

Investigation of Perceived Factors Affecting Operation Performance of Express Delivery Service in Bangkok

*Received: 17.08.2022**Revised: 28.09.2022**Accepted: 10.10.2022***Sunantha Anantachaiyong**

Department of International College, University of the Thai Chamber of Commerce

126/1 Vibhavadi Rangsit Rd., Dindang, Bangkok 10400, Thailand.

yingsan.san@gmail.com

Abstract

The purpose of this research were 1) to investigate the factors that customers perceive as affecting operation performance of express delivery services, 2) to Investigate the factors that customers perceive as having the most effect on operation performance of express delivery services in Bangkok, 3) to investigate customer's perceived solutions to improve on the operation performance of express delivery service operation in Bangkok, and 4) to investigate the relationship between independent variable (Reliability, Price reasonableness, Service quality) and dependent variable (Perceived operation performance) of express delivery services in Bangkok. The study was conducted with 400 participants who were users of the express delivery service in Bangkok. The sample technique used was the purposive (non-random sampling method). The research methodology used in the study was cross-sectional survey method and multiple linear regression (quantitative method). The instrument used in the study was a questionnaire containing close ended questions (Rating-scale) and semi structural questions (Open-ended questions) (Content analysis). The purposive non-random sampling method was used in selecting the 400 participants of the study. The data collected from participants were analyzed using mean, frequency and standard deviation.

The findings of research question 1) showed that the customers perceived all three factors: Reliability, Price reasonableness, and Service quality affect express delivery service operation performance in Bangkok. Regarding research question 2), the findings showed that service quality has the most effect on operation performance of express delivery service in Bangkok. Concerning research question 3), most respondents perceived the use of high technology as the most appropriate solution to improved and manage service operation performance of express delivery service in Bangkok. As for research question 4), the results from the multiple linear regression showed that all three independent variables (Reliability, Price reasonableness, and Service quality) had positive significance with the dependent variable (Perceived operation performance of



express delivery service in Bangkok). Therefore, all 3 hypotheses of this research were correct, implying, a positive change in Reliability, Price reasonableness and Service quality will lead to a positive change in Perceived operation performance of express delivery service in Bangkok.

Finally, the researcher expects the results of the study to offer information that will enhance the operation performance, provide a guideline to manage operations and also improve on operation performance. Additionally, this study will also provide solutions to customer complaint that will lead to an increase in competitiveness and sustainability in the express delivery service business in Bangkok.

Keywords: Express delivery service industry, Reliability, Price reasonableness, Service quality, Operation performance, Express delivery service performance, Express delivery service users.

Introduction

Express Delivery Service (EDS) nowadays is a significant element that supports economic development in countries and contributes to sustainable growth of the global economy. Many of the emerging market economies are leading growth economies and are becoming increasingly dependent on international trade. The trade performance relies on factors such as transportation, logistics and storage, production and customer support functions which are also the key determinants of economic growth (Oxford Economic Forecasting, 2009). According to the recent marketresearch.com's article on "Thailand Courier, Express, and Parcel (CEP) Market - Growth, Trends, and Forecasts (2020 - 2025)" has predicted the value of Express Delivery service industry in Thailand at more than USD 1.2 billion with estimated growth possibilities at a CAGR (Compound Annual Growth Rate) of more than 7.5% during the forecast period. Also, the COVID-19 pandemic which affected the world and Thailand too, came with government policies, such as social distancing and curfews to curb

the spread of the virus. This led to a boom in the parcel and food delivery service business in this period. Kasikorn Research Center (K-Research), Thailand's last-mile delivery business witnessed growth of about 10-15% amounting to about 98 billion Baht in 2022 despite intense competition and rising fuel costs caused by the Russia-Ukraine war. They also forecast that growth will continue this year due to the increase seen in e-commerce, which will also lead to the volume of parcel delivery growth of about 7-9% and delivery fees increase of about 4-6%. These e-commerce platforms are expected to mainly focus on delivery in Bangkok and surrounding provinces, which hosts around 30% of e-commerce customers. The last-mile delivery providers need to pursue work effectiveness and agility, including flexible business models and effective cost management. Furthermore, K-Research's poll shows that price and promotions are the most significant elements consumers want the e-commerce platforms to improve, with 71% of respondents, followed by credibility, at 56% and service quality by sellers and



delivery staff, at 41% (Leesa-Nguansuk, 2022).

The tremendous changes effectuated in the Courier, Express, and Parcel (CEP) market is being driven partly by changes in customer behavior with growing preference for online shopping market such as Lazada, Shopee, and JD Central, and social commerce such as Facebook, Line, and Instagram. CEP companies are expected to decrease transportation costs, reducing operating costs, service costs, and need increase in demand volume and market share. In addition, the gradual removal of trade barriers including the free trade zones and the shortening of product life cycles, and the developing of speed of delivery time including shipment control in transition, has also led to the growth of the industry.

In Bangkok area which is the business hub of southeast Asia, with many Small and Medium Enterprises (SMEs) and e-commerce, the demand for express delivery service by consumers is growing faster than was estimated. The express delivery service providers in Thailand provide express delivery services for documents, parcels/ packages, and larger shipment and offer the fastest, reliable, door-to-door and time-definite delivery services. Despite all these range of services, there are still lots of limitations in regards to lots of local competition which affects pricing and service reliability. Some express delivery service providers have poor technology to track parcels and poor security to examine carefully the parcel. In addition, some customer complaints about parcels disappearance, parcels damage, parcels sent to the wrong person or wrong addresses (Kaniganat T. Chaipoopirutana S., 2014). All these are as a result of

insufficiency in operation performance and poor technological innovation in express delivery service industry. Therefore, express delivery service providers need to focus more on investment in automation, smart technologies, and workforce (Especially the demand for drivers) in the near future. Nowadays, Technology has become part of the process in the transformation of customer behavior, especially the new generation (Millennials) who prefer indoor shopping to the conventional outdoor shopping and find the use of technology which makes their work-life more comfortable.

