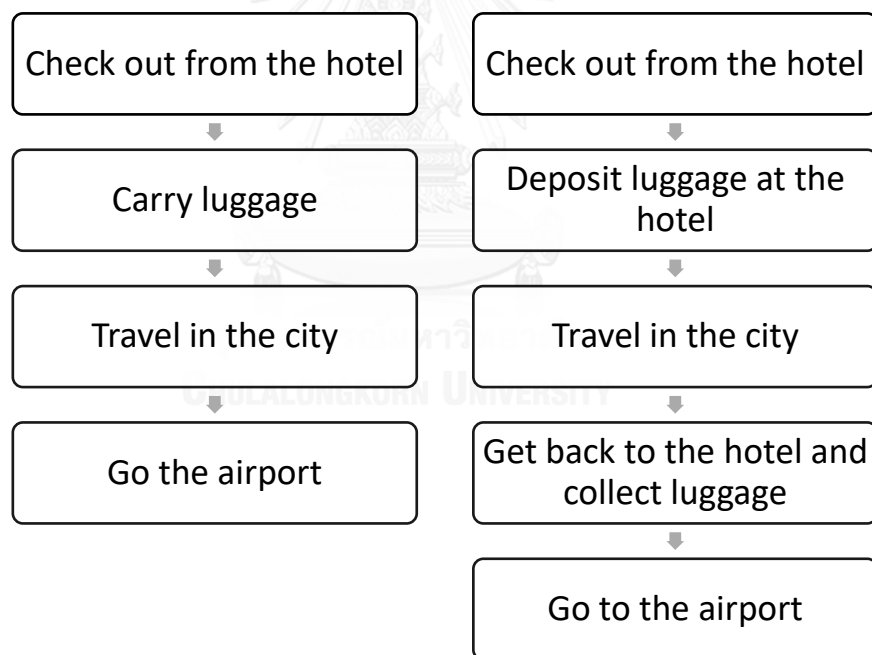
Figure 27: Regular customer behavior after checking out from the hotel

The company provides the service to let the travelers to follow their journey without carrying anything additional and bulky bags or suitcases. Thus, travelers can travel lightly and become easier to access to anywhere in the city. Besides, the time for traveling between destinations and hotels or location to deposit belongings can be

saved. The service follows the ordinary way of travelers when they're abroad but reduce the problems and save the travelers more time to continue their traveling in the city. The modified traveler journey is shown in Figure 28. After the market fit and core service have been defined, the supplementary services which can facilitate and increase value of the core service. From the 2 main groups, facilitating and enhancing supplementary services will be evaluated to be added by referring to the nature of the service. Facilitating supplementary services include information, order taking, billing, and payment, while enhancing services include consultation, hospitality, safekeeping, and exceptions. For delivery service, communication is the vital part of the process and operations. The orders and deliveries are based on the given information from consumers and consumer perception of the service are generated during the delivery process. Consumers should learn and understand the limitation of the service company and follow the designed process as some uncontrollable stakeholders, such as hotels, are involved.

Check out from the hotel	➡	Deposit luggage at the hotel	➡	Travel in the city	➡	Go to the airport	➡	Collect luggage at the airport
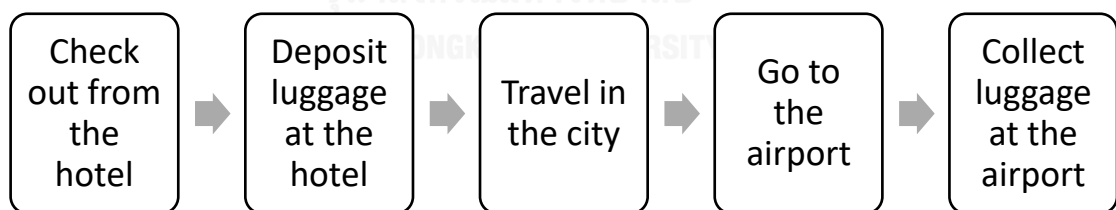
Figure 28: Modified customer behavior

Information is in the first stage to impress customer. As a new service and concept in the market, luggage delivery service isn't a usual solution for travelers in Bangkok or the other countries. Without familiarity and experience, customers require more time and information to evaluate whether the service is useful for their journey and schedule. When traveling abroad, travelers tend to minimize the risks they may

face. Other the other hand, similar delivery service such as post system and logistics are available in each country. Consumers may give certain expectation or understand the delivery service differently due to their own experience. Furthermore, people have been bombarded by too much information and noise in the market. The sign and information should be clear and simple enough to grab customer's attention and make impression at the first place. In addition, to penetrate customer journey, all media should be digitized and online to be able to spread wider and faster. A visualized design, infographics, and user-friendly online channels can ease the process of service learning and understanding. For luggage delivery service, the demanding information for customers are in Table 9.

Table 9: Required information for consumers

Information for consumers	Description
1. Service definition	What services does the company provide?
2. Service scope	What's the limitation of the service?
3. Price/service fee	How the service company charge customer?
4. Service instructions	How to use the services?
5. Terms and conditions	What regulations should consumers follow?
6. Guarantees	What does the company promise?
7. Notification of changes	How can consumers check delivery status?
8. Service locations map	Where can consumers use the service?

Though the service is relatively flexible with the time and places for delivery, the limitation of the company is that it can't work delivery service out without proper information and premises. To deliver and collect luggage precisely, the company have to collect several information from customer to proceed the operations. For each stakeholder, the required information is different. All the critical information is customer's profile and reserved delivery details. To check and confirm with hotel

reception or concierge and courier, the customer's profile is required to ensure the luggage is correct and the courier is dispatched by the service company under customer's request. Table 10 shows the required customer information and its description and usage.

Table 10: Required information for luggage delivery service

Required information	Description	Usage
1. Name in English spelling on passport	Name in English spelling is the common language to be applied on passport.	To identify customer and provide customized message push and create customer engagement.
2. Passport number	Unique number linked to the document holder.	Some customers have the same name in English spelling. The unique passport number can confirm the identification as the document is official.
3. Date and time to delivery luggage	Customer requested delivery date and time to deliver luggage.	To arrange couriers to collect the luggage on the correct date and time. The places can be inserted to the routing system and have an optimised route and schedule to collect the luggage
4. Number of pieces of luggage to deliver	One factor of the payment benchmark of the delivery service.	To arrange proper vehicle and couriers with a suitable capacity to collect the luggage in correct number.
5. Origin of delivery (name and address)	The place where customers request to deliver the luggage from.	The place for courier to go to collect customer's luggage.
6. Destination of delivery	The place for customer to collect luggage	The destination for courier to deliver the luggage to

	(name and address)		
7.	Date and time to collect luggage	Customer requested delivery date and time to collect luggage at the destination.	To arrange front-end staff and manage luggage storage at the destination. The process can accelerate the checkout process for customers as front-end staff can manage the luggage at the destination in advance
8.	E-mail	To contact and send e-receipt and confirmation to customers.	The system is instant and able to apply various layout and features.
9.	Contact	Foreign tourist may not open roaming, have no local mobile to contact, and not be able to receive e-mail on their phone or mobile device.	Instant messengers such as Line, WeChat, WhatsApp, and Facebook will be useful to communicate with customer promptly and have the function of sending locations and pictures or photos or making free phone calling to provide real-time communication.
10.	Flight number	To check with the latest time for customers to collect the luggage and confirm which airport to be delivered to as there are 2 international airports in Bangkok.	The costs and risks for both the customer and company are high if the luggage is delivered to the wrong destination. The distance between 2 airports is 45 kilometers. It takes at least 40 minutes to travel between the sites. Besides, if the customer come late, the service company can prepare the luggage at the counter of airline check-in to accelerate the process.

4.2.2   Market segments

The targeted audience are travelers travel by flights and stay at hotels and foreigners from different countries and speak different languages. Though English is one of the most widely used languages, customers will prefer to read and learn the information in their mother tongue or familiar language. The company should provide the most potential languages by investigating the market. While the top 5 origins of foreign travelers are China, Malaysia, Korea, Japan, and Russia. Though each of these countries has different culture and traveling behavior, the east Asians have relatively similar behavior and understandings. Besides, while similar services have been available in Japan for decades, Japanese travelers can understand the service fast and easily. On the other hand, travelers from Chinese-speaking countries and regions, including China, Hong Kong, Macau, Taiwan, Malaysia, and Singapore, can communicate to each other and have similar behavior, culture, and reasoning method and are more than 35% of the travelers in the market. The company should focus on the largest and easiest market to penetrate, acquire traffic and make sales. Thus, the company should apply English, Chinese, and Japanese language into the online channels to serve customers. The factors can also be evaluated and reasoned for further or additional service development in the future.

Table 11: Market segments

Factors	Description
Nationality	Factors to understand customer culture, background, reasoning, and behaviour
Dominant and second language	English, Chinese, Korean, Japanese, Russian, and Thai
Type of traveling	Vacation, business travel, or education
Group of traveling	Family with kids and/or elders, couples, friends in small group, or individuals
Flight time	Flight departure during 14:00 and 04:00

4.2.3 Competitiveness/Differentiation in the market

According to the value matrix (Macintyre et al., 2011), the company can follow operational excellence and apply process simplifiers strategy or mass service (Slack et al., 2010) to increase capacity and achieve mass production. The service concept is relatively simple that it transfers customer's luggage between places. In addition, the service is only one stop of the overall customer journey of their vacation or abroad traveling. Thus, the business has to be coordinated with the other needs during traveling, and the service has to be designed as smooth as to be part of the traveling as the value won't be created if travelers find the service isn't easy-accessing. The service is to reduce troubles and problems rather than increasing complexity during traveling. However, the concept of the service is relatively new. Though the idea is creative and the solution is innovative, education and communication to the market are very critical to penetrate the market. Branding is what the company stands for and promise to its customers. Luggage delivery services provided by different suppliers can be very similar as the main purpose is to transfer customers' belongings between

places. The common features are on-time and safe delivery. Though the function and appearance can vary, customers won't easily notice and differentiate the service from various suppliers. To be differentiated in the market, the image of the company is important to acquire more market share and penetrate into the other demands or cooperated and aligned with the other businesses. The branding strategy should be aligned with market needs and coordinated by both operations and marketing strategies. On the other hand, the delivery service can be substituted via transportation or luggage storage service, such as lockers, deposit service at attraction or destination. The transportation service and taxi fee in the country are also affordable for the foreign travelers. Thus, cost structure and price will become a critical point for service expectation and decision making. In addition, the barrier of entry of the business is relatively low as the initial cost can be low and require skills are relatively general. The threat from substation and new entries is very strong. Besides, due to service nature, the business can be duplicated easily, and the price war can be started easily among competitors as the difference between each supplier won't be high. The largest barrier of the business is coordination with the other business in tourist industry and the service location at the destination, airports. The summary of the barriers and differentiators of the service is shown in Table 12.

Table 12: Barriers of business entry and differentiator

Barriers/Differentiator	Description
Service location at the destination	Customers will get more positive experience and have trust to find the location is obvious and easy accessing when they are in a foreign or unfamiliar location as they use the service for convenience
Language support	Customers can be familiar and build trust with the company and its service fast and easily.
Flexibility of the service	Customers can choose the best time to use the service which fit to their own schedule and reserve the service on the time they want.
Branding	After customers have chosen the supplier and had confidence with the service, they hardly change the service provider. Besides, dealing personal belongings is very sensitive as customers have to pass through airport security and customs and follow local law and regulations of air transportation.
Price	As the threat of entry is high and the service can be substituted by the other transport service easily, the prices and perceived value of the service are critical to the business.

4.2.4   Customer expectations

Customer experience can be generated via the channels referring to the chart of El-Haik and Roy (2005). The objectives of luggage delivery service are on-time and accurate delivery with 100% success rate as instrumental performance, and customers can reserve and deliver the luggage within the timeframe during the service hours. With such requirements, the features of the service can be defined. However, organizations have limited resources and can't apply every feature that is beneficial for the services and sales. The number of personnel is not enough to provide 24/7 services. Thus, trade-offs should be considered, and all features should be prioritized to exploit the resources effectively.

Customers firstly evaluate the service scope and the values, deliverables, to decide whether to use the service. For delivery service, consumers look at the features as reliability, cost effectiveness, service values, and flexibility. The demands start from the problems of carrying luggage. For most of the travelers, the purpose to travel in the other countries is to take vacation. The frequency for traveling abroad isn't high as the process and costs are relatively higher than traveling domestically. With limited time and strict schedule, travelers may want to have more time and visit more places during the trip. Though carrying luggage and depositing luggage at one place are simple to be done, the work is time-consuming and problematic as the travelers may not be familiar with the local infrastructure. Besides, with a tourist-like appearance when carrying luggage, travelers can become an obvious target for criminals. The service can make traveling more efficient, easy, and safe.

From time to time, punctuality is the basic requirements of delivery services. Customers have their own desired time to deliver and receive the transferred goods. On the other hand, service providers can define the schedule and time to deliver the luggage. In the service using scenarios, travelers can use the service before they take flights to leave the country. Aligning with air transportation regulations, the luggage should be at the airport before travelers check in for flights. Besides, as the regulation for air transportation safety is stricter due to the consequences and referring stakeholders. In the case, as travelers travel cross countries, national security, customs, and laws for contraband should be considered. Records and reviews are the evidence and perception of previous service consumers. The performance and records should be ensured that the delivery can be done on-time and safe to let consumers follow their schedule.

Though there's no direct competitor in the market, travelers can find other solutions to transfer their luggage. Travelers can deposit the luggage at the hotel they lodge and get back to pick it up before going to the airport or next destination. In addition, the taxi fare is relatively cheap in the city. Service and quality evaluation of end-user are subjective. Besides, how to charge customers becomes very essential as it gives the value proposition for potential users to evaluate. The service is very beneficial to travelers but isn't a must as visa, hotel, flight, and basic transportation do. Thus, the value proposition and value co-creation process are very important for travelers to choose the solution and for the company to stay competitive in the dynamic market.

Though most of the labor and manual can be replaced by system and application, consumers will face front-end staff when they collect the luggage at the destination and hotel front-ends as part of the service process. The staff should present as professional, caring, and fluent language skill to reduce worries and uncertainty of consumers. Besides, consumers may have specific or additional request. The soft, understanding, reasoning, and reacting skills should reach a certain level to give a professional image. However, the front-ends should understand the bottom-line of the service to deny any additional request that exceed the service scope. The communication is part of the process to influence the consumer perception of the service. By giving correct and precise service information, the customer won't feel unsecure and the gap between expectation and service performance can be minimized. On the other hand, as a standardized organization, uniform and appearance of each staff should be aligned and unified but easy to work for carrying luggage and moving

at the service point. Besides, unclear information and leading uncertainties will deteriorate customer experience and brand image.

