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Key Success Factors Facilitating SME Ecommerce in Developing Countries: Evidence from Indonesia

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by

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ABSTRACTS

This research is mix method research (qualitative and quantitative) which have two main objectives observing the evidence from Indonesia. Firstly, to identify the key success factors facilitating SME ecommerce in developing countries especially in post-adoption stage of ecommerce practice. Secondly, to examine the relationship among the logistics capabilities (internal, external and country logistics capabilities) and the SME ecommerce transaction. Besides, the research also attempted to identify the major logistics problems faced by logistics sector and also to clarify the country logistics performance index, both investigations are related to the SME ecommerce practice.

The SLR has identified seven potential key success factors facilitating SME ecommerce in developing countries which has been categorized into three factors including internal, external and interconnected factors. Internal factors included human resources and marketing/marketplace decision. External factors comprised customer demand, law and regulation, and secure payment system. Meanwhile the interconnected factors involved information and communication technology (ICT) and logistics capabilities. Firming these findings, the interview study accomplished towards seven SMEs ecommerce in Indonesia which indicated the similar factors based on their experiences and practices. Moreover, the second phase of the research has administered the collection of questionnaires toward 372 respondents involving the industries, governments, academicians, logistics associations, logistics service providers (LSPs), and SMEs ecommerce. The weight analysis of the research has identified the five major problems of logistics sectors in Indonesia related to the SME ecommerce which included the problems of infrastructures, road traffic jam level, government law and regulations, human resources and also dwelling time in port. Besides, the research also observed the Indonesia Logistics Capability Index (ILCI) concerning the SME ecommerce practice which clarified the index slightly above the average level (score: 2.79 out of 5). Furthermore, the last phase of the research has accomplished through the operation exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and covariance-based structural equation modelling (CB-SEM). It has examined that internal logistics capabilities showed a respectable relationship to SME ecommerce transaction, while external logistics capabilities indicated a modest relationship to SME ecommerce transaction, yet it is still tolerable. In the other hand, even though the country logistics capabilities indicated a poor relationship to SME ecommerce transaction, but it has a very supported effect toward external logistics capabilities and external logistics capabilities.

The findings of the research effectively contribute to both theory and practice and the research propositions provide potential and applicable guidance for the stakeholders in academia, companies and government to facilitate SME ecommerce development in developing countries especially in Indonesia related to the entire logistics capabilities.

DEDICATION

Verily, all praises are due to Allah, to whom belongs whatever is in the heavens and whatever is in the earth, and to Him belongs all praise in the Hereafter. And He is the Wise, the Acquainted. (Quran; Saba; 1)

I bear witness that there is no God worthy of worship but Allah alone, without any partners or associations. And I bear witness that beloved Prophet Muhammad is His servant and His Messenger. May Allah send blessings and peace upon him, his family and companions and his loyal followers until the day of resurrection.

I thank Allah for everything in my life. Especially the great family that I have. I pray Allah to send blessings to them and greatly appreciate their entire prays, supports, patience and sacrifices during my study. In the name and for the sake of Allah, The Most Beneficent and The Most Merciful, I am dedicating this thesis:

To my beloved Mom and Dad,
Hj. Ardha Meidiana and H. Muhammad Syukron Addary

To my admired Mom and Dad in Law,
Hj. Zuarni Anwar and H. Asril Boer Rahimahullahu Ta'ala

To my dearest wife, Meilisa Asril Boer

To my brilliant daughter and sons,
Farras Az Zahra, Muhammad Fawwaz Alfauzan and Fahd Ibrahim Hijrah

To my dear sisters Fara Umainah and Rizki Oktia Putri and the entire families, brothers and sisters, and my companions, that I can't mention them one by one

Allahu yahfadzkum wa yubarik fiikum …
May Allah Subhanahu wa Ta'ala bless and grant you all success and paradise, aamiin.

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LIST OF ABBREVIATIONS

AGFI	Adjusted goodness-of-fit index
CB-SEM	Covariance-based structural equation modelling
CFA	Confirmatory Factor Analysis
CLC	Country Logistics Capability
df	Degree of freedom
Ecommerce	Electronic Commerce
EFA	Exploratory Factor Analysis
ELC	External Logistics Capability
GFI	Goodness-of-fit index
GOF	Goodness-of-Fit
H	Hypothesis
ICT	Information and Communications Technologies
ILC	Internal Logistics Capability
ILCI	Indonesia Logistics Capability Index
LISREL	Linear Structural Relationship Analysis
MI	Modification indices
ML	Maximum likelihood
N	Sample size
PCFI	Parsimony comparative fit index
PLS	Partial least square
PNFI	Parsimony normal fit index
SEM	Structural Equation Modelling
SME	Small Medium Enterprise
SRMR	Standardized Root Mean Square Residual
TLI	Tucker-Lewis index
VIF	Variance inflation factor

CHAPTER 1: INTRODUCTION

Emerging countries have the potential to attain fast and sustainable economic and social development by building the economy based on an ICT enabled and networked SMEs sector, capable of providing inexpensive and effective ICT resolutions (UNDP, 2018). It is recognised that ecommerce supports the development of SMEs' business in developing countries (UNCTAD, 2018a; b; 2019). Through the development of ICT and the change towards a knowledge-based economy, electronic transformation and the growth of ICT become a progressively significant instrument for SMEs to both strengthen business management and encourage the development of the domestic economy (UNDP, 2018). Ecommerce technologies enable enterprises to progress their business practices and communications, both within the organization and with external business associates (Chong & Pervan, 2009; Jan et al., 2019). Whilst the implementation of ICT and ecommerce in developing countries was lower than the expectations (UNCTAD, 2018a; b; 2019), since there was unique and significant deficiency in implementing ICT and e-commerce (Huang et al., 2020; Marshall et al., 2000), however, the rapid growth of technology recently has improved those conditions so that developing countries nowadays have a potential capability to achieve success in ecommerce implementation. Therefore, having the benefit of these growth conditions, it is fundamental for SMEs to embrace ecommerce technologies to achieve in strongly competitive domestic and international ecommerce markets. SMEs' growth plays a significant role in their contribution to the domestic economy, due to the wealth generated and number of individuals employed (Ng & Kee, 2017; Rashid, 2001).

Evidently, businesses in different countries face different challenges from those in advanced countries. For example, commerce in advanced countries has a comparatively

well-developed, accessible and affordable infrastructure, while in most of the developing countries; ecommerce implementation has various constraints such as quality, accessibility, and the cost of gaining such infrastructure. The poor quality of ICT dissemination in a country can also restrict the value of ecommerce consciousness, which is a considerable factor in the advanced countries. In addition to this, in most developing countries, internet practice and ecommerce application have yet to attain a critical mass for the network performance to motivate businesses to decide on ecommerce developments. The readiness of governments to control and regulate ecommerce is an important factor in developing the trust and reliability in ecommerce. In addition, the government should effectively support SMEs as small businesses, which enable the aggregate economy in developing countries. However, government support for SMEs' ecommerce encouragement has been a serious problem in developing countries, which influences the growth of SMEs' ecommerce. Moreover, the majority of businesses in developing countries are small businesses. Their limitation of difficulty can be the reason to facilitate ecommerce implementation to improve their business; however, this also indicates a lack of sufficient resources to invest in internal IT infrastructure and the risk cost of potential failure. Therefore, Human Resources (HR), technological aspects, and business resources need to be planned when taking decisions on ecommerce implementation. Running business electronically through ecommerce, applying non-cash payments, internet-based intra and inter business relationships, and everything which is significant in ecommerce, are not ordinary for enterprises in developing countries. Consequently, the success of SMEs' ecommerce also relies on transformation in product characteristics, organizational structure, and business culture within the enterprises to improve such ecommerce application.

1.1. Research Background

Indonesia, the fourth most populous country in the world, is emerging as an economic powerhouse in Asia Pacific. The prediction is that its consumer will rise to 135 million by 2030, making it the third largest consumer base in the world and the seventh largest economy. On top of a budding economy, a variety of push factors such as growing internet penetration, rapid mobile device adoption, increased social media usage and greater spending power by the middle class make Indonesia's ecommerce sector ripe for expansion. The majority of the population is very young; nearly 60% are below 30 years of age, with this age group expected to expand by 2.9 million users a year. Indonesia's membership of the ASEAN Economic Community (AEC), which was established in January 2016, has had a significant impact on development, as this community is implementing stronger integrated collaboration and cooperation (as shown in Table 1) amongst the ten countries that are also members of the Association of Southeast Asian Nations (ASEAN).

Table 1: Four Pillars of the ASEAN Economic Community (AEC)

Four Pillars
(i) a single market and production base
(ii) a competitive economic region
(iii) equitable economic development
(iv) integration with the global economy

(Source: Kanithasen et al., 2011)

Based on AEC's blueprint, it will implement a single market and production among its member nations, permitting the unrestricted flow of goods, services, investment, industries, and skilled labour, as well as the flourishing of capital (Kanithasen et al., 2011; Soesastro, 2007). For this reason, Indonesia is now improving the development of many sectors, such as infrastructure, human resources, regulation, and also logistics performances due to the improvement of global competitiveness (as shown in Table 2) which is ranked in 34th place (Arvis et al., 2014; Schwab & Sala-i-Martín, 2015).

Table 2: Global Competitiveness Index 2014-2015

Country	Ranking
Switzerland	1
Singapore	2
United States	3
Finland	4
Germany	5
Taiwan	14
Malaysia	20
Thailand	31
Indonesia	**34**
Philippines	52
Vietnam	68
Cambodia	95

(Source: Schwab and Sala-i-Martín, 2015)

In fact, logistics performance in term of capability is clearly able to have an impact on the economic dimension of a country. A great logistics performance will enable the influence, increase the operational efficiency, improve access to global linkage and develop trade volume. This is a prominent reason why, (as shown in Table 3) Indonesia is now included as one of the top 10 lower middle-income performers on the World Bank's LPI in the 2014 (Arvis et al., 2014; Sumantri & Lau, 2011).

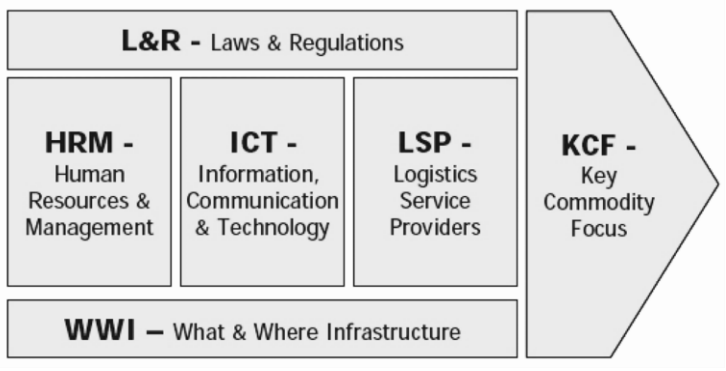
Table 3: The Top 10 lower middle-income performers of World Bank's Logistics Performance Index (LPI) in the 2014

	2014 LPI			2012 LPI			2010 LPI		
Economy	Rank	Score	% of highest performer	Rank	Score	% of highest performer	Rank	Score	% of highest performer
Vietnam	48	3.15	69.0	53	3.00	64.1	53	2.96	63.1
Indonesia	53	3.08	66.7	59	2.94	62.2	75	2.76	56.5
India	54	3.08	66.6	46	3.08	66.4	47	3.12	67.9
Philippines	57	3.00	64.2	52	3.02	64.8	44	3.14	68.8
Ukraine	61	2.98	63.3	66	2.85	59.3	102	2.57	50.6
Egypt, Arab Rep.	62	2.97	63.0	57	2.98	63.3	92	2.61	51.8
El Salvador	64	2.96	62.8	93	2.60	51.2	86	2.67	53.7
Pakistan	72	2.83	58.5	71	2.83	58.4	110	2.53	49.1
Nigeria	75	2.81	57.9	121	2.45	46.3	100	2.59	51.0
Guatemala	77	2.80	57.6	74	2.80	57.7	90	2.63	52.4

(Source: Arvis et al., 2014)

In addition to this, Indonesia's national logistics development had acknowledged six major drivers of logistics performance in its blueprint. These drivers are utilised as part of the human resource management (HRM), as they help implement the law and regulate, infrastructure, information and communication technology, as well as key commodities for export and domestic markets, logistics service providers, as shown in Figure 1 (Indonesian Cabinet Secretariat, 2012).

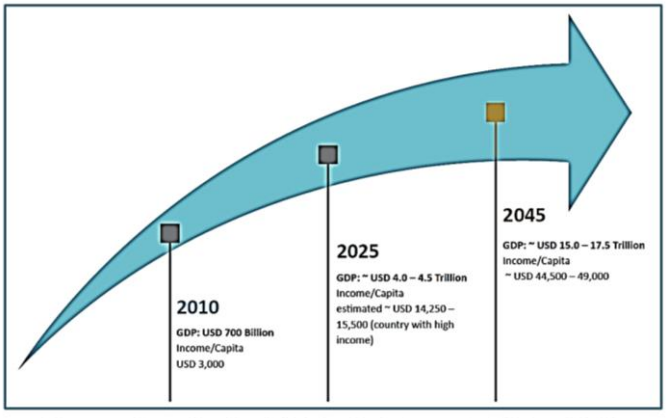
Figure 1: The Six Major National Logistics Drivers in Indonesia



(Source: Secretariat, 2012)

Moreover, according to the Masterplan for Acceleration and Expansion of Indonesia's Economic Development (MP3EI), Indonesia aims to earn its place as one of the world's most economically developed countries (medc) by 2025. It is expected that per capita income will reach USD 14,250-USD 15,500 with total Gross GDP of USD 4.0-4.5 trillion as shown in Figure 2 (Coordinating Ministry For Economic Affairs, 2011).

Figure 2: Roadmap Plan of Indonesia's Gross Domestic Product (GDP)

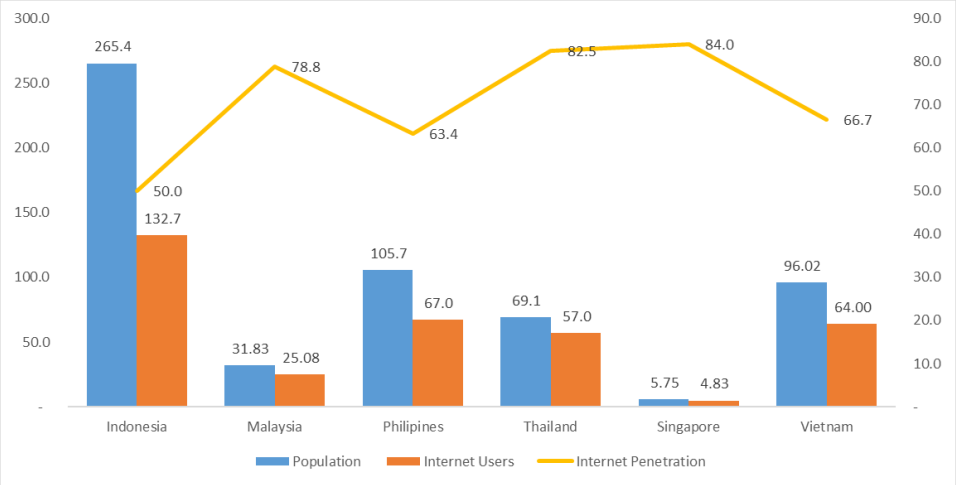


(Source: Coordinating Ministry for Economic Affairs, 2011)

1.1.1 Profile of Internet Users in Indonesia

Among the ASEAN countries, Indonesia has the largest number of internet users at 132.7 million (Figure 3). Moreover, according to data resumed by We Are Social_Hootsuite, the estimated growth of internet users in 2016 reached 39.8% of internet penetration, which was nearly 5% progress from the previous year (Figure 4).

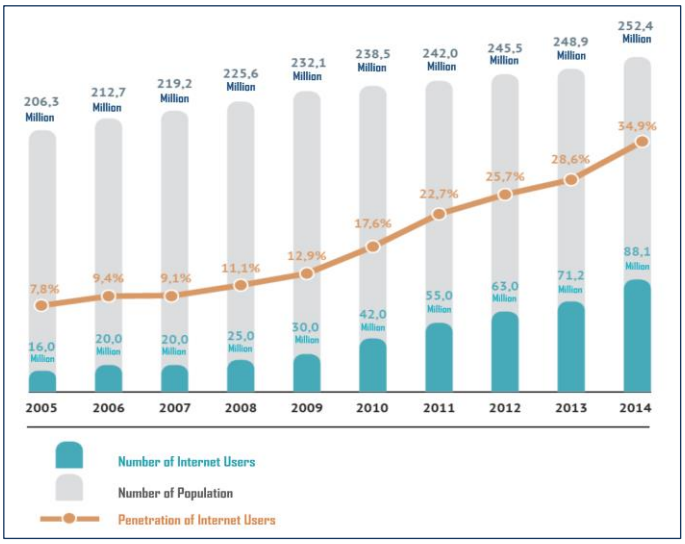
Figure 3: Internet Users across Southeast Asia (Jan 2018)



(Source: We Are Social_Hootsuite, 2018)

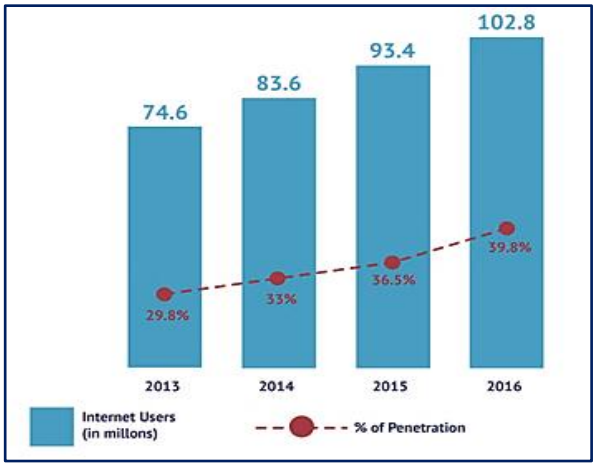
In the last ten years, Indonesia's ecommerce space has shown high growth potential. This has been driven by several market circumstances such as the increase in internet and mobile penetration (Figure 4) and a growing consumer base and spending. Additional market conditions which influence the growth of ecommerce in Indonesia also include a rapid development in both direct selling websites and marketplaces as well as continuous activity in the social media space. Furthermore, it has been declared by the government that Indonesia has 132.7 million internet users and 71 million smartphone users in 2016 (Coordinating Ministry For Economic Affairs, 2016).

Figure 4: Penetration of Indonesia's Internet Users in Period of 2005-2014



(Source: Compiled by Author from https://apjii.or.id, 2017)

Figure 5: Growth in Indonesia's Internet Users



(Source: Singapore Post, 2014)

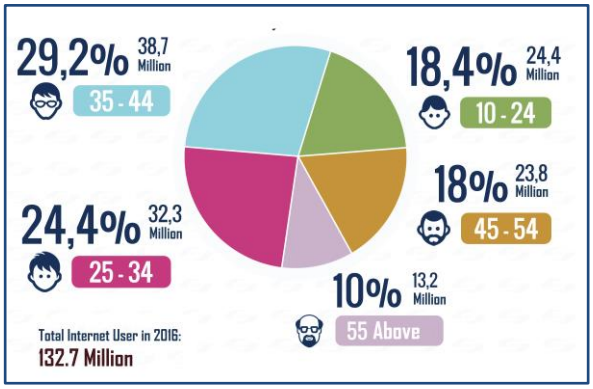
In addition to this, in 2013, *the Singapore Post* considered that there were 4.6 million Indonesians shopping online from 74.6 million internet users (Figure 5) and it was expected that the proportion would keep on increasing to 8.7 million online shoppers by 2016 (Figure 6).

Figure 6: Estimation of Growth of Online Shoppers in Indonesia

(Source: Singapore Post, 2014)

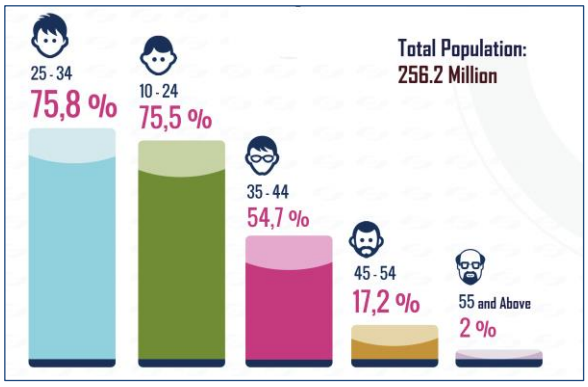
According to other data surveyed by the Indonesia Internet Service Enterprises Association (APJII), it is recognisable from Figure 7 that Indonesia had 132.7 million internet users in 2016. The largest concentration of users, 29.2%, were in the age group of 35-44 years and followed by the age group 25-34 years at 24.4%. Moreover, the rest of the users were teenagers and the elderly, who composed 10-18% of the total internet users. Meanwhile, 75% of the penetration of the internet users (based on age in 2016) was achieved by the age group range of 25 to 34 and 10 to 24 years. Additionally, the age range of 35 to 44 years attained more than 50% penetration (Figure 8).

Figure 7: Composition of Indonesia's Internet Users by Age in 2016



(Source : https://apjii.or.id, 2017)

Figure 8: Penetration of Indonesia's Internet Users by Age in 2016



(Source : https://apjii.or.id, 2017)

Furthermore, the major objective of these opportunities was to encourage the establishment of a thousand *technopreneurs* to increase the transaction volume of ecommerce in 2016 at USD 4.49 billion (Table 4).

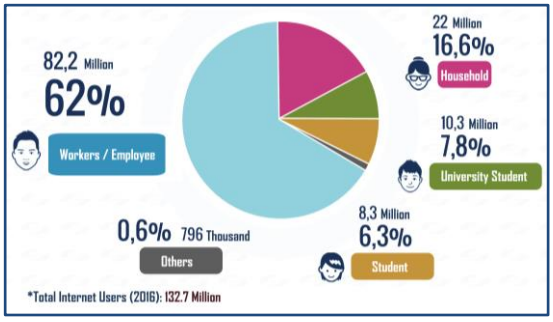
Table 4: Online Sales Vs Retail Sales in Indonesia

Year	Online Sales Estimate (USD)	Retail Sales Estimate (USD)	Online Sales As a Percentage of Retail Sales
2013	$1.8 billion	$363.42 billion	0.5%
2014	$2.6 billion	$411.29 billion	0.6%
2015	$3.56 billion	$473.91 billion	0.7%
2016	$4.49 billion	$543.07 billion	0.8%

(Source: Singapore Post, 2014)

Moreover, the majority of Indonesia's internet users in 2016 based on type of work were employees or workers, who accounted for 62% of the total of internet users. The second largest composition was household users at 16.6%, equal to 22 million users (Figure 9).

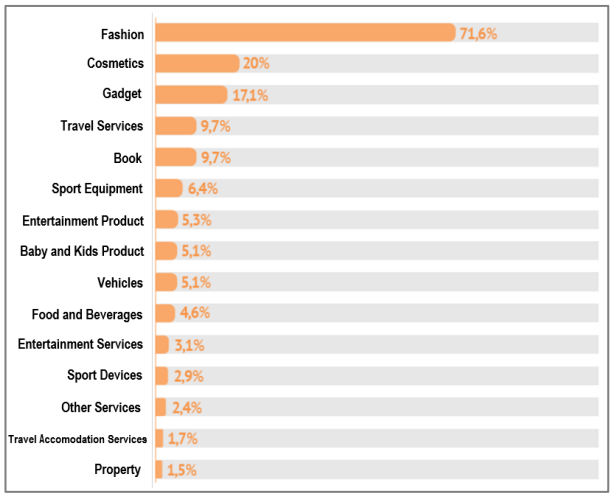
Figure 9: Composition of Indonesia's Internet Users by Type of Work in 2016



(Source : https://apjii.or.id, 2017)

This large number of internet users in Indonesia illustrates the size of the potential market of internet commerce. Moreover, looking at the percentage of product purchased online in 2014 shows a potential of ecommerce market (Figure 10). This would be a prospective number to increase the transactions of Small Medium Enterprises (SMEs) in the ecommerce market place.

Figure 10: Online Product Purchasing in Indonesia (2014)



(Source: Compiled by Author from kompas.com, 2018)

However, similar to most emerging markets, Indonesia faces challenges with respect to adoption and implementation of new technologies, infrastructure developments and congestion, due to rapid urbanization. The Indonesian consumer is also becoming more sensitive, looking for convenient ways to shop and engage with brands in the online

space. Therefore, in order to expand ecommerce transactions, the Indonesian government launched the roadmap of Indonesian E-commerce Strategic Planning in November 2016. The design of this Roadmap was intended to be in line with the acceleration of the improvement of country's logistics capabilities in order to increase the national economic growth. There is some global research exploring the trend of ecommerce and its influencing factors (Einav et al., 2014; Varshney & Vetter, 2002). In global research in this area, it is clearly proved that logistics is a significant factor to support the ecommerce transactions (Żurek, 2015). However, there is limited and little research on the case of ASEAN countries, especially Indonesia, since it has a different geographical condition.

In recent years, some researchers and practitioners have paid attention to the topic of Indonesia ecommerce in a single aspect such as technology, electronic transaction, and security (Triandini et al., 2015). Moreover, several researchers have discussed the ecommerce adoption of SMEs in Indonesia (Kartiwi, 2006; Kurnia, 2006; Rahayu & Day, 2013; 2017). However, those researchers simply considered some general factors and did not specifically discuss how ecommerce logistics as a critical factor would be applicable to encourage SMEs ecommerce transaction. In fact, there are limited investigations of the ecommerce logistics framework of Indonesia as part of a development strategy that is significant to increase the ecommerce transactions of SMEs and creative industries (Kurnia, 2006; Triandini et al., 2015). Consequently, the importance of the logistics sector has risen due to the implementation of the MP3EI and Economic Policy, since the Ecommerce Roadmap has encouraged Indonesia to improve ecommerce logistics capability in order to enhance its economic performance and competitiveness among countries (Sandee et al., 2014). Hence, this research attempts to discover the key success factors for supporting SMEs' ecommerce, especially related to

ecommerce logistics strategy. This is to encourage the SMEs' ecommerce transactions in Indonesia through the improvement of the country's logistics capability, due to its positive impact on domestic economic performance.

1.1.2. Profile of SMEs in Indonesia

SMEs perform an essential role in ASEAN economic combination. It is identifiable in Table 5 that between 89 to 99 percent of the businesses in ASEAN Member States (AMSs) are SMEs. Collectively, they generate between 52 to 97 percent of employment and contribute between 23 to 58 percent to the GDP, and 10 to 30 percent in total exports (ERIA, 2014).

Table 5: Comparison of SMEs Economy in ASEAN Countries

Country	Share of Total Establishments		Share of Total Employment		Share of GDP		Share of Total Exports	
	Share	Year	Share	Year	Share	Year	Share	Year
Brunei Darussalam	98.2%	2010	58.0%	2008	23.0%	2008	-	-
Cambodia	99.8%	2011	72.9%	2011	-	-	-	-
Indonesia	99.9%	2011	97.2%	2011	58.0%	2011	16.4%	2011
Lao PDR	99.9%*	2006	81.4%	2006	-	-	-	-
Malaysia	97.3%	2011	57.4%	2012	32.7%	2012	19.0%	2010
Myanmar	88.8%**	-	-	-	-	-	-	-
Philippines	99.6%	2011	61.0%	2011	36.0%	2006	10.0%	2010
Singapore	99.4%	2012	68.0%	2012	45%	2012	-	-
Thailand	99.8%	2012	76.7%	2011	37.0%	2011	29.9%	2011
Viet Nam	97.5%	2011	51.7%	2011	-	-	-	-

(Source: ERIA, 2014)

Indonesia, as the largest economy among the AMSs achieved significant contribution in aggregate. This achievement has positioned Indonesia to consider SMEs development especially the issues of ecommerce adoption to improve ecommerce transactions of SMEs as a critical factor of state economic development. However, there are various classification of SMEs in numerous developing countries, especially amongst the AMSs as shown in Table 6 (ASEAN, 2015).