As mentioned above, the most important contribution that the express delivery service makes is that, it improves the capabilities and competitiveness of other business sectors of the economy (Mitra et al., 2010). It also facilitates the success of other business sectors of the economy, such as production and distribution, inbound and outbound, operations, marketing and sales and after-service activities (Dmitrieva, A., 2020). Hence, this study aimed at investigating the perceived factors affecting operation performance of express delivery service in Bangkok and looked for possible solutions to address the problems and customer's requirements which express delivery service providers need in developing its competitiveness.

Consequently, the researcher expects that the results of the study will offer information to enhance the operation performance of express delivery service in Bangkok. For instance, provide a guideline to manage and improve on operation performance of express delivery service, provide solutions to customer complaint which lead to an increase



quality on operation performance, competitiveness, and sustainability in the express delivery service business in Bangkok.

Research objectives

The main objectives of this study are:

1. To investigate whether reliability, price reasonableness and service quality affect operation performance of express delivery service in Bangkok.
2. To investigate which factors customers perceive as having the most effect on operation performance of express delivery services in Bangkok.
3. To investigate customer's perceived solutions for improving the operation performance of express delivery services in Bangkok.
4. To investigate the relationship between independent variable (Reliability, Price reasonableness, Service quality) and dependent variable (Perceived operation performance) of express delivery services in Bangkok.

Research questions

The questions of this research are:

1. Do reliability, price reasonableness and service quality affect express delivery service operation performance in Bangkok?

2. Which factors do customers perceive as having the most effect on express delivery service operation performance in Bangkok?

3. What do customers perceive as the most appropriate solutions on improving express delivery service operation performance in Bangkok?

4. Do reliability, price reasonableness and service quality have a positive significance with operation performance of express delivery services in Bangkok?

Literature review

Express delivery service

Oxford Economic Forecasting (2009) defines the express delivery service as the prompt shipment of goods by using a variety of different transport modes such as lorry, van, train, freight aircraft. It provides value-added services such as; door-to-door transport, deliveries of time-definite shipments include documents, parcels, merchandise and goods. Schmidt A. (2015) expounds on the different types of courier services which are; (1) Standard courier services, (2) Overnight service, (3) Same day express courier, (4) International courier, and (5) Pallet courier services. Table 1. below further explains the five types of courier services offered by courier providers.



Table 1 Type of Courier Services

Courier Services Type	Description	Delivery Date	Price
Standard courier services	Collecting and sorting of parcels and transferring the parcels to the closest depot to the delivery location	Few days	Cheap
Overnight service	Same as standard service and the parcel is guaranteed to be delivered	Next day	Slightly more expensive
Same day express courier	Used for delivery on urgent requirement	Same day	Most expensive
International courier	Used for transferring of goods overseas	Required	Depending on the size of the package
Pallet courier services	Used for delivering goods on pallets	Strict delivery schedules	Fairly reasonable rates

Schmidt A. (2015) also describes the various types of delivery service providers which are; **(1) Carriers** - large delivery companies, e.g., FedEx, DHL, UPS that have a wide delivery network that offers an entire supply chain solution and large fleet, which includes airplanes, trucks, vans, and ships. **(2) Freight forwarders** - subcontractors to airlines or carriers that offer specialized services like pallets, parcels, or bulky goods transport. and **(3) Haulage services** - transport bulky and heavy goods which make use of rail networks to transport goods.

Hausmann, L. et al., 2014 posits that, express delivery service has the capabilities to influence customer’s shopping behavior. This is because of its ability to combine the convenience of e-commerce retailers with that of express delivery service providers. Three operating types have been identified as capable of fulfilling the express delivery service providers need. The first operation type is “*Parcel logistic providers with an additional delivery*” parcel logistics providers are increasingly focusing on convenient features such as alternative

pickup and delivery options. The second operation type is “*Broker of courier capacity*” provide access to existing courier capacity to offer instant or scheduled delivery. The third operation type is “*Multichannel retailers building their own fleet*” provide to handle same-day deliveries. In the current market environment, four prerequisites need to be fulfilled to enable same-day delivery: *product availability, real-time product visibility, fulfillment capacity, and flexible last-mile capability*. Retailers need to invest more in their network local urban warehouse centers and develop their logistic and IT infrastructures, transportation management system, capability to efficiently fulfill the orders in-store, and flexible of last-mile delivery or multiple times throughout the day.

In this research, the researcher focuses on studying the express delivery services in Bangkok that combines two types of courier services; Overnight service and Same-day express courier service. The type of express delivery service providers in Bangkok are similar to carriers that have a wide delivery network, but have



different fleets with the exemption of airplanes, trucks and ships. The area of Bangkok is only 1,568.7 square kilometers thus the fleet has only vans and motorcycles, which are suitable for transportation within the city. Examples of express delivery services in Bangkok are; Kerry Express, SCG Express, Grab Express, Lalamove, Lineman, Panda, Federal Express (FedEx), DHL Express and UPS Express. These courier services provide express delivery services per customer requirements. Some requirements are same-day delivery but others require the next-day delivery, depending on their budget and their needs. Furthermore, they provide various delivery time as required by customers, such as on-time delivery and time-definite delivery. They can also offer value added variance for instance, tele-technology and real-time tracking.

Reliability of express delivery service

The reliability of express delivery service is identified as on-time delivery, tracking the parcel status, proof of delivery, and quick response when the parcel meets an unexpected situation (Lin & Lee, 2009; Voss et al., 2006). Time-based competition has become an important element in the growing market for express delivery services (Ding et al., 2016). Some express delivery services deliver the parcel on-time and also notify the shipment delivery time. Some express delivery services provide applications with ability to quickly trace the shipments. If the shipment has been delayed or has met an unexpected situation, they will provide quick and prompt response action (Lin & Lee, 2009). On the other hand, if the express delivery service is unreliable, it will affect the operating cost and will lead to financial losses which will also impact the opportunity for growth in the

business (Mitra et al., 2010). Therefore, studying the reliability of express delivery service in Bangkok is paramount for the success and growth of the Industry as a whole. This study, investigated four variables of reliability of express delivery services in Bangkok, which are as follows; (1) Ability of on-time delivery and collection, (2) Ability to quickly track shipments, (3) Response in unexpected situations, and (4) Shipments loss or damage experience.