Table 13: Assumed customer expected service features

Group	Features	Evaluation
Service	Reliability	Can the luggage be delivered safe and on time?
	Cost effectiveness	Is it worthy for travellers to send the luggage rather than carry it?
	Service values	Does it solve travellers' problem of carrying luggage?
	Flexibility	Is the service fit to traveller's schedule?
Process	Ease of use	How long does the customer interact with the service company or its system?
	Pre-sales	Is the reservation confirmed?
	Service usage	Is the information delivered and updated on time?
People	Language support	Can the customer communicate to the staff or operator effectively?
	Interaction	Is the staff friendly and supportive and do they have the service knowledge?

At the time of research, no company or organization is providing luggage delivery service as the main business in Bangkok, Thailand. Without benchmark and competitor, the company can create and lead the relatively niche market and demands. The service can be flexible but has to be matched to customer journey and behavior. Besides, the company only provides same-day luggage delivery and luggage deposit or storage service in the city. On the other hand, though there's no direct competition among the service, the service can be substituted by other kinds of solutions. The requirements of the service are presented as the order winner and qualifiers and listed in Table 14.

Table 14: Order winner and qualifiers of luggage delivery service

Parameters	Luggage Delivery Service
Quality	Order winner
Price	Order winner
Speed	Order qualifiers
Dependability	Order qualifiers
Flexibility	Order winner
Branding	Order winner
Communication/responsiveness	Order qualifiers
Well-trained personnel	Order winners

1. Quality - Order winner

Professional making people trust the company and TRUST is one of the most important factors to customer to decide to use the service, taking the risk, or not. The perceived service performance should be match or beyond customer expectation to win the order.

2. Price - Order winner

This factor is usually a "order winner" especially in the service industry which has more than one options. Most of the service suppliers or substitutions will offer the same service with the similar conditions. This factor can be one last factor before customers make their decision.

3. Speed - Order qualifiers

The service company offers its customers same-day delivery, or the delivery can be made in 4 hours. Travelers will have their expectation to see the luggage be delivered in the period which is aligned their schedule or plan. If the feature isn't suitable for consumers, the service brings no value to them.

4. Dependability - Order qualifiers

This is one the most essential factor for customers to use the service. This factor is basic function that customers expect provider to do as what they commit. As travelers use the service before leaving the country, the delivery and should be reliable that consumers can solve the problem of luggage handling and carry their luggage back home with the scheduled flight.

5. Flexibility - Order winner

Each traveler has different journey and schedule. The service can only be suitable for some of them. Expanded service scope can allow them to schedule their trip easily and support the provider build more professional image and improve branding performance.

6. Branding - Order winner

Brand of the service provider is significantly important to customer. The feature supports building trust between supplier and consumer. Well-known brand will have advantages among its competitors.

7. Communication Order qualifiers

As smartphones becomes regular gadgets for people, travelers use instant massager such as LINE and WeChat to communicate with each other. Real-time communication, including texting, calling, video calling and more, becomes a customer expectation factor when consumers evaluate the service. Customers expect the service provider can reply and interact with them instantly by the technology.

8. Well-trained personnel - Order winners

Service values are co-created by both suppliers and consumers. The gap between customer expectation and perceived performance is created since the customer consume and interact the service. To proceed the service smoothly, the personnel or operators who interact with the customer should understand the service value and customer requirements to provide proper interaction to the customer. As perceived as a direct feature, the output of operators can vary customer perceived service performance significantly.

4.3 Operations requirements

4.3.1 Stakeholder analysis

The stakeholders are involved in the service process. To proceed the service, all the tasks from each stakeholder should be clarified and defined clearly to reduce ambiguity and progress the procedure smoothly. Stakeholders in the service are separated into internal and external participants. The duties are analyzed and identified as control points in the operating procedure to find the risk, controllable, and uncontrollable events.

4.1.1.1 Customers/luggage holders

Travelers with additional or bulky luggage that make them hard to travel in the city. They use luggage delivery service on the first or last day of the trip to deliver luggage to hotel or airport. On the other hand, they may use the service during the time when they stay in the city and want to transfer between hotels. The service blueprint presents the main service which most travelers use and is deliver from hotel

to airport before they catch the flight. When they use luggage delivery service, they should provide the service company required information correctly, deposit luggage before appointed time at the hotel reception or concierge, and keep their contact available.

4.1.1.2 Service call center

The call center or backend operations team manages the reservation via online channels; answer customers' inquiries via online channels or phone calls; monitor deliveries on the date of use; contact customers for confirmation and delivery status update; and contact the other stakeholders of the delivery including the hotel reception or concierge, courier or deliver who collect luggage, and front-end staff at the airport. The team should update all status and information to the management team and be sensitive to identify and prevent risks or prepare for backup solutions when accidents happen.

4.1.1.3 Hotel reception or concierge

Hotel reception or concierge are the hotel front-end who manage and greet lodgers and proceed check-in and check-out processes at the lobby or reception. Besides, they have to manage luggage from lodgers before check-in and after check-out. They have to keep customers' belongings safe, be responsible before courier arrives the hotel to collect luggage, and ensure that the collector's identity and provide correct luggage by referring to customer's profile provided by the service company.

4.1.1.4 Courier/driver/deliverer

Courier, driver, or deliverer are the people who deliver or transfer luggage from the origin of delivery to the destination. After receiving customer profile and delivery details, they have to identify the correct customer belongings at the places, hotels, and transfer the luggage safe and efficiently to the destination, airport. After collecting luggage from the origin of delivery, they take fully responsibility of the luggage before deliver them to the front-end staff of the service company.

4.1.1.5 Service company front-end staff

The staff have to manage the kiosk at the airport for appearance; manage and be responsible for the luggage at the airport; and greet customers and reply for inquiry face-to-face. After receiving luggage from the courier, they have to manage the luggage before customers come to collect and check out from the service. They have to evaluate each customer's identity and provide correct luggage to the owner and proceed service check out at the airport by checking whether the order is paid.

Table 15: Stakeholders, job description, and control points of luggage delivery service

Stakeholders	Job description	Control points
1. Consumer / luggage holder	- Users reserve luggage delivery service - Drop luggage at the origin of delivery - Collect luggage at the destination	- Start the luggage delivery service process - End the luggage delivery service process
2. Service call center / backend operator	- Confirm information with the other stakeholders - Monitor delivery process	- Start courier delivery process - Start order monitoring process - End order monitoring process
3. Hotel reception or concierge	- Confirm customer lodgement - Manage luggage at the hotel	- Start luggage management process at the hotel - End luggage management process at the hotel
4. Courier/driver/deliverer	- Confirm order details - Collect luggage at the origin of delivery - Deliver luggage to the destination	- Start luggage transfer process - End luggage transfer process
5. Front-end service staff	- Manage luggage at the service point - Communicate with consumers and courier	- End courier delivery process

4.3.2 Capacity of logistics

The cost from logistics and fixed costs can be greatly reduced with well-designed systems and large volume of orders. The flow and experience should be as easy as possible because the service is designed and built to provide an additional convenient choice for travelers in the city. The process of luggage delivery should be simplified and become mass production to deliver as many luggage at the same time. The cost for one vehicle to travel one trip between downtown and airport is fixed. Travelers who use deliver service don't want to handle or don't need the luggage in certain period. If the courier can collect more luggage on the same route, the cost to deliver each piece of luggage will be reduced. Besides, unlike airlines and hotels, the delivery service supplier has only little time to serve and face the customer. The impression and engagement of the business are relatively low.

For delivery service, the critical part of service standards is deliver punctually and safe. The serious traffic congestion and accidental road block are the most essential risk to prevent delivering all luggage on time. In addition, the scenario for customer to use the delivery service is on the last day of their journey before they take the flight to leave the country. Thus, all luggage should be delivered early or on time. If luggage is delivered late, the company has to compensate the customer by delivering the luggage back to the ultimate destination where customer request via air express due to the guarantees. The phenomenon will bring the worst consequence and crisis to the service provider and the company. Luggage is and includes the customer's personal belongings. Therefore, to provide flexible service for customers to choose their preferred drop-off and collection time, a flexible and reliable fleet which can standby, includes reliable and ethical drivers and couriers, and be on called

to provide various needs is critical. In addition, the delivery capacity has to be large enough to such a flexible service.

Managing a flexible service fleet with enough capacity is complicated and requires a lot of resources and experience of management. By evaluating the inner organization and specific requirements for the market needs, the company has cooperated with an on-demand logistics partner who can provide and arrange couriers fast and customized with enough delivery capacity in the Bangkok metropolis. While couriers are located in different areas in the city, the system from the courier service company can find the suitable couriers for the order. The average accepting time and time on arrival to the starting point is 60 minutes. Besides, places and locations can be added during the delivery. The service company can add on more locations during monitoring the delivery process. The supplier's platform also provides e-signature, photo shooting, and GPS tracking system that the service company can track on the orders and delivery status when the courier is in process delivery. By monitoring the courier in real-time, the backend operators can easier control the performance and support both courier and consumers promptly. However, the trade-off of the supplier is the costs for logistics will be higher than owning the company's own fleet. The costs for logistics part of the operations are around 40% of the order income. On the other hand, the well-built system can greatly reduce the costs for the service company to build tracking system. The service backend system can be integrated with the logistics system provide a similar tracking mechanism for consumers to follow. In total, the fleet can transfer from 980 to 2,120 pieces of luggage per day. The feature and capacity of the logistics service provider is summarized in Table 16.

Table 16: Capacity of logistics provider

Types of vehicle	Avg. number of vehicles during 08:00 to 19:00	Max. capacity per vehicle	Total capacity per vehicle category	Avg. time to arrange one new delivery order	Courier acceptance rate
Motorbike	20 to 40 vehicles	1 to 3 luggage	20 to 120 luggage	10 to 20 mins	80%
Limousine	20 to 30 vehicles	8 to 10 luggage	160 to 300 luggage	45 to 90 mins	60%
Pick-up truck	20 to 40 vehicles	16 to 20 luggage	320 to 800 luggage	20 to 30 mins	80%
Box truck	20 to 30 vehicles	24 to 30 luggage	480 to 900 luggage	10 to 30 mins	80%

4.3.3 Technology and equipment

4.3.3.1 Communication system

Starting when customers firstly know and learn about the service, the service features, process, brand image, and terms and conditions should be revealed clearly before service usage. With poor communication system, potential consumers may firstly be deterred as the risks and uncertainties are high. Nevertheless, some consumers may learn the instructions poorly as they perceive the service from their experience without concerning the local infrastructure and features. The external communication systems, especially marketing channels, events, and campaigns, will give the first impression and raise the customer expectation to a certain level. The service company should ensure that what it has committed and promised to its customers and consumers.

On the other hand, customer may change their schedule and traveling plan during the trip. Some customer may come to the airport early or ask for collecting luggage later the reserved time. Besides, because of language barrier, customers can hardly communicate with the courier or locals. Customers may worry that their luggage will be delivered late or contact the call center to learn delivery status. To follow and tracking the order, a system and order management backend system is required to reduce manual and human work. Besides, long and late period of replying customers can lower the expectation of customer's experience, reduce customer engagement, lose trust from end-users, and harm the brand. Thus, the communication is critical and become the bridge to connect the company with both couriers and customers.

Smart phones and communication apps including instant messengers are popular and used by people in different background, ages, and behavior because of the tools' costs, timeliness, and convenience for communication. Besides, though foreign travelers will look for internet access, the solution can be using local sim cards, pocket Wi-Fi, roaming, or only accessing free and public Wi-Fi. Thus, the service company should provide the other communication easy-accessing methods that customers are familiar with. For travelers accessing internet other than local sim cards, they may not have any phone number that is available when they are traveling.

People from different countries use different apps to communicate. For example, WeChat for Chinese mainland market; Line for Japan, Thailand, and Taiwanese market; and Facebook and WhatsApp for North American, European, Singaporean, and Hong Kong market. However, e-mail is the most basic online communication tool to apply. In addition, the service company can design and provide customized format in e-mail which can be more official and professional. With clear instruction and

information, the workload of call center and interaction between the consumer and service company in real person can be reduced. The service process and consumer perceived service can be more smooth and positive.

4.3.3.2 Website and user-friendly online channels

A clear instruction of how to use the service, terms and conditions and essential requirements is required to ease and reduce the workload of call center. The most critical premise to work out the flexible service is to confirm that the customer to deliver luggage from hotel to the airport is also the lodger of the hotel at origin of delivery. If not, the hotel can reject to receive and keep the luggage from a non-guest. On the other hand, because of foreign tourist behavior and the position of the service in the overall customer journey of foreign tour, customers will learn the service information via online channels or from the company's partner. The clear appearance and information can reduce the workload for customer service after sales and build trust among the visitors and customers. Website, company's official accounts on instant messengers, and related online channels are critical to the first impression. As the communication systems, the website helps to communicate and provide critical and overviewing information to its audience. To focus on the target market segments, multi-languages interface should be available to create easiness for viewers to access the information. Thus, the service company should focus on giving precise, clear, and unambiguous information.

4.3.3.3 Reliable database and backend procedures

Every order has unique requirements which the company ask from customer to provide a standard and reliable service. According to section 3.3.1, 10 separated information will be asked from customer to reserve an order. To follow and check customer reservations, the database should be easy to access for the monitors, operations team, and customer service team. Besides, losing any information will increase different level of difficulty for service providing and deteriorate the company's brand. For instance, for luggage delivered from hotel to airport, most customers use the service on the last day of the journey. Any delay of delivery, problem, or accident of the delivery service can seriously disturb and interrupt customer's later schedule and plan. In addition, the costs for the company to solve the problems, including drivers using express way or highway with toll fee to deliver faster, forwarding luggage to customer's abroad, ultimate destination, and losing brand image, will get the company into financial and operating problems.

Operations and customer service teams have to provide and update the luggage delivery status to build trust among customers. However, without technology support, all the members need to reply and update the information to customer manually. Besides, operators will waste too much time on working the same work, such as rechecking the orders and contact and update to the same customers several times. In addition, members from different shift or dealing with different orders have to spend much time to learn from condition and status of each case to provide proper support. An easy dispatching and information sharing platform and process are required to minimized the risk and make the team work more efficiently.

Table 17: Applied technology and equipment of luggage delivery service

Operational functions	Tools and equipment	Tool functions/Features
Communication system	e-mail	Official channels for order confirmation, changes and update
	Phone	Voice calling
	Instant messengers (smartphone apps) - Line - WeChat - WhatsApp - Facebook	Text messaging, photo sending, voice calling, video calling, location sending, and customized buttons for website links
Website and user-friendly online channels	Responsive website function with customized multi-language appearance	Customers can access the website on various mobile devices to find service information and service booking system
Database and backend system	Modelled and expandable order management system and database	Order management system and database to record customer profile and order details and sending order information or status updates to customer via e-mail

4.3.4   Operations objectives

Service quality is evaluated by customer expectation. If the output and

performance are as customers' expectation, customers will be satisfied easily.