Table 6: Definition of MSMEs in ASEAN Member Countries

	Brunei Darussalam	Cambodia	Indonesia	Lao PDR	Malaysia		Philippines	Singapore
					Manufacturing	Services and Others		
Micro enterprises								
No. of workers (up to)	< 4	< 10	n/a	n/a	< 5	< 5	n/a	n/a
Other criteria (up to)	Sales Varying by sector	Asset (USD) < 50	Asset (IDR) < 50 million Sales (IDR) < 300 million	n/a	Sales (RM) < 300,000	Sales (RM) < 300,000	Asset (PHP) < 3 million	n/a
Small enterprises								
No. of workers (up to)	< 19	< 50	n/a	< 19	< 75	< 30	n/a	n/a
Other criteria (up to)	Sales Varying by sector	Asset (USD) < 250,000	Asset (IDR) < 500 million Sales (IDR) < 2,500 million	Asset (LAK) < 250 million Sales (LAK) < 400 million	Sales (RM) < 15 million	Sales (RM) < 3 million	Asset (PHP) < 15 million	n/a
Medium enterprises								
No. of workers (up to)	< 99	< 100	n/a	< 99	< 200	< 75	n/a	n/a
Other criteria (up to)	Sales Varying by sector	Asset (USD) < 500,000	Asset (IDR) < 10,000 million Sales (IDR) < 50,000 million	Asset (LAK) < 2,000 million Sales (LAK) < 1,000 million	Sales (RM) < 50 million	Sales (RM) < 20 million	Asset (PHP) < 100 million	n/a

(Sources: ASEAN, 2015)

Moreover, Indonesia implements several definitions of SMEs (Hayashi, 2003; Rosavina et al., 2019). Practically, three institutions have classified SMEs according to their internal policy and regulation. Those institutions are the Ministry of Cooperatives and SMEs (MOCSME), the Ministry of Industry and Trade (MOIT), and the Bank of Indonesia (BI) and BPS (The Central Bureau of Statistics). BPS classifies firms with 5 or fewer workers, 5 to 20 workers, or 20 to 99 workers respectively as house industry, small and medium enterprises. In contrast, the MOIT categorises business SMEs essentially based on the volume of their assets, excluding land and buildings. Businesses with assets of less than 200 million rupiah are small enterprises and companies that own assets of 200 million rupiah to 5 billion rupiah are small and medium enterprises.

Correspondingly, the Indonesian Small Business Law of 1995, which was designed to encourage SMEs with the purpose of stimulating a balanced and equitable society, summarizes small enterprises as businesses with assets (excluding land and buildings) of less than 200 million rupiah or annual sales of less than 1 billion rupiah. The BI and

the MOCSME have adopted this particular classification in their internal regulation. However, the President of the Republic of Indonesia has regulated this term in the last instruction No. 20 in 2008 as the official reference of all government authorities and the central bank. Accordingly, the definition of SMEs in Indonesia acknowledged in particular classifications and conditions is as following (Note: 1US$ equal to IDR13, 520 based on the latest currency, 18th October 2017):

1. A micro enterprise is a traditional industry based on private management. The expected net asset of micro enterprises is a maximum of 50 million rupiah (approximately US$3,700) not including land or buildings and the yearly transactions would be no more than 300 million rupiah (approximately US$22,000).
2. A small enterprise is a corporate entity and under private management. Moreover, it should be independent and not a subsidiary or branch office of a medium or large enterprise. Small enterprises should have assets of at least 50 million rupiah (approximately US$3,700) but no more than 500 million rupiah (approximately US$37,000) excluding land or buildings. Their annual sales are categorised as between 300 million and 2.5 billion rupiah (approximately US$22,000 to US$185,000).
3. Medium enterprises are like small enterprises but have net assets of between 500 million and 10 billion rupiah (approximately US$37,000 to US$740,000) excluding land or buildings. They annual sales of between 2.5 billion and 50 billion rupiah (approximately US$185,000 to US$3,7m).

To have a reasonable clarification of the research scope, the discussion in this research defines the term SMEs in Indonesia as small and medium enterprises including the micro enterprises. This is in order to have collective encouragement of SMEs

development in Indonesia. In fact, SMEs in Indonesia perform a significant role in the state economy through the encouragement of quantitative and qualitative concerns. For instance, Indonesia's SMEs have stimulated various areas such as entrepreneurship, innovation, employment, economic development, and economic growth. Further, GDP would be the critical parameter of economic growth in general (Iqbal & Rahman, 2015). It is observable in Table 7 that Indonesia's SMEs have a vital role, in quantitative terms, in Indonesian economic growth, GDP, and Indonesia's SMEs development. Correspondingly, the existence of micro, small, and medium enterprises (MSMEs) in the domestic economy of Indonesia has been growing annually. The MSMEs business has been increasing at more than 2% yearly (Asian Development Bank, 2014). Moreover, at the end of 2013, there were 57.895 million MSMEs established in Indonesia (Table 7).

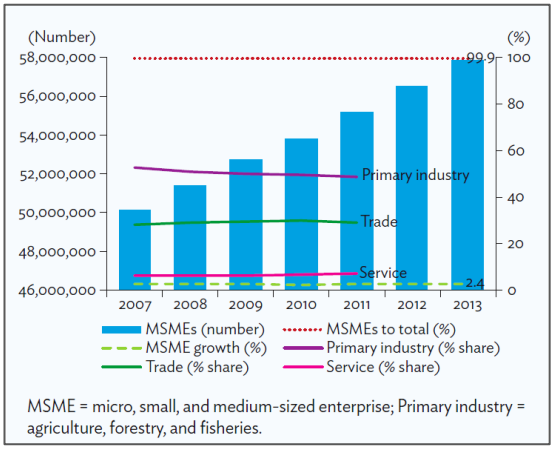
Table 7: Summary of Indonesia's SMEs in 2013

Category	***Enterprises***		***Employee***		***GDP Contribution***		***Export Volume***		***Investment***	
	Unit	*%*	*Number*	*%*	*(Rp Billion)*	*%*	*(Rp Billion)*	*%*	*(Rp Billion)*	*%*
Micro	57,189,393	98.77	104,624,466	88.90	3,326,564.80	36.90	15,989.5	1.38	185,717.2	7.12
Small	654,222	1.13	5,570,231	4.73	876,385.30	9.72	32,051.8	2.76	620,216.0	23.77
Medium	52,106	0.09	3,949,385	3.36	1,511,623.90	13.72	134,071.4	11.54	849,300.3	32.54
SME	**57,895,721**	**99.99**	**114,144,082**	**96.99**	**5,714,574.00**	**60.34**	**182,113**	**15.68**	**1,655,234**	**63.43**
Large	5,066	0.01	3,537,162	3.01	3,574,943.30	39.66	979,214.8	84.32	954,545.2	36.58
Total	57,900,787	100	117,681,244	100	9,289,517.30	100	1,161,328	100	2,609,779	100

(Source: Compiled from www.depkop.go.id, 2017)

It is similarly observable from Figure 11 and Table 7 that the share of SMEs among total enterprises was 99.9%, with a 2.4% annual growth in number. Unfortunately, since 2011, the Indonesian government has not accumulated data of SMEs by sector. However, according to the data in 2011, SMEs primary sector (agriculture, forestry, and fisheries) accounted for 48.85% of MSMEs (Figure 11 and Table 8).

Figure 11: Growth in Number of Indonesia's SMEs



(Source: Compiled by Author from www.depkop.go.id, 2017)

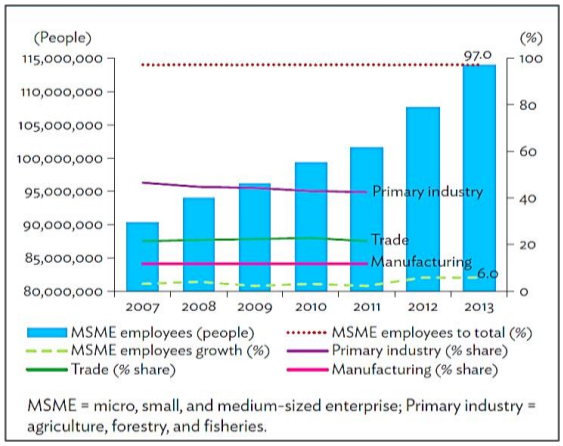
Table 8: Structure of SMEs in Indonesia, by Economic Sector (2010/2011)

Economic Sector	*Unit*			*Growth*	
	2010	*2011*	*%*	*Amount*	*%*
Agriculture	26,685,710	26,967,963	48.85	282,253	1.06
Mining	276,861	294,448	0.53	17,587	6.35
Manufacture	3,423,078	3,538,070	6.41	114,992	3.36
Electricity, gas & water supply	12,852	13,903	0.03	1,051	8.18
Construction	570,640	869,080	1.57	298,440	52.30
Trade, hotel & restaurant	15,910,964	15,918,251	28.83	7,287	0.05
Transport & communication	3,487,691	3,799,460	6.88	311,769	8.94
Finance, rent & service	1,115,742	1,308,035	2.37	192,293	17.23
Private Services	2,340,194	2,497,235	4.52	157,041	6.71
Total	*53,823,732*	*55,206,445*	*100*	*1,382,713*	*2.57*

(Source: Compiled by Author from www.depkop.go.id, 2017)

Subsequently, the trade sector followed at 28.8% as a collective segment of the wholesale, retail trade, and the hotel and restaurant sector. The configuration of the SMEs sector in Indonesia has not reformed extensively. The MSME sector encompassed 114.1 million employees or equal to 97% of the total labour force in the country, by means of 6% yearly growth, in 2013 (Figure 12). According to MSME employment figure in 2011, 42.4% were occupied in major industry whereas 21.7% were employed in the trade sector, 11.7% were engaged in manufacturing, and 10.5% worked in the area of services.

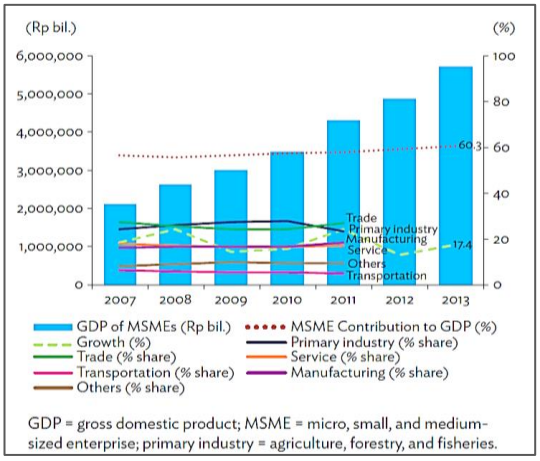
Figure 12: Growth in Employment of Indonesia's SMEs



(Source: Compiled from www.depkop.go.id, 2017)

During 2013, MSMEs evidently achieved a GDP of 5,715 trillion rupiah based on applied price, equal to 60.3% of GDP, with 17.4% yearly growth (Figure 13). Predominantly, the SMEs in Indonesia are conventionally domestic businesses, which in several areas of activity, for instance handicrafts and wooden furniture production have developed their commercial models toward international markets.

Figure 13: Growth in GDP Contribution of Indonesia's SMEs

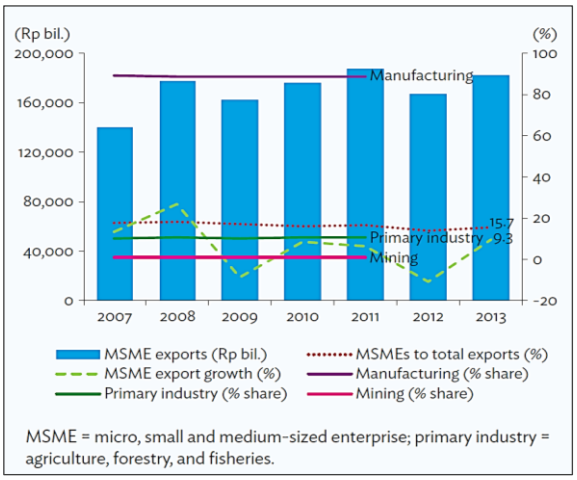


(Source: Compiled from www.depkop.go.id, 2017)

Furthermore, Indonesian SMEs achieved 15.7% of total export value or equal to 182 trillion rupiah, with annual growth at 9.3% in 2013 (Figure 14). However, the SMEs export productiveness is dynamic and unpredictable, being influenced by international

markets and demands. Therefore, SME's exports had sharply negative growth in 2009 and 2012 at 8.9% and 11.1%, as a result the global financial crisis and the inactive retrieval of demand from commerce partners such as Europe, Japan, China, and some other countries.

Figure 14: Growth in Export Volume of Indonesia's SMEs



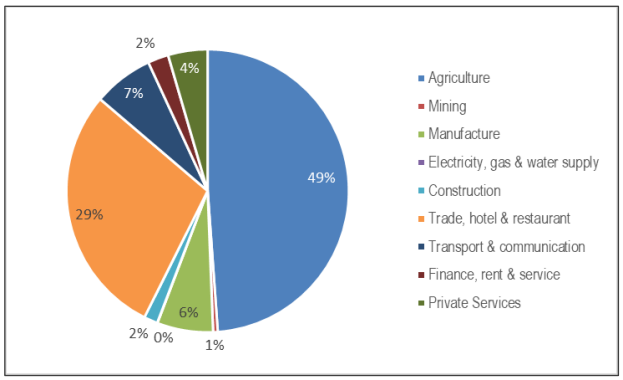
(Source: Compiled from www.depkop.go.id, 2017)

Productively, SMEs in Indonesia have a significant role in encouraging the domestic economy of the country. It is observable that the comprehensive performance of unit numbers, employment GDP contribution, export volume and investment show a positive attainment of SMEs in 2013. This performance has effectively contributed to develop the economy of Indonesia to be the largest in ASEAN, and the predicted rise in its consumer base to 135 million by 2030 would improve Indonesia as the seventh largest world economy.

Moreover, in the last ten years, agriculture is the largest sector in terms of unit quantity of Indonesia SMEs followed by the sector of trade, hotels and restaurants. Further, the sector of transport and communication shows a similar positive percentage of growth with the sector of manufacturing in the period of 2010 and 2011. In addition to this, it is

observable from Figure 15 that the sector of agriculture accounts for 49% of the total 55.2 million SMEs in 2011, followed by trade, hotels and restaurants at with almost 29% percent of SMEs, which number 15.9 million units in this sector alone.

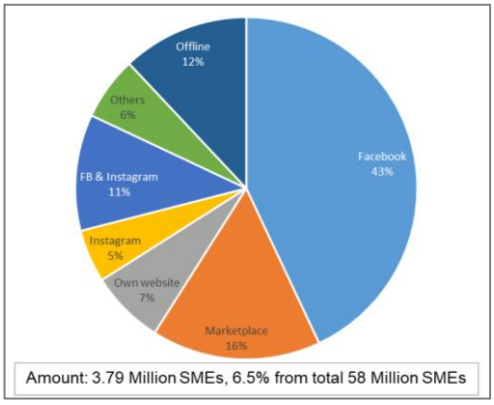
Figure 15: Percentage of Indonesia's SMEs by Economic Sectors



(Source: Compiled by Author from www.depkop.go.id, 2017)

Furthermore, it is identifiable in Figure 16 that the number of Indonesian SMEs implementing ecommerce for their business transaction shows a few percentages at 6.5%, which is 3.79 million from the total 58 million SMEs. It seems like big number of units who has implemented the ecommerce in their business. However, this number will be not great enough since the total of SMEs in Indonesia is 58 million SMEs. This figure indicates a potential number of SMEs in Indonesia that should be encouraged more to implement ecommerce for their business transaction.

Figure 16: Percentage of SMEs in Indonesia Implementing ecommerce (2017)



(Source: Compiled by Author from kompas.com, 2018)

1.2. Research Problems

There is a high growth potential in the Indonesian ecommerce market, as indicated by the increase in internet and mobile penetration, a growing consumer base and greater spending, rapid developments in both direct selling websites and marketplaces, as well as continuous activity in the social space. Indonesia's online ecosystem also requires increasing investments in infrastructure and logistics to keep up with these growing demands and faces challenges in consumer behaviour, given the local market's hesitation to use online payments. For any business, SMEs and creative industries looking to venture into Indonesia's ecommerce landscape, it is vital that they consider localization and offering multiple payment and delivery options so as to reap the benefits of this rapidly growing Asian economic powerhouse. To support the domestic ecommerce growth, the government has launched a national roadmap plan in November 2016, containing eight aspects whereby the government has planned to stimulate the growth of SMEs; (1) Funding; (2) Taxation; (3) Consumer Protection; (4) Education and Human Resources; **(5) Logistics;** (6) Communication Infrastructure; (7) Cyber Security; (8) Formation of Executive Management. (Coordinating Ministry for Economic Affairs, 2016)

Due to ecommerce logistics planning, the government has determined to improve several main influencing factors. The first factor is the national logistics system, which focuses on speed and low cost. The second is the empowerment of Pos Indonesia Ltd. as a State-Owned Enterprise (SOE) specialised on postal and logistics support that need to be improved, revitalised and digitalised. Thirdly, the development of ecommerce logistics outsourcing. Afterward, designing the ecommerce network from rural to urban areas to support the growth of SMEs and creative industries as the focus of ecommerce (Coordinating Ministry For Economic Affairs, 2016). Therefore, it is vital to identify

key success factors supporting and facilitating the transaction performance of SMEs' ecommerce. This study especially will explore the effective ecommerce logistics, which can comprehensively reassure the development of SME's ecommerce. Domestic researchers have completed some research on issues related to the ecommerce application such as marketing, technology, finance, and security. However, there is a lack of research focused on logistics concerns due to its national practical strategies. This study seeks to fill the gaps by identifying key success factors assisting the business development of SME's ecommerce, particularly through the national ecommerce logistics approaches, due to Indonesia's expansion of ecommerce prospects in order ultimately to improve the country's logistics capability and economic performance as the final impacts. In collaboration with all stakeholders (government, association, service providers, Pos Indonesia Ltd., and SMEs), this research will encompass the logistic strategies including all operations from downstream to upstream, such as transportation, distribution, delivery, warehouse, inventory, customs, in dealing with the entire domestic area or provinces and also all stakeholders related to SMEs ecommerce practices. Moreover, this research correspondingly will be fundamental to the requirements of SMEs ecommerce practical operations given the geographic archipelagic character of Indonesia as a maritime country. Therefore, it possibly has different approaches in comparison with SMEs ecommerce adoption in other countries, in which land is the largest zone.

1.3. Research Objectives

In general, this research aims to investigate the key success factors supporting and facilitating SME ecommerce through effective adoption of improved ecommerce logistics strategies due to business improvement of SME ecommerce in Indonesia. The

aim of so doing is to improve the country's logistics capability and economic performance in further. Moreover, the research objectives are as follow:

1. Identify and understand the key success factors of SME ecommerce in developing countries especially Indonesia supporting a better achievement in transactions volume
2. Investigate the recent major problems faced by the national logistics system in Indonesia related to the SME ecommerce practice and classify the current level of country logistics capabilities in Indonesia related to SME ecommerce practice in the country
3. Examine the relationship between logistics capabilities (including all types of logistics capabilities) and SME ecommerce performance specifically in transaction volume
4. Suggest potential information of the research result as guidance on practice for government and stakeholders for SME ecommerce development in Indonesia related to its logistics and supply chain operations.

1.4. The Research Scope

Initially, the research undertaking is to identify the current logistics capabilities and deficiencies in Indonesia as well as to recognise the key problems faced by national logistics system. Correspondingly, the research should also focus on identifying the major factors facilitating SME's ecommerce development in Indonesia and appreciate the key factors of effective ecommerce logistics strategies. Essentially, the research will explore the key success factors concerning its facilitations of SMEs' ecommerce development. Moreover, the research will attempt to identify the key factors of ecommerce logistics strategies and recognise their impacts on the performance of SMEs' ecommerce transactions. The adoption of effective national ecommerce logistics

strategies supporting SME's ecommerce will be a specific issue of the research. Furthermore, there are some drivers of factors as potential opportunities within the research that will be explored. Those potential factors might support several areas such as information, communication and technology, logistics operation, law and regulation, the capability of employee, payment system, the ecommerce marketplace and marketing support. However, there are various challenges associated with every single potential factor in the research, due to the conditions and circumstances of developing countries especially in Indonesia. In general, developing countries are not as advanced as developed countries in terms of infrastructure, regulation, technology, etc. These environments could pose substantial challenges in the attainment of the opportunities mentioned above. The opportunities and challenges are clearly determined as the scope of the research. Thus, the research is expected to be reliable in its exploration within the scope determined. Finally, the research will be effective in its process and examination, since the acknowledgment of its scope is clear.

1.5. The Research Boundaries

In order to provide a clear understanding of the research area, it is important to acknowledge the research limitations. The boundaries of the research are as follow:

1. The research intents to clarify the post-adoption stage of SME ecommerce implementation in developing countries, by exploring the key success factors for SME in applying ecommerce for the achievement of business transaction, evidence from Indonesia
2. The research will classify the logistics capabilities in developing countries, especially Indonesia, related to the SME ecommerce practices supporting the development of business transaction volume

3. The research will identify the current country logistics capabilities and deficiencies and the major problems challenged by logistics sector in developing countries, especially Indonesia
4. The research will examine the relationship between logistics capabilities (including all types of logistics capabilities) and SME ecommerce performance specifically in transaction volume

CHAPTER 2: LITERATURE REVIEW

Fundamentally, literature analysis is a key contribution within the research development and it is proposed to consider a broad historic viewpoint of the relevant research topic and profound explanation of self-directed research challenges (Mentzer & Kahn, 1995). Essentially, it is crucial to systematise literature review and analysis for methodical critical assessment of this study, so as to attain a credible understanding and knowledge on which to develop robust philosophies and conceptions. Thus, the focus of the review is on identifying the discussion of Key success Factors (KSFs) of SMEs ecommerce in facilitating the development of SMEs business transaction. Hence, to achieve a solid and organised literature analysis, the analysis involves intensive investigation of the relevant literature, including research and business journals on the topic of numerous potential KSFs of SMEs ecommerce related to the implementation of SMEs' ecommerce in developing countries, particularly in Indonesia, to enable the effectiveness of business transactions. Moreover, the area of the literature analysis will be focused on SMEs in general and be narrowed to the particular practice in developing countries. In addition to this, it will also look in detail at the discussion of ecommerce and its practice and implementation by SMEs in developing countries, especially Indonesia. Furthermore, this investigation also attempts to clarify the KSFs of SMEs ecommerce implementation in relation to the objective of encouraging business development, especially improved business transactions.

2.1. Literature Review Methodology

Principally, this chapter endeavours to illustrate comprehensively the academic literature on the concept of SMEs, ecommerce and its KSFs developing business transactions by embracing an effective method of literature review, termed Systematic

Literature Network Analysis (SLNA), which was introduced by Colicchia & Strozzi (2012). This method effectively integrates systematic literature review (SLR) and bibliographic network analysis (BNA). The implementation of this methodical approach is favoured due to its ability to encompass the unlimited exploration and elaboration of knowledge. In addition to this, the effective implementation of this approach to other wide circumstances has demonstrated its significance in the investigation of tendencies, main problems and evolutional routes (Kajikawa et al., 2007; Kim et al., 2016).

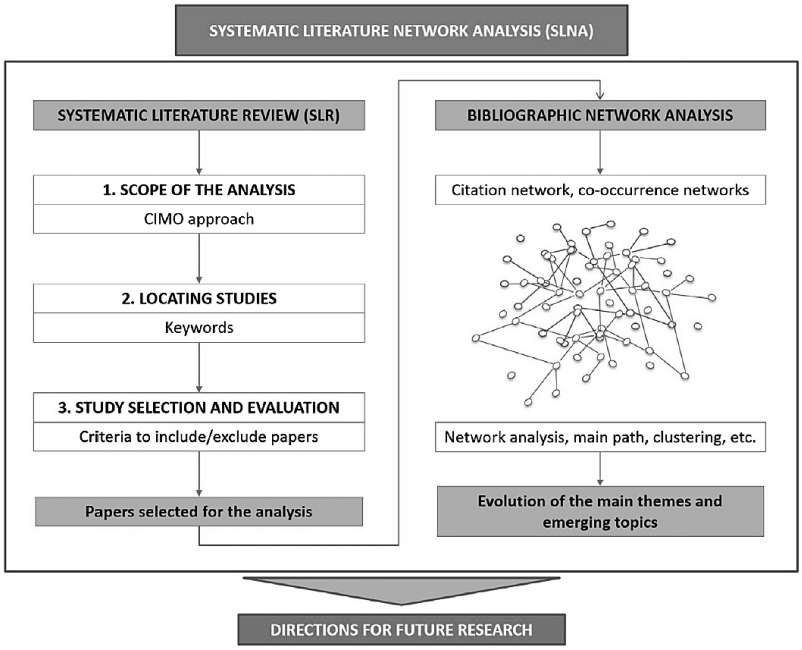
This approach would enable improved understanding in the study area, by means of a systematic, logical and reasonable method compared to conventional expressive analyses. It expands the references compared to many studies that fail to cover the evolutionary period of an area of research and depend on subjectivity as the basis for choosing literature and categorise research according to pre-determined coding structures. As an alternative, SLNA relies on objective measures and algorithms to accomplish quantitative literature-based recognition of arising issues. The SLNA method includes bibliometric networks analysis of the data attained, such as citations and keywords connections or networks (Strozzi et al., 2017). An instrument that depends on the references list of journal papers or publications is called Citation Network Analysis (CNA), which indicates earlier contributions that have affected advances in research. The citation is assumed to signify the impact of the quoted work on the new work of a writer (Zhao & Strotmann, 2015). Even though people may quote papers for numerous subjective reasons, citations are generally applied as a representation of relationship. Dawson et al. (2014) argued that however frequently cited papers are not necessarily describing influential and high-quality research, but it is reasonable to suppose that a great number of achieved citations represents a great level of impact and quality. The legitimacy and practicality of citations to discover evidence

is confirmed by the attainment of Google web-search engine as an instance, which performs an algorithm based on citations to identify papers that are both high quality and relevant to users' information needs (Brin & Page, 2012). However, considering only the citation approach to define and signify a particular topic is not an impeccable method. In reality, numerous papers may be removed from investigation, as other papers do not quote them, even though their subject matter is important, or papers may appear less relevant than others because they have been newly published, and this prevents them from accepting a high number of citations. Thus, it is important to combine the CNA with other relevant methods (such as the Global Citation Score analysis and the keyword analysis) as the approach to overcome the limitations.

The data applied in the process of systematic literature review will be composed from the database of Web of Science (WoS), which is organised with Scopus as the most universally employed scholar citation database for area or topic description. WoS has been the prominent citation database in citation analysis in research up to the present time. Moreover, Scopus is very comparable to the WoS database, which has several advantages and weaknesses. The major gain is that the ability of Scopus review is nearly 60% more than the WoS (Zhao & Strotmann, 2015). Nevertheless, one of the most important difficulties of Scopus is that the data are not evident as the WoS, which implies certain documents are not distinctively recognised and can be measured as dissimilar nodes in the generated citation network analysis. Potentially, this can lead to an incorrect investigation of the citation network. As stated above, the method selected to quote and examine documents is the Systematic Literature Network Analysis (SLNA). It is observable in figure 15 that SLNA encompasses two stages. The first stage of the process is a Systematic Literature Review (SLR) in which the delineation of the research and literature scope are accomplished by three processes. Firstly, outlining

the scope of the literature study. In order to formulate the research question and to organise an excellence literature review, it is necessary to address some questions related to Context, Intervention, Mechanism and Outcome (CIMO) (Denyer & Tranfield, 2009). The second process is locating studies connected to keywords, period, category of papers and language. The last is study selection and evaluation. The result of this stage will be a collection of nominated papers.