Price reasonableness of express delivery service

The price reasonableness of express delivery service is identified as sensible pricing, rational pricing, flexible pricing and competitive pricing that are affordable or customers are willing to pay for the product or service. The price is defined as an individual's quality perception (Haryanto, 2016) that must be paid to get some type of product or service (Zeithaml, 1988). The price is also a possible cause of the decision to switch behavior towards products or services (Colgate & Hedge, 2001). Some decision making for express delivery services are to compare the price with the service quality provided. In addition, Imran et al. (2010) and Lee (2012) demonstrated that the price reasonableness should be assessed in accordance with service quality. Otherwise, reducing costs of operation and logistic could enable the provision of reasonable prices and create value and benefit of express delivery service (Ding et al., 2016). This study investigated the price reasonableness of express delivery service in Bangkok under three variables; (1) Affordable rates, (2) Flexible rates, and (3) Competitive rates.



Service quality of express delivery service

The service quality of express delivery service is identified as a superior service, competence and qualification of service, which provides conformable quality service and explicit quality service. Experience has shown that the service quality does not only provide high customer satisfaction, but also strives to achieve higher profit margins and greater market shares (Ding et al., 2016). The service quality of express delivery service is also seen as a series of activities between customer and service provider which provide the solution to solve the customer complaint (Gronroos, 2000). The development of service quality in express delivery service is one of the key strategic aims that could affect its operation performance. The knowledge, skills, professionalism and preparation of express delivery service provider are the essential criteria and ability to take strategic advantage of express delivery service by additional service (Gulc, 2017). Also, the customer attitude in service, behavior and professionalism of service quality are the greatest impacts operation performance of express delivery service (Brady and Cronin, 2001). In addition, the express delivery service provider should concentrate on improving the quality of product and/or service while also reducing the time and cost of their operations (Johansson et al., 1993). Usually, the customer's perspective on express delivery service when they select transport service is often to choose the option with the greatest utilities. This study focused on investigating the service quality of three variables on express delivery services in Bangkok which are; (1) Tele-technologies service, (2) Diversity of value-added services, and (3) Competence and qualifications of the service.

Perceived operation performance of express delivery service

Perceived operational performance of express delivery service refers to express delivery service provider's operational outcomes in terms of operational competence such as flexibility, useful services, newness in operations (Sun, Y.S. & Jin, N.C., 2012), quality improvement, cost reduction, on-time delivery, lead-time reduction, and the ability to quickly respond to customer requests (Shi, X. & Ziqi, L., 2015). From a logistics perspective, the delivery service operation is one of the most important operation to manage. It requires high-quality on delivery service and speed delivery by developed performance of operation in each sub-operation of the express delivery service. It can be divided into four sub-operations; (1) Customer's ordering; the ordering sub-operation at the customer, starting with the recognition of a need to order and ends when the purchase order reaches the supplier. (2) Supplier's delivery; the delivery sub-operation at the supplier, starts with the receipt of the order and ends when the goods are available for shipping. (3) Logistics service provider's transportation; the transportation sub-operation, starts when the ordered goods are available for pickup and ends when the unloaded goods are received by the customer. (4) Customer's goods receipt; the goods receipt sub-operation, starts when the ordered goods are received and ends when they are made available for use (Mattsson, 2004).

This research focuses on the study of express delivery service operation that are similar to the definitions of two of the sub-operations listed above: (3) Logistics service provider's transportation, and (4) Customer's goods receipt. The different performance aspects are related to all the



sub-operations, and the performance of one sub-operation is dependent on the operation performance of the other sub-operations. Additionally, two of sub-operation performance of express delivery service are efficacy when the status of parcels for delivery can be tracked and the service providers can respond to unexpected situations on a timely basis (Ding et al., 2016). Moreover, it enables the sender and receiver have access to information on the progress of shipments from pick up to delivery and provides proof of delivery. The express delivery services are very important operation of transportation function in the trade company and also, play a very significant role in a country's economy. It can greatly affect operational costs and service quality of the company which can also affect the performance of the company (Banomyong, 2005). In addition, the operation performance of express delivery services is deemed efficacy when the services offered are reasonably priced, making them affordable to the masses, while also providing comfortable technological and friendly service platforms that offer quick responses to queries.

Currently, Thailand has a strong and growing e-commerce sector, which makes it a major business and commerce hub for the Asian region. Thailand also has a combination of technology, supply chain and parcel delivery service that can lead to innovations (Sachamuneewongse, 2018). Bangkok is the capital and the business center of Thailand, and the younger generation are into online shopping, making the demand for prompt delivery high. Moreover, the same-day delivery is becoming the next evolutionary step in parcel logistics as most people are simply eager to receive their parcels and merchants are also interested in express payments (Leesa-Nguansuk, 2017).

Nowadays, some small and medium enterprises (SME) of express delivery service providers perform poorly that disappoints consumers when they use their services. For instance, parcels disappearance, parcels damage, parcels sent to the wrong person or wrong addresses, delay of time-definite delivery and low quality of service. Additionally, poor infrastructure, inefficient procedures and complicated operation systems are also affecting operation performance of express delivery service. (Mitra et al., 2010). As mentioned above, those factors impacting operation performance of express delivery service in Bangkok requires investigations in other to increase customer base and help small and medium enterprises (SME) explore solutions for developing the performance of their operation service to be more effectiveness, which will lead to more earnings, competitiveness and a better approach to sustainability in express delivery service in Bangkok. This study investigated the perceived factors affecting operation performance of express delivery service in Bangkok under three variables; (1) reliability improvement, (2) cost improvement, and (3) quality improvement.

In Taiwan, Ding et al. (2016)'s article on "Assessing Customer Value for Express Service Providers: An Empirical Study from Shippers' Perspective in Taiwan" studied the development of a fuzzy Multi Criteria Decision Making (MCDM) model approaches to improve the quality of decision-making when assessing customer value of three express delivery service providers (FedEx, DHL and UPS) based on the shippers' perspective. This research demonstrated that customer value is an important factor to evaluate the competitive advantage and also a key criterion in choosing express delivery service providers. The results of the



research showed that; (1), Time aspect is the most important criteria affecting the customer value based on the viewpoints of exporters and importers in Taiwan. (2), Quality aspect and (3), Cost aspect are less important, respectively. The least important is (4) Service aspect.