However, to design the service which fit the environment, the service process may not

be as what customers are used to. In addition, the service is focusing on foreigners

from various culture and background. Though the service shares some common

attributes, it is be designed to follow the local regulation and circumstances. On the

other hand, the service and the concept are relatively new in the market. Thus, the

understanding of customers of the service is the critical factor for the company to

learn to how to satisfy them or provide the service beyond customer expectation. With

the high and positive performance, the company can reduce cost on marketing as satisfied customers will easily share the information to the others, cost on solving problems from customer service or after sales service, workload of customer services, and risk and cost for compensation of failure.

How fast and easy the customer can reserve and use the service is the first impression for decision on usage. However, delivery and logistics services share similar concepts and understanding about the order requirements. As travelers carry luggage when traveling, they contain most of their daily using products such as clothes and personal belongings which can't or aren't easy to be substituted in foreign country. The time gap for customers to deliver and collect their large or additional luggage should be as short as possible. Besides, as travelers are in a foreign country, they will be easier to get worried and deterred from using new products or services which they aren't familiar with to minimize the risks of delay or danger.

Dependability, reliability, is very basic and critical to the luggage delivery business. Though customers may not contain any valuables in the luggage which will be delivered, the inconvenience caused by delivery delay, damage, or lose can serious effect the experience and schedule of the customer. In addition, luggage is a customer's personal belonging. It can also be very sensitive to regulation and law. The compensation that causing customer trouble or additional cost should be high enough to build trust and make safe awareness among the end-users. The consequence of delivery failure will greatly increase the cost and seriously harm the branding and company image. For example, if the luggage is delivered to the airport too late to let the customer to catch the flight, the company may have to compensate the flight ticket or forward the luggage to the ultimate destination of the customer in abroad. Though

the compensation can be set and agreed by the customers at the first place, it's hard to build up agreement without equivalent value exchange and guarantee. For the main services that the company provides, being reliable and trustworthy are the most important topics for the company to deliver. Furthermore, travelers will deposit luggage with flight, carry hand-carry bags and pass through customs before boarding. They should be aware of illegal events that will frame and extort foreigners or to ask for bribery. People who transfer or smuggle prohibited illegal goods will be seriously punished if it is identified by the official authorities.

Customers may wish the service they consume can be as customized and flexible as they request. With wider service scope and coverage, the business can acquire various types of customers with different needs. However, widening the service scope can increase costs and complexity of service process. The company has to investigate the trade-offs and what the service can promise to the customers. Besides, some of the features and customization aren't essential or required by the end-user. For example, for luggage delivery business, to deliver and finish every order within one hour isn't required as travelers who deliver luggage have longer time gap between checking out from the hotel and taking flight. For customers who are going to collect the luggage in an hour, they will carry the luggage and go to the next destination directly. Flexibility for the service is to provide the service for different types of scenarios, such as delivery between airport and hotel or hotel and hotel, or provide the service at different destinations. The objectives of the operations are shown in Figure 29.
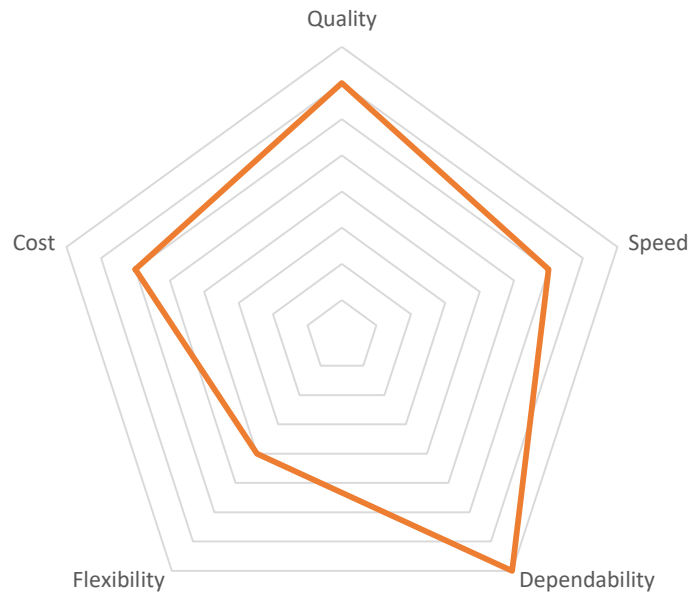
Figure 29: Required performance of luggage delivery service

4.4 Integration of marketing and operations requirements

4.4.1   Service scope

By giving service name and precise definition, viewers can get into the loop and understand the benefits immediately or fast. This first sight will make travelers decide whether to look into more about the service. Later on, viewers will investigate the service to evaluate whether the service is suitable for them. Though regular travelers stay in hotels which have receptions and concierges, some may stay at hostel, friends' house or daily rental apartments such as Airbnb that has no front-end staff. Without reception to deposit luggage, the company has to send courier on-time to match with the customers' required time. Nevertheless, as the check-out time and high period at the hotels in Bangkok is during 12:00 to 14:00. To match with the journey, travelers will decide when to leave the accommodation and deposit their luggage. If the delivery schedule isn't suitable, viewers will leave and find the other solutions. On the

other hand, a too flexible delivery schedule could be beneficial for consumers but increase workload and complexity of the courier and the service supplier. Besides, such flexibility may not be the requirements of consumers. With innovative technology, system, and effective courier route planning, duration of waiting can be reduced; efficiency of processing can be increased; and all deliveries can be done on-time and precisely.

With appropriate and enough information from the supplier, customer can evaluate the price among the solutions available in the market and choose the most suitable one for their personal demands. For delivery service, the value is created when the luggage is transferred from one place to another and the problem of handling luggage is solved. Thus, the locations of origin of delivery and destination are the most critical part of every order. In addition, in different environment with various infrastructure, the process should be revised, coordinated, and customized with local conditions. Customer may learn the process from reserving the service to collecting their luggage at the destination. From the journey, they can also evaluate that whether the service is easy and reliable by its appearance and published information.

Figure 30: Process of luggage delivery

Though systems and process can be built, risks and accidents may happen to influence customers' decision and true needs. Terms and conditions and company guarantees are applied to secure the benefits of both the supplier and customers. It should give a general instruction and premise which can be aligned with most of the scenarios that both supplier and customers will face. Stakeholders can use the regulation as evidence to secure their own benefits and avoid from risks and unnecessary loss. For luggage delivery service, the supplier should secure customers' belongings and deliver the luggage on-time to the destination, while customers ask receive compensation if the service supplier breaks the agreements. In addition, the terms also limit the scope of the service delivery that customers can't freely modify the requests which will increase operations complexity, risks, and costs of the company. After all, the regulation and agreement should be followed by all the stakeholders when the transaction and reservation are confirmed.

Table 18: Service features and trade-off

W's	Service features	Description	Alternatives
What	Solutions for luggage handling	Solutions for travellers to handle their luggage and arrange traveling schedule to be effective	- Luggage deposit - Limousine/Taxi - Locker service - Charter vehicle - In-town courier delivery - Postal service - Forwarding service
Why	Price	The methods that service company applies to charge the service fee	- Charged by luggage weight - Charged by luggage size

			- Charged by number of order - Mixed charging method
When	Service hours	The time for service operations and service company staff to work	- 24 hours - Defined service hours
	Last time for booking	The last time for consumers to reserve the service before use it	- Days before service using - Hours before service using - Book and use immediately
	Fastest delivery	The duration between consumers delivering and receiving luggage	- Two-hour delivery - Same-day delivery - Next-day delivery
Where	Service area	The region where consumers can use luggage delivery service in Thailand	- Bangkok city - Outside Bangkok
	Service locations	The places where consumers can deliver and receive their luggage	- Hotels - Airports - Shopping mall - Amusement park - Golf course - Bus terminals - Train terminals
How	Communication channels	The channels that provides communicating functions and interactions between service supplier and customer	- Online - Offline - integrated channel
	Couriers	The methods that the service company uses to transfer luggage between places	- Own courier fleet - Outsourcing
	Update status with Photo	Send photos as evidence to customers to update delivery status	- Text message - No update

	Foreign language-speaking staff	Communication skills of front-end staff	- Foreign language speaking staff - Local language speaking staff

Luggage delivery service is designed as same-day delivery service to deliver customer's luggage to and from any accommodation and terminals, including airports, shopping mall, in Bangkok. Travelers will have more time to arrange. Besides, with the same-day service feature, travelers can keep their belongings until leaving the accommodation when they don't need additional luggage. The service let customers drop luggage at the accommodation, hotel, home, office, or any place where has reception or representative to keep the items and wait for luggage courier to collect. Thus, the customer can save more time, doesn't have to wait for the deliverer, and can keep traveling without carrying luggage. The service can be used in different scenarios. Travelers can deliver luggage to and from airport or hotel that is suitable for their journey or schedule planning. However, to provide the services as the features announced, all the generating process, operations, and solutions should be considered at the first place when design the service, as service product and its process are closely interrelated.

The applied system can easily be accessed via various mobile devices such as laptop, tablet, and mobile phone, while it can automatically notice the operators when customers reserve the service. The backend operators should react to the order in 5 minutes and start to arrange couriers, arrange route and schedule, and contact hotels for service confirmation. The average time for couriers traveling between downtown area to each airport in Bangkok is 80 minutes via regular roads or 35 minutes via tollways. The cost to ask each courier to transfer from 4 different locations in

downtown areas and to each airport is 550 THB in average with maximum capacity of 8 pieces of luggage. Every courier can accept the delivery order and arrive at the collecting point in 60 minutes, 10 minutes at the hotel to collect the luggage and move to the next location for luggage collection, and deliver the luggage to the airport in 60 average. The processing time for 4 order with 2 pieces of luggage from 4 different locations can take 160 minutes and have 80 minutes to travel between the hotels. Targeted hotels in Bangkok are located in 8 districts, Payathai, Ratchatewi, Pathum Wan, Bang Rak, Khlong Toei, Watthana, Din Daeng, and Huai Khwang district.

Therefore, if the customer requests, the delivery service can be done as fast as 4 hours after the luggage is deposited at the starting point by the customer. In addition, customer can request express service to have one courier to deliver the luggage in 2 hours with extra charge. On the other hand, customer can request to deliver and collect their belongings on different days. However, aiming at doing same-day delivery without luggage storage and management, the company charges additional deposit fee, if customers deliver and collect their luggage on different date. However, the company can only provide the during 08:00 to 23:00 rather than 24 hours at the time of researching. The target targeted market segments are customers taking flights during 14:00 to 04:00. Out of the timeframe, travelers tend to carry luggage and travel to the airport directly as the time is either too early or late in a day. Besides, the regulation of flight check-in deadline varies, as it can be from 45 minutes to 1.5 hours before the flight departure time. The common and safe time for travelers' to check in and deposit luggage at the airlines' check-in counter is at least 2 hours before flight departure time.

Clear and prompt communication between the service supplier and customers can build trust and increase customer engagement. Staying in a foreign country, travelers feel unsecure and worry about whether the service supplier can complete their tasks on-time and safely. On the other hand, an effective communication not only includes manual or personal contact but also systematic, automatic information updating. The company can save time and effort on reservation and delivery tracking and arrange the resources effectively. Ambiguity and misunderstanding will happen in poor communication system and increase complexity and workload for customer service as the call center has to reply and answer questions from customer inquiry.

Table 19: Service scope of luggage delivery service

W's	Description
What	Transferring luggage between hotels and airports in the region. Each order has no limitation on number of luggage and no restriction on luggage size, weight and delivery distance of each piece being transferred. The responsibility of the service company to handle customers' luggage starts from the courier collecting the luggage at the hotel to the customers collecting luggage at the destination. Each piece of luggage is insured up to 100,000 THB.
Why	Travelers find handling luggage is problematic during traveling, especially during the time between checking out from the hotel and going to the airport. The price is affordable with the time-saving and problem-saving values.
When	Each order can be done as fast as 4 hours after depositing luggage or upon customer's request. Service hours at the destination, airports, is during 08:00 to 23:00. Consumers deposit the luggage at the origin of delivery from 08:00 to 19:00 after booking and can collect the luggage any time during 08:00 to 23:00 after the luggage is delivered to the destination. Surcharge for luggage deposit at the destination will be asked if the consumer collects luggage on the other day rather than the same.
Who	Travelers with additional luggage; hotels which the consumers stay; courier who transfer luggage between the places; and the service company who manage the order, logistics, and customer service
Where	Hotels or accommodations with receptions, partnered shopping mall, and airports

	in Bangkok, Thailand.
How	The service company arrange couriers to collect luggage at the hotel under the schedule, monitor delivery schedule and luggage safety, and manage luggage at the destination. All the works should under the definition and regulation of the service operational system. During delivery service, luggage photo and delivery status will be updated to consumers. Customers can contact and communicate with the service companies via their preferred channels.

4.4.2   Service blueprint and customer journey mapping

The objective of the service is to provide convenient, reliable service for travelers to leave their additional or large-sized luggage while traveling before they go to the next destination. The service should be precise and accurate that the courier or deliverer has to collect the correct luggage from the origin of delivery, airport or hotel, and deliver the luggage to the next destination, hotel or airport, on time, safe, and in pristine condition. The delivery service and its process should give customers a positive user experience and safe, simple, and convenient image. On the other hand, though the delivery service should be secured, the process and workload should be clear, simplified, and minimized for service company staff to operate. The stakeholders of each deliver service include customers or luggage holders; the service call center; hotel reception or concierge; courier, driver, or deliverer; and the service company's front-end staff at the airport.

The service initiates from customers placing orders via the company's sales channels. As the targeted and potential customers are foreigners, the channels online, website and social media are the main channels to acquire customers. Though offline channels, including the company partners and service kiosk, are available, the ideal and main traffic and transaction are designed to be generated online. The viewers and customers will spend some time to read the information on the channels to learn and

evaluate the service and its value and decide whether to book the service or not. The physical evidence is the design and appearance of the channel. The information should be clear, precise, and easy to understand. The website structure and server quality has to be secured that viewers can load the website instantly and surf the site with preferred devices, such as smartphone, tablet, or laptop.

On the other hand, the user experience should be designed very smooth that the customer can find and read the information easily and apply functions on the website. After booking the service, the system will send confirmation via email to both the customer and the backend operations team. If customers book the service and the system responds that the reservation is done successfully but the operations team didn't receive any notification or order information, the order will fail, and the company will face serious penalty by compensating customers and have only little or no time to proceed delivery and solve the problem as the customers are going to take flight and leave the country. The company have to design backup plan and tracking system to follow surfer's activities on the channels to prepare for the failure point. Besides, improper and unclear information revealed will increase the work of call center and mislead the customer to use the service in the wrong way.

According to service features, customers can make reservation right before depositing luggage at the hotel. The staff start working at 8 a.m. as focused flights are departing from 14:00 to 23:00. To secure the process and customer journey, the backend operations team should follow the reservations, confirm each order, and send instruction to each customer. The process can make sure that the order is confirmed, and customers have received enough information and understand how to use the service, as the company has delivered all the needed information for customer twice.