Figure 17: Systematic Literature Network Analysis (SLNA)



Source: Strozzi et al. (2017)

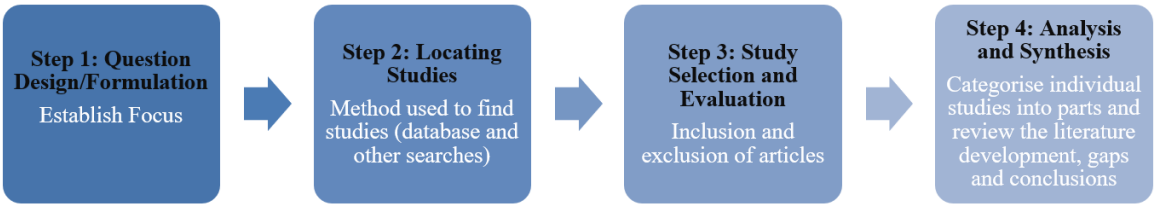
The following stage of the process on SLNA methodology encompasses the Bibliographic Network Analysis (BNA) and visualisation of the process. Particularly, this stage of task will examine the citation network and the keywords network, in line with the process of the literature methodology described in Figure 17. Additionally, the network construction could be performed through several software packages. For instance, software of Sci2 Tool (http://cns.iu.indiana.edu) is an integrated approach precisely configured for the research of science and it assists the study requirement especially on provisional, geospatial, contemporary of network analysis and

visualisation of data sets. Moreover, beside to develop citation networks, Sci2 also could be applied to generate the input file for utilising the Pajek software. Pajek (De Nooy et al., 2011) is a software for Social Network Analysis (SNA), which in the SLNA methodology it is performed to signify and to examine the citation networks. Furthermore, VoS viewer (http://www.vosviewer.com/) is the alternative software tool that competent to investigate bibliometric networks, which is applied to investigate the keywords network utilising the features of VoS called clustering methodology (Van Eck & Waltman, 2010).

2.1.1. Systematic Literature Review (SLR)

The analysis of literature in this research will implement the SLR. SLR (Figure 18) is an approach of structured literature analysis based on the evidence that objectives to minimalize deviation which through the process of identification, evaluation and selection of entirely the present, applicable and interrelated studies, in order to cover several specific questions (Petticrew & Roberts, 2006). In addition to this, the principles of SLR such as clearness, comprehensiveness, descriptive and investigative characteristic assist for an objective outline on the investigation results and eliminating any fault concern (Denyer & Tranfield, 2009).

Figure 18: Stages of the Systematic Literature Review (SLR) Process



Source: Adapted by Author from Denyer and Tranfield (2009)

2.1.1.a. Question Design / Formulation

In the first stage of the SLR process it is necessary to outline the scope of the literature study in order to formulate research questions, and it is suggested to do so through consideration of a piece of literature's context, intervention, mechanism and outcome or CIMO (Denyer and Tranfield, 2009, Colicchia and Strozzi, 2012). Exactly, CIMO (Table 9) would effectively assist to identify four significant section to be examined in order to generate a strong-developed systematic literature review (Denyer & Tranfield, 2009).

Table 9: The CIMO Approach in Systematic Literature Review (SLR)

1. Context:
•Which individuals, relationship, institutional settings or wider systems are being studied?
2. Intervention:
•The effect of what event, action or activity are being studied?
3. Mechanisms:
•What are the mechanisms that explain the relationship between interventions and outcomes?
•Under what circumstances are these mechanisms activated or not activated?
4. Outcomes:
•What are the effects of the intervention?
•How will the outcomes be measured?
•What are the intended and unintended effects?

Source: (Colicchia & Strozzi, 2012; Denyer & Tranfield, 2009)

Utilizing this logic to the Context within the research by answering the sets of questions above will develop the understanding of the subjects who are involves and related in the study of key success factor on SMEs ecommerce improvement in developing country especially in Indonesia. Afterwards, the Intervention was considered as the explanation of the precise area of study that to examine the particular factors as the significant indicator, which will support the SMEs ecommerce transaction. This will focus on the relationship between the effectiveness of logistics operation to encourage the business transaction of SMEs ecommerce. Concerning the Mechanisms, the study concentrated on the particular instruments and approaches, which implemented by the authors

described in the relevant literature for the application of management practice that earlier acknowledged in the context of key success factors on SMEs ecommerce improvement to specifically increase the business transaction. Additionally, it is also allied to the investigation of the particular conditions whereas these mechanisms are effectively able to achieve the positive outcomes as the objectives of the study. Lastly, the Outcome of the literature review is the conclude understanding about the topic investigating from the study of the literature and particular consequences of relevant research. Specifically, the focused subjects of concern in this study are SMEs and ecommerce in developing countries especially in Indonesia (C), key success factors (especially logistics aspect) on improving its business transaction (I), the strategy of logistics operations (M) and excellent ecommerce logistics (distribution and delivery) and improved business transaction of SMEs ecommerce (O). The CIMO table of this study could be observed on the following table:

The CIMO approach as shown in Table 10 and has enabled the study to effectively identify attributes for the study's topic areas in the four significant CIMO sections to be further examined. Table 10 demonstrates that using CIMO effectively encourages new theoretical insights on the topic under investigation. The definition of the context, intervention, mechanism and outcomes provides the framework that will drive the subsequent phases of the SLR in terms of literary search and extraction of scientific contributions, along with related interpretations that will lead to the identification of those key success factors which the literature will indicate as the one having the most influence facilitating SME e-commerce in developing countries.

Table 10: The CIMO Approach of the Research

[C] CONTEXT	
Which individuals, relationships, institutional settings or wider systems are being studied? Who are the individuals of interest?	**SME (Seller):** Owner, Manager, and Worker **Customer/online shopper (Buyer):** Direct buyer **Government (Facilitator):** President / Ministry **3PL of LSP (Logistics Service Provider):** Private Logistics/Courier Service Company **State Owned Enterprise (Logistics Service and Support):** State company of Logistics/Courier Service **Financial Agent (Payment System):** Banks, Postal Financial Agent/channel **IT & Network Provider:** Private and State IT and Network Provider
Which interpersonal relationship are of interest? Which aspect of the institutional setting are of interest?	The practise in developing countries I the focus of investigation in the study which potentially related to the operation of SME ecommerce including logistics, secure payment systems, e-Marketing, Financial/Economic, Environment, Social, Country Economic Development, SMEs Empowerment.
Which aspect of wider infrastructural systems are of interest?	Other Context: Type of products (cloth/fashion, handy craft, food, agriculture, etc.), ICT infrastructure and systems, Human Resources, Law and Regulations
[I] INTERVENTION	
The effects of what event, action or activity are being studied? What is the intervention of interest? (Leadership style, planning and control systems, training, performance management, etc.)	This study attempts to investigate the factors as the key Success Factors of SMEs e-commerce in developing country due to the improvement of business transaction. In which it is focusing on the potential factors encouraging the SME ecommerce practise in developing countries for example the factor of logistics capabilities. Logistics capabilities would embrace the entire capability of logistics in term of scope and activities such as the planning and control system, operation design of logistics operations (warehouse, transportation, distribution and delivery). Widely, the infrastructure of logistics in the country should be a part of intervention from the government as the stakeholder. The interventions which lead to the potential factors on this investigation could be relevantly from internal and external aspects
[M] MECHANISM	
What are the mechanisms that explain the relationship between interventions and outcomes? Under what circumstances are these mechanisms activated or not activated?	The improvement of logistics capability; internally in the application of self-operated logistics and externally in the collaboration with 3PL. This is potentially managed through a good internal business management of SMEs. In addition, regional logistics capability would be potentially considered as this influence the quality among the logistics capabilities. Therefore, the investigation on which factors are the most influenced of the SME ecommerce operation is substantial.
[O] OUTCOMES	
What are the effects of the intervention? How will the outcomes be measured? What are the intended and unintended effects?	The study is expected to result a new insight of theoretical and practices which is represented by the potential factors discovered as the most influencing factors. The awareness of these factors should lead to the further following outcomes: 11. Increase the effectiveness of SMEs e-commerce transaction 12. Speed the products delivery of SMEs e-commerce transaction 13. Provide up to date report of delivery 14. Lower cost of transportation and delivery 15. Effective delivery point 16. Effective and speed the reverse/return delivery 17. Improve the postal code system 18. Increase customer satisfaction of products delivery 19. Increase customer trust 20. Develop a trusty and easy payment of e-commerce

Source: Author, 2017

2.1.1.b. Locating studies

The second stage comprises locating studies connected to the definition of the set of keywords to be used for the search (which was defined taking into account the introductory theoretical background and moving from the outcomes of the application

of the CIMO approach), period, category of papers and language. In the locating studies process for further analysis, the string of keywords shown in Table 11 were applied as searching parameters within the Scopus and Web of Science (WoS) websites with the purpose of selecting papers possessing the relationship with aspects of SME e-commerce adoption in developing countries. As mentioned, the selected keywords and strings were identified constructively through the outcomes of the CIMO approach, in line with the initial investigation from the keywords related to prior research noted in the introduction of each relevant research papers. In addition, these keywords were also the arrangement of relevant indicators based on the recent papers and update related to ecommerce widely and look into a narrow perspective specifically the implementation on developing countries. These keywords are ICT, logistics capability, customer demand, human resources, payment systems and regulation. The outcomes of CIMO application as an instrument used in this study has effectively provided those selected and relevant keywords. Moreover, through the combination of particular keywords on simple operation and Boolean logic approach, compound searches effectively can be performed in order to avoid the generic and extensive results.

Furthermore, keyword selection was also determined through a process of scientific consultation with a panel of eight experts. Four experts were from industry sectors of e-commerce and logistics service providers, three experts were from academia, and one expert was from a government ministry for economic affairs.

Table 11: String of Keywords in the Literature Investigation

No.	String of keywords	Databases
1	"E-commerce" + SME*	Scopus and Web of Science
2	"E-commerce" + SME* + "Developing Country*"	
3	"E-commerce" + SME* + "Customer Demand"	
4	"E-commerce" + "Customer Demand"	
5	"E-commerce" + "Demand"	
6	"E-commerce" + SME* + Logistics	
7	"E-commerce" + SME* + "Logistics Capability"	
8	"E-commerce Logistics"	
9	"E-commerce" + SME* + "ICT"	
10	"E-commerce" + SME* + "IT"	
11	"E-commerce" + SME* + "Payment System"	
12	"E-commerce" + "Payment System"	
13	"E-commerce" + SME* + "Online Transaction"	
14	"E-commerce" + SME* + "Internet Regulation"	
15	"E-commerce" + "Internet Regulation"	
16	"E-commerce" + SME* + "Electronic Commerce Regulation"	
17	"E-Commerce Regulation"	
19	"E-commerce" + SME* + "Human Resources Management"	
20	"E-commerce" AND "HRM"	
21	"E-commerce" + SME* + "Marketing"	
22	"E-commerce" + SME* + "Marketplace"	

Source: Author, 2017

2.1.1.c. Study Selection and Evaluation

In this part of the systematic literature analysis, the recognised string of keywords is applied as the searching parameter within the particular literature searching website that is Scopus and Web of Science (WoS) with the purpose of selecting the papers possessing the relationship with the influence aspects in SMEs ecommerce adoption especially in developing countries. With the aim of obtaining and including the applicable and significant papers to focus on, it is critical to determine particular indicators of inclusion and exclusion criteria. Several criteria in accordance with the recommendation of Newbert (2007) have been respected to include or exclude the searched-papers. Firstly, only papers published in peer-analysed scientific journals in English and only articles or proceedings published in the last 15 to 20 years are

considered. The justification for examining papers issued in the last 15 to 20 years is that SMEs ecommerce, as the concern of study relatively been discussed many years earlier in developed country and now the attentiveness in this subject is growing increasingly in the last years in developing country. Thus, a 15 to 20 years literature assessment tolerates for appropriately comprehensive analysis of the systematic research on this subject.

Afterwards, the inclusion of documents encompassing minimally one of the above-mentioned keywords within its title or abstract. The reasoning for taking into consideration this inclusion criterion (Table 12) in the screening process is because the context of the research on SMEs ecommerce in developing countries is limited especially on specific indicators as the object. Moreover, the next criterion should be the exclusion of the essentially inappropriate articles by eliminating papers associated with the greatly limited indicators or perspectives. Subsequently, the elimination of articles without abstract is also considered as the criterion and confirming essential and practical relevance by understanding the complete outstanding summaries in their totality. Lastly, the inclusion of journals written in English but limited to the area of business, management and accounting will be the effective criterion to be determined in the process of literature study selection.

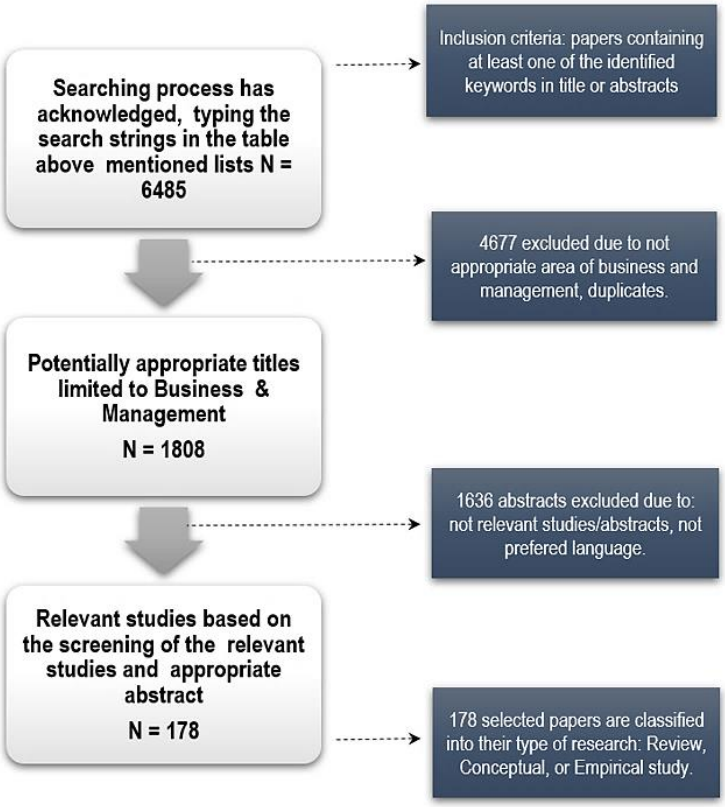
Table 12: Inclusion Criteria in SLR

No.	Inclusion criteria	Rationale
1	Papers containing at least one of the identified keywords in title or abstracts	Two key words; E-commerce and SMEs will be the set of key words to ensure gaining the relevant topic of discussion
2	Appropriate area of business and management	Some papers of e-commerce are related to other area such as engineering, technology and computer science. Business and Management will be the relevant one to be considered.
3	Relevant studies/abstracts	The relevant area should be followed by relevant studies/abstract since many topics in business and management doesn't discuss about SMEs e-commerce
4	English is the preferred language	English is the dominant language in the field of Logistics and SCM research
5	Selection of papers published 1999-2017	The year 1999 was chosen as the earliest point of studies and application on e-commerce to identify a broader and comprehensive view on how e-commerce grows and give impact to the business activities.

Source: Developed by Author from Newbert (2007)

It is observable in Figure 19 that by means of performing the search strings in the aforementioned key words, totally 6,485 journals were acknowledged with the inclusion criterion to accept papers with minimal one of the identified keywords in its title or abstracts. Afterwards, 1,808 documents were nominated through the selection of the titles with only concerning the area of business, management and accounting which written in English language. Subsequently, by completing a cautious reading of the selected abstracts from the relevant studies, 178 journals were encompassed as a final point as applicable for the current literature analysis Table 13. It is representing 2.5% of the number of papers that identified from the very beginning process of the selection. Figure 19 describes the complete study selection process of the literature and the number of papers that has been recognized throughout the literature analysis.

Figure 19: Literature Study Selection Process



Source: Developed by Author, 2017

Every single process on the papers searching is documented clearly to have a better systematic literature review. Moreover, the following table describes a detail number of selected papers based on each string of keywords performed in the searching process. It is identifiable that the papers were selected from each keyword strings which has supported to find the relevant literature while those keyword strings were attained from the application of CIMO and also supported by a further discussion with panel experts arranging and determining the relevant strings of keywords.

Table 13: Number of Selected Papers based on string key words

No.	Strings of keywords	Number of 1st Result	Limit to	Number of 2nd Result	Further Parameter	Final Result
1	"E-commerce" + SME*	1966	Business, Management and Accounting, English Language	432	Relevant Studies, Most Cited, Appropriate Abstract	11
2	"E-commerce" + SME* + "Developing Country*"	615	Business, Management and Accounting, English Language	274	Relevant Studies, Most Cited, Appropriate Abstract	32
3	"E-commerce" + SME* + "Customer Demand"	42	Business, Management and Accounting, English Language	21	Relevant Studies, Most Cited, Appropriate Abstract	0
4	"E-commerce" + "Customer Demand"	62	Business, Management and Accounting, English Language	20	Relevant Studies, Most Cited, Appropriate Abstract	1
5	"E-commerce" + "Demand"	1422	Business, Management and Accounting, English Language	82	Relevant Studies, Most Cited, Appropriate Abstract	9
6	"E-commerce" + SME* + Logistics	21	Business, Management and Accounting, English Language	9	Relevant Studies, Most Cited, Appropriate Abstract	2
7	"E-commerce" + SME* + "Logistics Capability"	199	Business, Management and Accounting, English Language	122	Relevant Studies, Most Cited, Appropriate Abstract	28
8	"E-commerce Logistics"	116	Business, Management and Accounting, English Language	23	Relevant Studies, Most Cited, Appropriate Abstract	10
9	"E-commerce" + SME* + "ICT"	67	Business, Management and Accounting, English Language	28	Relevant Studies, Most Cited, Appropriate Abstract	2
10	"E-commerce" + SME* + "IT"	276	Business, Management and Accounting, English Language	131	Relevant Studies, Most Cited, Appropriate Abstract	18
11	"E-commerce" + SME* + "Payment System"	197	Business, Management and Accounting, English Language	101	Relevant Studies, Most Cited, Appropriate Abstract	14
12	"E-commerce" + "Payment System"	256	Business, Management and Accounting, English Language	61	Relevant Studies, Most Cited, Appropriate Abstract	3
13	"E-commerce" + SME* + "Online Transaction"	71	Business, Management and Accounting, English Language	30	Relevant Studies, Most Cited, Appropriate Abstract	2
14	"E-commerce" + SME* + "Internet Regulation"	16	Business, Management and Accounting, English Language	7	Relevant Studies, Most Cited, Appropriate Abstract	0
15	"E-commerce" + "Internet Regulation"	106	Business, Management and Accounting, English Language	28	Relevant Studies, Most Cited, Appropriate Abstract	9
16	"E-commerce" + SME* + "Electronic Commerce Regulation"	1	Business, Management and Accounting, English Language	1	Relevant Studies, Most Cited, Appropriate Abstract	0
17	"E-Commerce Regulation"	11	Business, Management and Accounting, English Language	11	Relevant Studies, Most Cited, Appropriate Abstract	3
19	"E-commerce" + SME* + "Human Resources Management"	497	Business, Management and Accounting, English Language	94	Relevant Studies, Most Cited, Appropriate Abstract	7
20	"E-commerce" AND "HRM"	408	Business, Management and Accounting, English Language	269	Relevant Studies, Most Cited, Appropriate Abstract	15
21	"E-commerce" + SME* + "Marketing"	95	Business, Management and Accounting, English Language	49	Relevant Studies, Most Cited, Appropriate Abstract	6
22	"E-commerce" + SME* + "Marketplace"	41	Business, Management and Accounting, English Language	15	Relevant Studies, Most Cited, Appropriate Abstract	6
		6,485		**1,808**		**178**

Source: Developed by Author, 2017

2.1.1.d. Analysis and Synthesis

Furthermore, as it can be seen in Table 14 that through the application SLR, the study has found 25% of the papers was absorbed from the topic of SME and ecommerce, almost 20% was from the issue of ecommerce, SME, and logistics capability, 12.8%

was from the topic of SME and ecommerce related to the human resources, 11.6% was from the SME, ecommerce, and ICT, 11% from SME, commerce and payment system. While the rest of the literatures found was gained from the topic of SME and ecommerce related to customer demand, marketing, marketplace and also ecommerce law and regulations.

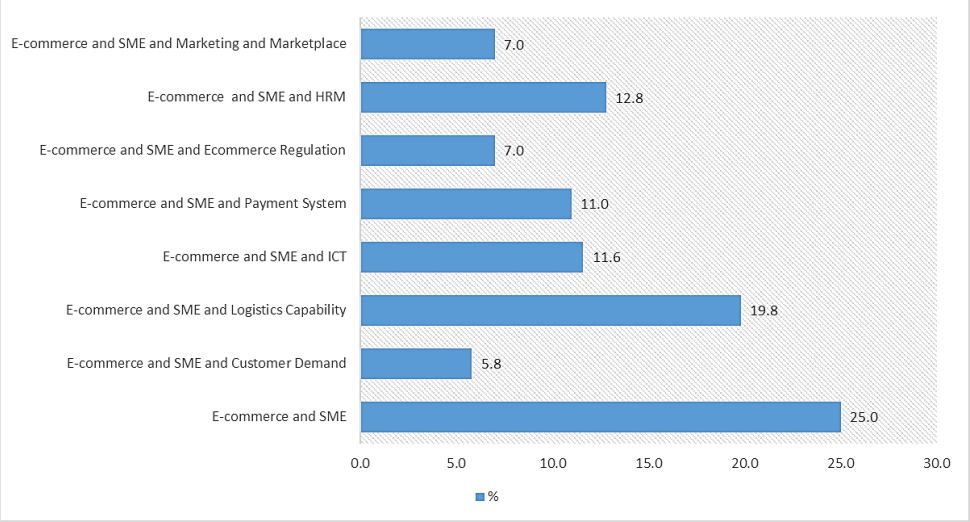
Table 14: Selected Papers based on the Authors

No.	Issue Under Investigation	Resources	Total	%
1	E-commerce and SME	(Grandon & Pearson, 2004), (Subba Rao et al., 2003), (Tan et al., 2007), (Drew, 2003), (Quayle, 2002), (Jeffcoate et al., 2002), (Feindt et al., 2002), (Tiessen et al., 2001), (Rowe et al., 2012), (Saffu et al., 2008), (Chong & Pervan, 2009), (MacGregor & Kartiwi, 2010), (Pham et al., 2011), (Wymer & Regan, 2013), (Rahayu & Day, 2015), (Kurnia et al., 2015), (Afshar Jahanshahi et al., 2013), (Rahayu & Day, 2013), (Kartiwi, 2006), (Eikebrokk & Olsen, 2003), (Kurnia, 2006), (As'ad, 2012), (Humphrey et al., 2003), (Lawrence & Tar, 2010), (Payne, 2002), (Singapore Post, 2014), (Taylor & Murphy, 2004), (Triandini et al., 2015), (Wilson et al., 2008), (Dwivedi et al., 2009), (Pradana, 2016), (Scupola et al., 2009), (Corbitt et al., 2003), (Melnik & Alm, 2002), (Gefen, 2000), (Grabner-Kraeuter, 2002), (Molla & Licker, 2005), (Wang & Ahmed, 2009), (Wickramasinghe, 2003), (Boerhanoeddin, 2005), (Ngai & Gunasekaran, 2007), (Rillo & dela Cruz, 2016), (Mahadevan, 2000)	43	25.0
2	E-commerce and SME and Customer Demand	(Koufaris & Hampton-Sosa, 2004), (Pang, 2016), (Hong et al., 2004), (Dennis et al., 2009), (Zhang et al., 2002), (Andersen et al., 2003), (Changchit & Klaus, 2015), (Ward & Lee, 2000), (Lin et al., 2014), (Yuan et al., 2014)	10	5.8
3	E-commerce and SME and Logistics Capability	(Joong-Kun Cho et al., 2008), (XiaoYan et al., 2012), (Fernie et al., 2010), (Gligor & Holcomb, 2012), (Shang & Marlow, 2005), (Lu & Yang, 2010), (Yu, 2017), (Daly & Cui, 2003), (Ghezzi et al., 2012), (Weltevreden, 2008), (Ying & Dayong, 2005), (Ramanathan, 2010), (Delfmann et al., 2002), (Xu et al., 2011), (Roberts & Thomas, 2003), (Fernie et al., 2010), (JI & ZHANG, 2015), (Klumpp & Jasper, 2008), (Lee & Whang, 2001), (Mahindru, 2014), (Żurek, 2015), (Gunasekaran et al., 2002), (Ji & Liu, 2011), (Xu & Yao, 2010)	40	19.8
4	E-commerce and SME and ICT	(Walker et al., 2016), (Ghobakhloo et al., 2011), (Lihua, 2013), (Zaidan, 2017), (Chen et al., 2013), (Lim & Baharudin, 2013), (Nejadirani et al., 2011), (Kapurubandara & Lawson, 2007), (Gide & Wu, 2006), (Lertwongsatien & Wongpinunwatana, 2003), (Astuti & Nasution, 2014), (Spiridon & Dichiu, 2008), (Qing-bian et al., 2003), (Einav et al., 2014), (Liang & Wei, 2004), (Luthfihadi & Dhewanto, 2013), (Varshney & Vetter, 2002), (Yaakub, 2010), (Huang et al., 2015), (Hameed et al., 2014)	20	11.6
5	E-commerce and SME and Payment System	(Madan et al., 2016), (Rouibah et al., 2016), (Walczak & Borkan, 2016), (Roy & Sahoo, 2016), (Lee & Lin, 2005), (Zhang et al., 2011), (Jing & Peng, 2010), (Beng & Eze, 2010), (Jiang, 2008), (Ling et al., 2007), (Ally & Toleman, 2006), (He et al., 2006), (Fariselli et al., 1999), (Mohmed et al., 2016), (Hsu, 2016), (Xuewen & Jinlong, 2010), (Morgan-Thomas, 2009), (Mark et al., 2007), (Ng-Kruelle et al., 2002)	19	11.0
6	E-commerce and SME and Ecommerce Regulation	(Taylor et al., 2005), (Ward et al., 2016), (Mueller, 2003), (Hoeren, 2000), (Chun et al., 2006), (Van Cleynenbreugel, 2017), (Kyobe, 2010), (Endeshaw, 2002), (Braga, 2005), (Krosch, 2002), (Shalmont, 2016), (Taylor et al., 2005b)	12	7.0
7	E-commerce and SME and HRM	(Sukasame et al., 2008), (Blount et al., 2005), (Wang, 2005), (Khatri et al., 2010), (Tsai, 2010), (Ding et al., 2015), (Li et al., 2012; Galperin & Lituchy, 2014), (Jehangir et al., 2012), (Ping, 2010), (Dietz et al., 2006), (Li et al., 2017), (Govindaraju et al., 2012), (Qiang, 2011), (Xi ping & Ming qiang, 2011), (Yu, 2011), (Fazhu et al., 2010), (Liu, 2010), (Yunping, 2010), (Shani & Tesone, 2010), (Power, 2004), (Blount et al., 2003), (Hallowell, 2001)	22	12.8
8	E-commerce and SME and Marketing and Marketplace	(Chaffey & Ellis-Chadwick, 2016), (Ström et al., 2014), (Wirtz & Lovelock, 2016), (Armstrong et al., 2014), (Strauss, 2016), (Armstrong et al., 2015), (El-Gohary, 2010) (Kleindl, 2000) (Stockdale & Standing, 2004) (Nielson et al., 2005) (Khan et al.) (Lekhanya, 2016)	12	7.0
		Total Number of Resources	**178**	**100.0**

Source: Developed by Author, 2017

The most papers were gained from the issues related to SME and ecommerce as for the time being there are massive growth on the application of ecommerce by the SME in developing countries (Figure 20). Moreover, the next issue was followed by the SME and ecommerce related to the logistics capability since it could be presumed that the problems of delivery in ecommerce should be substantial for the success factors in ecommerce practices. In addition to this, the issues of human resources, ICT, payment system, marketing, marketplace, laws and regulations, and also customer demand are also important aspects in the application of SME ecommerce in developing countries.