In India, Mitre et al. (2010)'s article on "Exploring Relationships between Key Success Factors and Performance Metrics for Indian Express Delivery Service Providers" carried out a study on express delivery services stating fourteen variable key success factors based on respondent's perception of importance levels and company's achievements with respect to these factors. In addition, relating to small, medium, and large companies offering express delivery service to assess their dynamics, problems, operation performance and growth opportunities. The ranks of each key success factors and the corresponding percentages for the different clusters; small, medium, and large companies use to determine the level of importance of key success factors in different clusters. The results showed that the most important key success factors of the three clusters; small, medium, and large companies was (2) On-time delivery and reliability and (7) Reputation of service providers because they had consistently been highly ranked in all company sizes. On-time delivery and reliability of service and reputation of service providers were the most significant of the express delivery service and did matter irrespective of the company size because of it is a time-bound delivery service if any shipment is delayed or presence of unreliable service might result in financial miss opportunity and parcel damage or losses.

In China, Lin & Lee. (2009)'s article on "How Online Vendors Select Parcel Delivery Carriers" studied to investigate the factors that influences online shippers'

use of delivery carriers and examine the bearing that they have on the development and maintenance of mutually beneficial partnerships. Analysis considering when online vendors select carriers, the three most important factors are Factor 1: On-time, tracking, and quick response, Factor 2: Fare rate and freight loss, and Factor 3: Security and reputation.

All the above studies, focused on the critical and variable factors impacting operation performance of express delivery service in different countries, cultures and traditions. It was found that, the important determinant of each variable factor of express delivery service in different geographical regions led to different results. As a result of similar research carried in other countries, this study focused on investigating customers perceived factors (Reliability, Price reasonableness, and Service quality) affecting the operation performance of express delivery service in Bangkok. Furthermore, this study may provide some solutions to improve on express delivery service operation performance in Bangkok as perceived by customers. Which have research hypothesis as; H1: Reliability has positively effect on express delivery service operation performance in Bangkok. H2: Price reasonableness has positively effect on express delivery service operation performance in Bangkok. H3: Service quality has positively effect on express delivery service operation performance in Bangkok.

Methodology

Research design

The research methodology used for this study is the descriptive (survey) method. This is a quantitative research method since the data collected through this



method is numerical and was analyzed statistically.

Research instrument

The instrument used in collecting data was a questionnaire containing close ended questions (Rating-scale) and semi structural questions (Open-ended questions) (Content analysis). The questionnaire comprised of six sections;

Population and sample

The population of this research is the users of the express delivery service in Bangkok. The sample technique used purposive (non-random sampling method). The population of express delivery service users in Bangkok is around 2.6 million people (Boonruang, 2017). The Researcher used the Taro Yamane formula with a 5% probability sampling error rate to determine the sample population of about 400 people as participants in the research survey.

Data collection

A questionnaire was used to collect data of all users who have experience using express delivery service in Bangkok. The researcher distributed questionnaire link and QR code via online means. The questionnaire was sent to the survey

google website which are popular to users of express delivery service in Bangkok.

Data analysis

This researcher was analyzed the data collected from participants by use of mean, standard deviation and frequency (descriptive statistics function of SPSS 23.0) and Pearson correlation statistics. For the express delivery service users' behavior screening and demographic information by use of frequency and percentage to study behaviors and demographic data of express delivery service users in Bangkok. Research question (RQ) 1 and 2, the researcher was use mean and standard deviation to analyze the data. Research question (RQ) 4, the researcher was use multiple regression to analyze relationship between independent variables (Reliability, Price reasonableness and Service quality of express delivery service in Bangkok) and dependent variable (Perceived operation performance of express delivery service in Bangkok). For research question (RQ) 3 and the open-ended questions, the researcher was use content analysis to analyze responses from the respondents. The researcher with further use frequency to measure the frequency of occurrence of responses from participants (Table 2).



Table 2 Date Analysis and Procedures

Factor & Research question	Participants	Research instruments		Data analysis
		Close-ended questions	Open-ended questions	
Research Question 1	Users of EDS in BKK	√		Mean and SD
Research Question 2	Users of EDS in BKK	√		Mean and SD
Research Question 3	Users of EDS in BKK		√	Content analysis/ frequency
Research Question 4	Users of EDS in BKK	√		Multiple Regression
Open-ended Question 1	Users of EDS in BKK		√	Content analysis/ frequency
Open-ended Question 2	Users of EDS in BKK		√	Content analysis/ frequency

Results

This research aimed at investigating the factors that customers perceive affects express delivery service operation performance in Bangkok. The research also intended to identify the factor customers perceived had the most effect on operation performance of express delivery services in Bangkok. In addition, the researcher investigated relationship between independent variables (Reliability, Price reasonableness and Service quality) and dependent variable (Perceived operation performance) of express delivery service in Bangkok. Lastly, the study also investigated other

factors affecting express delivery service operation performance in Bangkok as perceived by users of express delivery service and investigated customer’s perceived solutions for improving the operation performance of express delivery services in Bangkok.

Descriptive statistics analysis

This section presents the findings of independent variable (Reliability, Price reasonableness, and Service quality) and dependent variable (Perceived operation performance) of express delivery service in Bangkok.