The process also fulfills the gap between the time of customers ordering the service and time of using the service. Backend operators should check and make sure that the order and customer information from the booking is aligned to the record in the data base. For customers, they will be noticed that the company have received and proceed their orders and requests. Thus, the mutual agreement on the reservation of luggage delivery service is confirmed. Without acknowledgement between customers and the supplier, customers will feel unsafe. The process of communication will increase the cost of service operations by increasing time and costs of contacting customers.

On the using date, customer will deposit luggage at the hotel they stay. The customer should be the lodger. Otherwise, the hotel reception or concierge have the right to reject the service, as the service has exceeded the service scope of the hotel. The hotel staff have to be responsible if they take customers' request. Besides, language barrier creates the communication gap between locals and foreigners. On the other hand, the customers may leave wrong information or different person's name that the hotel can't identify if the lodger isn't the same as the service customer. In addition, when customers deposit luggage at the hotel, the hotel staff are responsible for keeping the luggage safe. Without permission, the hotel staff can't give customers' belongings to any other third party and have to wait for customers returning back and collecting luggage by providing luggage depositing tag which includes customer name, room number, or a unique serial number designed by the hotel or other kinds of evidence. Though customers can notice the service company with the information of luggage depositing evidence, the process will be more complex and the workload will increase. Besides, for the service, the timing is very important for service quality and customer experience. To cut off all the additional works that the customers have to do

and simplify the process, the service company have to ensure that the hotels acknowledge who is the courier or company responsible for the service and have permission or request from the customer, or the service company can provide proper and concrete evidence that it's requested by the customer. On the other hand, customers may forget or be unfamiliar with process that they don't notice the hotel that the service company will send courier to collect the luggage. To align with hotel service operations and standards, the service can contact the hotel in advance to minimize the risks and miscommunication between stakeholders.

During delivery, the customers can track on their delivery status and confirm that their luggage is collected and delivered to the destination. The service company will have numbers of deliveries on each day. After receiving luggage, the staff have to manage all customer's belongings. By aligning with courier tracking system provided by logistics supplier, the service company can monitor and track on the deliveries to follow the process and prepare for solutions for accidents. Updating customers with delivery status is building trust and ensure that the backend operators truly monitor the orders. When couriers arrive the airport, front-end staff should identify and categorize the luggage with the estimated collection time by aligning to orders in the database or backend system. Transferring luggage between storage and service kiosk at the airport will increase the time gap when customers check out and collect luggage and deteriorate customer experience of delivery service. Besides, taking wrong luggage to the customer will give a negative image that the service company doesn't manage the operations and service professionally. On the other hand, customers may use similar or same type of suitcase which is difficult to differentiate. If customers have no differentiator or tag on the luggage and are in hurry, they may collect the

wrong luggage, and the service company will hardly contact the customer and take the luggage back. When manage and arrange all the luggage at the destination, the staff should identify each luggage carefully and put on name tag with the owner's profile to differentiate each of the luggage.

After customers check out and collect the luggage, the staff should update the status in the backend system and send the record to the database. The information, customer activities with timing records, and customer feedback will be collected to give market insights and user behavior. By analyzing the information, the service company can optimize service operations, target the admired or potential market segments precisely to increase sales, improve customer service, and proceed service innovation to align the service with the other businesses or identify opportunities in the market. The gap between customer expectation and service performance can be reduced and thus increase customer engagement and build concrete brand image. The records and experience can be adopted for building training program to train new recruits. Both front-end and backend staff can refer to the records to learn benchmark and make own decision immediately to perform timely response and improve service quality and service level.
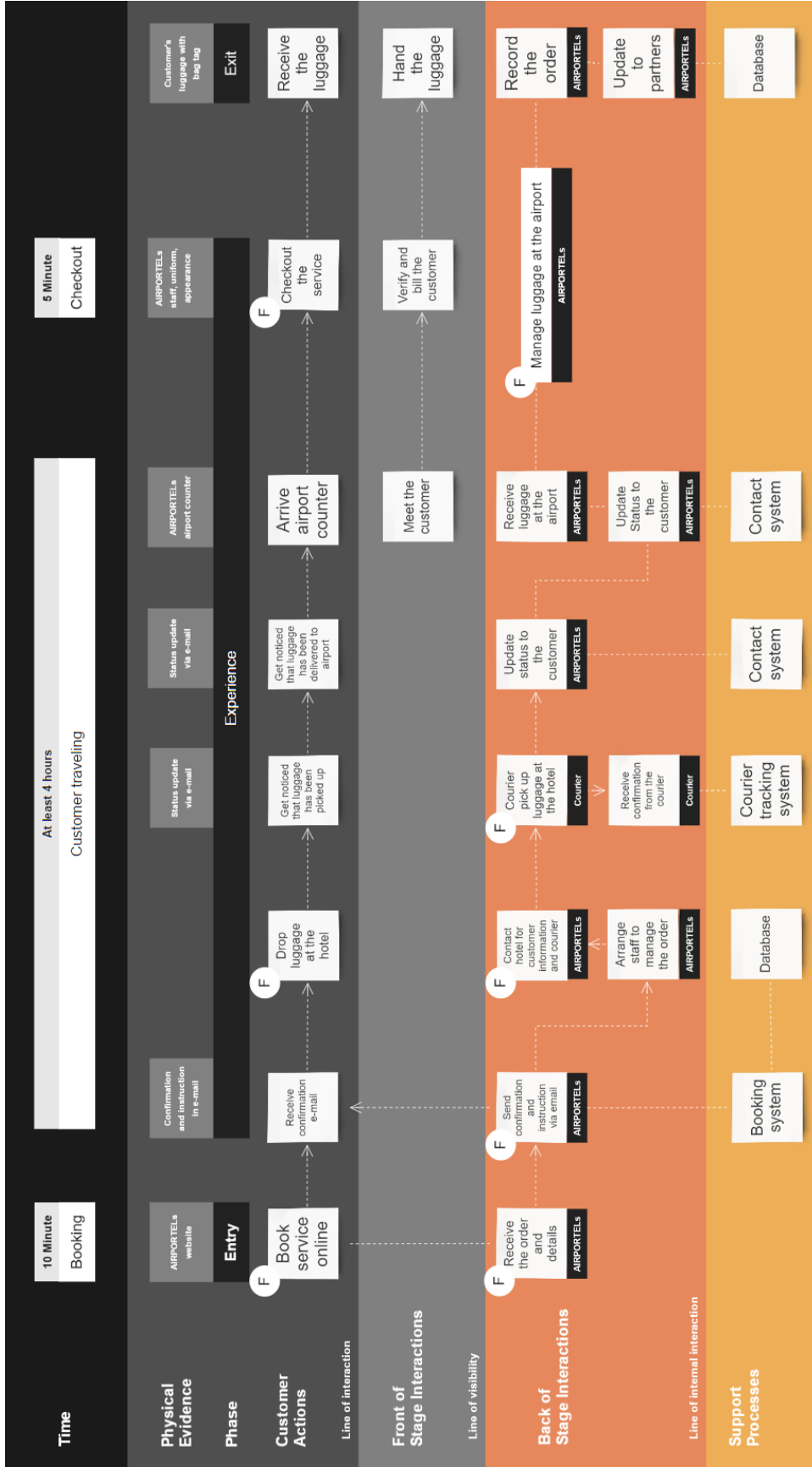
Figure 31: Service blueprint of luggage delivery service

From the customer journey mapping, the service company can evaluate and learn the problems that the consumer may face. The uncertain of new company and its service with few reviews and discussion from the other users will make potential consumers worry about the service performance. On the other hand, in Thailand, language using and communication are critical factors to deteriorate service experience. The service process involves several stakeholders who can't be controlled directly by the service company. In addition, consumers may easily understand the service value proposition but aren't familiar with the process. For the service, hotel front-ends are in part of the process but uncontrollable. In such instance, consumers will rely on their life experience or refer the service as regular delivery process. Thus, the service company should provide and give easy-accessing instructions to consumer timely. The risks and uncertainties in the uncontrollable part should be minimized to be able to monitor and react. With the smooth process and consumer experience. It's more possible that the consumer can have a positive image and perception of the service and the service company.

On the other hand, by disrupting the designed process, consumer won't get the promised service features such as luggage delivery status update. In the situation, timing to provide the update and information and to update is very influential to consumer perception. They can easily get nervous and become depressed to feel that they shouldn't use the service to make their journey even more risky. Besides, the interaction between consumers and suppliers are relatively little because of the service nature. The delivery service isn't a must requirement and occupies only small but critical point of customer journey. Therefore, from the mapping, the management team can find the touch points and prioritize the required factors and problems to provide higher service quality and understand the factors which are vital to consumer perceived service. In the case, the vulnerable points and the uncontrollable stakeholder, hotels, can seriously deteriorate the service quality. Thus, communication between stakeholders is the most important issue.

	1. Planning for traveling and looking for solutions	2. Evaluate the service and make reservation online	3. Billing and receive confirmation and instruction of service	4. Drop luggage at reception and check out from the hotel	5. Get updated for delivery status during traveling	6. Reach destination and collect luggage
High Level Process						
Customer Needs	A simple and convenient service to solve luggage problem	Enough service information and smooth booking process	Paying by preferred ways and receive proper booking receipt	Confirm that the courier will come and collect the correct luggage	Security and reliability of luggage delivery service	Reach the service kiosk and collect luggage
MOTs		🙂		🙂	🙂	🙂
Customer Experience (Positive / Negative)						
Customer Perspective		The information is clear, and the company looks professional and reliable		I don't know whether they will come to collect my luggage. What should I do at the hotel?	I feel safe that the delivery status will update to me automatically	My luggage is safe and pristine. The service is convenient

Figure 32: Customer journey mapping of luggage delivery service

4.5 Operational system of luggage delivery service

4.5.1　Service process and flowchart

Firstly, customer reserve the delivery service via online channels. The booking platform will secure the required information that users should give correct information. The verification system will identify the basic correctness of the information. After booking, the consumer will receive an auto-reply confirmation e-mail, with the consumer request and profile, from the system. When the system receives new reservation, it will notice the backend operators via e-mail to check if the information is correct and concrete. Operators should notice order information and list the locations with simplified customer information to plan delivery route and schedule. If the information is fragile or not enough, the operator should notice the customer immediately with the contacts and ensure the other operators can understand the order information to proceed the service. All the announced information on the channels should be clear that the customer should follow the policies to use the service and agree that they have understood the service process and provide proper information. Otherwise, the service company has the right to reject serving the customer. However, without user-friendly designed platform, the potential customers can be deterred to use the service or find the other solution to solve their luggage problem. The communication system should be secured that customers can reach the call center or service operators easily and instantly to acquire details and reply.

On the using date, the service company contact hotel front-ends to check consumers' lodgment to align with hotel policies and service standards to provide additional service to the lodgers. The service user has to be the lodger of the hotel. If

not, the operators should contact the consumer immediately to update the information

and confirm the order again. The risk here is if the consumer isn't available to be

reached, the service company has the right to refer to service terms and conditions and

cancel the order. After confirmation, the backend operator will update the order status

to the backend system aligned with database. With all the orders are confirmed and

checked, the operators start to arrange courier and schedule to collect luggage in the

city and deliver consumer's profile for courier to provide such information as

evidence to hotel front-ends for identification. The service company and the hotel will

have agreement that the lodger, also luggage delivery service user, will follow the

instruction and standards of both parties.

Before consumers deposit the luggage, they should be noticed that they have to

notice the hotel that the service company will send a courier to collect the luggage at

the hotel. The task is to give permission for the courier to collect customers'

belongings from the hotel and transfer the responsibility. By contacting the hotel and

confirming the consumer status at the hotel, the risk of miscommunication and

problems can be reduced. After all orders and schedule are confirmed, couriers start to

collect the luggage in the city. The operators will get couriers' profile to confirm with

hotel that who will go to collect the luggage to ensure the responsibility transfer from

the hotel to the courier or service company. With the technology support of the

logistics supplier, the courier can reply, send photo, keep signature as evidence, and

update the status in real-time. The service operators can use the information to update

customers for current status and keep it as evidence for future conflicts. When

couriers collect luggage at the hotel, they have to give required consumers profile to

verify the identity and take over the responsibility of keeping consumers' belongings.

While couriers are collecting, the backend operators have to monitor the process and check if the updates are clear and correct and be prepared to assist the courier if any miscommunication or problem occur.