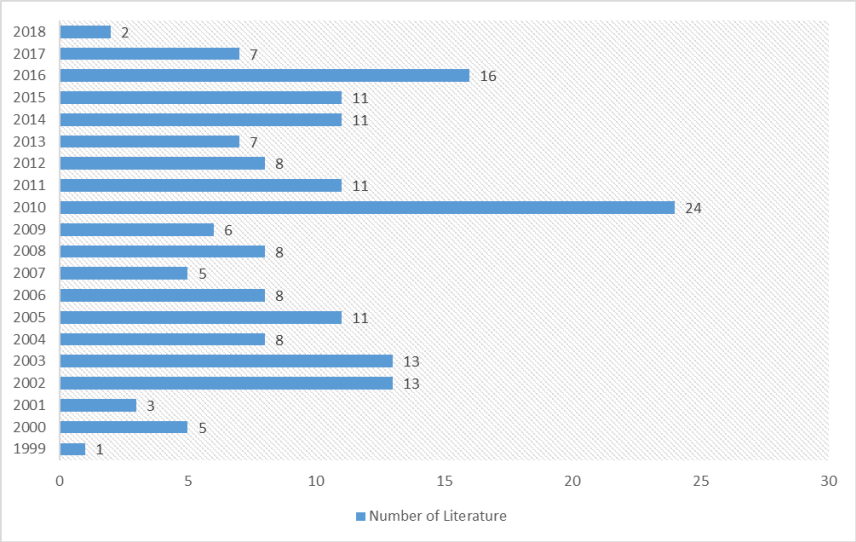
Figure 20: Percentage of Key Factors



Source: Developed by Author, 2017

Considering the publishing year, as of a constant perspective, it is motivating to clarify that a number of papers are clearly growing in 2010 as the papers are containing the number of conference proceedings which representing a good growing of expansion in the area of SMEs commerce application in developing countries (Figure 21). It is also can be observed that the growth of ecommerce was increased early in 2000 especially the application of ecommerce in developing countries by the SMEs indicated a gradual increasing trend from 2010. While nowadays, a massive utilisation of ecommerce has grown rapidly along with the growth of information technology.

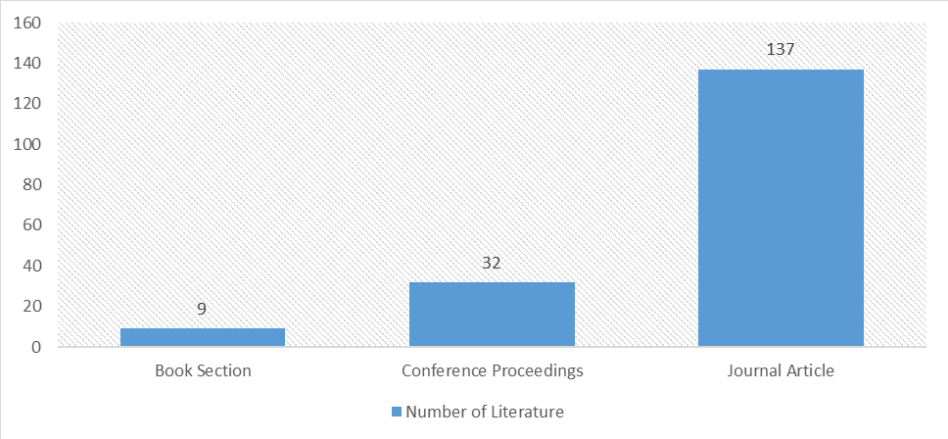
Figure 21: Temporal Distribution (Year of Publication) of the selected articles



Source: Developed by Author, 2017

Furthermore, the literatures gained from the SLR approach in the study has shown in Figure 22 that the most sources were from the relevant journal articles (more than 80%). While the rest of the literatures were from the relevant conference proceeding and also book sections.

Figure 22: Type of Literatures



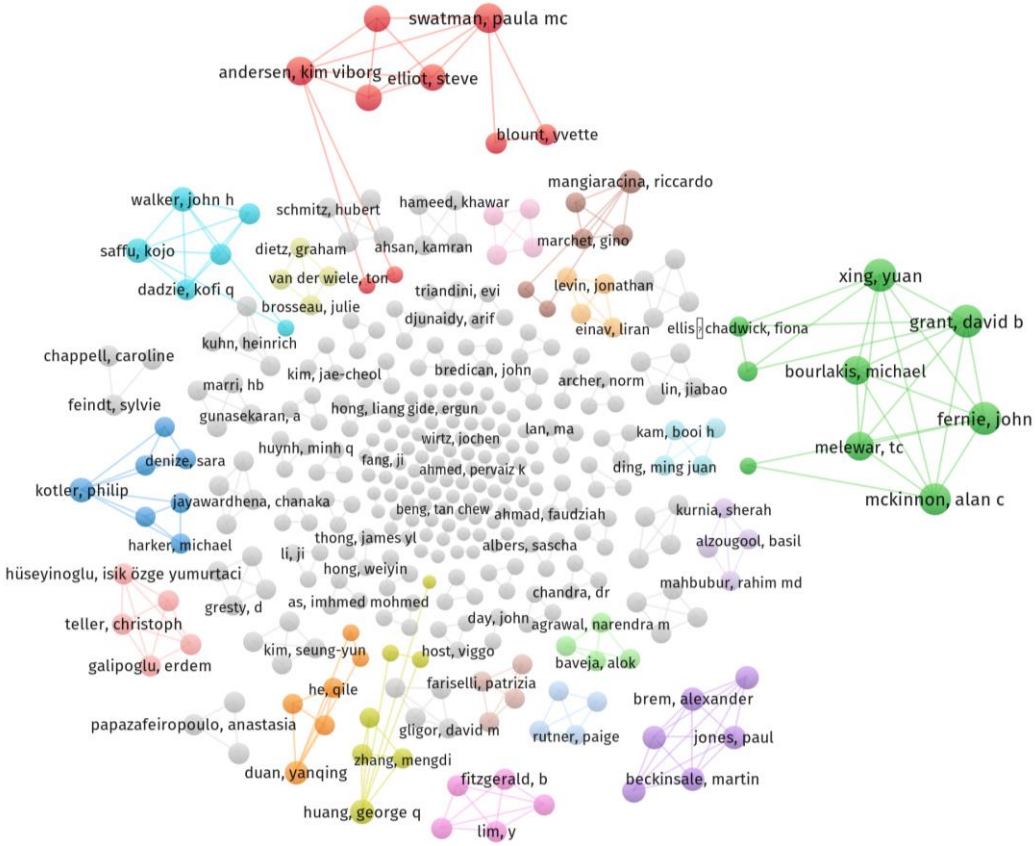
Source: Developed by Author, 2017

2.1.2. Citation Network Analysis (CNA)

A citation network in systematic literature review is a set of developed networks where the nodes describe the journals, and the links explains the citations. The arrows direction of the network proceeds from cited to citing papers signifying the stream of knowledge. It is observable in Figure 23 that the citation network connected to this study is structured of numerous segregated nodes and some with connected part. A connected node is clarified as a collection of nodes associated by links, namely citations. Moreover, by relying on the citation links, it is probable to gain related components simply through a little node and others with a greater number of nodes. Having a consideration that CNA is a networking technique based on citations; the segregated nodes are potentially disqualified from the investigation, as the meaning does not relate to it. Actually, the citation study can be implemented simply on the linked components.

Furthermore, it would provide the best outcomes once linked components are structured of a great number of node as the number of data, which can be taken out, is greatly higher rather than the one appearing from minor components with greatly limited number of linked nodes (Strozzi et al., 2017). The operation of VOS viewer has generated some model of citation network based on different method of analysis such as the analysis without normalization, based on the association strength, Linlog/ modularity and fractionalization. Figure 23 shows a citation network of each authors utilised the modularity method. Each colour in the network indicates its connection of each author according to the strength of the association between the papers. Moreover, the colour also indicates the cluster of the topics which has a relationship on each paper as well as the authors.

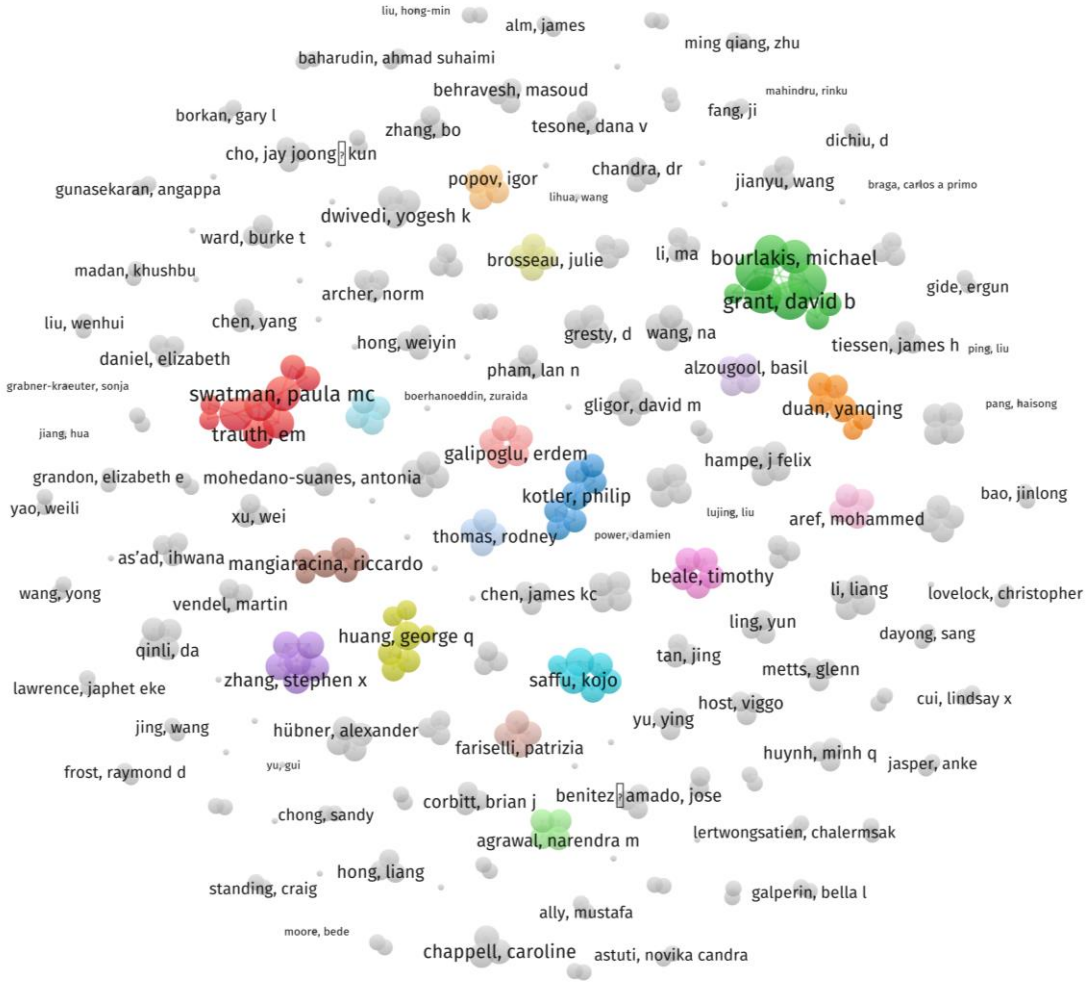
Figure 23: Citation Network of 178 Selected Papers utilising VOS viewer based on the Modularity Method



Source: Generated by VOS Viewer, 2017

It can be observed from the Figure 23 above that the connected paper based on its data and information which was analysed by modularity approach has formed the network connected to each other on the side of the area displayed with particular colour representing the cluster of the papers, however the position of each node remain shows the relationship and network. While the non-connected paper or less of connection would be allocated in the centre of the citation network. Besides, the citation network can be also generated based on the strength of the association between each author and papers. The following figure shows the connection strength of each paper cluster based on its components and data attached to each paper. This type of network would allow to group and connect the papers to form a citation network according to the association strength of each paper. Moreover, it is also performed the cluster of each paper according to the connection of each paper concerning the strength of the association.

Figure 24: The Network of 178 selected papers utilising VOS viewer based on the Association Strength Method

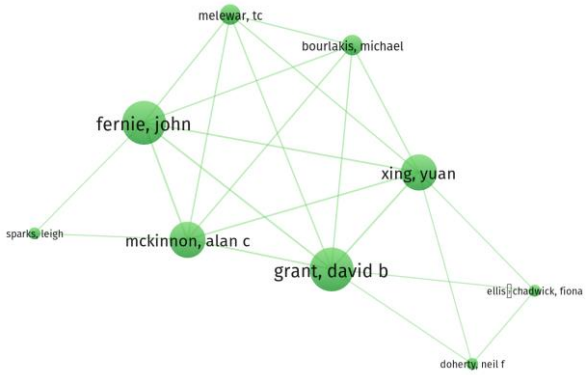


Source: Generated by VOS Viewer, 2017

It is identifiable in the Figure 24 above that the strength of the association of each paper has formed a cluster of the most connected papers based on its authors including the topics of the papers. There some clusters formed by the VOS viewer while each cluster including some papers. The biggest two cluster has involved nine papers each cluster, two clusters grouped in seven papers each cluster, four clusters formed in six papers each cluster, two clusters consist of five papers each cluster, twenty cluster involved four papers each cluster, 36 clusters consist of three papers each cluster, 47 clusters consist of two papers each cluster, while the rest of 45 clusters consist of only one papers as it has no connection to other paper.

The following Figure 25 describes the cluster one as the first biggest cluster consist of nine nodes which is representing nine literatures of each node. These nine papers indicated a cluster related to the distribution, online retailing and online market. The most network of one literature was on the author David B. Grant which shows the link of seven authors followed by John Fernie and Yuan Xing. These authors concerned in the topic of online retailing related to its physical distribution of ecommerce activities.

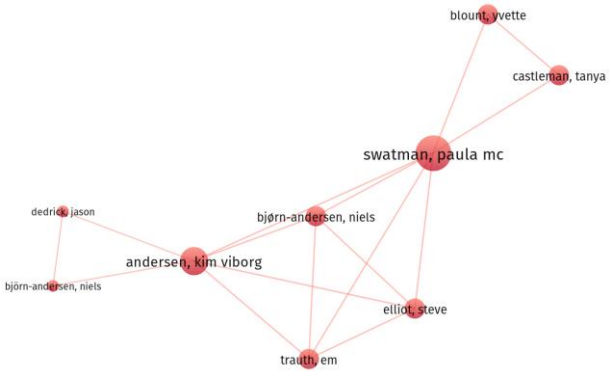
Figure 25: Cluster 1 of related Author



Source: Generated by VOS Viewer, 2017

The second biggest network based on the strength association of each literature formed a cluster of nine authors in which these papers related to the issues of ecommerce and human resources. Paula Swatman and Kim Viborg Andersen were the strongest association of authors in this cluster related to each literature (Figure 26).

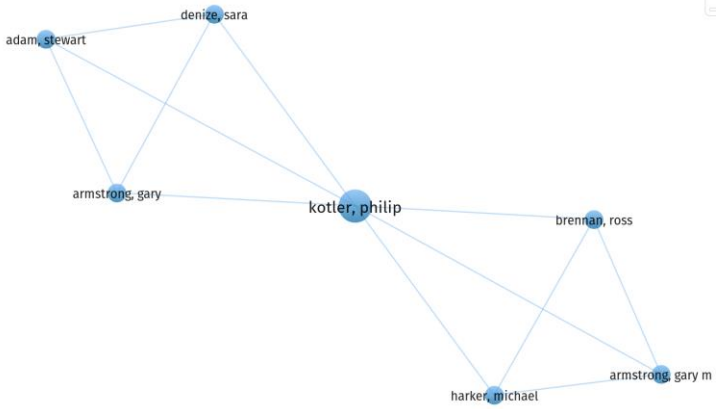
Figure 26: Cluster 2 of related Author



Source: Generated by VOS Viewer, 2017

Afterward, the third biggest cluster formed by seven authors of the papers related to the marketing and ecommerce (Figure 27). The principles of marketing from the book and papers of Philip Kotler have enriched this study supporting the practices of ecommerce along with the marketing concept.

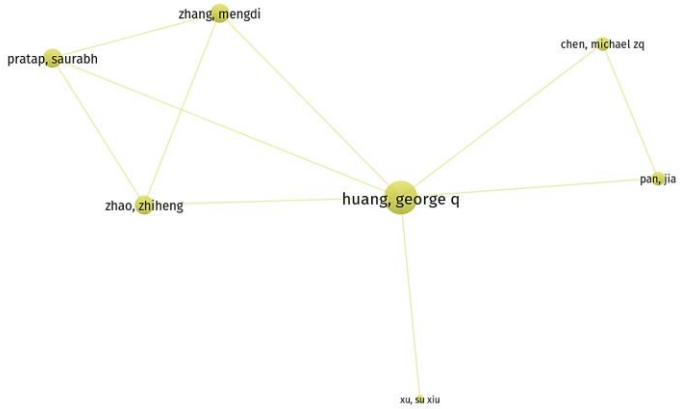
Figure 27: Cluster 3 of related Author



Source: Generated by VOS Viewer, 2017

The next cluster consist of seven authors which formed by the topics of ecommerce and logistics from the papers of George Q Huang and colleagues (Figure 28). The papers in this cluster especially discuss the issue of ecommerce logistics including the transportation and the use of robotics technology in ecommerce fulfilment.

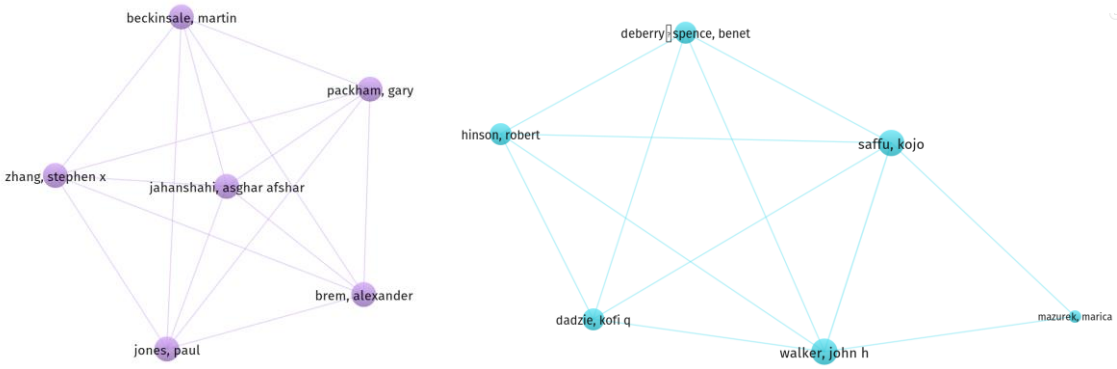
Figure 28: Cluster 3 of related Author



Source: Generated by VOS Viewer, 2017

A cluster related to the topic of ecommerce for the adoption of SMEs was formed from the related authors Asghar Afshar Jahanshahi and colleagues (Figure 29). There are another cluster related to this topic, however the network of the authors for those cluster indicated a lack of association between the authors of different cluster.

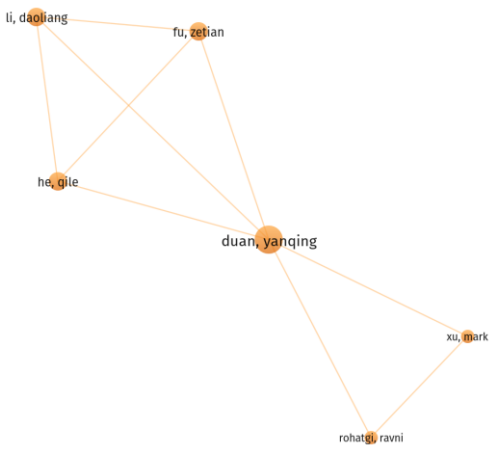
Figure 29: Different Cluster Indicates Similar Topic



Source: Generated by VOS Viewer, 2017

Moreover, the operational of VOS viewer also formed clusters of the authors related to the topic of online payment. This cluster consist of six related authors which indicated a network between these authors. One of the clusters related to this topic was generated from the author Yanqing Duan and colleagues who concerned in the discussion of online payment system especially in the practices of ecommerce.

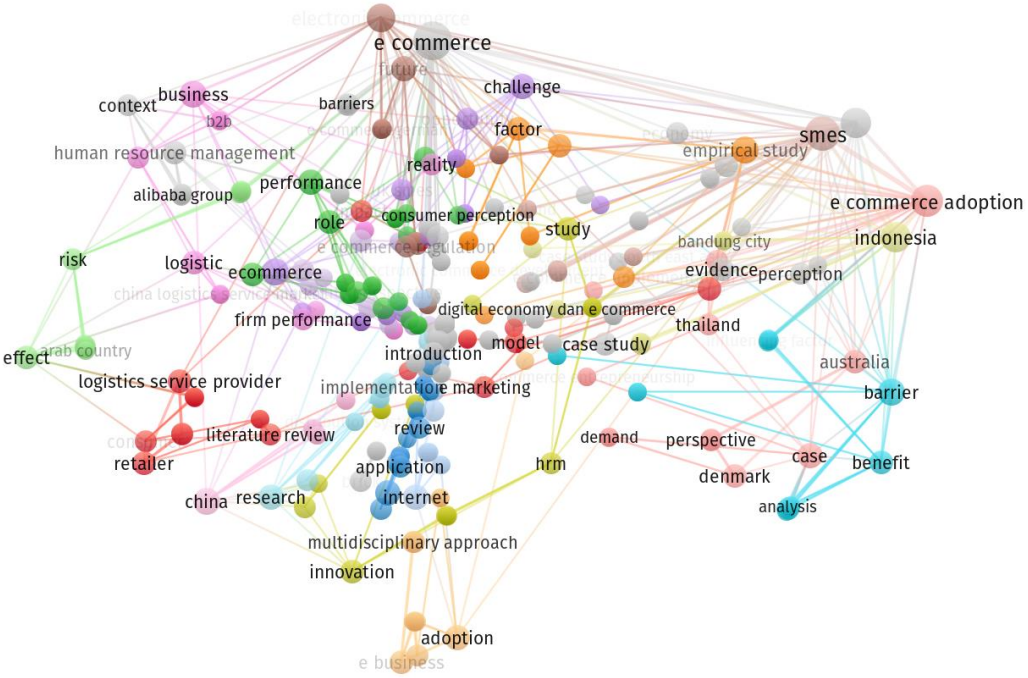
Figure 30: Cluster 3 of related Author



Source: Generated by VOS Viewer, 2017

Besides, the VOS viewer also enables to generate the network of each literature based on the topics of the papers considered from the key words of the data on each paper. The following figure shows the link and connections of the literatures between its topics which divided the connection based on its cluster displayed by the colour of the nodes.

Figure 31: The Network of 178 selected papers utilising VOS viewer based on the Cooccurrences of the literatures



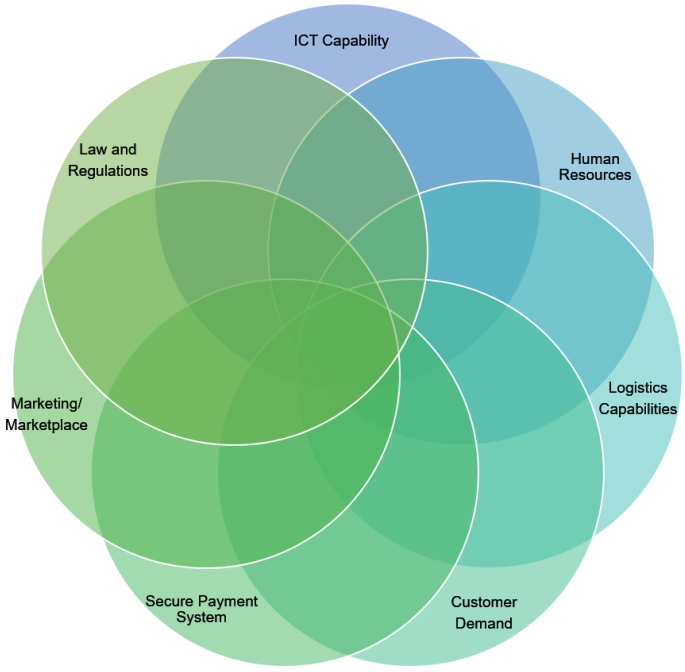
Source: Generated by VOS Viewer, 2017

It is observable from the Figure 31 above that network has developed from the connection of each literature based on the cooccurrences and topics. Each literature shows the relationship on the focus of the research which has relationship to other research. For example, the study of ecommerce adoption shows a clear connection to the study of SMEs which attempted to implement the ecommerce platform, and it also showed a network to the studies investigating the challenge, the barriers, and its related factors. Moreover, the further connection has enlarged the network to the area of consumer perception and behaviours, including the logistical perspective.

Therefore, the comprehensive process of systematic literature review in this study has concluded some potential factors that should be considered as the key factors of the ecommerce adoption facilitating SME ecommerce especially in the context of developing countries. Moreover, the findings of these factors have encouraged the author to develop a bubble diagram (Figure 32) which indicates the relationship between the bubbles containing the discovered potential factors.

The adoption of ecommerce platform by the SMEs in developing countries specifically in the post adoption stages has considered some important relevant factors including the ICT capability, human resources aspect, logistics capabilities, customer demand issues, secure payment system, the utilisation of marketplace in its marketing, and also the issues of government laws and regulations. Through these bubbles of the most influence factors would allow the study to do further investigation which lead to the acknowledgement of other findings in the investigation of systematic literatures review.

Figure 32: Key Factors of Ecommerce Adoption on SME Practices



Source: Developed by Author, 2017

2.2. Small and Medium Enterprises (SMEs)

Small and Medium Enterprises (SMEs) perform a strategic role in advanced and emerging countries. In fact, these types of enterprise account for more than 90% of the whole enterprises. They encourage numerous job opportunities and have been identified as an instrument and approach to diminish poverty. For example, in Japan, over 99% of SMEs are encouraging a number of businesses, creating job opportunities and contributing a large percentage of economic production, particularly in manufacture and export activities. Moreover, the latest empirical study confirmed that SMEs contribute more than 55% of GDP and in excess of 65% of total employment in high-income countries. They also contribute about 70% of GDP in middle-income countries and over 95% of total employment. In addition to this, they contribute more than 60% of GDP and more than 70% of total employment in low-income countries (Eric et al., 2011). Globalization is a major issue nowadays, which is able to influence the development of SMEs in the future, both in constructive or destructive ways (Hatten, 2015). SMEs could possibly develop through the exchange of knowledge and technology impact or they may fail due to dynamic circumstances from national and worldwide business and market (Ng & Kee, 2017; Taylor & Murphy, 2004). Consequently, it has been predicted that a smaller number of the SMEs in emerging countries could survive due to globalization impact compared with advanced countries (Bijaoui, 2017) SMEs are more likely to develop in particular rural areas and in the agriculture sector. Additionally, SMEs' owners and workers commonly do not have high educational experience and are frequently motivated by poverty rather than entrepreneurship. Moreover, SMEs conduct their operation and production by simple techniques, rarely import goods from other countries, and their products are simple and low-priced (Stokes et al., 2010). Several potentially challenges of SMEs that often occur are limited access to finance, the burden

of bureaucratic processes for establishment, lack of infrastructure, lack of potential workers, and not being adapted to technology (Chittithaworn et al., 2011).

2.2.1. SME Meanings

There is no single, clear, precise and widely recognized definition of what a small business is. Various definitions exist, mostly due to different objectives and intentions, such as the application of support policy, tax policy and regulations (Loecher, 2000; López-Ortega et al., 2016). Simply, a small business enterprise could be defined as a business which has few workers, a low income, little or no official organization and is typically managed by one person who is usually the business owner (Ayyagari et al., 2007; Rosavina et al., 2019). It is the ordinary typical that develop a small business operate in its business activities. In addition to this, some opinions consider that at a certain point, as small enterprises keep growing than they cease to be small when they experience a change in some conditions, such as the organizational and control system, from informal to be structured as formal and other factors. However, most definitions consider the volume of the business as its differentiating characteristics, apparently since it is easier to determine (Hatten, 2012).