Independent variable: Reliability, price reasonableness, and service quality

Table 3 Independent variable: Reliability, Price reasonableness, and Service quality of express delivery service in Bangkok

Independent variable	Mean	SD
Reliability		
1) Delivery parcel on-time	4.51	0.71
2) Collect parcel on-time	4.42	0.81
3) Notify shipment delivery time	4.53	0.65
4) Delivery time option designed	4.30	0.88
5) Quick track shipment status	4.54	0.77
6) Precisely track shipment in real-time	4.36	0.85
7) Pre-schedule time and Pre-status of shipment	4.28	0.84
8) Quick respond when shipment have unexpected situations	4.20	0.98
9) Quick provide solution when shipment have unexpected situations	4.17	0.99
10) Variety of channel to communicate	4.12	1.00
11) Notify when shipment have unexpected situations	4.06	1.06
12) Assurance coverage to refund when shipment get lost or damaged	3.93	1.21
Average	4.28	0.90
Price Reasonableness		
1) Affordable price	4.22	0.86
2) Price include insurance coverage	4.05	0.97
3) Value-added services	4.01	0.98
4) Optional price list	4.15	0.98
5) Flexible price	4.15	1.03
6) Premium service with affordable price	4.10	0.92
7) Promotion price for loyal customers	4.12	1.01
8) Variety of payment facilities	4.29	1.02
9) Price estimate	4.32	0.86
Average	4.15	0.96
Service Quality		
1) Mobile application service	4.52	0.79
2) Website and e-mail service	4.11	1.08
3) 24/7 call center service	4.16	1.05
4) Delivery service on weekends and holidays	4.43	0.84
5) Online chat rooms	4.27	0.93
6) Pre-notification messages service	4.04	1.07
7) Flexible services for customers	4.27	0.79
8) Employees are well trained professionals	4.29	0.86
9) Employees are trustworthy	4.27	0.88
10) Employees are polite and friendly	4.37	0.83
11) Employees are tidy	4.30	0.84
12) Employees are honest	4.51	0.69
Average	4.29	0.89



Table 3 shows that all independent variables: Reliability, Price reasonableness, and Service quality affect express delivery service operation performance in Bangkok with average mean value of ($\bar{x} = 4.28$; $SD = 0.90$, $\bar{x} = 4.15$; $SD = 0.96$, $\bar{x} = 4.29$; $SD = 0.89$), respectively. The most customers strongly agree on Quick track shipment status of reliability ($\bar{x} = 4.54$; $SD = 0.77$), Price estimate of Price reasonableness ($\bar{x} = 4.32$; $SD = 0.86$), and Mobile application service of Service quality ($\bar{x} = 4.52$; $SD = 0.79$) have the most affect express delivery service operation performance in Bangkok with having the highest mean value. Followed by Notify shipment

delivery time of reliability ($\bar{x} = 4.53$; $SD = 0.65$), Variety of payment facilities of Price reasonableness ($\bar{x} = 4.29$; $SD = 1.02$), and Employees are honest of Service quality ($\bar{x} = 4.51$; $SD = 0.69$) that affect express delivery service operation performance in Bangkok. Furthermore, the average mean of all the 3 factors; Reliability, Price reasonableness, and Service quality of express delivery service operations in Bangkok as perceived by customers. The finding show the most customers strongly agree that Service quality has the most effect of all the 3 factors of express delivery service operation performance in Bangkok with a total mean score ($\bar{x} = 4.29$; $SD = 0.89$).

Dependent variable: Perceived operation performance

Table 4 Perceived operation performance of express delivery service in Bangkok

Dependent variable	Mean	SD
<i>Perceived Operation Performance</i>		
1) Express on-time delivery with door-to-door service	4.40	0.84
2) Quick track shipment status	4.41	0.78
3) Ability to quickly response when shipment have unexpected situation	4.26	0.86
4) Problem solving when shipment have unexpected situation	4.16	0.96
5) Inexpensive operating cost of shipments	4.25	0.90
6) Price list of service clearly	4.26	0.91
7) Flexible operating cost of shipment	4.16	0.91
8) Addition value of operating services with reasonable price	4.22	0.83
9) Accuracy of operating service	4.29	0.80
10) Quick response of operating service	4.32	0.79
11) Emergency handling capability	4.22	0.89
12) Develop diversification of services	4.28	0.84
Average	4.27	0.86



Table 4 shows that most customers strongly agree on Quick track shipment status of Perceived operation performance have the most affect express delivery service in Bangkok with having the highest mean value of ($\bar{x} = 4.41$; $SD = 0.78$). Followed by Express on-time delivery with door-to-door service ($\bar{x} =$

4.40; $SD = 0.84$) that affects express delivery service in Bangkok.

Regarding the two open-ended questions which was answered by all 400 participants, the researcher analyzed the collected data by content analysis and the descriptive statistic (Frequency) to find the percentage of the various responses as summarized in the table below;

Table 5 Possible Solutions to improve express delivery service operation performance in Bangkok

Possible Solutions	Frequency	Percentage (%)
Use high technology to improved and manage service operation	124	31.0
Provide quarterly training for employees / human development communication	112	28.0
Improve on policy impediment, operating asset and reduce the operating cost of express delivery service / insurance	100	25.0
Minimize external factor	2	0.5
No problem	62	15.5
Total	400	100.0

Table 5 shows that the most of participants (n = 124, 31%) perceived that the use of high technology to manage service operation and improved operation performance of express delivery service in Bangkok is an important solution. Moreover, (n = 112, 28%) participants also perceived that to improve operational performance of express delivery service in

Bangkok, quarterly training of employees on communication skills and human development are needed. Another 25% (n = 100) of participants perceived that improving on policies while avoiding policy impediments will reduce operating cost which may lead to reduction in service charges for customers.

Table 6 Extra opinion on factors affecting express delivery service operation performance in Bangkok

Extra opinion on factor	Frequency	Percentage (%)
External factor	100	25.0
Policy Impediment, deterioration of operating asset and operating cost	61	15.3
Communication between employee and customer	39	9.8
Employee negligence	152	38.0
No problem	48	12.0
Total	400	100.0



Table 6 shows that the participants perceived other external factors that affect operation performance of express delivery service in Bangkok. Most participants (n=152, 38%) perceived that the negligence of express delivery service employee has the most effect, followed by external factor such as weather, accident, covid-19, traffic, living restriction (n = 100, 25%).

Hypothesis testing result

This section provides the finding of research hypothesis, it explains the

relationship between independent variables (Reliability, Price reasonableness and Service quality) of express delivery service in Bangkok and dependent variable (Perceived operation performance) of express delivery service in Bangkok.