On the other hand, if the outsourced logistics supplier can't provide the courier or vehicle in time, the service has the backup plan to send additional operators or front-end staff as deliverers to collect luggage. Because every service point in the city will have at least 2 staff greeting consumers in the same shift during day-time, the additional or relatively free operators will go for risk plans. However, this will increase the risks of operations at the service sites as the workload of the left staff will increase. Besides, the costs for delivery will increase and overall customer service capacity will be reduced. When they do collection and delivery process, they will update the status in the same way as couriers from logistics supplier but via different communication channels. The flow and process are designed to be flexible to react to any accident or potential risks. However, such feature significantly increases the workload of backend operators and the costs for logistics as the process is relatively dynamic. The fastest delivery can be made is in 4 hours, as 48 minutes to arrange courier and order information; 13 minutes to collect, embark, and update luggage status; 27 minutes to travel to the next hotel and so on; then, the courier takes around 43 minutes to travel from downtown Bangkok to the airport; the front-end staff should spend 20 minutes to confirm the orders and arrange the luggage. Therefore, it spends around 244 minutes to finish the order in average.
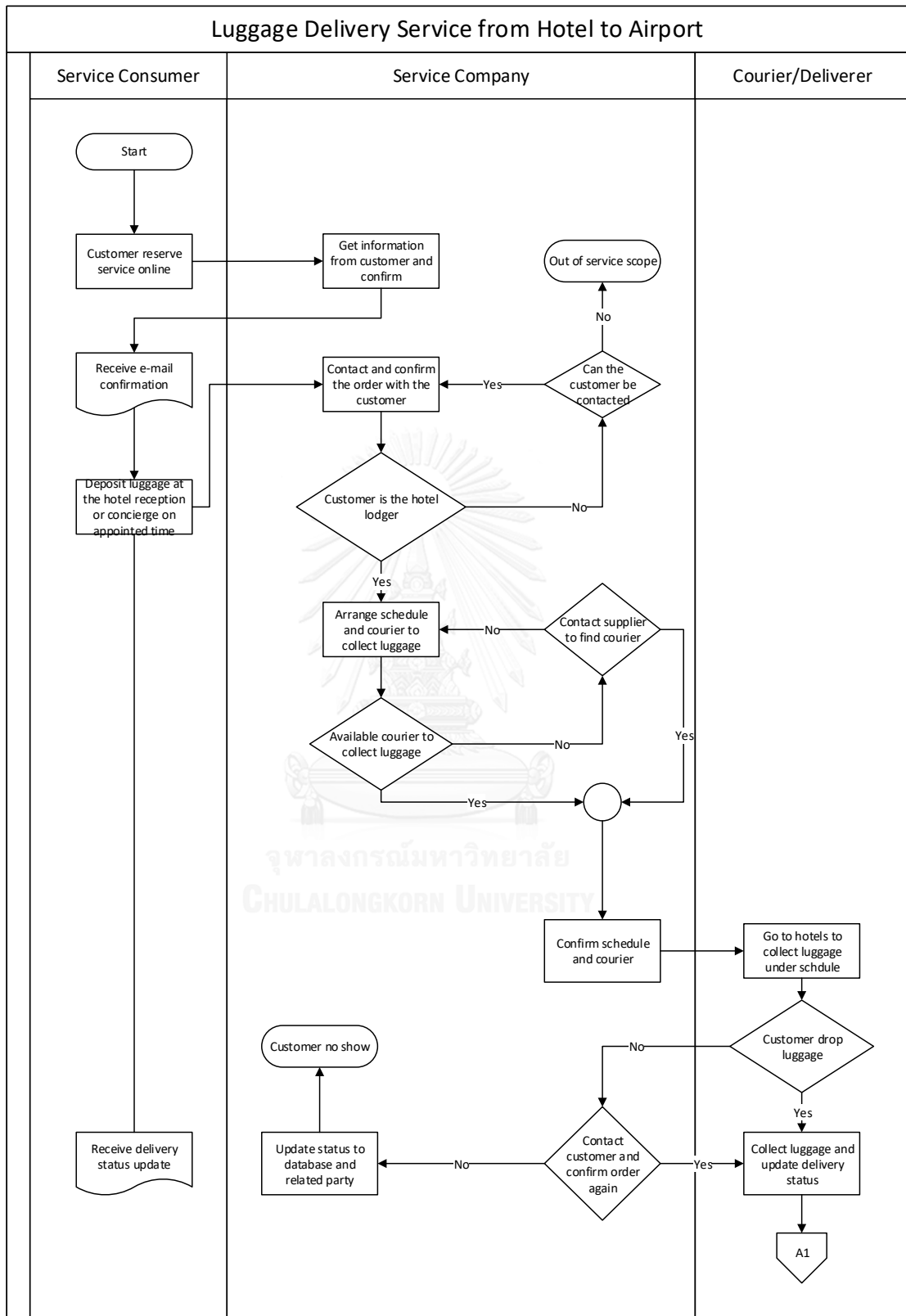
Figure 33: Flowchart of luggage delivery from hotel to airport page 1
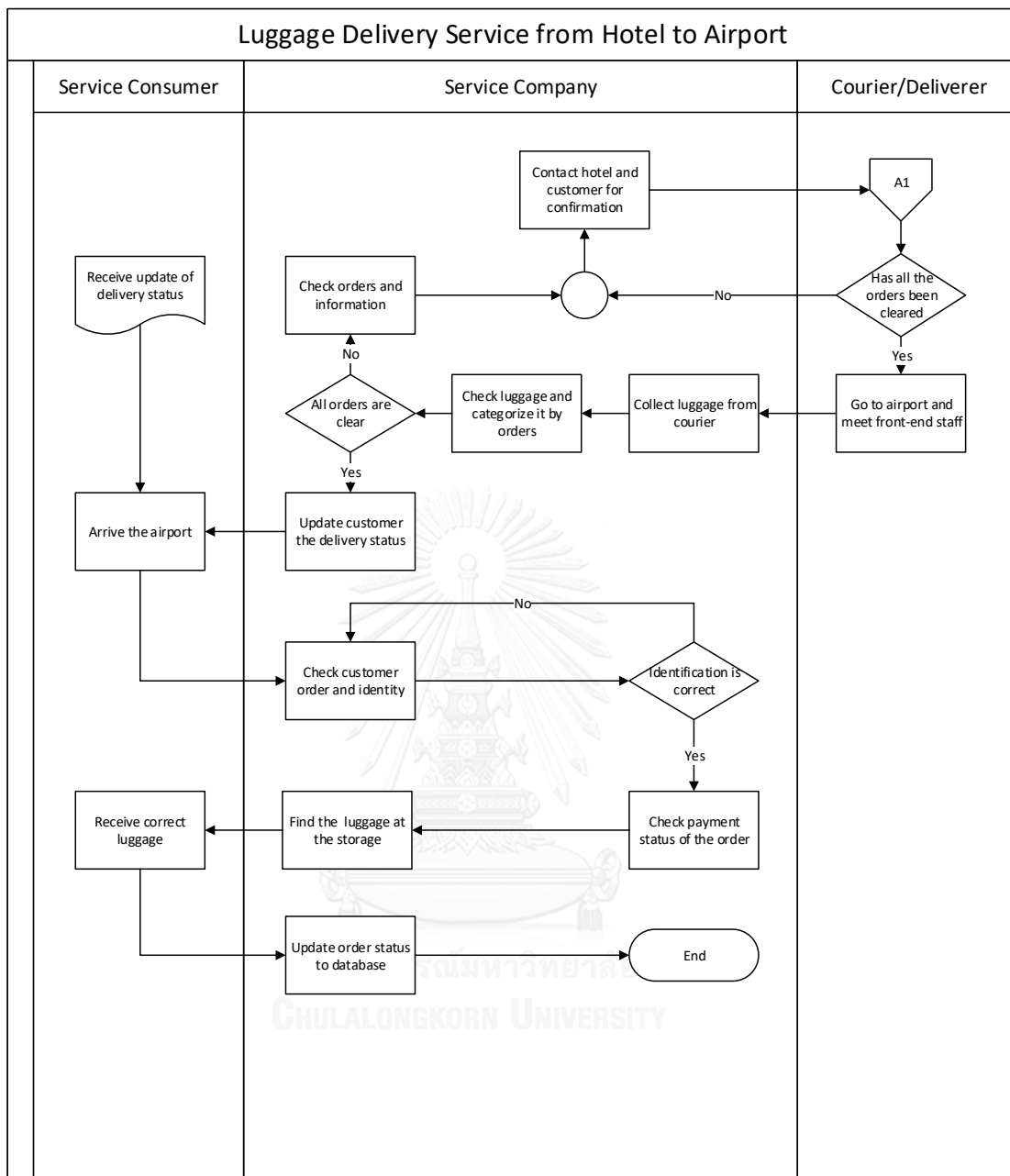
Figure 34: Flowchart of luggage delivery from hotel to airport page 2

4.5.2   Work breakdown structure of luggage delivery service

The works and requirements are listed to present the process and work breakdown structure of luggage delivery service. The service is designed to have 2 staff at the service counters during 08:00 – 23:00 in 2 shifts. The service company has 2 service sites, one at the airport and the other one in the shopping mall. Thus, frontend service operations is separated into 2 parts. The backend operations can support teams at both sites. Marketing department is focusing on marketing strategy, customer engagement, business development, market analysis, and customer relationship management. The objective is to create support operations department to provide better services by integrating market insights to create operational strategies. Finance department controls the money and ensure the company can keep going and provide reports for management to review business performance. Technology department assist all departments for technology solutions to reduce workload and increase working efficiency by adapting innovative tools and solutions. By collecting the feedback and applying new hardware and software, the system can be optimized and more effective. Human resources department helps on organization management, provides training program, and recruits new staff for the business as the personnel and interaction with customers are critical to service business.

4.5.2.1 WBS

Luggage Delivery Service

1. Operations
  1.1 Frontline Operations at the airport
    1.1.1 Customer Service
    1.1.2 Luggage Management
  1.2 Frontline Operations at the mall
    1.2.1 Customer Service
    1.2.2 Luggage Management
  1.3 Backend Operations
    1.3.1 Call center
    1.3.2 Order/Courier Management
2. Marketing
  2.1 Branding
  2.2 Marketing Event

2.3 Business Development
2.4 Market Analysis
2.5 CRM
3. Finance
  3.1 Accounting
  3.2 Financing
4. Technology
  4.1 System Maintenance
  4.2 System Development
5. Human Resources
  5.1 Recruitment
  5.2 Training
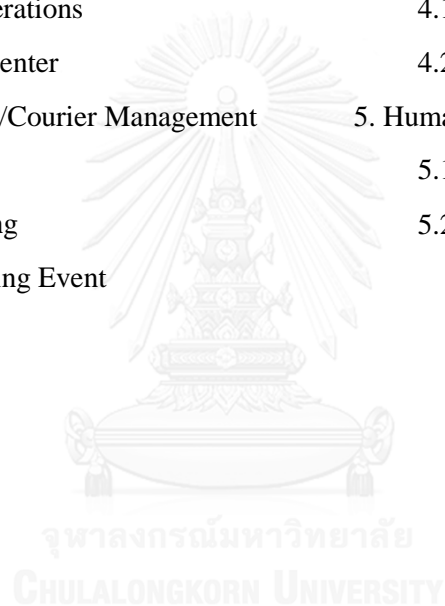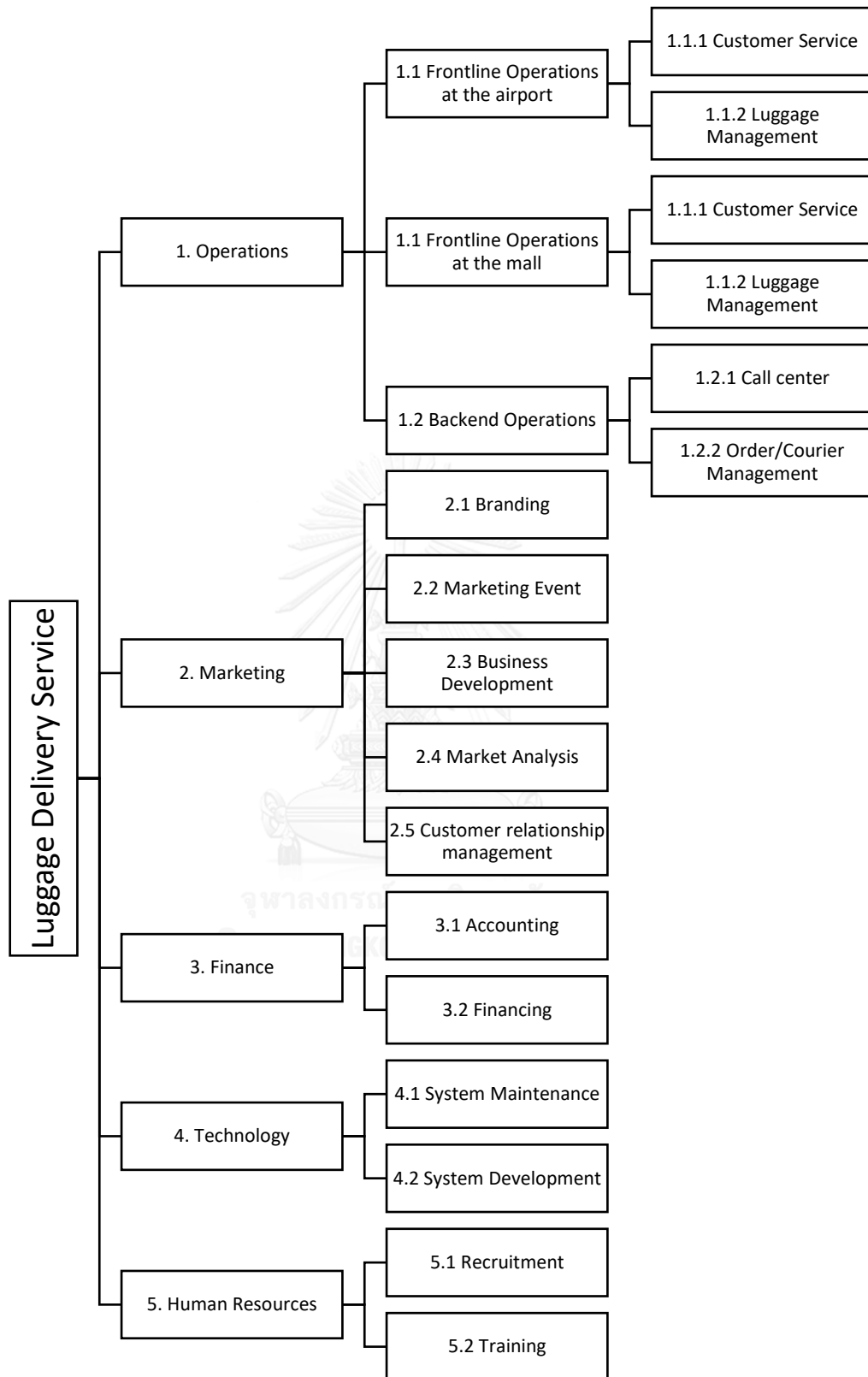
Figure 35: Work breakdown structure of luggage delivery service

4.5.2.2 WBS dictionary

WBS code	Element	Description	Job owner
1.	Operations	The critical part of the service company and provides service	Operations Dept.
1.1.	Frontline Operations	Work on frontend activities that customers will face directly	Operations Manager
1.1.1.	Customer Service	Serving customers by face to face	Frontend Staff
1.1.2.	Luggage Management	Managing luggage and customers' belongings at the destination	Frontend Staff
1.2.	Backend Operations	Work on backend activities that customers won't face directly	Operations Manager
1.2.1.	Call Center	Answer customers' inquiry or contact as an emergency channel	Backend Operator
1.2.2.	Order/Courier Management	Verifying order details, planning delivery schedule, and monitoring delivery process	Backend Operator
2.	Marketing	Increasing sales, customer engagement, and investigating for market needs and opportunities	Marketing Dept.
2.1.	Branding	Marketing directions and strategies and company image	Marketing Manager
2.2.	Marketing Event	Activities that create high customer engagement and increase awareness	Marketer
2.3.	Business Development	Searching for business opportunities and increase sales of the service	Salesman
2.4.	Market Analysis	Provide market insights to align with operations strategy and optimize the service	Analyst
3.	Finance	Controlling the money flow of the company	Finance Dept.
3.1.	Accounting	Providing reports for managers to review business performance	Finance Manager
3.2.	Financing	Controlling the money of the organization	Finance Manager

4.	Technology	Applying new solutions to reduce labor works and optimize workflow	Technology Dept.
4.1.	System Maintenance	Keeping the system and equipment available to maintain working efficiency	Developer
4.2.	System Development	Researching and adopting new solutions to increase working efficiency	Designer
5.	Human Resources	Proving critical personnel management	HR Dept.
5.1.	Recruitment	Recruiting new staff for the service company and control the organization	HR Manager
5.2.	Training	Training new staff and support other departments	HR Assistant

4.5.3   Organizational breakdown structure

Aligning with work breakdown structure, 4 co-founders created the organization and recruited 18 specialists and front-end staff to operate the business. To operate at 2 sites and sustain backend services, the operational department gets 3 staff and one manager at each site. They work in shifts to provide services during the service hours, 08:00 – 23:00. As the business hasn't been scaled up, the rest tasks are taken by only one specialist in each department.