2.2.2. SMEs Definition in This Study

Even though there are various definition of SMEs however this study will refer to a particular classification of SMEs meaning which is relatedly taken from the clarification of the Indonesian government. Various definitions of SMEs are existing such as definition from the World Bank, European Union, MIF-IADB, African Bank, UNDP, etc., however, there are no significant difference between those definitions. For example, in definition based on the number of employees, some definitions mention the maximum limit of employee is 250 (EU), in the range of 50 to 300 (the World Bank)

and not more than 50 (African Development Bank). Essentially, these number of employees used for SME's definition likely similar in classification. The difference of number may potentially be determined by particular circumstances of each country.

Moreover, in Indonesia, the definitions are different among the governments' institution; Ministry of Cooperatives and SMEs (MOCSME), the Ministry of Industry and Trade (MOIT), and the Bank of Indonesia (BI) and BPS (The Central Bureau of Statistics). Those differences are determined based on each internal policy and regulation within the institution in relation to SMEs' activities with the institutions. However, only BPS who uses the definition related to the number of employees. BPS categorizes firms with 5 or fewer workers, 5 to 20 workers, or 20 to 99 workers respectively as house industry, small and medium enterprises. Meanwhile, as mentioned in the previous subchapter of Indonesian SMEs' profile, the definition from the regulation of Indonesian President is related to the financial condition of the SMEs. Hence, to have an effective investigation in the study, in terms of employee and number of assets the author will refer to the definition of the Indonesian government, which is BPS and the President. Using these definitions is expected to have an effective relevancy with Indonesian context, which considers the applicable condition of SMEs, financial, HR capability, etc., especially in Indonesia. Further, this research will bring evidence from the context of Indonesia, therefore, the SMEs definition used in the study will be effectively based on the practise of SMEs activities in Indonesia.

2.3. Ecommerce

It is essential to understand the terminology of ecommerce with reference to wide and relevant explanations of several authors, academicians, practitioners, and professionals. The literature investigation will allow a broader and expansive understanding of

ecommerce. Theoretically, e-commerce develops connection between enterprises, between enterprises and their customers, or between companies and their partners, which includes electronic trading of goods, service and electronic material (ESPRIT, 1997). In fact, electronic commerce is the areas of business and information systems that some researchers define holistically as an internet phenomenon. Early in year 2000 the world has entered a third new stage in the development of Information Technology (IT) competencies, which is the internet era. Then nowadays, the internet era has reached the further stages (Seddon, 1997; Ullah et al., 2016). Therefore, since the IT capabilities are dramatically different from those of the previous decade and worldwide access to the internet by millions of corporations and individuals is identified as the signs of the third stage, electronic commerce is simply defined as commerce that is empowered by internet-era technologies. Additionally, the European Union website (ESPRIT, 1997) describes e-commerce as a broad conception covering any method of business dealings or data exchange (such as electronic trading of goods, services and electronic material) performed using information and communication technology between companies, or between companies and their customers and partners. Moreover, e-commerce endeavours to expand the execution of business transactions over various complexes while the developments may result in more effective performance (improved quality, greater customer satisfaction and better commercial decision making), greater economic efficiency (lower cost) and more rapid exchange (high speed, accelerated, or real-time interaction) (Ghandour, 2015; Kalakota & Whinston, 1997). Another broad definition explains that ecommerce is the activities of commercial information sharing, managing business relationships, and completing business transactions utilizing the internet across information and communication networks (Ullah et al., 2016; Zwass, 1998). Additionally, electronic commerce (e-commerce) is a universal conception concerning any practice of commercial transaction or data exchange performed using

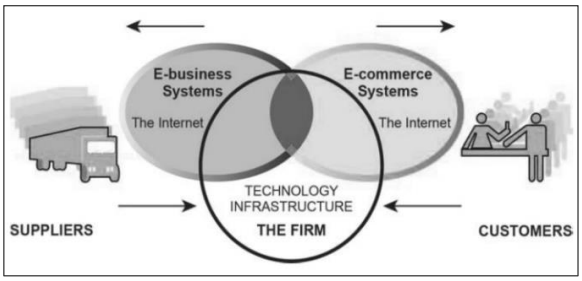
information and communication technologies (ICTs) (Ullah et al., 2016; Whiteley, 2000). Ecommerce can be explained further as the pre-transaction, transaction, and post-transaction set of activities that are completed by buyers and sellers through the internet or an intranet, where there is a strong commitment to buy or sell (Fellenstein & Wood, 2000; Shahriari & Mohammadreza, 2015). Consequently, ecommerce is not restricted only to the process of commerce, that is, buying and selling, but it also has acquired a wide sense than previously. Therefore, the following explanation of e-commerce, referring to numerous literatures, will enrich the understanding of ecommerce.

Ecommerce is the process of integration of the entire company's processes, activities and services related to business transactions, commercial, buying and selling of items or products and information exchange within the company's customers and partners, internally and externally empowered by the internet, computer networks and electronic information technologies (Chaffey, 2007; Chong, 2008; Rainer & Cegielski, 2011; Rayport & Jaworski, 2002). Furthermore, Laudon & Traver (2016) considered that ecommerce is the application of the internet, the global web, mobile apps and browsers running on mobile devices to perform commercial activities. More officially, ecommerce attempts to encourage and enable digital technology due to commercial trades between and among organizations and individuals.

However, there are different perspectives of understanding among researchers/academics and consultants about the connotation of e-business and ecommerce. Some claim that ecommerce embraces the complete domain of electronic systems within the organizational activities that support a company's market exchanges, including a company's total information system infrastructure (Lekhanya, 2016; Rayport & Cárdenas, 2003). In contrast, others claim that e-business incorporates the

entire area of internal and external activities of electronic systems, encompassing ecommerce (Kalakota & Robinson, 2003; Lekhanya, 2016). Therefore, it is important to have a distinct and clear understanding of the differentiation between e-commerce and e-business, then understand the intersection of both points of view (Laudon & Traver, 2016).

Figure 33: The Difference between E-commerce and E-Business



Source: Laudon & Traver, (2016)

It is observable from the Figure 25 above that e-business differs from e-commerce in terms of its transactions and processes that are related to the information system, and do not produce income from outside the companies. Meanwhile, e-commerce primarily involves transactions beyond the boundaries of the company. E-business principally encompasses the usage of digital technologies to business procedures within the company. Practically, ecommerce and e-business systems distort together at the boundary of the company's business, specifically at the point where internal business systems are connected with suppliers or customers. Moreover, the main categories of e-commerce comprise several relations tailored to the current circumstances of ecommerce; business to business (B2B), business to customer (B2C), customer to customer (C2C), mobile ecommerce (M-commerce), social ecommerce, and local ecommerce (Laudon & Traver, 2016).

2.3.1. Ecommerce Definition in This Study

There are various definitions of ecommerce mentioned above. However, those definitions likely have the same approach of using computer and internet as the main foundation and the differences is focused on the approach to implement ecommerce and wide function of ecommerce. Ecommerce transaction is not only for selling and for buying activities but also can be used for broader function in business activities, such transmitting, or exchanging any products, services, and information. It is the integration of activities between companies and companies, between companies and customer, and between companies and partners. Moreover, the innovation on technology nowadays brings dynamic tools to conduct ecommerce transaction such as through mobile phone, website, smartphone, etc. This comprehensive and broader description of ecommerce meaning will be used in this study, as ecommerce development and innovation will be very fast influencing the approach of ecommerce practices. Moreover, this definition is also considered as the most relevant and applicable related to the recent progress of ecommerce development. There are different circumstances of ecommerce practise related to ICT technology development. In the era 2000 to 2005, ecommerce practically was utilising email and simple website. However, from 2005 to current circumstances, there are a lot of changes and innovations. Ecommerce nowadays starts to use the various social media, attractive and easy website tool, Android apps, innovative marketplace, etc. Innovations on technology and information system are so much dynamic. It can be declared that nowadays, is the most innovative era. However, the next years can potentially be changed with the latest technology. It is the reason why ecommerce has always the new approach in performing its activities.

2.4. SMEs and Ecommerce

Ecommerce is an innovative approach of commerce nowadays by arranging business transactions through the Internet, which comprises the substitution of valuable information on the configuration of products and services, as well as payments utilising web-based technologies (Falk & Hagsten, 2015; Fraser et al., 2005). Ecommerce can improve supply chain effectiveness by managing real time information concerning the availability of product, inventory level, status of shipment, and requirements of production (Radstaak & Ketelaar, 1998; Zhang et al., 2017; Żurek, 2015). It has been shown that SMEs have an important role on the aggregate economy in both developing and developed countries. Moreover, it should be considered that many potential advantages could be generated by ecommerce. However, SMEs adoption of e-commerce especially in developing countries is still incomplete because SMEs have different features compared to big enterprises. A typical features of SMEs include a small management team, strong influence of the owner, shortage of expert workers in several areas such as IT and management, limited influence in the business environment, limited market share, low income of workers, disinclination to handle risks, and rejection of modern IT software or applications (Lekhanya, 2016; Seyal & Rahman, 2003). These conditions have discouraged SMEs from developing technology implementation in their business, and they face more difficulties in attaining advantages and benefits from technologies than big companies (Alyoubi, 2015; Grandon & Pearson, 2004; Poon & Swatman, 1999). The literature on ecommerce implementation indicates that for the effective application of ecommerce especially in developing countries, businesses require to be prepared internally and externally (Kabango & Asa, 2015; Tan et al., 2007). Rahayu & Day (2017) verified that in the preliminary implementation of e-commerce in developing countries, the willingness as well as readiness of internal business is highly influential. Internal ecommerce readiness can be

explained as financial capability, ICT resources, strategic management willingness and compatibility of ecommerce with small business and its culture and values (Alyoubi, 2015; Saffu et al., 2008). Researchers have discovered that one of the key issues for successful e-commerce implementation amongst SMEs for transaction improvement, is the level of HR qualification (Kabango & Asa, 2015). Moreover, SMEs are interested in ecommerce implementation since it can help them effectively to improve their business practices, reduce costs, achieve strong relationships with their customers, and improve sales and business transactions.

Research on SMEs and E-commerce

Even though there is rapid growth and development of web-stores, SMEs in emerging countries have been slower in adopting ecommerce than in advanced countries (Alyoubi, 2015) However, there are numerous topics that have been addressed in contemporary SMEs literature in developing countries, especially in Indonesia. Some of them are contained in the articles shown in the following table:

Table 15: Recent Studies of SMEs Ecommerce in Developing Countries

Title	Author and Year	Type of Paper
Determinant factors of e-commerce adoption by SMEs in developing country: evidence from Indonesia	Rahayu and Day (2015)	Journal
Factors Influencing E-Commerce Adoption by SMES Indonesia: A Conceptual Model	Triandini et al. (2015)	Journal
Technology Readiness and E-Commerce Adoption among Entrepreneurs of SMEs in Bandung City, Indonesia	Astuti and Nasution (2014)	Journal
E-Commerce Adoption by Small and Medium Sized Enterprises in Indonesia: An Investigation of Influencing Factors and Benefits	Rahayu and Day (2013)	Conference Proceedings
Technology Acceptance of E-commerce in Indonesia	Luthfihadi and Dhewanto (2013)	Journal
Factors Influence Small Medium Enterprises in Penang Island Reluctant to Use e-Commerce: A Research Proposal	Lim and Baharudin (2013)	Journal
An Empirical Study of E-Commerce Implementation among SME in Indonesia	As'ad (2012)	Journal
Perception of barriers to e-commerce adoption in SMEs in a developed and developing country: a comparison between Australia and Indonesia	MacGregor and Kartiwi (2010)	Journal
E-commerce adoption in developing countries: an Indonesian study	Kurnia (2006)	Journal
Case studies of e-commerce adoption in Indonesian SMEs: The evaluation of strategic use	Kartiwi (2006)	Journal
Exploring the advantage and disadvantage of e-commerce in Thai SMEs	Intrapairot and Srivihok (2003)	Journal
E-commerce infrastructure success factors for small companies in developing economies	Jennex et al. (2004)	Journal
A preliminary investigation of e-commerce adoption in small & medium enterprises in Brunei	Seyal and Rahman (2003)	Journal
E-commerce adoption in Thailand: An empirical study of Small and Medium Enterprises (SMEs)	Lertwongsatien and Wongpinunwatana (2003)	Journal

Source: Developed by Author, 2017

Impact and Benefit of Strategic Use of e-commerce in SMEs

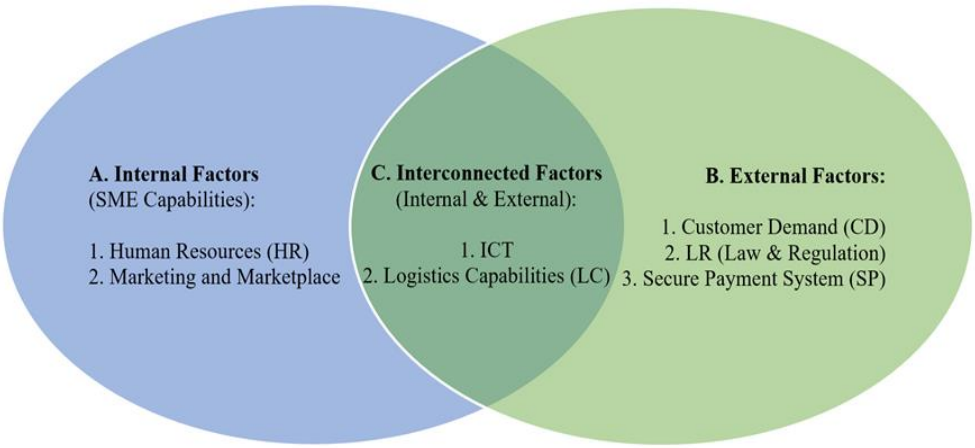
The existence of ecommerce has developed very quickly in the last ten years due to the effective advantages and benefits of the contemporary application by numerous businesses. The idea of significant practice of ecommerce through the application of internet software and services also offers to connect the internet with potential prospects that are proposed to the businesses (Falk & Hagsten, 2015; Sadowski et al., 2002). It is additionally recognised that potential internet practice permits managing the relationships between customers and businesses, which are correlated to the business strategy. Moreover, ecommerce has presented various potential advantages both to SMEs and to large businesses. A number of studies drew conclusions on the advantages and influence of ecommerce in business application. It is shown that ecommerce effectively produces incomparable savings in transaction costs; the cost reduction efficiently contributes to advertising and promotion. In addition to this, ecommerce productively speeds the business communication between shopper and seller, which enables businesses to shorten their conventional supply chains, minimize transportation difficulties, and decrease distribution and delivery costs (Chan et al., 2007; Schneider, 2011). Moreover, ecommerce increases approachability for end customers, advances the flow of business process, and increases effectiveness in dealing with contractors (Fenech & O'Cass, 2001; Jahanshahi et al., 2011; Khatibi et al., 2003). An additional advantage is the effective negotiations established in the internet environments, in which vendors may negotiate different values in various circumstances. Products that generate a smaller amount of profit or no profit may be rationally valued and traded according to these negotiations. Ecommerce existence in the international market gives suppliers access to all consumers, which has numerous benefits. Regardless of the effective advantages that SMEs may achieve from embracing ecommerce in their business, SMEs have substantial difficulties in identifying the relevant application of

ecommerce and its strategies, due to the lack of knowledge and arrangement in ICT, and some other factors. Accordingly, a number of SMEs' owners or managers eventually develop their ICT strategies in an ineffective way through trial and error. Furthermore, there are also other disadvantages of ecommerce implementation, including uninvited email and lack of security and privacy (Lee, 2001; Ullah et al., 2016; Zhang & Von Dran, 2001). Additionally, ecommerce pushes companies to match the products and prices offered by competitors, generating a buyers' market and causing further costs of software and hardware for SMEs. Comparable to other earlier technologies, ecommerce offers advantages and disadvantages for innovative SMEs.

2.5. Key success Factors (KSFs) for SMEs' Ecommerce

It is acknowledged that many researchers were concerned about the pre-stage factors of SMEs' adoption. In addition, many of those researchers were focused on identification of barriers. The common factors in various research are categorised into four contexts; technological, organisational, environmental and personal (Ghobakhloo et al., 2011; Kabango & Asa, 2015; Rahayu & Day, 2015). However, in this study, these influencing factors are the next stage of SMEs ecommerce adoption. The endeavour of this study is to investigate the key success factors (KSFs) of SMEs for the improvement of their transaction volume once they adopt the ecommerce in their business activities. Moreover, this study analytically attempts to identify the factors from relevant literatures that support the SMEs in developing countries, especially Indonesia to be succeed in increasing their sales through ecommerce. According to the literature findings (Table 16), the author determines the KSFs as the internal factors, external factors and interconnected factors (both internal and external). Those classifications are relevantly recognised based on the nature of the factors, whether it is internal, external or interconnected factors (Figure 34).

Figure 34: Key Success Factors of SME E-commerce in Developing Countries



Source: Developed by Author, 2017

The internal factors are factors from the internal side of SMEs, which have the ability to support the improvement of SMEs in terms of their transaction volume. The external factors are critical factors from outside that are able to support SMEs to develop their business transactions. Furthermore, the attention of the research focuses on investigating the role of logistics capability in supporting SMEs' ecommerce in the effort to increase the business volume. Obviously, e-commerce application especially in SME environments is influenced by numerous factors. Initially, the achievement of ecommerce strongly depends on technology development, including its infrastructure (Walker et al., 2016). Telecommunication infrastructure is essential to link various sectors and institutions within a country and across countries (Falk & Hagsten, 2015; Molla, 2005; Molla & Licker, 2005).

Table 16: Final 178 Literature Sources for KSFs of SME E-commerce in Developing Countries

No.	Issue Under Investigation	Resources		
		Review	Conceptual	Empirical Studies
1	E-commerce and SME	(Quayle, 2002), (Jeffcoate et al., 2002), (Feindt et al., 2002), (Rowe et al., 2012), (Afshar Jahanshahi et al., 2013), (Humphrey et al., 2003), (Lawrence & Tar, 2010), (Singapore Post, 2014), (Taylor & Murphy, 2004), (Wilson et al., 2008), (Dwivedi et al., 2009), (Pradana, 2016), (Scupola et al., 2009), (Boerhanoeddin, 2005), (Ngai & Gunasekaran, 2007)	(Rillo & dela Cruz, 2016), (Mahadevan, 2000), (Wickramasinghe, 2003), (Molla & Licker, 2005), (Grabner-Kraeuter, 2002), (Gefen, 2000), (Corbitt et al., 2003), (Triandini et al., 2015), (Payne, 2002), (Eikebrokk & Olsen, 2003), (Rahayu & Day, 2015), (Rahayu & Day, 2013), (Wymer & Regan, 2013), (Pham et al., 2011), (Chong & Pervan, 2009), (MacGregor & Kartiwi, 2010), (Saffu et al., 2008), (Tiessen et al., 2001), (Drew, 2003), (Subba Rao et al., 2003),	(Wang & Ahmed, 2009), (Melnik & Alm, 2002), (As'ad, 2012), (Kurnia, 2006), (Kartiwi, 2006), (Kurnia et al., 2015), (Tan et al., 2007), (Grandon & Pearson, 2004),
2	E-commerce and SME and Customer Demand	(Hong et al., 2004), (Dennis et al., 2009), (Zhang et al., 2002), (Ward & Lee, 2000), (Lin et al., 2014), (Yuan et al., 2014)	(Koufaris & Hampton-Sosa, 2004), (Pang, 2016), (Changchit & Klaus, 2015),	(Andersen et al., 2003),
3	E-commerce and SME and Logistics Capability	(Joong-Kun Cho et al., 2008), (Fernie et al., 2010), (Gligor & Holcomb, 2012), (Lu & Yang, 2010), (Daly & Cui, 2003), (Delfmann et al., 2002), (Roberts & Thomas, 2003), (Ji & Zhang, 2015), (Lee & Whang, 2001), (Mahindru, 2014), (Zurek, 2015), (Gunasekaran et al., 2002), (Xu & Huang, 2017), (Mangiaracina et al., 2015), (Liu, 2011), (Wollenburg et al., 2018), (Galipoglu et al., 2018), (Bourlakis et al., 2011)	(XiaoYan et al., 2012), (Yu, 2017), (Ghezzi et al., 2012), (Ying & Dayong, 2005), (Ramanathan, 2010), (Xu et al., 2011), (Klumpp & Jasper, 2008), (Ji & Liu, 2011), (Xu & Yao, 2010), (Zhang et al., 2017), (Wang et al., 2015), (Kuang et al., 2014), (Shihua, 2010), (Li et al., 2010), (Yong-mei et al., 2010), (Hao & Zhang, 2010), (Murfield et al., 2017), (Xing & Grant, 2006), (Xing et al., 2010),	(Shang & Marlow, 2005), (Weltevreden, 2008),
4	E-commerce and SME and ICT	(Lihua, 2013), (Zaidan, 2017), (Nejadirani et al., 2011), (Kapurubandara & Lawson, 2007), (Spiridon & Dichiu, 2008), (Qing-bian et al., 2003), (Einav et al., 2014), (Liang & Wei, 2004), (Luthfihadi & Dhewanto, 2013), (Yaakub, 2010), (Huang et al., 2015),	(Ghobakhloo et al., 2011), (Lim & Baharudin, 2013), (Varshney & Vetter, 2002), (Hameed et al., 2014)	(Walker et al., 2016), (Chen et al., 2013), (Lertwongsatien & Wongpinunwatana, 2003), (Astuti & Nasution, 2014), (Gide & Wu, 2006),
5	E-commerce and SME and Payment System	(Madan et al., 2016), (Rouibah et al., 2016), (Walczak & Borkan, 2016), (Lee & Lin, 2005), (Zhang et al., 2011), (Ally & Toleman, 2006), (Fariselli et al., 1999), (Morgan-Thomas, 2009), (Ng-Kruelle et al., 2002)	(Beng & Eze, 2010), (Jiang, 2008), (Ling et al., 2007), (Mohmed et al., 2016),	(Roy & Sahoo, 2016), (Jing & Peng, 2010), (He et al., 2006), (Hsu, 2016), (Xuewen & Jinlong, 2010), (Mark et al., 2007),
6	E-commerce and SME and Ecommerce Regulation	(Ward et al., 2016), (Mueller, 2003), (Chun et al., 2006), (Van Cleynenbreugel, 2017), (Kyobe, 2010), (Hoeren, 2000), (Endeshaw, 2002), (Krosch, 2002), (Shalmont, 2016)	(Braga, 2005),	(Taylor et al., 2005),
7	E-commerce and SME and HRM	(Li et al., 2012), Galperin & Lituchy, 2014), (Jehangir et al., 2012), (Dietz et al., 2006), (Li et al., 2017), (Govindaraju et al., 2012), (Xi ping & Ming qiang, 2011), (Yu, 2011), (Yunping, 2010), (Shani & Tesone, 2010)	(Wang, 2005), (Khatri et al., 2010), (Ding et al., 2015), (Ping, 2010), (Qiang, 2011), (Fazhu et al., 2010), (Power, 2004), (Blount et al., 2003), (Hallowell, 2001)	(Sukasame et al., 2008), (Blount et al., 2005), (Tsai, 2010), (Liu, 2010),
8	E-commerce and SME and Marketing and Marketplace	(Ström et al., 2014), (El-Gohary, 2010), (Stockdale & Standing, 2004), (Nielson et al., 2005), (Lekhanya, 2016)	(Chaffey & Ellis-Chadwick, 2016), (Wirtz & Lovelock, 2016), (Armstrong et al., 2014), (Strauss, 2016), (Armstrong et al., 2015), (Kleindl, 2000)	(Khan et al.)

Source: Developed by Author, 2017

Moreover, the budget for developing the infrastructure also affects the growth of e-commerce. Besides, e-commerce also requires an effective logistic infrastructure within a country. Its expansion further necessitates the development of dependable and secure payment infrastructures to prevent fraud and other prohibited conduct (Boerhanoeddin,

2005). Additionally, the total technology infrastructure development of a country depends heavily on the economic and geographical circumstances of the country. However, the identification of KSFs in this study will consider those at the stage when the SMEs are ready to implement ecommerce or when the SMEs are at the initial stage of the implementation. KSFs should bring insights for SMEs on the means to improve the SMEs business through the implementation of ecommerce.

2.5.1. Internal Factors

This section will discuss several factors from the internal side of the SMEs itself, which would be significant to influence the development of SMEs. Obviously, these internal factors should be under the control of the SME itself, these are conditions within the SMEs that should be considered seriously to support their business improvement.

2.5.1.a. Qualification of Human Resources (HR)

In addition to the internal factors of KSFs of SMEs ecommerce, in this study the human resources (HR) aspect is also considered as an influencing factor of SMEs' ecommerce implementation in developing countries, especially in Indonesia. This is because generally, in SMEs, a strategic business decision is greatly reliant on the manager or owner and afterwards implemented by employees as the part of HR. Therefore, HR, both the manager/owner and the workers, would be a significant factor in SMEs' ecommerce implementation, since HR runs all the SMEs' business activities. The manager or owner as HR determines every single decision and policy in SMEs, especially related to ecommerce implementation to improve the business. Workers or employees as part of the HR also influence the SMEs' business since this role has crucial responsibilities to make sure that every single instruction from the manager is conducted well, according to the expectations. Therefore, qualified HRs are surely

required as a KSF of SMEs' ecommerce for the improvement of business transactions. Those workers should be qualified in the areas of ICT, operation, marketing, sales, and other areas that are essential to support SMEs ecommerce. Related to the SME's owner, Walker et al. (2016) discovered that e-commerce implementation by SMEs is comprehensively influenced by the approval of ecommerce technology of the SMEs owner. This is reasonable since operationally, SMEs adapt a centralized approach, therefore the owner/manager has a significant role in every single business decision (Bijaoui, 2017; H. Nguyen & S. Waring, 2013).

In addition to this, the innovativeness, ICT abilities and experience of the owner are acknowledged as KSFs that encourage SMEs in implementing e-commerce in their business activities. The manager or owner who is concerned to search for a solution by changing the structure where the difficulty is situated is typically viewed as an innovative manager (Ng & Kee, 2017). It indicates that innovative managers have a preference to look for a solution that has never been practised previously and consequently is extra risky. As a part of innovation in technology, ecommerce also has risk, especially if it is implemented in SMEs of developing countries. Therefore, the more innovative the SMEs manager, the more likely they are to embrace ecommerce implementation (Ghobakhloo & Hong Tang, 2013). As widely acknowledged, inadequate ICT expertise is one of the general problems of SMEs. If SMEs' owner has better capabilities and better experience of ICT, it will bring self-confidence in implementing ICT and it will diminish the doubt and risk in implementation of ecommerce technology. Also, user expertise and understanding can support and increase the speed of technology implementation (Alyoubi, 2015; Ghobakhloo et al., 2011). Hence, the expertise of the workers also has a significant role in supporting the intention of the owner to implement the ICTs due to ecommerce adoption in their business

improvement. The skills, knowledge and experience of employees will make sure that the instructions of the SMEs' owner will be correctly implemented. Thus, the qualifications of both SMEs' owner and workers are essential KSFs of SMEs' ecommerce implementation, to encourage the progress of SMEs' business transaction.

Furthermore, to ensure that SMEs have good performance and qualification of HR, training and development are need to be implemented, since this is a common method in HR Management (HRM). HR training and development in this context is related to a priority to practise relevant training programme to maintain and improve HR capabilities, both individual and structural, which are proposed to bring advantages towards the development of organisational transformation due to SMEs' ecommerce development (Valle et al., 2000; Wang et al., 2015c). Essentially, there are two approaches training actions that would encourage organisational achievement. Firstly, training in skills and capabilities improvement relevant to workers' jobs and improvement. Secondly, training to increase the satisfaction of workers related to their work and workplace (Harel & Tzafrir, 1999; Sriram & Arumugam, 2016). Moreover, numerous studies (Ahlstrom et al., 2001; Menon, 2012; Sriram & Arumugam, 2016; Thite et al., 2012) have discovered that training in leadership, teamwork building, problem solving, and job expertise are apparently also related to the achievement of HRM practices. Additionally, other HRM approaches, especially soft skills training, employee connections with business partners, and the evaluation of system performance, would assist the establishment of qualified HR that would support the improved performance and profitability of organisations (Menon, 2012; Shahjee, 2016).