Regarding the data analysis from multiple regression of 400 participants by SPSS statistics, the finding of hypothesis testing for Perceived operation performance of Express delivery service in Bangkok are as shown in the table below;

Table 7 ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	179.310	3	59.770	557.340	0.000 ^b
Residual	42.468	396	0.107		
Total	221.778	399			

a. *Dependent Variable: OperationSum*

b. *Predictors: (Constant), QualitySum, PriceSum, ReliabilitySum*

Table 7 shows that ANOVA regression with Sig. = 0.000 which is < 0.05, means the overall regression is very significant. This also implies that all three independent variables (Reliability, Price

reasonableness, and Service quality) has positive effect on the dependent variable (Perceived operation performance) of express delivery service in Bangkok.

Table 8 Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta (β)		
(Constant)	0.001	0.108		0.010	0.992
Reliability Sum	0.213	0.044	0.200	4.891	0.000
Price Sum	0.239	0.037	0.251	6.420	0.000
Quality Sum	0.550	0.041	0.515	13.320	0.000

a. *Dependent Variable: OperationSum*



Table 8 shows independent variables as; Reliability, (Reliability Sum), Price reasonableness (Price Sum), Service quality (Quality Sum).

Reliability (x_1) Sig. P = 0.000
 $\beta = 0.200$

Price reasonableness (x_2) Sig. P = 0.000
 $\beta = 0.251$

Service quality (x_3) Sig. P = 0.000
 $\beta = 0.515$

According to the analysis of multiple regression by SPSS statistics, the equation of express delivery service in Bangkok is as follows;

$$Y = b_0 + b_1x_1 + b_2x_2 + b_3x_3$$

All the above independent variables (x_1 , x_2 and x_3) are statistically significant with a very high level of confidence greater than 99%. Additionally, Reliability, Price reasonableness, and

Service quality all factors have positive Beta (β) value, meaning that a positive change in the Y axis will lead to a positive change in the X axis. Also, the Beta (β) values of x_1 , x_2 and x_3 are very low, indicating that a change in the Y axis will lead to a minimal change in X axis. Service quality (x_3), with experience the greatest change of the three independent variables, since it has the highest Beta (β) value. Therefore, the equation of Operation performance of express delivery service is as follow;

$$\begin{aligned} &\text{Perceived operation performance} \\ &= 0.001 + \mathbf{0.515 \text{ Service quality}} + 0.251 \\ &\text{Price reasonableness} + 0.200 \text{ Reliability} \end{aligned}$$

This equation shows the Beta values of Service quality ($\beta = 0.515$) is highest value, it explain that Service quality has the most effect on operation performance of express delivery service in Bangkok.

Table 9 Summary of Hypothesis Testing

No.	Hypothesis	Sig < 0.05	Conclusion	Result
H1	Reliability has positively effect on express delivery service operation performance in Bangkok	0.000	Positive Effect	Correct
H2	Price reasonableness has positively effect on express delivery service operation performance in Bangkok	0.000	Positive Effect	Correct
H3	Service quality has positively effect on express delivery service operation performance in Bangkok	0.000	Positive Effect	Correct

The Sig value of H1, H2 and H3 with Sig = 0.000 which is < 0.05, implied that the overall regression is very significant, which means that all three independent variables (Reliability, Price

reasonableness, and Service quality) had positive effect on the dependent variable (Perceived operation performance) of express delivery service in Bangkok.



Conclusion

The purpose of this research aimed at investigating the factors that customers perceived as affecting express delivery service operation performance, and the factors that customers perceived as having the most effect on operation performance of express delivery services in Bangkok. The researcher also investigated customer's perceived solutions to improve operation performance of express delivery services, to improve the capabilities and competitive advantage of express delivery services in Bangkok. Additionally, the researcher also investigated the relationship between independent variables (Reliability, Price reasonableness and Service quality) of express delivery service in Bangkok and dependent variable (Perceived operation performance) of express delivery service in Bangkok. The express delivery service plays a very important role in facilitating the success of businesses, especially in sectors such as production and distribution, operations, inbound and outbound, logistic and storage, sales and marketing and customer support. In recent times, express delivery service has contributed to the growth of online shopping market, social commerce through social media, and has also served as a remedy to the COVID-19 pandemic situation. Although, express delivery service providers are enjoying a surge in their business due to the COVID-19 Pandemic, users are expecting a decrease in transportation costs, service costs, and improvement of operation performance. Thus, express delivery service providers need to focus more on investment such as automation, smart technologies, and workforce in the future. As we can see, the express delivery service industry has a lot

of potential to grow in the future, thus it is paramount to investigate possible obstacles to the service's operations and development.

The research methodology used for the study was the descriptive (survey) method. The instrument used in collecting data was a set of questionnaires containing close ended questions (Rating-scale) and semi structural questions (Open-ended questions) (Content analysis). The population of the study were the users of express delivery service in Bangkok. The sample technique used was purposive (non-random sampling method). A questionnaire was used to collect data from 400 respondents who are users of express delivery service in Bangkok. The questionnaire link and QR code was distributed via online means as a means to facilitate the collection process. Data collected from the respondents were analyzed by use of mean, standard deviation and frequency (descriptive statistics function of SPSS 23.0) and Pearson correlation statistics.

The results of the study aim to provide guidelines to manage and improve express delivery service operation performance and also provide solutions to customer complaints. Moreover, the results will lead to an increase in competitiveness and sustainability in the express delivery service business in Bangkok. Lastly, Small and Medium Enterprises (SMEs) will have greater opportunities to develop their business as a result of an improvement in operation performance of express delivery service in Bangkok.

The findings of the 4 research questions in the study are summarized as follows:



RQ1: Do reliability, price reasonableness and service quality affect express delivery service operation performance in Bangkok?

The results showed that most of the respondents strongly agreed on 7 items of reliability (Items: 1, 2, 3, 4, 5, 6, and 7 in table 3), with item 5 having the highest mean, it implies that most express delivery service users in Bangkok perceived quick tracking of shipped items status as vital for the smooth operations of express delivery service, followed by item 3, meaning that most of the respondents strongly agreed that Reliability affects express delivery service operation performance in Bangkok. The respondents also strongly agreed that Price reasonableness affects express delivery service operations in Bangkok with 3 items (Items: 1, 8 and 9 in table 3), with item 9 having the highest mean value, followed by item 8, the respondents proposed that express delivery service providers should make improvements on policy impediments in order to cut operating cost, which will lead to a reduction in service cost, The respondents also perceived that Service quality affects express delivery service operations in Bangkok, as they strongly agreed with 9 items of service quality (Items: 1, 4, 5, 7, 8, 9, 10, 11 and 12 in table 3) with item 1 having the highest mean value of ($\bar{x} = 4.52$; $SD = 0.79$), followed by item 12 ($\bar{x} = 4.51$; $SD = 0.69$). In summary, the customers perceived that, all three factors: Reliability, Price reasonableness, and Service quality affect express delivery service operation performance in Bangkok.