1. General Manager
   1.1 Operational Manager
      1.1.1 Frontend Manager
         1.1.1.1 Frontend Staff
         1.1.1.2 Frontend Staff
         1.1.1.3 Frontend Staff
      1.1.2 Frontend Manager
         1.1.2.1 Frontend Staff
         1.1.2.2 Frontend Staff
         1.1.2.3 Frontend Staff
      1.1.3 Backend Manager
         1.1.3.1 Backend Operator
         1.1.3.2 Backend Operator

1.2 Marketing Manager
   1.2.1 Marketer
   1.2.2 Salesman
   1.2.3 Analyst
1.3 Finance Manager
1.4 Technology Manager
   1.4.1 Developer
   1.4.2 Designer
1.5 Human Resources Manager
   1.5.1 Assistant
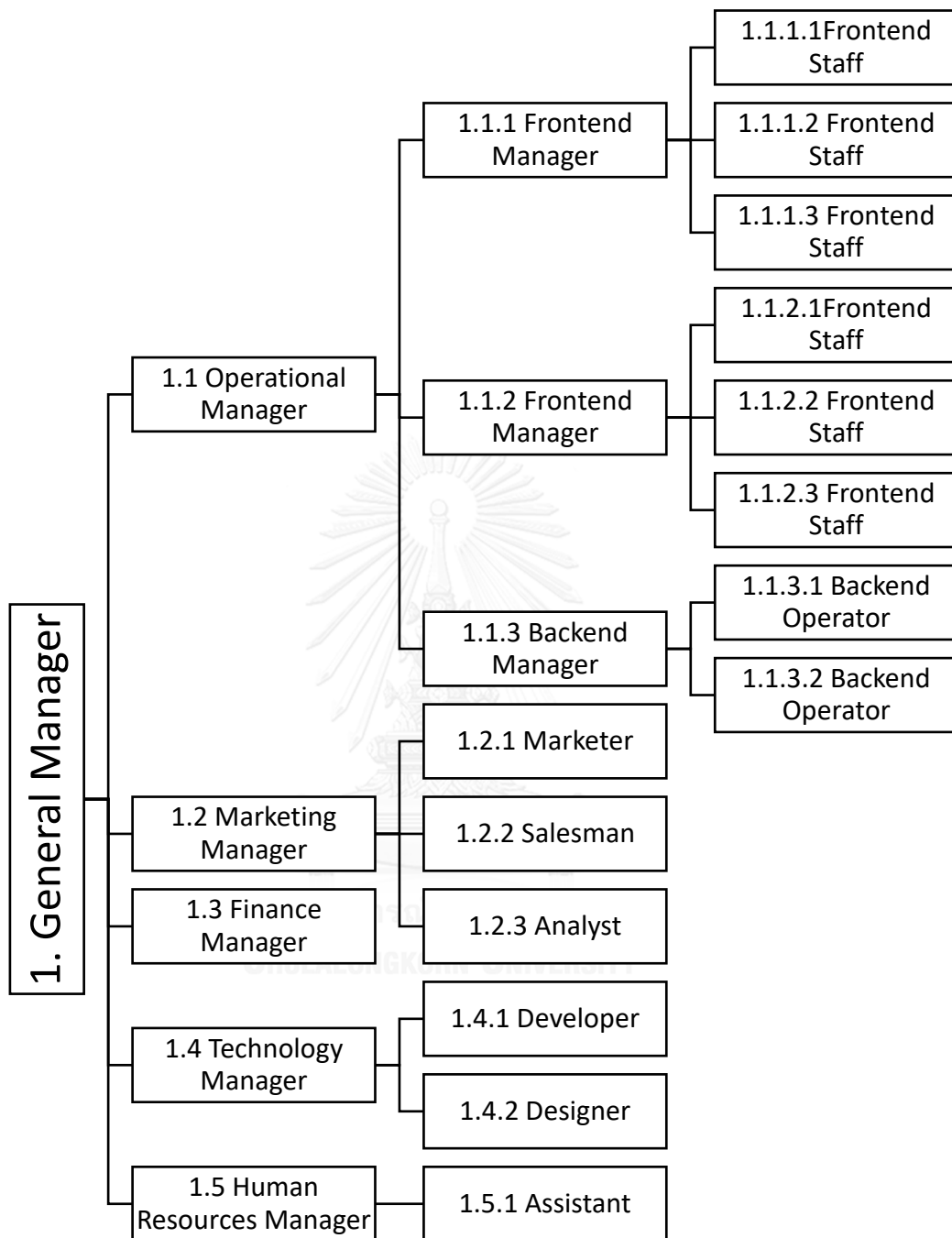
Figure 36: Organization breakdown structure

4.5.4   Communication system

According to PMI (2008), equation "n(n-1)/2" can be introduced to calculate the total number of communication channels. Interactive, push, and pull communication method can be introduced. Gap of sender and receiver's expectation and perception can lead to misunderstanding or wrong message delivery among the stakeholders. To proceed the service, information is transferred and delivered to each stakeholder for service evaluation and request confirmation. Though the channels are interrelated, some stakeholders have little chance to communicate to the others. The media become critical in the information flow and progress. In the communication of luggage delivery service, backend operators are the most critical attendants as they manage and dispatch all information to each stakeholder as a center. Customer profile and order details are the main information in the system and transferred in different form or simplified to progress the service.

1. Customers reserve the service with required order information via online channels

2. Backend operators verify the information and confirm the order by replying email to the customer

3. One the day of usage, operators contact the hotel reception to check the customer lodgment and notice service usage via local phone

4. Operators update all order status and plan the delivery schedule in the courier management system

5. The customer deposits the luggage at hotel concierge and notice that the service company will send couriers to collect

6. The courier arrives the hotel and collect the luggage by confirming customer profile and service acknowledgement

7. The courier takes photo and update the delivery status in the courier management system

8. The backend operators evaluate the evidence in the courier management system and update the status to both the customer via e-mail, local phone or instant messenger and order management system

9. The courier deliver all luggage to the frontend staff at the destination and update the delivery status in the courier management system

10. Frontend staff manage all the luggage at the storage and update evidence and delivery status to the order management system

11. Backend operator verify the evidence and update the delivery status to the customer with evidence and location of service counter at the destination

12. The frontend staff greet the customer face to face at the service counter and verify the customer's identity

After customers reserve the service, backend operators verify the orders and reply confirmation one day before service usage to remind the customer. On the day of usage, backend operators have to contact and confirm the customer lodgment with hotels by checking customer profile. After the lodgment information is confirmed, the operators will access order management system and courier management system to plan for schedule of delivery. Couriers are dispatched to each location to collect luggage by confirming customer profile with acknowledgment of the hotel and service company. When collecting the luggage, courier should update the delivery status to the courier management for backend operators to update the status to the customers. By collecting all the luggage in the schedule, couriers transfer the bags to the destination and confirm with front-end staff by order details. Front-end staff then update the information to the order management system for operators to update the customer with final delivery status, manage the luggage, and wait for customer at the destination. After luggage is collected by the customer, front-end staff update the order status in the order management system and close the deal. The tools applied in the communication system are listed in Table 20.

Table 20: Tools of communication system

Tools	Description	Limitation
Courier management system	The backend system includes delivery schedule, courier identity, photo of delivery evidence, e-signature, and GPS tracking system. The system can be integrated with order management system in the following	Only operators can access the system. To collect the delivery evidence, the backend operator should copy the information and deliver it via the other channels.
E-mail	E-mail is a regular channel in online communication channels. Various of	E-mail is an official channel to communicate but not as

	templates and information can be customized to deliver to customers. It can be used as official channels to deliver evidence and confirmation.	fast and direct as instant messenger. Not all the users can receive e-mail on smartphone.
Face to face communication	Entities can interact to each other directly and can easily build trust and clarify the	Language barrier may make the communication ineffective, and participants can get frustrated easily.
Instant messengers	IMs are apps on smartphones. Though each apps is dominant in different market, they share common functions are text message, voice and video call, photo and video shooting, location forwarding (GPS). The applied apps are Line, WeChat, WhatsApp, and Facebook. All the apps are available on all kinds of device and operating system.	The call center can overlook the message easily. The channel or the account can only be managed by one device by one person. The capacity for information receiving is relatively low.
Local phone	The channel is very instant, direct, and official for business usage. It is suitable for the locals to communicate to each other. In the case, hotels, couriers, and backend operators can contact each other easily.	Similar to the problem of face to face communication, the language barrier may make the communication ineffective and get the participants frustrated easily.
Order management system	The system includes every order customers reserved via the booking channels with required order information. Its functions is gradually developed to support backend operators to manage the orders, information and communication.	The information should be put by the operator manually before the system is developed with full functions.
Web-based online booking system	With responsiveness function, the system can be accessed via various of devices and have user-friendly and multi-language interface.	User experience of the website on mobile devices may not be as good as it in installed apps

Table 21: Communication system of luggage delivery service

Input	Process	Output	Stakeholders	Channel
- Required customer profile and order information	- Booking service via online - Verification of order details	- Reserved service order	- Customers - Backend operators	- Web-based online booking system - E-mail
- Reserved service order and details	- Verification of order details - Customized information	- Confirmation of service order	- Backend operators - Customers	- E-mail - Local phone - Instant messengers
- Customer profile	- Verification of hotel lodgement - Verification of customer request	- Acceptance and acknowledgement of the hotel	- Backend operators - The hotel	- Local phone
- All orders and order details of the day	- Verification of locations, schedule, and order details	- Confirmation of orders and delivery schedule	- Backend operators - Couriers	- Order management system - Courier management system - Local phone - Instant messenger
- Customer requests - Order details	- Verification of service information and requests	- Confirmation of customer service requests	- Customers - The hotel	- Face to face communication
- Customer profile - Courier identity	- Verification of hotel and customer acceptance	- Confirmation of customer belongings	- Couriers - The hotel	- Face to face communication

-	Delivery status and evidence	-	Updating information to the system	-	Evidence of luggage status	-	Couriers - Backend operators	-	Courier management system - Order management system
-	Evidences of luggage status	-	Verification of order status	-	Order updates for customers	-	Customers - Backend operators	-	E-mail - Local phone - Instant messengers
-	Delivery status and evidences	-	Verification of order details	-	Delivery status and evidence	-	Courier - Front-end staff	-	Face to face communication - Instant messengers
-	Delivery status and evidence	-	Updating information to the system	-	Evidence of luggage status	-	Front-end staff - Backend operators	-	Courier management system - Order management system - Instant messengers
-	Evidence of luggage status	-	Verification of order status	-	Order updates for customers	-	Backend operators - Customers	-	E-mail - Local phone - Instant messengers
-	Customer profile	-	Verification of customer identity	-	Confirmation of customer identity	-	Front-end staff - Customers	-	Face to face communication
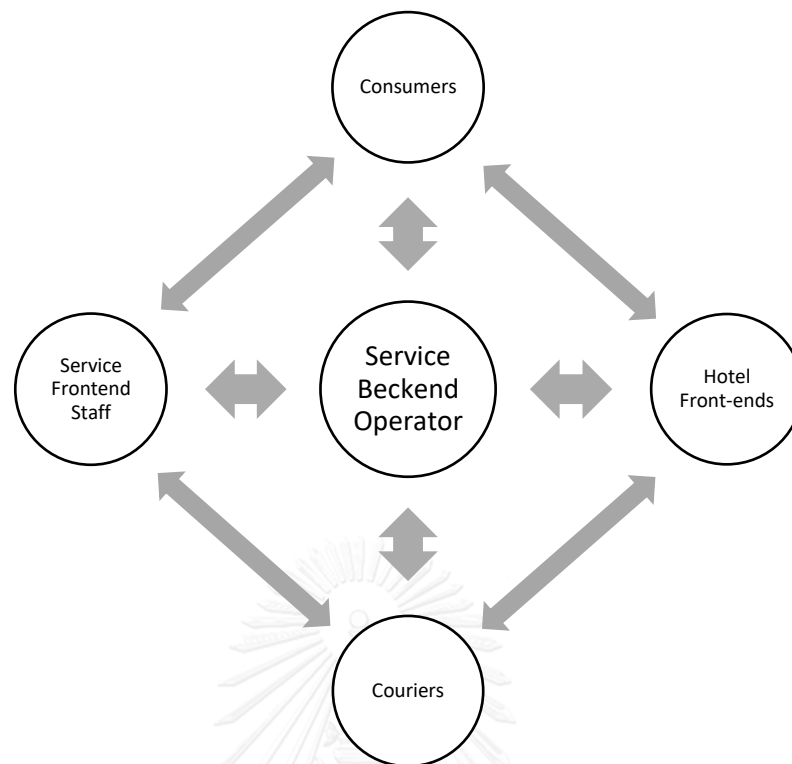
Figure 37: Information flow and stakeholder relationship of luggage delivery service

4.5.5   Service quality control and risk management

From the research, service quality is perceived subjectively by the user who

evaluates the performance with the gap between service expectation and perceived

service. Therefore, understanding customer and providing service level that reach

their expectation are critical to the service evaluation and service quality. The quality

control should start from the beginning when customer receive the information in the

market and start to generate perception and get impressed on the service and the

service company. For service, as it is intangible and subjective, the other users' review

and description of experience can give a strong empathy to next users. Though people

may understand the review and notes can be fake or made-up, they will get a positive

impression at the first place but evaluate the service and process under different

service expectation. The channels of the service company are designed user-friendly

that the site has multi-languages to give potential customer easy-accessing service information. Customer can learn the instruction about how to use the service in the field by passing through the booking process and get all the required or reminding information after reserving the service. Besides, the system of the order handling is designed to give automatic information push or notification to customers. Therefore, customers can effortlessly track on the latest luggage delivery status as the notification will be sent automatically.

Communication systems are also influential to the service perception. People from different generation, background, and culture tend to solve the problem and communicate differently. Some people don't like to talk on the phone but are willing to send text message. Elders or aged customers may not be familiar with new technologies or used to the new solution. The experience can become more positive and attractive to them with process and similar reasoning and understanding with the customers by creating empathy to stay together with them. Clear communication solutions can reduce problems in the future and give trust as the information is reasonable and clear. Though marketers can operate and modify the announced information, the information may be distorted by misunderstanding or referring negative experience. When people spread information by mouth, the distortion of the message can be much magnified by passing through one person. Besides, as the service perception is very subjective, customers will use their own experience to evaluate whether the service output match to their expectation. Luggage delivery service can be referred to the similar service in Japan, normal logistics service, or post system. When dispatching message and information, marketers should focus on modifying the corporate image and the promises to service users. However, the

guarantees should never exceed the service scope or the company's capability. As all the information in the market can give the first impression, the marketing department should be able to track on the keywords and spread information.