2.5.1.b. Marketing and Marketplace

Additional KSFs for the SMEs' ecommerce to reach the market are effective marketing and the development of prospective marketplace. Nowadays, the easiest approach to

marketing activities and the development of marketplace would be through utilizing online media. The internet would simply enable online marketing and marketplace development (Chaffey & Ellis-Chadwick, 2016). Moreover, marketing and marketplace of SMEs' ecommerce, especially in developing countries, could potentially get support from government through supportive laws and regulations as a driver to facilitate SMEs effectively. In fact, various limitations of SMEs especially in developing countries, due to their limited capability, resources and finance, oblige governments to support their business activities. However, the poor bureaucracy system of government in developing countries might be a potential challenge for SMEs to achieve support from the government. Therefore, SMEs should resolve these problems by themselves at the beginning, while the government has a particular policy to facilitate the business of SMEs, especially on ecommerce implementation. (Ström et al., 2014)

Principally, marketing is a business concept of how to develop a relationship and communicate with the consumer. Moreover, the marketing conception is the viewpoint that businesses should investigate the requirements of customers and afterwards endeavour to make effective decisions to satisfy those needs (Lovelock & Wirtz, 2004; Pogorelova et al., 2016). Furthermore, the marketing philosophy also the concept of setting the right product in the right place, at the right price, at the right time and in the right quantity (Armstrong et al., 2014). Marketing would encourage business in creating the right products and services that satisfy the consumers, communicating a strong value proposition, delivering products and services through approaches that optimize value (Strauss, 2016). Similar to other business activities, marketing is a continuing development determined by main philosophies such as classifying and targeting specific customer markets, organising an effective marketing mix, generating powerful impression messages and developing a dependable image of company. Additionally, the

marketing mix is a critical instrument to support the understanding of what product or service is relevant to be proposed and how to organise the planning of an effective product proposal (Armstrong et al., 2015). The implementation of the marketing mix is generally affected through the 4P's of marketing, which are Product, Price, Promotion, and Place (Figure 26). Further, the practice of a marketing mix is an excellent approach to ensure that ‘setting the right product in the right place, at the right price, at the right time’ will occur (Pogorelova et al., 2016).

Figure 35: Marketing Mix

Source: Armstrong et al. (2015)

The marketing mix is a set of principal marketing factors that integrate to generate an organised approach. The Product is the precise combination of customer needs and wants that result in the brand proposition. The product could be either tangible items or intangible services, which should effectively relate to specific customer needs and wants. Place or distribution is related to the capability of a business to meet customers’ requirement for easy and convenient access. Consequently, distribution planning is a critical factor of product placement. The product placement strategy would arrange the most appropriate delivery channel according to the characteristics of the product.

Price describes the value the marketplace attributes to a particular product. In addition to this, Price also reflects how the business expects to organise the price-quality scale.

Price represents the factual amount that the end user is supposed to pay for a product. Promotion represents the specific approaches adapted to communicate the proposal to the target market. Promotion is a key activity involving various marketing communication approaches and practices. Those activities may include sales promotions, advertising, and discounts or special offers. Any approach to promotion must be appropriate to the product, the price, and the potential targeted consumer.

2.5.2. External Factors

This section will discuss several factors from outside the SMEs' structure that would potentially influence the achievement of improvement through conducting business transactions by ecommerce. These external factors are important influencing the development of SMEs' ecommerce but are actually not under the control of the SME itself.

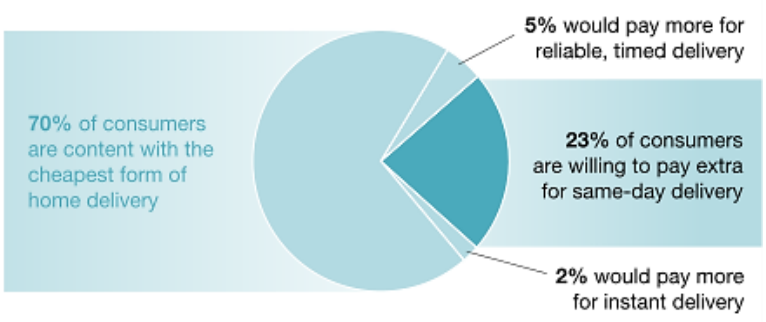
2.5.2.a. Customer Demand

The SME as a business should consider the aspect of customer needs and wants especially in the implementation of ecommerce in the business operations. A business that considers the needs and wants of the consumer would effectively satisfy the customer demands. Consumers as the end users of products and services occasionally have different of unique needs and wants, which can influence the production of the product offered to the consumer. Additionally, it is significant for businesses to identify and analyse the precise needs and wants of the customer. The identification and analysis of customer demands would confidently encourage business to have an effective product to offer to the market. Obviously, it will help companies to understand the exact need and wants of the customer and further, it will effectively assist companies to

target the market precisely. Moreover, customer needs and want would potentially relate to the price, product, and services.

In this study, the investigation of customer demand in SMEs ecommerce will be supposed to identify the needs and wants of the ecommerce online shopper, according to the services they expect. Customer demands might vary in practice, due to the great number of customers for particular products and services, especially ecommerce, as a new approach to buying and selling utilising the internet as the bridge between seller and buyer. The variety of customer demands could relate to the speed of delivery, the place of receiving the parcel (such as CDP: collection and delivery points), type of packaging, product safety, payment method, security level of payment, affordable price of product, affordable cost of shipment, the expectation of free delivery, refund mechanism, an easy to use website, and many other requirements. To investigate those customer needs and wants, various relevant approaches could be used, such as surveys, interview, experiments, investigations and observations (Pang, 2016). In this study, the investigation of customer demands concerns the aspect of ecommerce features (such as delivery options, variety of secure payment method, etc.) in terms of the satisfaction of customers with their online shopping experience, in order to encourage customers to repeat their online shopping. For instance, it is observable in Figure 27 that different customer segments have specific demands on delivery when they shop online. It shows that the majority of consumers prefer to choose the cheapest rate of home delivery. In addition, customers would potentially find the seller with the cheapest delivery cost or even free delivery. Meanwhile, for particular customers, delivery is a significant aspect in their online shopping features, even though they have to pay extra.

Figure 36: Percentage of Delivery-Model Ecommerce Customer Preferences



Source: Wilson-Jeanselme & Reynolds (2006)

By way of e-commerce growth, the preferences of consumers have become progressively more significant in the previously business-focused parcel-delivery market. Large e-commerce companies, as well as numerous start-ups, have acknowledged last-mile services as a critical differentiator in achieving the success. Indeed, the selection of delivery preferences and the perceived delivery service quality are key decision-making factors for online consumers and so directly determine the success of e-commerce companies in the marketplace. Through this understanding, sellers are struggling hard to provide the best customer experiences, especially the improvement of delivery times. A comprehensive survey would support companies to obtain a better understanding of what consumers truly prefer and combined identification and analysis need to be considered in order to precisely understand consumers' comparative preferences for various delivery options, as well as the willingness to pay. Evidently, almost 25 percent of customers are willing to pay a significant extra amount for the advantages of same-day or express delivery. This situation is likely to increase, assuming that younger shoppers are more likely to select same-day and express delivery compared to regular delivery. Ecommerce shopping and shipping options nowadays have become a crucial common aspect to achieve consumer loyalty. Fast and free shipping is everything for online customers. Businesses need to face this demand to reach the market target (Lee & Whang, 2001).

Furthermore, a subdivision of economics studies is concerned with the study of consumer behaviour, particularly as it regards decisions related to buying products and services through the markets. In addition, consumer demand philosophy is mainly concentrated on the study and investigation of the effectiveness of fulfilment of customer needs and wants. The consumer demand concept offers an understanding of market demand and is a foundation of contemporary microeconomics. In particular, this discipline investigates consumer behaviour, especially market buying, based on the satisfaction of customer needs and wants created from the consumption of products. Additionally, the collective demand of every single consumer who is enthusiastic and capable to buy a product is defined as market demand. Market demand is developed by consolidating the single demands of every person keen and competent to purchase a particular product. The fundamental foundation of the consumer demand concept is a specific observation of individuals' manner and action in managing their limited resources amongst the products that offer them customer satisfaction (Samuelson & Nordhaus, 2005). Principally, people make decisions that they would like to consume particular products, but these are based on the resources available. The usefulness concept suggests that logical persons would wisely estimate and consume the package of products that generates the greatest overall satisfaction.

2.5.2.b. Law and Regulation

Law and regulation are sets of guidelines to manage various matters and conditions in a certain area or country, to achieve effective standardization. Legally, law and regulation are arranged and legitimated by the authorities of a country such as government, council, and official congress or institutions (Braga, 2005; Van Cleynenbreugel, 2017). Various problems in a country can be effectively managed by utilising the power and authority of the government. In fact, every country has its own rules and policy to

regulate the economy and businesses according to its development in various aspects. The business of SMEs is under the law and regulation of government in both developed countries and developing countries. Numerous policies and regulations of government (such as taxation, funding, licensing and others) standardise the operation and activities of SMEs as enterprises. Moreover, the application of ecommerce in SMEs business should also be under the regulation of government, since ecommerce is the contemporary approach of business transaction.

The concern to support economic development, protect SMEs through fair business competition and many other considerations oblige government to manage ecommerce application in a country. It has been acknowledged that SMEs as businesses (especially in developing countries) have numerous limitations such as resources, capability, HR, and financial. In addition, SMEs represent the business of citizens in a country, which have a great number of units and represent the biggest contribution in aggregate economy of a country. SMEs have a collective capability to encourage and develop the economy of a country. In particular, the level of labour in a society that has limitations only could be absorbed in SMEs' operations since they have flexibility and specific standards in business. Therefore, the role of government is critical encouraging the development of SMEs. Without the support and facilitation from government, SMEs will find various difficulties to grow and survive as small businesses, especially in the implementation of ecommerce as the business base of the SMEs. Consequently, government support would be very effective through supportive policy, law and regulations concerning the facilitation and development of SMEs implementing ecommerce to operate the business. Potential measures by which government can support SMEs' ecommerce effectively are in various areas, such as support in financial/funding, ICT infrastructure (soft and hard such as website, apps, online

marketplace, internet access, PC/laptop), support for development of HR through relevant training and workshops in order to improve HR capability in operations, marketing, sales and ICT practice. Government support can be considered as a major investment to empower the economy in society. Moreover, supportive regulations of government for SMEs are very significant for their business growth. However, the complications of hierarchy and bureaucracy of government in a country, especially in developing countries, are often viewed as constraints on providing effective government support for the development of SMEs' ecommerce. Additionally, the process of legalization of a law and regulation frequently requires a long time. In some circumstances, it could take more than two or three years and could potentially reach five years. Political issues, hierarchy, bureaucracy, and corruption are causes of barriers to support SMEs ecommerce in developing countries. These conditions have seriously influenced the development of SMEs' ecommerce.

2.5.2.c. Security and Payment System

It is generally recognised by both government and business organizations that, from a consumer perspective, the problems of the information security are a critical problem regarding the ecommerce growth. The sensitivity to risk concerning internet security has also been acknowledged as a concern for both skilled and unskilled users of internet technologies (Miyazaki & Fernandez, 2001). Furthermore, Miyazaki & Fernandez (2001) have identified fraudulent actions by online sellers as a crucial concern for internet users. Therefore, ecommerce users recognise hackers as a serious security risk to ecommerce (Rose et al., 1999). Such behaviour occurs since the online availability and accessibility of the warehoused data of many businesses provides opportunities to any hacker on the internet to steal data from these commercial archives. These risks have been recognised in numerous recent studies (Al-Ghaith et al., 2010; Aleid et al.,

2009). Another study among Indian customers indicates that various influence factors such as security and confidentiality, reliability, easiness, innovativeness, and responsiveness level have increased the approval of e-banking services as a part of ecommerce services (Dixit & Datta, 2010). Therefore, official institutions that ensure the development of business transactional integrity (through law and policies, and technology infrastructure) have a critical role towards the development of ecommerce in emerging countries (Oxley & Yeung, 2001). This support and facilitation (regulations and infrastructure) makes secure and reliable transaction over the internet effectively practicable (through debit, credit, or smart cards, or through online exchanges). It also allows secure transportation and delivery (either online or physical) of those products bought through the internet, to the consumer. The further growth of ecommerce necessitates the development of trusted and secure online payment infrastructures to eliminate fraud and other illegal actions. An effective infrastructure of online or electronic payments is essential to endorse ecommerce, which supports an important connection between ecommerce and the financial principle of the economy.

In fact, few individuals in developing countries have debit or credit cards, many banking services in developing countries lack a domestic clearing system and potential customers are apprehensive of being deceived (Efendioglu & Yip, 2004). In most developing countries, shoppers may be unable to buy online because credit cards are not approved without a signature. Often, additional confirmation through facsimile is required to complete the electronic payment. Moreover, in the case of fraud, the owner of the debit or credit card would be responsible for the loss and not the issuer of the card, which makes the customers unwilling to provide information and to utilise debit or credit cards in surroundings where confidentiality and security concerns are not assured. Other than personal transactions, the effectiveness and understanding of the advantages

of ecommerce depend on quick endorsement, payment, and clearance of accounts. Many developing countries do not have official financial bodies supervising online or electronic payments appliances that are active in facilitating these responsibilities. Therefore, the next KSFs of SMEs' ecommerce development especially in developing countries, is the seriousness of government in developing a reliable and secure electronic or online payment system within the country.

2.5.3. Interconnected Factors

Factors considered in this section are a combination of internal factors and external factors, since they are related to internal conditions and external circumstances as well. Hence, these combined factors should be considered seriously by companies internally, and stakeholders externally (government and private sectors).

2.5.3.a. Information and Communication Technology (ICT)

It is acknowledged that SMEs have grown in prominence in the worldwide economy during the last decades. Additionally, theoretical and practical economic and business development literature acknowledges the strategic contributions of SMEs to the development of both domestic and global economic growth. This reality is not simply defined by the number of SMEs, which constitutes approximately 90% of all business establishments around the world, but also their important role in generating employment prospects (Hall, 2002). Information Communication and Technology (ICT), meanwhile, performs an essential in any organisations (Brock, 2000). The implementation of ICT, which ranges from laptops to personal computers, from word processing to sophisticated applications and systems, has achieved considerable progress in large, medium and even small organisations (Doukidis et al., 1996). The latest research also discovered constructive signs that SMEs are positively able to gain the benefits of e-

commerce as a category of ICT, in facilitating the growth of their business activities (MacGregor et al., 2002).

Both at the stage of pre-implementation and at the time of ecommerce implementation, the technological factor refers to conditions such as perceived advantage, compatibility and budget, which encourage the implementation of e-commerce technology. The perceived advantages relate to the level of proof of the potential benefits that ecommerce methods can offer for the business (Iacovou et al., 1995; Oliveira & Martins, 2010). SMEs should understand that ICT implementation in SMEs' business is a vital requirement to enter the greater ecommerce market and would bring numerous advantages due to the business improvement, especially in sales and transactions. However, the relative advantages of e-commerce implementation would require the SMEs to allocate considerable resources, such as managerial and human resources, financial resources and technological resources, to the implementation of ecommerce technology.

Furthermore, the preparation for ICT application on SMEs' business would potentially involve qualified IT workers, electronic devices (laptop, PCs, and its accessories), the internet network, website development, etc. However, ICT compatibility would also potentially consider the suitability of ecommerce with technology infrastructure, value, culture, and work practices that already exist in the firm (Ghobakhloo et al., 2011). A modernisation using ICT implementation will be more easily recognised on SME organization if that it is relevant to the vital principles of the organization. Compatibility between business policies and technology innovation will make the ICT improvement easier to be considered in a more familiar environment within the SMEs (Matlay & Addis, 2003; Turban et al., 2008). Positively, it should be the essential responsibility of

the SME to be able to prepare its business to be ready for the ICT implementation for business improvement. Consequently, various outcomes should be well organised in relation to ICT implementation, both physically and non-physically, such as human resources, finance, maintenance, policies and the ICT infrastructure itself. Commonly, the less expensive the cost of a particular technology, the more readily it will be embraced and implemented in SME organizations (Premkumar & Roberts, 1999; Tornatzky & Klein, 1982). Observably, ICT problems could be both internal and external problems. An internal problem would be the responsibility of SMEs to provide all the requirements for ICT implementation, such as the technical equipment, budget and human resources. On the other hand, externally, ICT problems due to infrastructure, affordable internet cost, high quality of internet services widely accessible in urban until the rural areas, would be a serious responsibility of the government, to encourage the development of SMEs' ecommerce.

Furthermore, the readiness for technology implementation would also be considered as an ICT perspective that encourages SMEs in implementing ecommerce. Technology readiness in SMEs' ecommerce might be related to the extent to which the technology infrastructure, applicable systems and technical abilities can support e-commerce implementation for its business development (Zhu et al., 2006). Additionally, technology readiness encompasses of technology infrastructure, IT human resources and the budget (Zhu & Kraemer, 2005) and those ICT aspects are essentially if SMEs wish to develop ecommerce (e-business) as a fundamental part of the business value chain (Oliveira & Martins, 2010). Therefore, the better the technology readiness of an SME, the more prospect for SME to embrace IT technology. Further, business size could be an additional issue in the organizations circumstances that is recognised as an influential aspect of SMEs' e-commerce implementation. This because business size is allied to the

capability of SMEs to provide particular resources related to ICT aspects such as its infrastructure, human resources, policy, and finance. The bigger the size of SMEs, the better their capability to afford particular resources, and the more likely they are to implement the e-commerce technology. There are serious ICT infrastructural difficulties in developing countries. It is identified that there are numerous ICT infrastructural issues as barriers preventing ecommerce implementation in developing countries. Amongst the most identified ICT infrastructure barriers are the access to technology (PCs, connections, and gateway to Internet), inadequate bandwidth, which decreases the capacity to transmit audio and graphic data; poor telecommunications infrastructure (most of which is still analogue and can only transmit voice) and unreliable power supply.

Understandably, many SMEs in developing countries, especially in Indonesia, have various limitations related to ICT implementation, and in terms of infrastructure, budget and human resources. Therefore, the support of the government in facilitating ICT implementation is essential. Additionally, it would be very significant to encourage SMEs to be able to perform ecommerce in their business.

Telecommunication Network Infrastructure in Developing Countries

Evidently, the internet connection in most developing countries is unreliable because of the weak mobile communications and unreliable electricity. The majority of developing countries are not prepared for ecommerce due to limitations of network infrastructure, particularly among personal users and businesses. E-commerce attainment depends heavily on technology infrastructure. Telecommunication infrastructure is vital to connect numerous areas and provinces nationally and internationally. In the absence of infrastructure of a tolerable standard, it is conceivable that the potential benefits of

ecommerce implementation will change into difficulties. In the case of telecommunications, noticeably, the infrastructure capability is not at the same level of development across the world. Access to the internet in most developing countries is very sluggish and costly. In addition, outdated and unreliable telephone and mobile connections cause small bandwidth to be offered by numerous ISPs, resulting in poor connectivity. Low capability of the telecommunications infrastructure can lead to technology application prioritising urban zones, which makes the involvement of rural users more challenging. Broadband connectivity is a vital factor in ICT development and implementation. It expedites the involvement of ICTs toward economic growth, enables innovation, and encourages effectiveness. Therefore, the improvement of broadband markets, efficient and advanced supply, and effective provision of broadband services require rules, which would encourage effective competition and encourage liberalisation in infrastructure, network services and applications through various technological platforms (OECD, 2004). Yet again, the role of government in supporting the development of the country, especially the ICT infrastructure, will be very significant for SMEs' ecommerce development. Government has the responsibility of infrastructure development to provide access and connection for ecommerce growth. The concern of government to ensure the growth of SMEs' commerce should be supported with the effort to develop ICT infrastructure across the country, to allow internet access and effective connectivity to reach the users (SMEs) in rural areas and the entire country.

High Cost of Internet Access

Additionally, the issue of the cost of internet access makes the connectivity unreachable for the users in developing countries. Moreover, the cost of access to infrastructure also hinders the development of SMEs' ecommerce. Thus, an urgent need for most emerging

countries is to consider in advance the need of infrastructure and a competitive environment and regulatory outline to facilitate affordable internet access (OECD, 2004). The cost of the internet connection far exceeds the monthly income of a significant percentage of the population. The accessibility of various internet connections and communication services at competitive prices may affect the decision of people of developing countries to adopt ecommerce as the way to perform their business and would permit users to select different and suitable services in line with their particular requirements (OECD, 2004). Faster broadband speed would improve the total on-line practice for both people and enterprises, motivating them to discover further applications and spend more time on-line. Noticeably, internet access rates are a significant factor of internet and ecommerce application by people and companies. Countries with lower access costs normally have more internet hosts, and unsurprisingly, ecommerce has been established rapidly in these countries with flat-rate internet access. Accordingly, the primary network infrastructure of developing countries should be a priority to participate in worldwide ecommerce, even though the expansion of reliable permanent communication networks is a strategic policy area for ecommerce, especially in the developing countries.

Access to computer equipment

Understandably, developing countries have a low level of PC penetration and high cost of Internet access. Many people in developing countries lack the funds required to obtain internet and telecommunication services, especially in the case of low-income and rural populations (OECD, 2004). The price of computers, laptops and internet connectivity exceeds the regular income of the average individual in developing countries. Currently, the cost of those ecommerce requirements is decreasing gradually; however, it is still a problem for most SMEs in developing countries with regard to their

interest in implementing ecommerce to improve business transactions. The high cost of computer equipment and internet access could be an obstacle to the widespread case of computers. The lack of computers both at the individual and organisational level can be a key obstacle to gaining the internet and joining in e-commerce. The combination of these ICT costs and the high rate charged by internet provider companies contribute to discouraging internet connectivity in developing countries and consequently SMEs' involvement in ecommerce. Before ICT and the Internet in particular can be implemented to support developing countries to overcome SMEs' problems, the necessary infrastructure and deregulation are essential. However, even with the ability to access the necessary ICT equipment, SME users will not become active ecommerce users unless they have reasonable assurance of the integrity of online transactions. Consequently, the existence of an acceptable internet infrastructure is a necessary but not sufficient condition for the development of SMEs' ecommerce in general (Oxley & Yeung, 2001).

2.5.3.b. Logistics Capability

The internet has developed ecommerce as an innovative medium for directing business transactions between consumers and companies in a digital marketplace. The progress of the internet has been excellent and there has been a positive advance in ecommerce on this dynamic system (Hoffman et al., 1999; Steinfield & Whitten, 1999; Swaminathan et al., 1999). In consequence, ecommerce and its marketing network, generated by the internet, will have a deep influence on how enterprises do business and manage logistical support operations (Brooksher, 1999; Copacino, 1997; Karpinski, 1999). Definitely, ecommerce completely depends upon an effective logistics infrastructure within a country. In many developing countries, logistical innovations and improvement need to be a priority in order to generate appropriate condition for

effective contribution in ecommerce growth. Ineffectiveness in vital services such as postal and logistics services as well as delivery operation, especially international transactions can tremendously discourage the achievement of the business itself. Transportation, distribution and delivery systems and networks are the strategic aspects in developing ecommerce, especially including the optimisation of ecommerce itself within the SMEs' business environment.

Moreover, the activities of logistics such as inventory and warehouse are also counted as the influencing factors of ecommerce activities for both small and large business. It is difficult to adopt ecommerce and run the business successfully without having attention to managing distribution and delivery channels, which are able to fulfil customer expectations and satisfaction. Speediness of transportation, distribution and delivery is one of the most essential indicators of ecommerce accomplishment. Just-in-time operations, responsiveness, overnight delivery, 24/7 procedures, are all examples of effective, faster and more precisely timetabled economic accomplishments in ecommerce operations worldwide. On the other hand, ineffective distribution, inadequate delivery structures and the lack of efficient transport and postal organisation are crucial complications to the growth of ecommerce, especially in developing countries. There is a very significant connection between the effectiveness of distribution and delivery systems and the encouragement for the private sector to innovate, invest and implement new systems and technology, including ecommerce applications. For instance, assume that the private sector expends budget on internet technologies, but cannot ensure the products will be able to be accessed effectively by customers, because of transportation, distribution and delivery obstacles. These conditions would be a serious challenge for government it has a vital role to develop and improve logistics infrastructure for the achievement of the effective logistics

capabilities within the country. Additionally, the complicated procedures of customs in developing countries can also be a hindrance to the seamless accomplishment of ecommerce transactions across countries. Attention to such concern can positively influence the growth of SMEs' ecommerce and in turn, the domestic economy.

Ecommerce nowadays needs an innovative and effective logistics approach in its operations. Small order size, improved regular order volumes, small package consignments, and demand for same day shipment are regular conditions in ecommerce. Achieving product delivery to the right customer's location through an applicable and effective method is a challenge to logistics operations to achieve the customer satisfaction. The achievement of businesses in the ecommerce market relies on the effectiveness of transportation and distribution systems. Moreover, the effective and efficient movement of products is significant in the e-commerce logistics supply chain (Foster, 1999; Harrington, 2000; Hill, 1999; Huppertz, 1999). Logistics and customer service, which is less interesting process of the business, are truly the major issue within e-commerce practice (Amazon.com). Many businesses that are approaching ecommerce spend heavily and strive to develop an attractive website, but they cannot assure the products to the consumer because of a poor logistics service (US News & World Report, 1999). E-commerce shipments effectively need a comprehensive and innovative distribution infrastructure to manage online business. Frequently, these requirements are subcontracted and generate opportunities for third party logistics (3PL) service providers (Deckmyn, 1999; Joong-Kun Cho et al., 2008). Consequently, with continuous growth of e-commerce, the prominence of logistics capability and outsourcing is likely to rise. Logistics capabilities are a part of a company's resources (including total assets, abilities, managerial procedures, company characteristics, information, knowledge, etc.) which allow it to examine and implement operational

plans that improve efficiency and effectiveness (Barney, 1991; Joong-Kun Cho et al., 2008).

Logistics capabilities have been extensively considered and various measures have been established to connect those capabilities with competitive advantages and greater business performance (Bowersox & Daugherty, 1995; Clinton & Closs, 1997; Ellinger et al., 2000; Joong-Kun Cho et al., 2008; Lynch, 2000; Zhao et al., 2001). Researchers have learned that logistics operations affect performance in terms of revenue improvement as well as cost reduction. The practice of logistics capability as a method to generate distinctiveness was also examined (Daugherty et al., 1998; Delfmann et al., 2002; Joong-Kun Cho et al., 2008). These researchers have found that logistics capability contributes significant encouragement to business plans and performance and occasionally is a source of competitive advantage. SMEs evidently have limited resources to arrange their logistics operations for ecommerce transactions. Thus, a possible approach for business, especially SMEs, to manage their logistics operation to support the business fulfilment is the use of external resources called third party logistics (3PL). 3PL as external sources of logistics services is a part of a continuing trend towards the outsourcing of logistics operations by manufacturers, distributors and stores. Logistics outsourcing is frequently related with contracted logistics, 3PL and logistics services providers (LSP). Sink & Langley Jr (1997) defined 3PL as utilising the services of an external provider to complete some or all of a company's logistics function. Langley et al. (1999) also explained a 3PL provider as a corporation that offers various logistics services for its clients. From a broader official perspective, 3PL is occasionally examined from the viewpoint of "contract" logistics, which is "a procedure whereby the shipper and third parties come into an arrangement for particular services at specific costs concluded within some measurable time limit" (La Londe & Cooper,

1988). Additionally, Murphy & Poist (2000) described 3PL as an affiliation between a shipper and third party, which is paralleled with main services, has advance customized offer, embraces a wider number of service functions and is considered as a long-term, mutually valuable relationship. Generally, conventional logistics activities such as inbound and outbound transportation, freight bill appraising or payment, warehousing, inventory, freight consolidation, distribution and delivery are the most regularly outsourced services (Langley et al., 1999; Lieb & Kendrick, 2002; Lieb & Randall, 1999). Other main outsourced activities potentially include cross-docking, minor manufacturing activities, product marketing/ labelling/ packaging, product returns (reverse logistics), and traffic management or fleet operations.