RQ 2: Which factors do customers perceive as having the most effect on

express delivery service operation performance in Bangkok?

The results from table 3 showed that most customers strongly agreed that Service quality has the most effect of all the 3 factors of express delivery service operation performance in Bangkok with a total mean score ($\bar{x} = 4.29$; $SD = 0.89$). Nowadays, customers are not only paying attention to price reasonableness, reliability of delivery time or shipment status but they are also looking for quality of service such as tele-technologies, diversity, flexible service, and competence of the employees to increase customer comfort and individualized treatment.

RQ 3: What do customers perceive as the most appropriate solutions on improving express delivery service operation performance in Bangkok?

The results from table 3 showed most of the customers ($n = 124$, 31%) perceived that the use of high technology to improved and manage service operation performance of express delivery service in Bangkok is an important solution on improving express delivery service operation performance in Bangkok. Another 28% of customer ($n = 112$) perceived that quarterly training of employees on communication skills and human development are needed. Another 25% of customer ($n = 100$) perceived that improving on policies while avoiding policy impediments will reduce operating cost which can lead to reduction in service charges of express delivery service for customers.

RQ4: Do reliability, price reasonableness and service quality have a positive significance with operation performance of express delivery services in Bangkok?



The result from the multiple regression analysis (Table 7 and 8) shows Sig value and Beta value of Reliability (Sig. P = 0.000; = 0.200), Price reasonableness (Sig. P = 0.000; = 0.251), and Service quality (Sig. P = 0.000; = 0.515) with Sig = 0.000 and Beta value have positive value. All mentioned above, implies that the overall regression is very significant, which means that all three variables; reliability, price reasonableness, and service quality had positive significance with operation performance of express delivery service in Bangkok.

Finally, all hypothesis H1, H2, and H3 with Sig = 0.000, which is < 0.05, implied that overall, hypothesis is correct, since Reliability, Price reasonableness, and Service quality all have positive effect on express delivery service operation performance in Bangkok. This implies also that a positive change in Reliability, Price reasonableness and Service quality will lead to a positive change in Perceived operation performance of express delivery service in Bangkok.

Recommendation

Since this study focused mostly on investigating customer's perception on three factors (Reliability, Price reasonableness and Service quality) affecting express delivery service operation in Bangkok, it is recommended that a further investigation be carried on extra factors perceived by customers as affecting express delivery service operation performance in Bangkok. This may produce results that are a much better representation of the accrued problems affecting the industry in Bangkok. Additionally, it is also recommended that a much wider number of participants should be used in another study, this may

produce a more accurate result regarding new solutions on how to improve operation performance of express delivery service in Bangkok.

Further studies should also be carried out in other major cities in Thailand, since the express delivery service sector is growing rapidly as a result of the covid-19 pandemic situation in the world as a whole. The results from such further studies may shed more light on extra factors affecting the industry which were not mentioned in this study. It may also be worthwhile considering another study in the future on the factors affecting express delivery service operations as perceived by express delivery service providers in Bangkok and, or in Thailand as a whole.

Implication

The following implications based on the findings of this study from descriptive and regression analysis were drawn:

1. Express delivery service providers should invest in mobile application services, so as to improve service quality and increase customer comfort and satisfaction. The mobile tech industry is growing in a fast paced manner, thus changing the behavior of users of express delivery service. Most business transactions nowadays are done on a mobile application platform. People find it more comfortable to sit within their comfort in carrying out business transactions by punching on their mobile devices. I hope the findings of my study, if implemented, may improve the capacity of express delivery service providers to reach out to more young users and also be able to keep valuable statistics on customers which may also help in



understanding customer behavior in the future.

2. Express delivery service providers need to make available deliveries service on weekends and holidays, to solve the lack of availability of their services on such occasions. Most users complained about the unavailability of service on weekends and holidays. This has led to the slow development of small business startups. The implementation of the findings of this study may help tackle the problem of lack of services on weekends and holidays which may increase the express delivery service providers' profit margin and also lead to a boost for small business startups.

3. Express delivery service providers should organize training programs quarterly to improve on employees' service skills, this will lead to a more efficient workforce that guarantees good service quality. A skilled workforce means a more sustainable and reliable business. Businesses today spend a lot more on looking for new avenues for more customers. On the contrary, keeping a loyal customer base is more cost effective than the latter. Implementing the findings of this study will lead to the retention of more customer and the creation of a loyal customer base which is going to be more cost effective for the express delivery service providers.

Limitations

As in most studies, this study is not exempted from certain limitations. These limitations which may seem negligible, impacted the findings of the study in some ways. The study was limited only within Bangkok, which is just one of the major cities in Thailand. The sample size of the study was also limited to 400 participants. The results may have been more significant with a larger number of participant.

Additionally, the researcher focused only on three factors (Reliability, Price reasonableness and Service quality) affecting express delivery service operation in Bangkok. Touching a wider range of factors may have influenced the outcome of the study. Furthermore, the researcher's focus was mainly study on users of express delivery service in Bangkok, but not on providers of express delivery service. It would have been good to also know what express delivery services providers perceive about their own services.

Lastly, the researcher had to deal with limited related studies on express delivery service operations performance. The few available studies on the topic were old and redundant.