When planning the process and collect information and market needs, management team should go on field research and face to customers directly to learn the feedback. The process can minimize the gap between management perception and consumer expectation. On the other hand, when working with front-end staff, managers can easier to understand the working environment and situation of the frontline workers, and thus reduce the gap between management perception and service quality specification. Since the service company is relative small and the jobs of top management team are overlapping, the works of each department can easier to be coordinated and become agile to respond to the market signals. When customers use service, they expect to have an easy life to pay to make their schedule flexible or reduce problems and efforts to work. The objective is very obvious that the service itself should be easy-accessing, worriless, and reliable. Due to the business nature, delivery on time and safe are the most basic requirements of users. However, uncertainties and language barrier make them worry about the service output. The price of the service is also a big issue for sales and the business. As the problem can be solved by the other solutions, such as self-carrying and depositing at the hotel. Besides, taxi and transportation service are the other barrier to deter customers from using the service. The fare for taxi in the city is relatively cheap. Comparing to the price of taxi and luggage delivery service, customers can easily choose the solution which they are more familiar with. As on vacation, their schedule and time may not be

tight. They can hardly evaluate the value of the service by instant introduction of the service.

For luggage delivery service security and reliability are interrelated. For uncertainties, customer can easily become panic and perceive the service negatively. To reduce the risk and gain customer faith and trust, the timing for responding is critical to the service perception. Therefore, to match customer expectation with the operations output. The management team should careful investigate the market insights and signals and learn the real requirements to provide a proper service structure and information with coordinated guarantee.

Table 22: Stakeholders and description of luggage delivery service

Stakeholders	Job description	Control point(s)
1. Consumer / luggage holder	- Users reserve luggage delivery service - Drop luggage at the origin of delivery - Collect luggage at the destination	- Start / End the luggage delivery service process
2. Service call center / backend operator	- Confirm information with the other stakeholders - Monitor delivery process	- Start courier delivery process - Start / End order monitoring process
3. Hotel reception or concierge	- Confirm customer lodgement - Manage luggage at the hotel	- Start / End luggage management process at the hotel
4. Courier/driver/deliverer	- Confirm order details - Collect luggage at the origin of delivery - Deliver luggage to the destination	- Start / End luggage transfer process

5. Front-end service staff	- Manage luggage at the service point - Communicate with consumers and courier	- End courier delivery process

Based on the service blueprint, customer journey mapping, and flowchart, the risks of the service operations can be identified by investigating the process in different scenarios. In addition, timeliness is very critical to the delivery service. The users' service scenario will mostly be on their last of traveling in the city before going to the airport. With any delay, accident, or other kinds of problems occur and can't be solved in time. The company will suffer from extremely poor consumer experience and lose brand and corporate image forever.

4.5.5.1 Organizational and internal risks

- Operator miss or overlook orders

    Description: The backend operators fail to notice and confirm the upcoming orders and miss the service for the customer.

    Solution: Allocate specific operators to follow bookings and orders on each day. At the end of the day, the operations managers have to recheck and prepare for the orders on the next day.

- Miscommunication between operators

    Description: The first operator fails to transfer equipment and information properly.

Solution: Leave the message in the text to have evidence and be traceable. SOPs of the operations should be built to prevent operators following unclear procedures.

4.5.5.2 Stakeholders and external risks

- Courier can't find and collect the luggage at the hotel

    Description: The courier may reach the wrong hotel or have wrong consumer profile that the hotel can't find the consumer's belongings or provide the luggage for security reasons.

    Solution: The service company's backend operators contact the hotel front-ends in each morning in advance to confirm consumer and courier profile and time to collect the luggage.

- Courier collect wrong luggage

    Description: The hotel provides wrong luggage which is other lodgers' belongings or the consumer leave several luggage but will return to pick up some of the belongings by themselves.

    Solution: Operators confirm the orders and number of pieces of luggage before consumer deposit the luggage at the hotel.

- Courier deliver to wrong place

    Description: The courier receives wrong information or misunderstand the place as for hotel branches, hotels whose names are similar but with different branch name in the city.

Solution: When checking the orders, the operator should not only check the hotel name but the address of the place. The booking system can be aligned with database to generate locations with correct address automatically.

- Wrong information from customer

Description: The consumer may type or give the information wrongly or on purpose to protect their privacy.

Solution: The operators contact the consumer immediately to check with the information and align the policy with the service company's terms and conditions. The regulation which the consumer should agree to when reserve the service. However, the soft skills of the call center or person who in charge of replying customer should understand the reason why the consumer gives a wrong information.

- Late and insecure logistics and transportation

Description: Courier may have get stuck in condensed traffic, have criminal record which the logistics supplier fails to screen, or dangerous driving behavior.

Solution: The company should carefully evaluate the partners and service outsourcing company to provide the required operations. When executing delivery process, the operators should monitor the delivery process and ensure the courier follow the standard operating procedures for the delivery and keep contacting the stakeholders to prevent accidents.

- Lose or damage customer's belongings or luggage

Description: The courier carelessly loses consumers' luggage or damage it during accident or carrying.

Solution: The service company ensures the logistics supplier has requested terms and condition and compensation of such event. The backend operators should follow and monitor the deliver process by screening the photo and activity log on the logistics company's platform. The operator should be sensitive to notice any abnormal event.

- Courier get accident during transportation

    Description: The courier gets crashed by the other driver on the road or dangerous driving behavior.

    Solution: Prepare enough time in schedule to let the courier keep the pace down. The operator should be familiar with the road and surroundings and notice the courier in advance that if there's any event or accidents happening on the road.

- Misunderstanding about the service, process and standards

    Description: Consumer wrongly read and learn the information from external communications channels or get and understand the information from front-end staff or the service company's partners.

    Solution: The management team should keep the process and information simple, precise and easy to understand. For every 3 months, the management team should visit partners and front-ends staff to ensure the information is updated and correct.

- Miscommunication between stakeholders

Description: The operators give wrong information to courier, hotel front-ends, or customers.

Solution: The management team should give proper training to every staff with service mindset and knowledge of the delivery service. After each interaction is done with the stakeholders. The operator should update the status and conditions to the group which manager can evaluate and give guide and direction.

- Unclear terms and condition

Description: The given regulation of the service isn't clear or ambiguous.

Solution: The management team creates a focus group to investigate the risks and align the work with law firm to create appropriate regulations which is coordinated with local laws and authorities.

- Malfunction of communication and backend system

Description: The system shuts down because of accidents, hardware failure, or incorrect or improper manipulation.

Solution: The technology department should back up all the data in a certain period to ensure the data and records will be available in the secure system. Copy the reservation and data into different channels.

- Customer collect wrong luggage

Description: Consumers may use similar bags or suitcase to contain their belongings. When in hurry, they may not notice difference between suitcases.

Solution: When operators or front-end staff at the destination receive the luggage, they should categorize the luggage by orders and attach luggage tag to differentiate each piece of luggage. Before giving luggage to the customer, each piece of luggage handed should be checked with customer's name.

- Hotel provide wrong luggage to courier

Description: Under poor management of the process, the hotel gives the wrong luggage to the courier.

Solution: When the courier updates the collection and delivery process to the backend operators, they should update the information, status and photo to customers at the same time.

- The luggage was broken when collected at the origin of delivery but the customer asks for compensation from the delivery company

Description: The consumer request for compensation from a broken luggage which is damaged before courier collect.

Solution: The courier should check the luggage condition when collect it at the hotel. After investigating, the courier should take a photo and keep as an evidence.

Table 23: Risks and controls of luggage delivery service

Category	Risks	Description	Controls
Internal	Operators overlook or miss order	Operators don't notice new orders, and the orders has no progress	- Monitoring and verifying order at least 2 days before service usage
	Miscommunication between operators	The information isn't transferred effectively	- Export order on each working before each working day - Hardcopy evidence
External	Courier can't find and collect the luggage at the hotel	The courier reaches the wrong hotel or have wrong consumer profile	- Customer profile - Courier identity
	Courier collects wrong luggage	Customer leave unclear requests to the hotel, or the hotel manage the luggage poorly	- Photo of luggage - Reference of the hotel - Delivery status update
	Courier delivers to wrong destination	Couriers receive wrong information or misunderstand the schedule and orders	- Delivery schedule - Delivery process monitoring
	Wrong customer information	Customers provide wrong order details, or the backend operator insert wrong information to schedule and backend system	- Confirmation of orders - Communication with customers - System verification
	Late and insecure logistics and transportation	Couriers have negative driving behaviours, or the traffic is condensed	- Evidence of luggage status - Delivery process monitoring - Standard operating procedures

	Loss or damage customers' luggage	The luggage is stolen or lost during transportation	- Evidence of luggage status - Delivery process monitoring
	Car accidents during transportation	The vehicle breaks down,	- Delivery process monitoring
	Wrong market and service information	Consumers may read or receive the wrong information to understand of the service wrongly	- CRM system - Frequent visits of partners
	Miscommunication between stakeholder	Stakeholders may give invalid information	- Delivery process monitoring - Delivery status update
	Malfunction of communication and backend system	The system shuts down due to accidents or hardware failure	- Export orders - Forward email to another account
	Customer collects wrong luggage	Customers collect wrong luggage due to similarity between suitcases	- Luggage tag and category at the destination

4.5.6   Summary of the expected output

Duration of each delivery: 4 hours

Capacity to deliver: 50 pieces of luggage per day

Cost of delivering one piece of luggage: 150 THB per piece of luggage

Service hours: 08:00 – 23:00

100% on-time and safe delivery

0 redundancy in communication among stakeholders

4.6 System implementation, result, and analysis

4.6.1 Business performance

4.6.1.1 Market performance

During Feb. to Dec. 2016, the company delivered 7,821 pieces of luggage from 4,644 reservations, order including delivering luggage to and from 59 hotels and 2 airports. Average number of luggage of each booking is 1.68 pieces. 3,357 orders, 72.29%, are luggage delivery from hotels to Suvarnabhumi airport; 707 orders, 15.22%, are luggage delivery from Suvarnabhumi airport to hotels; and 580 orders, 12.49%, are luggage delivery from hotels to Don Mueang airport. Average time of customers staying on the site before they book the service is one minute and 10 seconds. Though the service company provide multi-languages on its online channels, customers still tend to use English as the main language, 67.52% of overall users, as they perceive that the service is provided by a foreign company. Giving mother tongue language to support customers is beyond their expectation. However, customers get and lose the positive perception immediately as many service suppliers can do the same support in the language which the customer is familiar or is his/her mother tongue. In customer segments, 48.9% from China, 26.1% from Taiwan, 8.8% from Hong Kong, 6.4% from Malaysia, 4.7% from Singapore, the rest 5.1% are separated in the other non-Chinese countries. Customer no-show orders are 13 orders which is 0.69% of all orders. When consumers check out and collect luggage at the airport, front-end staff will provide a questionnaire to learn customer feedback. The feedback is taken as one of the indications of customer satisfactory. 85% of feedback are collected from the orders. The recovery of the questionnaire is 70.14%. The

answer evaluated is how the consumer feels about the service. The questionnaire provides 3 answers as selections - good, ok but need to be improved, and poor. 79.9% of the answers are good, 16.7% are ok but need to improve, and 3.4% are poor.

4.6.1.2 Operational performance

Number of average reserved vehicles on each day is 3. Each vehicle goes to 3 or 4 locations to collect luggage and heads to the airport. The cost for 4 vehicles is 2,632 THB in average. On each day, 26.07 pieces of luggage is delivered to or from the airport. Transportation cost to deliver one luggage from downtown Bangkok to the airport is 101 THB in average. If customers reserve and ask to use the service immediately, the fastest delivery can be made is in 4 hours, as 48 minutes to arrange courier and order information; 13 minutes to collect, embark, and update luggage status; 27 minutes to travel to the next hotel and so on; then, the courier takes around 43 minutes to travel from downtown Bangkok to the airport; the front-end staff should spend 20 minutes to confirm the orders and arrange the luggage. Therefore, it spends around 244 minutes to finish the order in average. However, the first 48 minutes can usually be cut off that only few customers will reserve and use the service immediately. The couriers will be scheduled one day in advance and have additional capacity to prepare for the emergency case. Publicly, the company commits customers to deliver luggage in the same-day and can be as fast as in 4 hours. Each order is controlled to be in 180 minutes, 3 hours. 60 minutes are given to prevent uncontrollable events, such as natural disasters, traffic congestion, car accidents, and unrevealed processes that haven't been identified in the research and investigation, as drivers spend average 43 minutes to travel from downtown area to each of the airports in Bangkok.

Table 24: Duration of tasks

Works	Result (Avg. of one order)	Success rate
Verifying order information	5 minutes	89.5%
Replying confirmation e-mail	2 minutes	100%
Contact one hotel reception	10 minutes	76%
Plan delivery schedule	12 minutes	83.3%
Arrange available couriers	48 minutes (within 1 hour)	91.7%
A courier collects the luggage and updates evidence at the hotel	13 minutes	82.3%
Courier travels between hotels	27 minutes	83%
Courier travels to the airport from the last hotel	43 minutes (within 1 hour)	93.3%
Confirming orders and luggage at the airport	10 minutes	100%
Customer checking out at the airport	10 minutes	99.8%
Total	180 minutes	

4.6.2   Problems

During the researched periods, 2 serious failures occurred that the service

company should refund and compensate the consumers. The problems come from

weak organization management, unclear job description of each operator, poor

communication among the members, and deployment of resource. The workload for

each individual in the company is high to provide the service in standard. Front-ends

and backend operators are usually the same person and isn't able to operate front-end

works and backend works at the same time. The other case is that the operator gave

wrong instruction and schedule to courier to collect the luggage in time. The customer

deposited the luggage 6 hours before collection time at the airport and kept noticing

the backend operator what is the current luggage status. However, the courier went to

collect the luggage only 1 hour before the customer collection time when is seriously

late and gave a poor image and experience to the customer. The customers suffered from worries and finally got back to the hotel to collect the luggage by themselves.

The other case is that the front-end staff failed to transfer the storage key to the staff in the next shift. Besides, the staff on working shift failed to notice the problem in advance, only when the customers were at the service counter and they found the key is missing. The service company didn't prepare spare key at the service counter. The other operators who took the key away should bring it back immediate. However, it usually takes more than 30 mins for staff to arrive the airport from anywhere in Bangkok. The customer can't accept the excuse that the luggage arrives but the staff has no key to take out the luggage. In the case the staff took 42 minutes to reach the airport. The customer still got time to receive her luggage and check in to departure.

Table 25: Summary of problems

Event	Failure	Consequence
Missing storage key	Lack of effective internal communication	Failed delivery process
Wrong order priority	Poor scheduling process	Failed delivery process
Poor reaction to late delivery	Poor monitoring process	Failed delivery process
Overlooked late order	Lack of risk awareness	Failed delivery process
No time to proceed works	Too much workload for staff	Poor performance

4.6.3   Analysis

For the business nature, the service should be provided as mass production to increase profit and revenue. Besides the required information for delivery service, the rest of delivery and service process should be optimized and aligned with the publicized information. The service quality should be secured in a designed level and meet customer expectations. As different people has various perspective and

understanding with the same event and process, a standard direction and procedure are required for operators to follow. In addition, rookies and new recruits to understand the operations and procedures easily.