Due to the size of their business in ecommerce, the simplest approach for SMEs to manage logistics operations is through a domestic or international postal or courier service. These are simple 3PL services that SMEs can utilise to support their business. Definitely, SMEs should select the best 3PL companies to support their business process, to ensure that SMEs get the best service performance to achieve customer satisfaction.

2.5.4. Type of Logistics Capability

Explanations of logistics capability regularly emphasize operation within organizations and businesses, or amongst various partners within the supply chain (Azmi et al., 2017; Ballou, 2007). Moreover, Kain & Verma (2018) discussed that logistics capability is an informed judgement of an organizations' capability to provide an excellent logistics service as cost-effectively as possible. However, the type of organization would objectively depend on the size of the organization itself; a small size organization would obviously be relevant for companies and a bigger size organisation would be applicable

in the context of a country which is regulated, managed and controlled by government. In relation to the resource-based view (RBV) (Wang et al., 2015b; Yang et al., 2009), the logistics capability organized by an enterprise is a significant part of the enterprises' strategic resources, and enables any enterprise to plan and apply some strategies for improving its operational efficiency and performance. In the case of utilising outsourced logistics (3PL), the company's logistics capability would consequently depend on the 3PL's capability and performance. Broadly, the logistics capability of a country would influence the effectiveness of the entire logistics capability of companies.

Internal Corporate Logistics Capability

Zhao et al. (2001) explained that concerning the interactions in performance, there are two types of capabilities: customer-focused capabilities (comprising segmental focus, relevance, responsiveness, and flexibility) and information-focused capabilities (comprising information technology, information sharing, and connectivity). In addition to this, the association between customer-focused capabilities and corporate performance has long been acknowledged in some marketing literature (Day, 1994). Widely in the logistics area, greater attention has been given to the connections between customer-focused capabilities of logistics and company performance (Innis & La Londe, 1994; Novack et al., 1995; Stank & Lackey Jr, 1997). Specifically, Bowersox et al. (1999) combined the basic customer-focused capabilities into a "customer integration" which develops particular core capability of companies in attaining high levels of logistics and supply chain integration. Moreover, information technology (IT) and information-focused capabilities have progressively been considered as strategic indicators of corporate performance. For instance, electronic data interchange (EDI), enterprise resource planning (ERP), data warehousing, data mining, e-logistics, and ecommerce are recent topics in the commerce environment. In the logistics area, the

prominence of IT has long been acknowledged (Fawcett et al., 1996; Williams et al., 1997). In addition to this, Bowersox et al. (1999) considered information-focused capabilities as essential drivers of developed enterprise performance within the best practice companies.

Moreover, the largest investigation of logistics capabilities was conducted by the Global Logistics Research Team (GLRT) at Michigan State University (MSU) in 1995, which showed how businesses applied logistics capability to attain competitive advantage by reliably meeting customer expectations. The MSU conception effectively verified a positive relationship between greater logistics capability and performance enhancement. Correspondingly, Michigan State University et al. (1995) recognized four competencies of universal logistic capabilities, which are integration, positioning, agility, and measurement. Logistics capability, according to MSU, offered the essential foundation for the logistics capability variable.

Additionally, Morash et al. (1996) conducted a broad analysis of the strategic logistics capability related to competitive advantage and corporate achievement. Those designated logistics capabilities determined by Morash et al. (1996) include responsiveness to the target market, pre-sale and post-sale customer service, delivery speed, delivery reliability, selective distribution coverage, widespread distribution coverage (availability), and low-total cost distribution. Of these logistics capabilities, some of them are specifically related to ecommerce, concerning possible adoption and comprehensiveness. Additionally, various literature on ecommerce logistics has shown logistics capabilities to be a condition for future achievement (Joong-Kun Cho et al., 2008). Those capabilities include the capability to arrange and complete orders applying a web-based system, to manage small and repeated orders, to deliver accurate orders on

time, to share logistics information with other channel members, to update shipping information, to manage reverse logistics and global distribution. Consequently, Joong-Kun Cho et al. (2008) finally considered an inclusive strategic logistics capability related to ecommerce practice of a company encompassed in 11 logistics capabilities; pre-sale customer service, post-sale customer service, delivery speed, delivery reliability, responsiveness to target, delivery information communication, web-based order handling, widespread distribution coverage, global distribution coverage, selective distribution coverage, and low total cost distribution (Table 17).

Table 17: Logistics Capability in Ecommerce Practice

Capabilities	Definitions
1. Pre-sale customer service	The ability to service the customer during the purchase decision process (i.e. before the customer buys the product)
2. Post-sale customer service[a]	The ability to service the customer after the sale of the product to ensure continuing customer satisfaction (i.e. return product handling)
3. Delivery speed	The ability to reduce the time between order taking and customer delivery
4. Delivery reliability[a]	The ability to exactly meet quoted or anticipated delivery dates and quantities (i.e. deliver correct orders on time)
5. Responsiveness to target market(s)[a]	The ability to respond the needs and wants of the firm's target market(s) (i.e. handle small, frequent orders)
6. Delivery information communication[b]	The ability to communicate shipping and delivery information with customers
7. Web-based order handling[b]	The ability to handle and fill orders using a web-based order handling system. This also includes logistics information sharing with other channel members
8. Widespread distribution coverage	The ability to effectively provide widespread and/or intensive distribution coverage
9. Global distribution coverage[b]	The ability to effectively provide global distribution coverage
10. Selective distribution coverage	The ability to effectively target selective or exclusive distribution outlets
11. Low total cost distribution	The ability to minimize the total cost of distribution

Notes: [a]Denotes definition modified from Morash *et al.* (1996); [b]denotes newly added logistics capability items

Source: Joong-Kun Cho et al. (2008)

Furthermore, Sandberg & Abrahamsson (2011) considered another perspective of logistics capabilities, which encompasses two types of logistics capability; Dynamic Capability and Operational Capability. Dynamic capability describes the ability to create, extend and modify operational capabilities in case of over time. Meanwhile,

operational capability represents the capacity of operational procedure, which is valuable (effective and efficient), rare and imperfectly imitable, related to a particular organisational process (Sandberg & Abrahamsson, 2011). Additionally, logistics capability could potentially present the fundamentals that define the logistic capabilities of an organization, which are associated with the company's resources that allow it to offer customers distribution, transportation, warehousing, inventory, and other logistics services (Chen & Paulraj, 2004; Prajogo & Olhager, 2012). Moreover, Wang (2016) identified three categories of logistics capabilities: innovation, customer service and responsiveness, and flexible operations, as shown in Table 18.

Table 18: Three Factors of Logistics Capability

Logistics capability	Attributes	Previous studies
Innovation	Innovative service Innovative solutions Advanced packaging technology Process improvement Standardisation of operations Post-sale customer service Simplification of operations Tracking and tracing Integrated information system Advanced technology Web-based order handling	Lai, Ngai and Cheng (2004), Zhao, M, Dröge and Stank (2001), Lu and Yang (2010), Morash, EA (2001), , Daniel and Fredrik (2011) , (Hayes, Wheelwright and Clark (1988); Jay Joong-Kun, John and Harry (2008); Kim (2006); Morash, EA and Lynch (2002))
Customer service and responsiveness	Customer service flexibility Value-added services Logistics service differentiation Advanced problem notification Advanced shipment notification Order flexibility Pre-sale customer service Customisation during logistics Responsiveness to key customers Responsiveness to target market	Morash (2001), (Fawcett and Cooper (1998)), Lu and Yang (2010), Jay Joong-Kun et al. (2008), Kim (2006), Morash and Lynch (2002), Zhao, M, Dröge and Stank (2001)
Flexible operations	Delivery reliability Expedited delivery On-time delivery Flexible operation Widespread distribution coverage Global distribution coverage Physical supply flexibility Purchasing flexibility Delivery time flexibility Volume flexibility Location flexibility Reverse logistics timing	Morash (2001), Hayes et al. (1988), Fawcett and Stanley (1997), Lu and Yang (2010), Morash and Lynch (2002), Day (1994), Zhang, Vonderembse and Lim (2005), Jay Joong-Kun, John and Harry (2008)

Source: Wang (2016)

The combination of various perspective and measurement approach of internal corporate logistics capability will be utilised in this study, in order to have a comprehensive and effective result. The indicator that will used in this type of logistics

capability are as follow: pre-sale customer service, post-sale customer service, delivery speed, delivery reliability, responsiveness to target, integrated information system, web-based order handling, widespread distribution coverage, global distribution coverage, selective distribution coverage, low total cost distribution, innovation, flexible operations, and reverse logistics lead time.

Table 19: The Indicator of Internal Corporate Logistics Capability in the Study

Capabilities Indicator	Description
Pre-sale customer service	The capability to serve the customer during the purchasing process; before the customer buys the product/service.
Post-sale customer service	The capability to serve the customer after the sale of the product/services to guarantee continuing customer satisfaction
Delivery speed	The capability to fasten the delivery start from order purchasing until final delivery (reduce any wasting time of process and delivery)
Delivery reliability	The capability to fulfil the request of customer for specific requirement of delivery time and quantity
Responsiveness to target market	The capability to respond the need and wants of the market targeted (i.e. handle small package, frequent order)
Integrated information system	The capability to provide an effective connection of information between company, customers and partners
Web-based order handling	The capability to facilitate the order process utilising the web-based order handling system.
Widespread distribution coverage	The capability to effectively cover the widespread and/or intensive distribution coverage
Low total cost distribution	The capability to minimize the total cost of distribution
Innovation	The capability to perform improvement and innovation within the entire process and operation to create value both for firm and customer
Flexible operations	The capability to facilitate certain services in particular operation (i.e. global and selective distribution, specific feature of warehousing)
Reverse logistics	The capability to manage the reverse logistics effectively in term of time speed, low cost and safety

Source: Developed by Author from Joong-Kun Cho et al. (2008) and Wang (2016)

It is observable from the Table 19 that the combination of the capabilities considers the applied indicator that applicable with the context of SMEs and ecommerce practise. One of the key applied indicators is related with the IT and web-based application since the ecommerce practise is fully based on online process and transaction. Therefore, the logistics capability should ensure that the using of IT within the operation should be utilised effectively to enhance an integrated and comprehensive consolidation.

Outsourced / External Corporate Logistics Capability

The logistics capability of a company is related to its practice regarding outsourcing, since the company's logistics capability will be directly determined by the outsourcing logistics providers capability and performance. Sink and Langley (1997) described a recent tendency among businesses to revise their main concern and pay attention to the resources, focusing on a limited number of selected operations and processes. The consequence was an increasing preference by businesses to outsource selected processes comprising logistics operations. Enterprises that subcontract their logistics operations are more enthusiastic to utilise the capability of logistics service providers (LSP) to improve and achieve competitive advantage in the market (Langley et al., 1999; Sink and Langley, 1997; Maltz, 1994). Langley et al. (1999) also discussed the prominence of specified 3PL services concerning the integration of human and financial resources of a service provider to generate an effective and efficient logistics service. The operating of 3PL or logistics outsourcing will improve a company's logistics capability and improve its performance by utilising the 3PL's proficiency in logistics management and fulfilment (Joong-Kun Cho et al., 2008). In this situation, the logistics capabilities of a company would depend on the specific services provided by the 3PL or logistics service provider (LSP). Moreover, Lai et al. (2010) clarified that the logistics capability of a company that utilises logistics outsourcing would be defined as the ability of logistics service providers (LSP) to generate and organise resources to meet the logistics requirements of their customers, achieving improved service performance. Accordingly, the logistics capability of 3PL or LSP would refer the similar idea as the logistics capability of a company in general, which was discussed in the section above. However, in the context of logistics outsourcing, a company would trust the LSP to manage a particular part or the whole of their logistics operation, due to the limitations of the company. Therefore, the logistics capability of the company would rely on the logistics

capability of the 3PL itself. Furthermore, from the description of this section above, there will be particular combined indicator that will be applied in this study. The indicator in this part applies similar approach to the internal corporate logistics capability. The difference is in the context of organization whether internal or external of the company. Hence, it is noticeable that the indicator of outsourced logistics capability in this study will mainly related to internal logistics capability. However, the additional capability in this section is also concerning the qualified LSP or 3PL, who has capability to perform an integrated communication and information system.

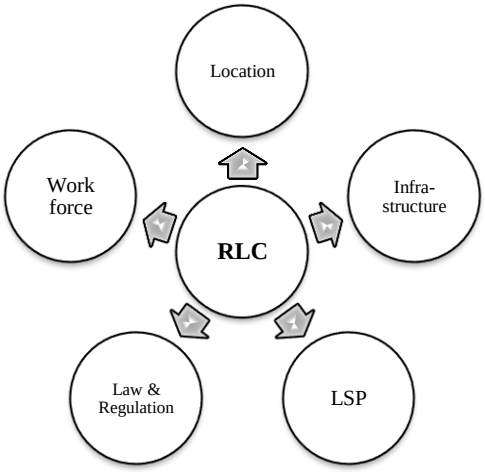
Regional/Country Logistics Capability

The concept of Country Logistics Capability is comparable with Regional Logistics Capability (RLC), which is described as the effectiveness and efficiency of a country or region in enabling logistics activities both within the country and across regional boundaries. This country logistics capability is fundamental, due to the planning and development of a broader strategy for both regions and companies. The responsibility for a country's logistics services is to meet the needs of its residents, businesses and industries for the right product, in the right quantity, at the right time, at the right place and for the right price (Panayides, 2006). Consequently, the way of attaining these objectives is through an effective and efficient plan and strategy to apply, manage and control the movement and the storage of goods and commodities entering (import) as well as exiting (export) the country (CSCMP, 2010). Accordingly, a country should have a capability to assist and facilitate the logistics and supply chain operations within the country, to have a greater connectivity to its business entities. The greater the capability of a country to accomplish this duty, the better the domestic or regional logistics capability it will have. From the perspective of the effectiveness and efficiency of logistics operations, the concept of Regional Logistics Capability (RLC) as a

universal framework of country logistics capability refers to the effectiveness and efficiency of a country in facilitating logistics and supply chain operations both within the country and across the country boundaries (Song, 2011). Subsequently, logistics and supply chain processes would refer to the whole operation of goods movement from the point of origin to the point of consumption, encompassing inventory, warehousing, packaging, handling, transportation, distribution, and delivery. Thus, RLC concerns both national and international movement of commodities of a country, both within the country and across its boundaries (Mentzer & Konrad, 1991). Moreover, according to (Banomyong, 2007), a country logistics structure is organised of sellers, buyers, transporters, and consignees; public and private sector of logistics and transport service providers; local and national companies and institutions, policies, and regulations; soft and hard infrastructure. Additionally, Banister & Berechman (2001) clarified that at the domestic circumstances, transportation availability should be appreciated as a conception of accessibility that embraces obtainability of capable worker, strategic locations, effective infrastructure, and road and rail linkages.

Tongzon (2007) approved another various aspect that explain worldwide competitiveness in logistics capability of a country embracing strategic location (on essential transport and airways routes), brilliant linked seaports and airports, competencies in warehousing and interrelated services, qualified human resources, governmental and economic constancy, and operative and supportive government laws, policies and regulations. Henceforward, Song (2011) considered that there are numerous pointers that are respected into five indicators to determine the RLC measurement and aspects structure: features of location, quality of infrastructure, local logistics services accessibility, local government rules and assistance, the number and excellence of logistics staffs (Figure 37).

Figure 37: Universal Indicators of Regional Logistics Capability

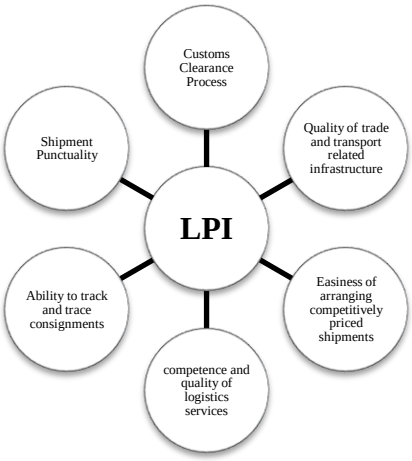


Source: Song (2011)

Furthermore, The World Bank determined a particular approach to measure the logistics performance of a country, by publishing the first worldwide Logistics Performance Index (LPI) in 2007, which was updated every 2 years. The LPI according to The World Bank approach is a collective key measurement that comprises various indicators of logistics capability regionally; transport infrastructure, Supply Chain Management (SCM) and trade enablement capabilities, which are quantified by performing a global survey of international freight forwarders and express transporters (Lu et al., 2010).

Fundamentally, the World Bank LPI considers six key indicators (Figure 38) of national logistics capability; (1) Competitiveness of shipments price; (2) Infrastructure quality on trade and transportation; (3) Effectiveness of customs clearance; (4) Capability and superiority of logistics services; (5) Track and traceability; (6) Shipment punctuality (Arvis et al., 2014; Lu et al., 2010).

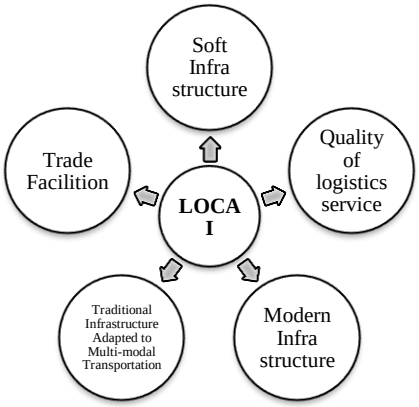
Figure 38: The World Bank's LPI Indicators Signifying Country Logistics Capability



Source: Arvis et.al., (2014)

Concerning the assessments of all-inclusive global logistics stakeholders, the data referred to above are accumulated internationally, from logistics providers (from managerial level staff to medium top managerial) and logistics services customers (Arvis et al., 2014). Moreover, Memedovic et al. (2008) presented an alternative approach to quantify country logistics performance utilising the indicators of country logistics capability, known as the Logistics Capability Index (LOCAI). The LOCAI is a consolidated logistics capability measurement, which evaluates five major elements reflecting the present infrastructure, traditional infrastructure adapted for multi-modal transportation, trade facilitation, superiority of logistics services, and soft infrastructure (Figure 39).

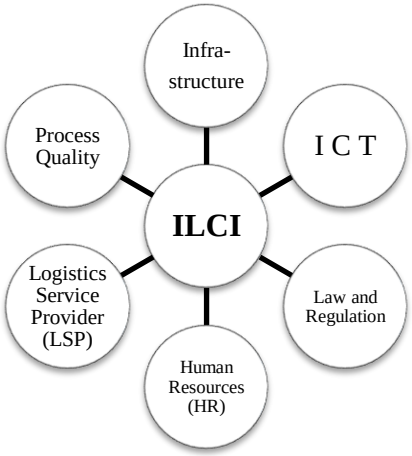
Figure 39: Logistics Capability Index (LOCAI)



Source: Memedovic et al. (2008)

A measurement framework for logistics capability and performance, considering the factual and relevant conditions of the country; is essential to define the effectiveness of a country's logistics capabilities, in order to facilitate accurate strategy and implementation of country development related to the enhancement of economic sectors (Arvis et al., 2014). In addition to this, Saputra (2017) presented an index of logistics capability of developing countries, especially Indonesia, which is known as the Indonesia Logistics Capability Index (ILCI).

Figure 40: Country Logistics Capability Indicators of ILCI



Source: Saputra (2017)

Principally, the ILCI factors (Figure 40) are considered to comprise a wide-ranging framework of aspects of country logistics capability and performance from numerous models including Banomyong (2007), Banister and Berechman (2001), Tongzon (2007), RLC, World's Bank LPI and LOCAI. However, it particularly represents the relevant circumstances of the logistics sector in Indonesia. Hence, ILCI factors would be relevant and effective to be operated in this study to achieve a reliable result. Moreover, this will ensure the relevancy with the context of Indonesia since it has been applied in the survey in 2016. Utilising ILCI framework in this study is expected to be applicable and effective.

2.5.5. Ecommerce Logistics

Evidently, the evolution of ecommerce has a thoughtful influence on conventional supply chains, whereby the commercial and physical networks are consolidated in the retail stores (Zhang et al., 2017). In the case of ecommerce processes, the commercial and physical channels are divided and managed independently (Ji & Zhang, 2015). A significant consequence on this condition is that the physically available products could not limit consumer behaviour anymore (Wang et al., 2015a). However, consumers can order and buy electronically any product that they need, in any quantity and at any time. This condition has transformed the supply chain from a "push" (to the stock) to a "pull" procedure (by the end user) (Ghezzi et al., 2012). The physical facilitation where this transformation is operated, named the distribution centre (DC). Previously DC is organised to manage huge shipments (fully loaded trucks) at fixed schedule times to fixed point of destination (delivery addresses), however the crucial aspect now turn out to be direct distribution to end consumers (B2C) and this is the reformed approach of the customer requirements fulfilment (Wang et al., 2015a). Consumers nowadays, who previously arranged in a shop to make their buying are at present day individually assigning their orders online, which should be managed in a straight line by DC. Due to this ecommerce revolution, the amount of orders in the distribution centre grows significantly. Moreover, every order simply has a few products (order-lines) (normally between one and five) and the number of items per order-line is limited to one or two items. The transformation of this situation potentially becomes a driver of new typical demand for logistics operations. In ecommerce operation, evidently, there will be a great variety of products and minor stock levels per product. Those particular products can be no longer put away on pallets, but are mostly stored in boxes or cartons, or on shelves. Additionally, the products must be instantly reachable for order picking, so a flooring place is recommended compare to storage in shelves (Bayles & Bhatia, 2000; Ji

& Zhang, 2015). Within ecommerce, the distribution process is no longer merely an effective and efficient logistics operation, but also especially an effort to satisfy the expectations of the customer. If the service of a web-shop or particular products in a certain online marketplace is not dependable, customers actually can change to the other competitor ‘in simply one immediate click’. Therefore, E-commerce is affecting the commercial network into a distribution centre (DC). This is the robust motivation that reliable logistics services are more essential than earlier. Inaccuracies in the logistics operation will have a straight influence on the customer and henceforward on any (additional) buying (Ji & Zhang, 2015). Furthermore, with the intention to meet the consumer expectations, various supporting actions have to be completed. These supporting activities include services that add the value to the products, manage the shipments or fulfil managerial responsibilities. These services normally discussed as Value Added Logistics (VAL) and Value Added Services (VAS), which have already gradually been applied in conventional DC, especially when it emphases to global operations (Zhang et al., 2017). This type of DC with a high level of VAL and VAS operation has been developed a Logistics Service Centre (LSC). Consequently, within ecommerce, the variety and intensity of the significant VAL and VAS are of a various measurement since the direct influence on sales performance and customer satisfaction are the key motivation. Finally, the operative outcome is the occurrence of an improved category of logistics service operation that is generally acknowledged as e-fulfilment (Xu et al., 2011).

2.5.6. Logistics Service Quality (LSQ)

The excellent operational of logistics has been acknowledged as a process in which enterprises can generate competitive advantage in business (Mentzer et al., 2001). The logistics excellence in part of the business process is capable to encourage a visible

service that impact on customers (Mentzer et al., 2001). To achieve an effective leverage of logistics excellence as a competitive advantage to customers, logistics manager should work together with other department especially marketing (Kahn 1996; Kahn and Mentzer 1996; Mentzer and Williams 2001; Murphy and Poist 1996; Williams et al. 1997). It is since the quality of logistics service is related as an importance of marketing factor that encourage creating customer satisfaction (Bienstock, Mentzer, and Bird 1997; Mentzer, Gomes, and Krapfel 1989). There are various meanings and explanations of how logistics service quality could facilitate in creating customer satisfaction. The most common traditional approach is based on the utility foundation of time and place (Perreault and Russ 1974). The acknowledged "seven Rs" define the qualities of the product or service of a company proposing, which encourage the establishment of utility by way of logistics services. A part of an offering in product marketing is the firm's capability to transport the right product at the right price, at the right quantity, in the right condition, to the right place, at the right time, and with the right information (Coyle, Bardi, and Langley 1992; Shapiro and Heskett 1985; Stock and Lambert 1987). This formulation has indicated that part of the product value is generated by logistics services. Practically, operational value of logistics service due to customer satisfaction could be considered in various measurement of indicators, such as the percentage of items in stock, percentage of on time delivery orders, percentage of undamaged delivery items, percentage of incorrect items in delivery, percentage of incorrect destination point in delivery, and many others indicators of measurement (Mentzer et al., 1999). These types of qualities are reflected as the "value" generated by the logistics service indicators measurement of availability, timeliness, condition, and successful delivery.

The change of business environment especially in the era of ecommerce market has been progressed the operations-based classifications of logistics service. Therefore, the very basic conception of utility creation became insufficient to describe comprehensively the value generated by logistics operations. The reflection of value has been extended to encompass a number of value-added in operational activities, such as 24hours order fulfilment, systematic packaging, third-party inventory control, barcoding and dispatch status updating, requested delivery point (parcel locker collections) and information systems. Principally, there are three components of customer service require to be concerned, which related to the service of logistics: (1) an activity to satisfy customer's needs, (2) performance measures to guarantee customer satisfaction, and (3) a value of firm-wide assurance.

Due to the customer service creation in the logistics service circumstances, Mentzer, Gomes, and Krapfel discussed there are two foundations in delivery service, which is marketing customer service (MCS), and physical distribution service (PDS). They identify the corresponding characteristics of the two components effectively to satisfy the customer and offer an integrative structure of customer service. This understanding is considered as a knowledgeable foundation for integrated marketing and logistics operation. The conception of service quality is an effort to recognise customer satisfaction from the viewpoint of the differences between customer views and actual customer service on various aspects. The adaptations have been completed to the original service quality model by improving logistics features that acceptable into the previously customer-defined dimensions and by identifying further gaps that could be implemented to the logistics service perspective. These understandings of logistics service provide a substantial to generate a customer-based foundation for a better meanings and measures of logistics service quality. The practise of customer-based

classifications of LSQ leads physical distribution investigation, which conventionally has focused on physical observation of operational qualities and more corresponding to marketing, however, has concerned more to appreciate such unobservable of customers' perceived value.

Practically, service quality has been an important topic in both marketing and logistics studies, which similarly significance to the concern in quality, management of quality and satisfaction in enterprises (Fisk et al., 1993; Shet et al., 2006; Richey et al., 2007). Investigation by Millen et al. (1999) recognised essentially that better-quality of customer satisfaction as a strategic advantage of LSQ. Correspondingly, Va´zquez Casielles et al. (2002) approved that an excellence in supplier physical distribution operations has the highest encouragement on customer satisfaction. The concept of LSQ has been considered from two different viewpoints, which is objective and subjective quality (Gil Saura et al., 2008). The first concept associated quality with coordinating the service towards service provider, which has clear specifications in operations (Crosby, 1991). This business understanding of services appreciates quality as a precise assessment of the whole process and operations, which is required to perform the service, associating the process to the product manufacture by examining the service as a physical object, which is able to be observed, and using the qualities that can be assessed (Garvin, 1984). Meanwhile, the second method considers the evaluation of quality to the perspective of customer, which is a category of subjective quality. According to this viewpoint, service quality is “a comprehensive conclusion or point of view, in relation to the greater characteristics of the service” (Parasuraman et al., 1988).

In the context of logistics service, the contribution from Bienstock et al. (1997), comprises this construction by classifying the objective variables measured through

customers' perceptions related to their expectations (subjective components) as the significant components of LSQ. More investigations (Millen and Maggard, 1997; Sohal et al., 1999; Mentzer et al., 2001) have supported to this conception by examining LSQ as the difference indicators between the expected and the perceived service. This subjective indicator generates quality greatly qualified and agile in characteristics as it would be at variance regarding the time and space (Holbrock and Corfman, 1985). According to Gro¨nroos (1982) there are two different factors in service quality. Firstly, technical quality which considered as the service being technically suitable and operating to an actual outcome. Secondly, functional quality, which comprises the approach to manage the customer throughout the process of the service standard.