References

- Anderson, J.C., Narus, J.A. (1998). Business marketing: understanding what customer value. *Harv. Bus. Rev.* 76 (6), 53-65.
- Banomyong, R. (2005), “The impact of port and trade security initiatives on maritime supply-chain management”, *Journal of Maritime Policy & Management* 32(1), 3-13.
- Brady, K. Michael and Cronin Joseph J. Jr. (2001). Some New Thoughts on Conceptualizing Perceived Service Quality: A Hierarchical Approach, *Journal of Marketing*, 65(July), 34-49.
- Colgate, M., & Hedge, R. (2001). An investigation into the switching process in retail banking services. *International Journal of Bank Marketing*, 19(5), 201-212.
- Churchill, G.A., Peter, J.P. (1998). *Marketing: Creating Value for Customer*, second ed. McGraw-Hill, New York.
- Day, G.D. (1990). *Market Driven Strategy*. Free Press, New York.
- Ding, J.F., Shyu, W.H., Yeh, C.T., Ting, P.H., Ting C.T., Lin, C.P., Chou, C.C., Wu, S.W. (2016). Assessing Customer Value for Express Service Providers: An Empirical Study from Shippers’ Perspective in Taiwan. *Journal of Air Transport Management* 55(1). 203-212.
- Dmitrieva, A. (2020). The 5 Sectors of the Economy, Bookkeeping 101, Retrieved from <https://business-accounting.net/the-5-sectors-of-the-economy>.
- Doney, P.M., Cannon, J.P., 1997. An examination of the trust in buyer-seller relationship. *J. Mark.* 61(2), 35-51.
- Gale, B.T. (1994). *Managing Customer Value: Creating Quality and Service that Customer Can See*. Free Press, New York.
- Gronroos, C. (2000), *Service Management and Marketing: A Customer Relationship Management Approach*, Wiley, Chichester.
- Gulc Aleksandra. (2017). Courier Service Quality from the Clients’ Perspective. *Engineering Management in Production and Services*, 9(1), 36-45.
- Hausmann, L., Herrmann, N., Krause, J., Netzer, T. (2014, March 1), Same-day delivery: The next evolutionary step in parcel logistics. *McKinsey & Company, Travel, Logistics & Infrastructure*. Retrieved from: <https://www.mckinsey.com/industries/travel-logistics-and-infrastructure/our-insights/same-day-delivery-the-next-evolutionary-step-in-parcel-logistics>.
- Imran, A., Safwan, N., & Rehman, K. (2010). Determinants of consumer retention in cellular industry. *Journal of Business Research*, 71, 515-522.



- Johansson, H.J., Mchugh, P., Pendlebury, A.J., Wheeler III, W.A., 1993. *Business Process Reengineering: Breakpoint Strategies for Market Dominance*. John Wiley & Sons, New York.
- Jerman. R. E., R. D. Anderson, and J. Constantin (1978). How Traffic Managers Select Carriers. *Distribution Worldwide Sept.* 21-24.
- Kaniganat, T., & Chaipoopirutana, S. A., 2014. Study of Factors Influencing Customers Satisfaction: An Implementation on Thai Postal Service, Bangkok Area. *International Conference on Business, Law and Corporate Social Responsibility (ICBLcustomer satisfaction R'14)* Oct 1-2, 2014 Phuket (Thailand). (online) Available at <<http://icehm.org/upload/7124ED1014049.pdf>> (Accessed 27 December 2017).
- Lee, B. C. Y. (2012). The determinants of consumer attitude toward service innovation the evidence of ETC system in Taiwan. *Journal of Services Marketing*, 26(1), 9-19.
- Leesa-Nguansuk, Suchit. (2017, Feb 16). Lalamove aims to break into Thai delivery market. *Bangkok Post*. Retrieved from <https://www.bangkokpost.com/business/news/1199381/lalamove-aims-to-break-into-thai-delivery-market>.
- Leesa-Nguansuk, Suchit. (2022, Aug 2). Last-mile delivery set to grow by up to 15%. *Bangkok Post*. Retrieved from <https://www.bangkokpost.com/business/2359019/last-mile-delivery-set-to-grow-by-up-to-15->.
- Lin Pei-Chun and Lee Chia-Hui (2009), "How Online Vendors Select Parcel Delivery Carriers." Parcel Delivery Carrier Selection. *Transportation Journal*, 20-31.
- MarketResearch.com (2020, Jan 8). Thailand Courier, Express, and Parcel (CEP) Market - Growth, Trends, and Forecasts (2020 - 2025). *Mordor Intelligence Inc.* Retrieved from <https://www.marketresearch.com/Mordor-Intelligence-LLP-v4018/Thailand-Courier-Express-Parcel-CEP-13704516>.
- Mattsson, S.-A. (2004), "Logistical implications of delivery lead time variability and flexibility", Proceedings of the NOFOMA Conference in Linköping, Linköping University, Linköping.
- Mitra, S. Pal P. Mukherjee A. Dutta S. (2010), Exploring Relationships between Key Success Factors and Performance Metrics for Indian Express Delivery Service Providers. Supply Chain Forum. *An International Journal*, 11(2), 72-84.
- Oxford Economic Forecasting. (2009). *The impact of the express delivery industry on the global economy*. Unpublished report, 1-46.
- Porter, M.E. (1980). *Competitive Strategy*. Free Press, New York.
- Sachamuneewongse, Siriporn. (2018, Dec 4). Best now delivers in Thailand. *Bangkok Post*. Retrieved from <https://www.bangkokpost.com/business/news/1587274/best-now-delivers-in-thailand>.



- Schmidt A. (2015, Jul 17). Types of Courier Services and Service Providers. *Market Realist*. Retrieved from <https://marketrealist.com/2015/07/types-courier-services-service-providers>.
- Shi, X. and Ziqi, L. (2015). “Inter-firm dependence, inter-firm trust, and operational performance: The mediating effect of e business integration”, *Information and Management*, 52, 943–950.
- Sun, Y.S. and Jin, N.C. (2012). “Effects of team knowledge management on the creativity and financial performance of organizational teams”, *Organizational Behavior and Human Decision Processes* 118, 4 -13.
- Voss. M. D. T. J. Page. S. B. Keller, and J. Ozment (2006). Determining Important Carrier Attributes: A Fresh Perspective Using the Theory of Reasoned Action. *Transportation Journal* 45(3), 7-19.
- Zeithaml, V.A. (1988). Consumer perceptions of price, quality, and value: A means-end model and synthesis of evidence. *Journal of Marketing*, 52(3), 2-22.