The defined regulation and benchmark can be the evidence and reference to design further company structure and organization. The standardized procedures can be evaluated and track on the performance based on the time and output. Thus, the service quality can be secured in a designed level to meet the basic requirements of the service. For the service, with proactive activities to manage uncontrollable stakeholders to minimize the risk and communication between service company and consumers. Hotel front-ends are one of the critical parties that will influence the customer expectation. However, hotels aren't in the organization but give the first impression to the consumers as they are the first physical appearance of the delivery process. Hotel services have their uniqueness, management, and responsibility to their customers. Besides, language barriers are vital to the process. Though some hotels provide multi-language service at the front, the teams are usually locals. Besides, the service company hasn't built trust in the market. The hotel front-ends aren't familiar with the luggage delivery service process and its needs. To solve the problem, service company's operators should follow the hotel operations and provide customer information to check the status and proper information and understanding to ask support from the hotel. As above processes are mostly regular and routine, the standards can be set to check every process has appropriate output. The operators can identify if the message is unclear or not enough in the early stage and solve the problem in time. The cost for additional work and variations in the process can be reduced.

4.6.4   Summary of the output

Duration of each delivery: 3 hours

Average number of delivered luggage per day: 36.4 pieces

Cost of delivering one piece of luggage: 101 THB per piece of luggage

99.8% on-time delivery

100% safe delivery

76 % success rate to confirm customer information with hotel reception in 10 minutes

Chapter 5: Conclusion and recommendation

5.1   Conclusion

The service is intangible and have its unique features which differentiates it from tangible goods. Though service or its value can be new in the market, most of them are evolved from existing concepts which can easily be understood by the consumers. The service quality is evaluated and created by the gap between consumer expectation and consumer perceived performance and experience. However, the consumer perceptions are very subjective that various factors can affect the feeling of the experience. Before design the service, market information and fits should be considered and coordinated with the organization's capability. On the other hand, it's impossible to satisfy all consumers in 100% with limited resources and capacity. The service company should realize the tradeoffs and evaluate the true requirements from the consumers and provide specific and relatively customized service to match the demands.

The value proposition of the service is co-created by both the service supplier and its consumer. They are so closely related that they can't be totally separated. As most services are labor intensive and have interactions between front-ends and consumers, the flow, appearance, and personnel should make the process smooth to create the first impression for consumers. On the other hand, the service company shouldn't promise or commit any feature that is out of service scope, or the consumer will have a relatively high expectation, and the experience will get seriously deteriorated after receiving the real output and experience. The service blueprint and customer journey mapping gives and overall view of the service output for

management team to investigate and identify the problems and prepare for risk management. By giving a standardized operational system, the service company can guide and coordinate the works easier and effectively and allocate resources properly.

Information of customer behavior analysis, market segmentation, differentiation investigation, and customer expectations are integrated to create market requirements and features that consumers demand when use the delivery service. Aligned with required service information, marketing strategy and events can be planned to acquire traffic and hit the customer needs when launch the service in the market. The critical information for customer evaluation are summarized in Table 26. Coordinated to visitor statistics of Bangkok, travelers from 5 top countries and targeted groups with similar behavior are focused, shown in
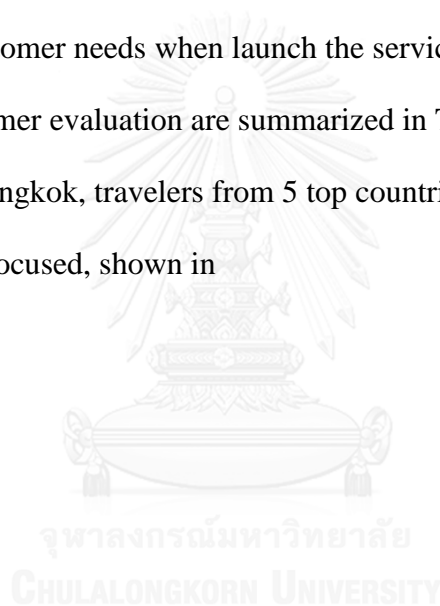
Table 27. After integrated the market information, the target feature to satisfy

basic service needs and win orders can be revealed as in Table 28.

Table 26: Required information for consumers

Information for consumers	Description
9. Service definition	What services does the company provide?
10. Service scope	What's the limitation of the service?
11. Price/service fee	How the service company charge customer?
12. Service instructions	How to use the services?
13. Terms and conditions	What regulations should consumers follow?
14. Guarantees	What does the company promise?
15. Notification of changes	How can consumers check delivery status?
16. Service locations map	Where can consumers use the service?

Table 27: Market segments of luggage delivery service

Factors	Description
Nationality	Factors to understand customer culture, background, reasoning, and behaviour
Dominant and second language	English, Chinese, Korean, Japanese, Russian, and Thai
Type of traveling	Vacation, business travel, or education
Group of traveling	Family with kids and/or elders, couples, friends in small group, or individuals
Flight time	Flight departure during 14:00 and 04:00

Table 28: Order winner and qualifiers of luggage delivery service

Parameters	Luggage Delivery Service
Quality	Order winner
Price	Order winner
Speed	Order qualifiers
Dependability	Order qualifiers
Flexibility	Order winner
Branding	Order winner
Communication/responsiveness	Order qualifiers
Well-trained personnel	Order winners

By integrating the market and operational requirements, developers may apply service blueprinting and customer journey mapping to provide an overview of the service. The blueprint presents an visualized view of the service with tangible and intangible features. However, it should be noticed that both customer's and front-end staff's perspectives should be involved rather than giving a bias point of view of the service. With the service scratch, project management techniques can be introduced to defined the service scope, tasks and process with flowchart and work breakdown structure, organization breakdown structure for resources deployment, communication system to reveal the flow of information exchange. After all, the quality

measurements and risk planning should be adopted to prevent and plan to react for potential failures or crisis. During Feb. to Dec. 2016 the service company delivered 7,821 pieces of luggage from 4,644 reservations with 2 failure cases. The failure mainly came from the miscommunication and unfamiliarity of the operations and processes. The summary and comparison between expected and perceived system output is shown in Table 29.

Table 29: Summary of expected and perceived output

Features	Expected output	Perceived output
Duration of each delivery	4 hours	3 hours
Capacity to deliver	50 luggage per day	36.4 luggage per day
Cost of delivering one piece of luggage	150 THB per piece	101 THB per piece
On-time success rate	100 %	99.8 %
Safe success rate	100 %	100 %
Communication success rate with hotels	100 %	76 %

5.2   Scope and limitation

The research focuses on one way of luggage delivery service, luggage delivery from hotel to airport. The delivery service can be flexible that can be applied to and from any accommodation and airport in the Bangkok metropolis. However, as the researched time scale isn't long enough to give further records on the other types of orders other than delivering luggage from hotel to airport. Thus, the statistics aren't enough to support and verify the operational system and flow of the service. On the other hand, the phenomenon revealed that such scenario is the most required demands in the market. The customized backend and automation system haven't been

developed during the research and hence most of the communication and call center work are done manually. The risks from human error are high that the workload for each operator is high and will increase a lot when emergency cases happen. On the other hand, the service and its concept are relatively new in the market. Only little market information is collected and can be referred by the service company. The market analysis should be done further and more focused on the target groups.

5.3   Recommendation for future work

Service performance and its quality will be affected since audience and consumers firstly perceive the appearance and revealed information in the market. Lots of the manual and labor works can be cut off from the operational system and process. However, due to limited capability and resources, the service company can only slowly build up the backend system to support the front-end staff. The system is presented during the very first period of the service company when most of the infrastructure and resources. The market needs are learnt concurrently during service operations. As the duration of service and records are relatively short, some aspects and accidents may haven't occurred. The market needs and analysis can be separated to learn a deeper, detailed market insight. Further business solution and services can be aligned with service to create further values to customers. In tourism industry, lots of service and packages can be integrated to provide a one-stop service. For example, customers asking for luggage need may ask for limousine service to transfer themselves and because they can hardly deal with the local taxis. Besides, they may firstly solve their luggage problem first but has no solutions for the other needs such as itinerary planning. Expert consulting will be beneficial in the case. When trust is built, further sales for the other products can be easier. In this point, the other factors

aren't as important because customers don't want to give effort to investigate the information and learn from something in the market. One of the advantages of the service company is to have a fixed site at the airport where has lots of traffic as Thailand is a popular destination and hub for long-haul flights to transfer to adjacent countries and region. The service company can provide front-end services for the other companies to increase sales and revenue and share the popularity and fame from the partner's support or brand. New solutions and technology supports can be introduced to the service to improve and optimize the service performance. Though some manual works can be cut off and become automatic, redundant process or unrequired information can be taken away to simplify the operations flow and workload. Applying various methods and solutions can secure the performance but greatly increase the complexity in the working environment. Besides, inner and personnel training and management can be the topic to focus. Front-ends are always the most important resources for service company. They know and understand customer behavior deeply and have the opportunity to look into the environment and market. However, human resource management, managing works for staff and organization are complicated and require different techniques to handle the organization. Besides customer satisfaction, employee satisfaction is equally important because the service is co-created by both suppliers and customers. To ensure service quality, personnel training and human resource management are critical to improve and sustain the service level and close the gap between consumer expectation and service perception. The organization management, business culture and working environment can be investigated as a specific topic to learn from an inner view of the business rather than customer centric view.

1. The system can be revised and optimized with further market insights.

2. Labor and manual works can be reduced by applying systematic approach and automation process.

3. FEMA, failure mode and effective analysis, can be applied to plan for risk management.

4. DFSS, design for six sigma can be introduced when design the service to provide quality standards.

5. SERVQUAL and kano model can be adopted to investigate service quality

6. As the service is a relatively new concept, it may take more time to verify the value proposition of the service.

7. Further market opportunities can be investigated and aligned with the service.

8. Organization and business management of the company can be improved to increase service effectiveness and efficiency.

9. As the critical factors of service businesses, human resources and personnel management can be researched to improve performance.

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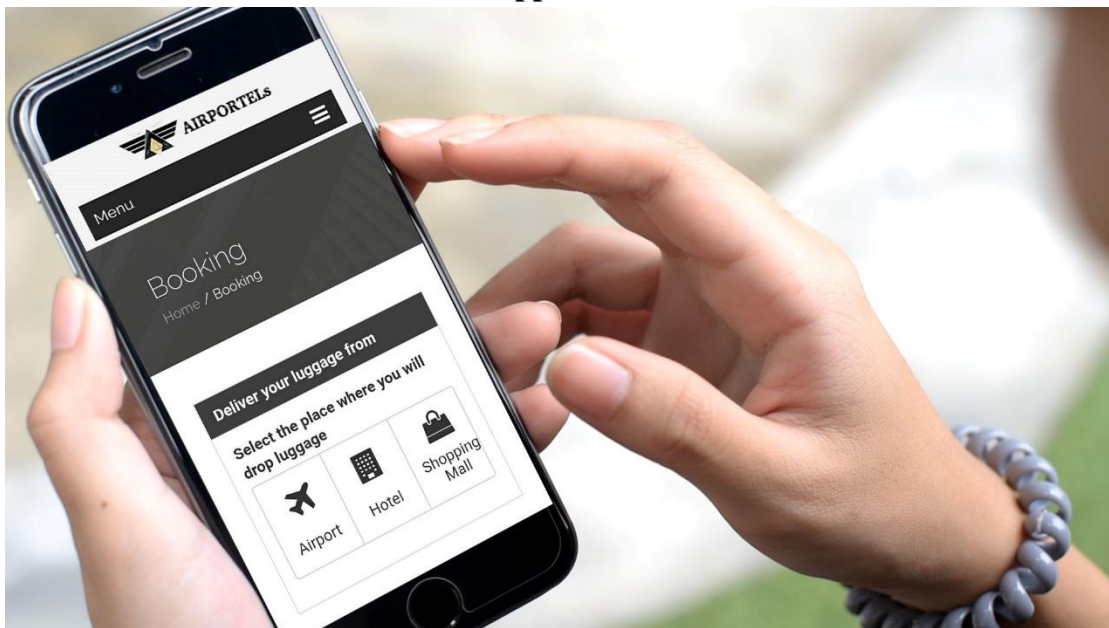
Appendix

Figure 38: Customer reserve service online

Figure 39: Customer checkout and deposit luggage at the hotel

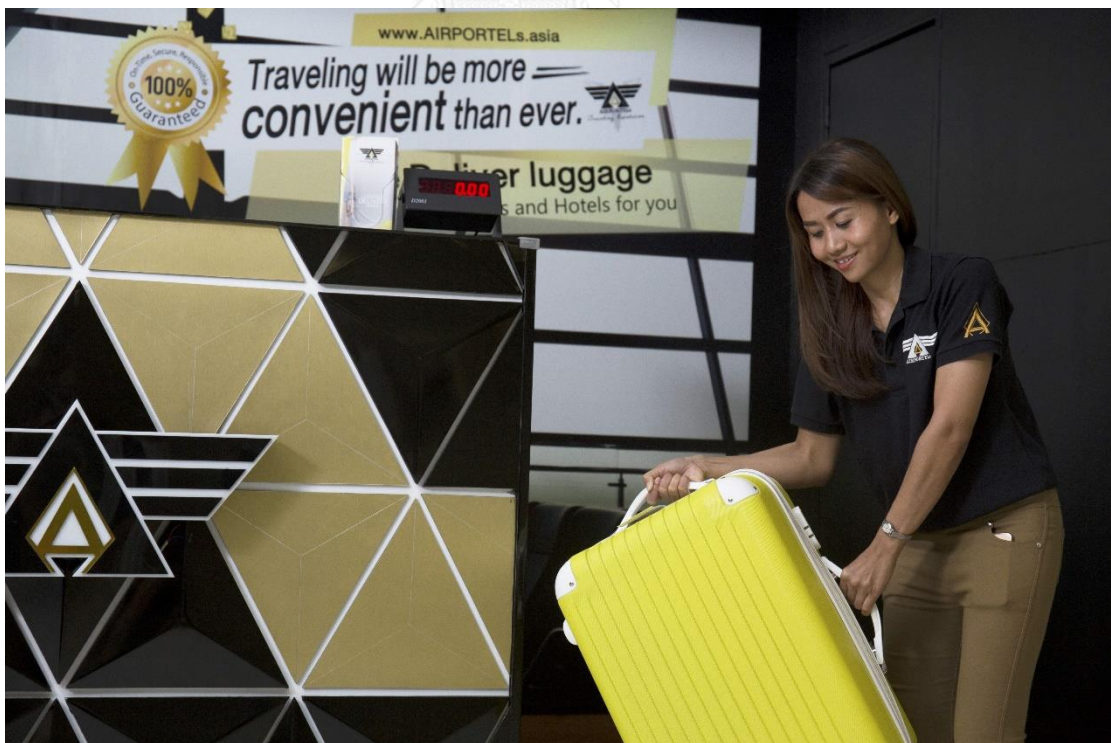Figure 40: Courier collects luggage from the hotel

Figure 41: Front-end staff collect and manage luggage at the destination

Figure 42: Customer receive luggage at the destination

Figure 43: Process of luggage delivery

REFERENCES

APPENDIX

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