LSQ Challenges and Effects on Distribution Systems

The former concerns of LSQ was on the concept of physical distribution service quality (PDSQ), which defined in relation to the aspects of products availability, delivery timeliness, quality of delivery, order condition and status information (Mentzer et al., 2001). PDSQ principally related to the conventional B2B circumstances of the online shopping, which has been approved to assess the LSQ within the context of B2C to develop an e-PDSQ model as deliberated and verified by Xing et al. (2010) which discovered four significant concepts: availability, time, order condition and reverse. However, the theory of e-PDSQ requires to be improved due to the attention on the service quality of ecommerce or online shopping in universal context. According to Zeithaml et al. (2002) Electronic service quality (e-SQ) explained as the extent to which a website enables to facilitate an efficient and effective experience of shopping, purchasing, and products and services delivery. The effectiveness of E-SQ would be influenced by several aspects, such as website design, the availability of information and searching tool, security issue, simple procedure of order transaction, and variety of

affordable order delivery. E-SQ could be a differentiation strategy for online sellers to achieve the business competition through the effective and efficient online order fulfilment. Moreover, it is also concerned to be the principle of e-PDSQ and one of the key indicators that enable in affecting customers' perception of service quality and satisfaction (Xing et al., 2010). However, an extensive contribution should be developed on online order fulfilment and logistics customer service indicators particularly in the circumstance of omni-channel distribution as the type of distribution with the integrated supply chain and distribution operations across the channels (David B. Grant et al., 2017; Murfield et al., 2017; Xing et al., 2011).

2.6. Research Gap

In fact, there has been numerous research completed concerning ecommerce application, especially in SMEs. Nevertheless, these studies were mostly conducted in advanced countries (Kurnia et al., 2015; Parker & Castleman, 2007; Williams et al., 2009) and few are concentrated on SMEs and within the emerging countries. This restricts the attention to ecommerce application by SMEs, particularly in emerging countries. Moreover, most of the limited earlier studies that discussed SMEs are concentrated mainly on pre-adoption problems. These studies had a tendency to investigate the issues that enable (or consider the obstacles that challenge) ecommerce adoption rather than the post-adoption issues, which focus on post-implementation benefits and advantages (Alyoubi, 2015; Intan Salwani et al., 2009; Kabango & Asa, 2015; Kurnia et al., 2015; Molla & Heeks, 2007; Rahayu & Day, 2017; Sukasame et al., 2008). Simply, research discussed the reasons why SMEs find it difficult to apply ecommerce and what factors encourage SMEs' willingness to adopt ecommerce. Meanwhile, the intention of this research is more to clarify the post-adoption process,

by exploring the key success factors for SMEs in applying ecommerce for the achievement of business sales or transaction.

Acknowledging the aspects that support or constrain the adoption of ecommerce, typically for SMEs, is significant. However, recognising how the implementation will benefit business performance is also essential. Moreover, there are three critical reasons why SMEs are still unenthusiastic to embrace ecommerce technology. They are the lack of achievement narrative, limited understanding of ecommerce and lack of evidence about the prospective effects of ecommerce application on business performance (Intan Salwani et al., 2009; Kabango & Asa, 2015; Rahayu & Day, 2015; 2017; Triandini et al., 2015). Hence, one of the obstacles reported by Indonesian SMEs concerning ecommerce implementation is the perception that ecommerce does not promote any benefits to their organization (MacGregor & Kartiwi, 2010; Rahayu & Day, 2013). There are limited studies concerned to investigate the key success factors of SMEs' ecommerce implementation, which can improve their business transactions. These reasons make numerous SMEs, especially in developing countries have lack motivation to spend their capital on ecommerce application. Hence, with the purpose of filling this gap, this research is intended to provide improved understanding about the application of ecommerce by SMEs in developing countries. Particularly, it aims to recognise the key success factors (KSFs) for SMEs' ecommerce implementation in developing countries for the improvement of their business transaction.

Moreover, the pre-adoption issues in general have three main aspects, which is technological, organisational and environmental (Kartiwi, 2006; Kurnia, 2006; Rahayu & Day, 2013; 2015). However, there is a lack of investigation of logistics operations related to the achievement of business transactions in the application of ecommerce by

SMEs in developing countries. There is a deficiency of consideration how logistics operation capability would determine the success of SMEs when they apply the ecommerce system in their business operations. Hence, to fill this gap in the logistical area, this research attempts to focus on and explore the aspect of logistics capability (as one of the key success factors of SMEs' ecommerce implementation) in relation to the improvement of SMEs' business transactions applying the ecommerce system in a developing country, specifically Indonesia.

As one of developing countries in Southeast Asia, Indonesia is selected as the study location. There are at least four reasons for this selection. Firstly, Indonesia is one of the developing countries in Asia and has a large population, being the fourth biggest population in the globe and the largest in Southeast Asia. Thus, Indonesia can represent other developing countries in Asia, especially in Southeast Asia. Additionally, Indonesia is also acknowledged as the biggest archipelago country in the world, comprising more than 15 million islands. The massive population and the extensive and fragmented geography have constituted a reasonable motivation for businesses in Indonesia, especially SMEs, to implement ecommerce in their business transactions. Thus far, as generally discovered in numerous emerging countries, the implementation of ecommerce by SMEs in Indonesia is still slow compared to developed countries (MacGregor & Kartiwi, 2010). Thirdly, Indonesia is located at the centre of Southeast Asia, close to Singapore, Malaysia, Thailand, China, Japan and Australia, which offers potential opportunities for the business expansion. Lastly, Indonesia is currently recognized as the one of the countries, which will grow to have the biggest economic influences in this century, along with Mexico, Nigeria and Turkey, popularly known as ''MINT'' countries (Mexico, Indonesia, Nigeria, and Turkey). Jim O'Neil originally promoted MINT in 2013 by the acquaintance with the BRIC countries (Brazil, Russia,

India and China) (Rahayu & Day, 2013). Unfortunately, the motivation of the government to encourage the development of SMEs to achieve its business transaction implementing the ecommerce system is not supported with clear and effective official guidance. Obviously, there is a lack of effective guidance for government on how to develop business transactions of SMEs by applying ecommerce. This is a logical reason for the low progress of ecommerce implementation by SMEs in Indonesia compared to neighbouring countries amongst the developing countries. Hence, as a country that has been acknowledged as a significant performer in the global economy, it is attractive to investigate SMEs ecommerce implementation in Indonesia with the purpose of offering strategic practical guidance for government in relation to its motivation to develop the business transactions of SMEs by utilising ecommerce technology.

Table 20: Summary of the Research Gaps

Topic of Interest	Author	Previous Studies	Gaps
E-commerce Adoption	Molla & Heeks, 2007; Sukasame et al., 2008; Intan Salwani et al., 2009; Alyoubi, 2015; Kabango & Asa, 2015; Kurnia et al., 2015; Rahayu & Day, 2017	Pre-adoption	Post-adoption
Enterprise Types	(Andersen et al., 2003, Krosch, 2002, Blount et al., 2005, MacGregor and Kartiwi, 2010)	Business in general, large business, few concerns on SMEs	Focus contribution toward SMEs especially in developing countries
Country	(Wilson et al., 2008, Alyoubi, 2015, Dwivedi et al., 2009, Rillo and dela Cruz, 2016, Xuewen and Jinlong, 2010)	Concentrated in developed and few in developing countries	Increase the number of researches in developing countries
Concerned Area	Molla & Heeks, 2007; Sukasame et al., 2008; Intan Salwani et al., 2009; Alyoubi, 2015; Kabango & Asa, 2015; Kurnia et al., 2015; Rahayu & Day, 2017	Organisational, Technological and Environmental	Marketing, marketplace; secure online payment system; law and regulations; Logistical Aspect: Logistics capabilities for E-commerce

Source: Developed by Author, 2018

2.6.1. Rationale of the Research Gaps

Post-adoption as the stage of concerned on ecommerce

The stage of ecommerce development and implementation for businesses nowadays has reached a focus on post-adoption. Moreover, ecommerce is no longer a new phenomenon of the internet of things, which invites consideration of the effects on the post-adoption instead of pre-adoption. At the beginning of ecommerce growth in the early 2000s, pre-adoption problems were crucial focus since the internet and ecommerce were new in the use technology in business. Previously, researchers focused on identifying the issues and difficulties in pre-adoption of the technology in business. However, nowadays this stage is now already turned to the post adoption focus to categorise the specific effects and problems that happen in this stage. In this research, to put consideration on the post-adoption of ecommerce is very relevant, since this era is the right stage to consider observing any possible problems and effects after the era of the pre-adoption stage has been well established and investigated.

South East Asia specifically Indonesia as the selected country

Geographically, Indonesia is located in central of Southeast Asia and has the biggest economy among the countries in this region. Moreover, it has a population of 200 million, which is the biggest in Southeast Asia. In addition to this, as a maritime country, which has 15 million islands, it faces specific circumstances in ecommerce development. As the leading country in the region, it might provide lessons for neighbouring countries that have similar characteristics and circumstances.

Small Medium Enterprises (SMEs) as the selected enterprise type

Generally, it is difficult for SMEs to adopt ecommerce since they have limited resources including human resources, financial, technology and many others.

However, SME encompasses the biggest number of units in developing countries and play the major role in economic development. More than 90% of the economic contribution in developing countries, especially Indonesia is effectively from the business of SMEs in every category of business. Therefore, investigating SMEs' implementation of ecommerce would bring more advantages and effectiveness due to the economic development of the country.

Concerned area of research: Logistical; logistics capability on ecommerce

Essentially, lack of research on logistical problems in SMEs' ecommerce indicates that researchers have not considered this area as a significant focus. However, logistics is an important operation in business processes, therefore this significance should be reflected in research, especially on how effective and efficient logistics capability plays an important role in SMEs' ecommerce. In addition to this, it is not possible to run businesses without the maintenance of logistics processes, especially in physical movement of the goods and its various operations. Obviously, the achievement of ecommerce business throughout the world (Amazon, Ebay, Alibaba, etc.) has demonstrated that logistics operations are one of the key success factors of business. Hence, some of those enterprises claim that they are no longer retail companies, but have turned into logistics companies, as they have massive volume of warehouse, transportation, distribution and many other major logistics activities.

Practical contribution: Applicable guidance for government

In fact, Indonesia's government is concerned to promote SMEs' ecommerce within the country, and especially to encourage the amount of SMEs transaction utilising the ecommerce technology. However, there is a lack of both practical and applicable guidance to encourage the objective of the government. This aim should be enhanced with the applicable guidance, especially on an effective approach for facilitating SMEs in implementing ecommerce in their business, so as to increase the transaction volume of the business.

2.7. Research Questions

According to the literature analysis above and the gaps found on the topic of SMEs ecommerce implementation to improve its business transaction; it is essential to clarify the research questions to give a clear understanding about the particular focus and aims of the study. The research questions in this study are the result of the literature analysis process, which led to the identification of research gaps, which reflect issues missing from the theoretical consideration in the study of SMEs' ecommerce in developing countries, especially in Indonesia. Moreover, they are also influenced by the circumstances of the newly established government (Indonesia elected a new president in October 2014) that strives to manage the country with a focus on the economy as its central agenda. Indonesia's government is now very keen on keeping up with the rapid growth of the country's development. Therefore, this has led to the recent progress in infrastructure development, as well as investments in the country, which ultimately enhanced economic growth. Indonesia's ecommerce roadmap issued recently in November 2016, is essentially an economic plan and policy to increase domestic economic performance through the ecommerce transactions of SMEs' and creative industries. However, there is lack of simultaneous investigation of the current situation

regarding SMEs' ecommerce implementation to develop their business. Hence, this research endeavours to identify the key success factors of SMEs' ecommerce implementation, focusing on the achievement of business transactions in correlation with the logistics capabilities as the key focus of investigation, in order to see how it will influence the encouragement of SMEs' ecommerce development in Indonesia due to the impact in economic performance. The research questions of this study are as follows:

1. What are the key success factors facilitating SME ecommerce in developing countries, for the effective achievement of SME's ecommerce transaction in Indonesia?
2. What are the major problems challenged by the national logistics operation in Indonesia related to the SMEs' ecommerce practice?
3. What is the current level of country logistics capabilities in Indonesia related to the SME ecommerce practices?
4. What is the relationship between internal logistics capabilities and SMEs' ecommerce transaction in Indonesia?
5. What is the relationship between outsourced logistics capabilities and SMEs' ecommerce transaction in Indonesia?
6. What is the relationship between country logistics capabilities and SMEs' ecommerce transaction in Indonesia?
7. What is the relationship between the quality of country logistics capability and internal logistics capabilities in supporting SMEs performance in the e-commerce transaction in Indonesia?
8. What is the relationship between the quality of country logistics capability and outsourced logistics capabilities in supporting SMEs performance in the e-commerce transaction in Indonesia?

CHAPTER 3: RESEARCH FRAMEWORK

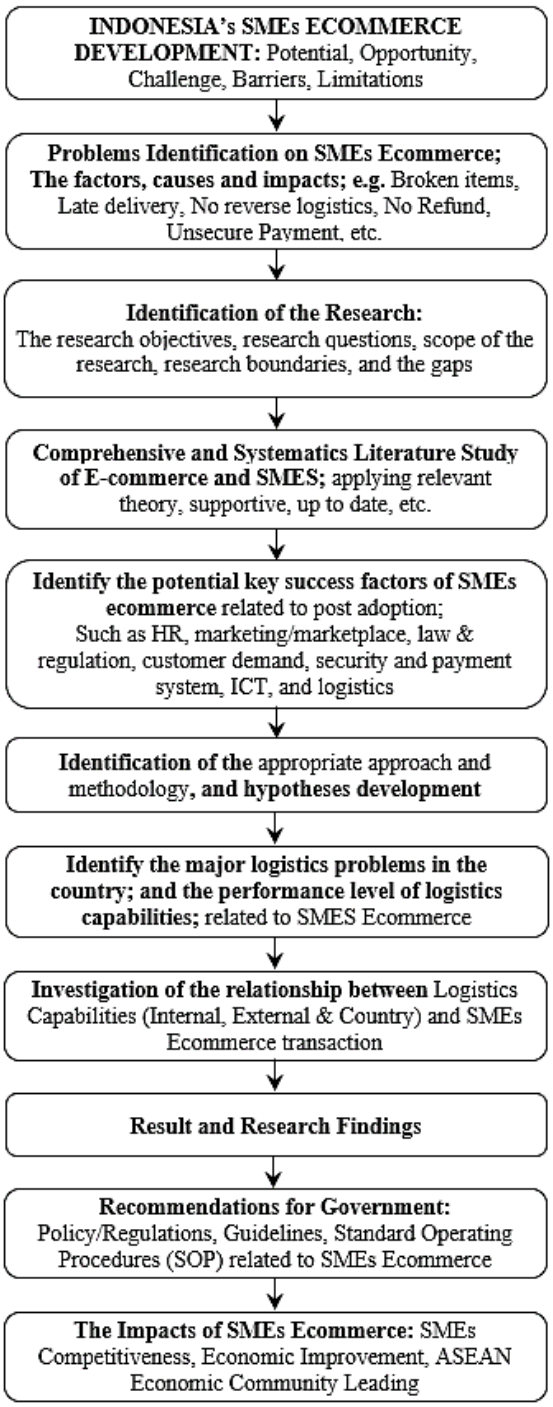
3.1. Introduction

It is of vital importance to develop a design that indicates how the research should be conducted in order to make the research coherent and make it easier to identify the objectives of the research. The research conceptual framework will support the author in how to run the research in the most effective way and approach that directly to addresses the gaps in the research problems (Creswell, 2013). In addition to this, conceptual framework will be used to guide the research and provide a structure for the research. Moreover, the conceptual framework explains, either graphically or in narrative form (diagrams are much preferred), the main things to be studied, the key factors, constructs or variables and the presumed relationships among them (Jabareen, 2009). Consequently, the key variables in the research are used to provide an overview of the research; the relationship between these variables would also determine the basis for the research work, which would influence the methodology to be applied.

This chapter presents the research framework applied in this study, which covers the conceptualization of the research and hypotheses development. This approach supports to achieve a better understanding of what, which, how and why in relation with the key success factors of SMEs ecommerce and the relationship between logistics capabilities (as the one of the KSFs) and SMEs transaction. Based on the concept of ecommerce practice in general, this research would identify the ecommerce practice by the small enterprises and investigate what are the key factors that support those enterprises to be success in their business in gaining sales revenue. Moreover, from the selected key factors (logistics capability), the research will explore further how this specific factor

have the ability to support small enterprises to have a better performance in sales transaction.

Figure 41: General Framework of the Research



(Developed by Author, 2017)

It is observable in Figure 41 that the research will effectively examine the literature through a systematic approach of literature analysis. Additionally, the research will also identify several areas of Indonesia's logistics capabilities and the major problems of the

logistics sector related to the operation of ecommerce transaction especially applied by SMEs. At the same time, this research should comprehensively conduct an investigation of the specific customer demands through the survey of their specific needs and wants, related to the culture and demography. Moreover, those identifications will encourage the next investigation, which is concerns various issues on ecommerce in a wide perspective including the causes and impacts, and especially the problems of logistics operation. Furthermore, the research will continue the investigation to understand the relationship between logistics capability and ecommerce sales or transactions. Finally, the result of this research will potentially be recommended to the government as an insight into SMEs' ecommerce development related to the progress of economic development which is predominantly through SMEs.

3.2. Theoretical Framework

The lack of theoretical framework would cause the structure and idea for a research is indistinct, as if a house that difficult to be built without a design of architecture. Conversely, a research design that comprises a theoretical framework allows the research thesis to be robust and structured with an organised stream from one stage to the following (Grant and Osanloo, 2014). Therefore, the theoretical framework would consist of the designated theory or concepts that underlying the researcher's idea related to how it is acknowledge and planned to investigate the focus along with the conceptions and explanations from the concept that are significant to the topic. Furthermore, the principles for applying theory to the thesis are essential to be applicable, reasonably analysed, well acknowledged, and relevant to the question available (Lovitts, 2005)

The concept of this study would be initiated with the theory of ecommerce practise by SMEs especially in developing country. Generally, ecommerce is the actions of commercial information sharing, managing business relationships, and completing business transactions utilizing the internet across information and communication networks (Zwass, 1998). In addition, e-commerce is a universal conception relating to any practice of commercial transaction or data exchange performed utilising ICTs (Whiteley, 2000). Ecommerce can be clarified further as the activities of pre-transaction, transaction, and post-transaction that are accomplished by buyers and sellers through the internet or an intranet with a strong commitment of buying or selling (Fellenstein & Wood, 2000). In further application, the user of ecommerce methods nowadays has reached SMEs in developing countries, which has its own challenge and limitations. However, the key factors of success in ecommerce implementation would prefer to the factors in common that related to ecommerce practise, which is relevantly adapted to the context of SMEs. Recognising the huge potential of SMEs that has a strategic role in country development, ecommerce application would offer SMEs a better performance in progressing their business since ecommerce provide the opportunities of broader market and business improvement. However, the application of ecommerce by SMEs especially in developing countries has its own challenges and limitations. Those challenges and limitations subsequently would encourage acknowledging the key success factors of SMEs ecommerce application especially in post adoption stage. Obviously, the potential factors influencing the SMEs ecommerce gaining a better business transaction would comprise the factors of ICT, secure payment system, manpower/personnel, and marketplace. Further considerations relevantly involve other factors such as customer demands, government law and regulations, and logistics capability.

ICT could be considered as the most substantial factor since ecommerce has e significant correlation with ICT. Obviously, ecommerce has developed with the foundation of ICT, whereas the growth of internet has encouraged the development of ecommerce. The employment of ICT, which varieties from laptops to personal computers, from words processing to sophisticated applications and software systems, has reached substantial progress in any type of organisations (Doukidis et al., 1996). The newest research also learnt positive signs that SMEs are positively able to obtain the advantages of e-commerce as a part of ICT, in assisting the progress of their business activities (MacGregor et al., 2002). Observably, ICT problems could be respected as internal and external problems. The responsibility of SMEs related to all the requirements for ICT application count as the internal problem, for instance the technical devices, budget and human resources. In contrast, external ICT problems due to infrastructure, affordable internet cost, high quality of internet services with widely accessible in urban until the rural areas, would be a serious concern for the government to encourage the development of SMEs' ecommerce especially in emerging countries. Moreover, technology readiness in SMEs' ecommerce related to the extent to which the technology infrastructure, applicable systems, technical abilities, IT personnel, and the budget can support e-commerce employment for its business improvement (Zhu et al., 2006, Zhu & Kraemer, 2005). Those ICT aspects are essential for SMEs to improve ecommerce (e-business) as a fundamental part of the business value chain (Oliveira & Martins, 2010). Consequently, the better the ICT readiness of an SME, the more potential for SME to improve business embracing ecommerce.

The subsequent significant factor of ecommerce significantly related to security in payment system within e-payment or e-banking system. The sensitivity to risk concerning internet security has been recognised as a concern for users of internet

technologies (Miyazaki & Fernandez, 2001). In addition, Miyazaki and Fernandez (2001) have recognised fraudulent actions by online sellers as a critical worry for internet users. Therefore, ecommerce users acknowledge hackers as a serious security risk to ecommerce (Rose et al., 1999). Moreover, online scamming recently increased in social media where ecommerce is existing. This brings another worry to online buyers as they can have a risk of losing their money in their debit/credit card due to online scamming. Other problem of payment system in developing countries that few individuals have debit or credit cards, lots of banking services in developing countries lack a domestic clearing system and potential customers are apprehensive of being deceived (Efendioglu & Yip, 2004). In most developing countries, shoppers may be unable to buy online because credit cards are not approved without a signature. Moreover, in the case of fraud, the owner of the debit or credit card would be responsible for the loss and not the issuer of the card, which makes the customers unwilling to utilise debit or credit cards since the confidentiality and security concerns are not guaranteed. Obviously, the effectiveness and the advantages of ecommerce depend on quick endorsement, payment, and clearance of accounts. Many developing countries do not have official financial bodies supervising online or electronic payments utilisations that are active in facilitating these responsibilities.

Afterwards, the factor that is significant for SMEs ecommerce achieving a good performance in business transaction is the factor of marketing, which is nowadays applicable through the utilisation of online marketplace or creating their own website as the channel of ecommerce marketing (Chaffey & Ellis-Chadwick, 2016). Since the limitation of SMEs in developing countries, the development of marketing through online marketplace could potentially get support from government with the arrangement of supportive laws and regulations as a legal requirement facilitating SMEs effectively.

Obviously, due to SME's limited capability, resources and finance, has obliged governments to support their business activities. Recently, some of governments in developing countries has worked together with private company who owned online marketplace especially with the mission to encourage and facilitate the SMEs in the country. Fortunately, those private companies are aware and helpful in facilitating SMEs since they assist SMEs with the training and workshop on how to market the product in their online marketplace.

Further consideration of the SMEs ecommerce factor will relevantly review about manpower, which is influencing the achievement of SMEs ecommerce activities. Qualified and skilled personnel are surely required supporting technical process of SMEs' ecommerce for the improvement of business transactions. Those personnel should be qualified at certain level and areas for instance ICT, operation, marketing, sales, and other areas that are necessary for SMEs ecommerce improvement. In addition to this, Cloete et al. (2002) clarified that ecommerce implementation by SMEs will be respectively influenced by the approval of SMEs owner related to ecommerce technology. This is reasonable since operationally, SMEs apply a centralized strategy; therefore, the owner/manager has a significant role in every aspect of business decision (H. Nguyen & S. Waring, 2013). Therefore, the more innovative the SMEs' manager, the more prospective they are to embrace ecommerce implementation (Ghobakhloo & Hong Tang, 2013). In other words, if SMEs' owner has better capabilities and better experience of ICT, it will bring self-confidence, support and increase the speed in employing ecommerce and it will reduce the doubt and risk of ecommerce application (Ghobakhloo et al., 2011). Not only the owner, but also the expertise of the workers has a significant role in supporting the intention of the owner to employ the ICTs due to ecommerce adoption in their business improvement. The skills, knowledge and

experience of employees will make sure that the instructions of the SMEs' owner will be correctly applied. Thus, the qualifications of both SMEs' owner and workers are essential factor of SMEs' ecommerce implementation, to encourage the progress of SMEs' business transaction.

Afterwards, the aspect of customer demand is important to be deliberated as a relevant aspect in this study. The development of SME significantly should consider the aspect of customer needs and wants especially in the application of ecommerce in the business operations (Appiah-Adu & Singh, 1998) . It is substantial for businesses to recognise and examine the accurate needs and wants of the customer since it would positively reassure business to have an effective product or service to be offered to the market (Thompson, 1998). In this study, the examination of customer demand in SMEs ecommerce will be supposed to recognise the needs and wants of the ecommerce online shopper as the customer, according to the services that they expect. The variety of customer demands could be related to some issues. For instance, the issues of the speed of delivery, the place of receiving the parcel (such as CDP: collection and delivery points), type of packaging, product safety, payment method, security level of payment, affordable price of product, affordable cost of shipment, the expectation of free delivery, refund mechanism, an easy-to-use website, and many other requirements. However, the investigation of customer demands of this research concerns the aspect of ecommerce features (such as delivery options, variety of secure payment method, etc.) in terms of the satisfaction of customers with their online shopping experience, in order to encourage customers to repeat their online shopping (Chi Lin, 2003).

Besides, it is an obligation and authority for government to regulate ecommerce application in a country concerning to support economic development and protect SMEs

through a fair-minded business competition as a part of the considerations (Fitzgerald et al., 2007). It has been recognised that SMEs as businesses (especially in developing countries) have several limitations such as resources, capability, HR, and financial. In addition, SMEs signify the business of citizens in a country, which have a great number of units and represent the biggest contribution in aggregate economy of a country. SMEs have a collective capability to encourage and develop the economy of a country. In particular, the level of labour in a society that has limitations only could be absorbed in SMEs' operations since they have flexibility and specific standards in business. Therefore, the role of government is so much essential encouraging the development of SMEs. Without the support and facilitation from government, SMEs will find many difficulties to grow and survive as small businesses, especially in the implementation of ecommerce as the business base of the SMEs. Consequently, government support would be very effective through supportive policy, law and regulations concerning the facilitation and development of SMEs implementing ecommerce to operate the business (Baumer & Poindexter, 2001; Fitzgerald et al., 2007; Mallor et al., 2004).

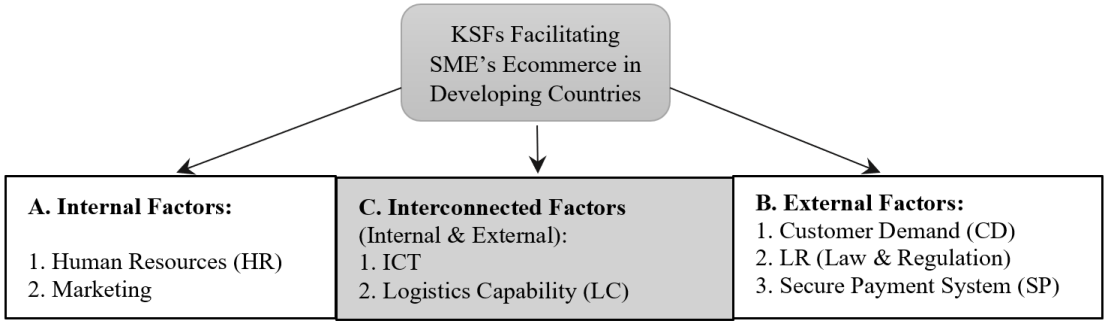
Further, with constant growth of e-commerce has increased the eminence of logistics capability and outsourcing. Logistics capabilities are a part of a company's resources (including total assets, abilities, managerial procedures, company characteristics, information, knowledge, etc.) which allow it to examine and implement operational plans that improve efficiency and effectiveness (Barney, 1991; Joong-Kun Cho et al., 2008). Logistics capabilities have been comprehensively considered and various measures have been established to connect those capabilities with competitive advantages and greater business performance (Bowersox & Daugherty, 1995; Clinton & Closs, 1997; Ellinger et al., 2000; Lynch, 2000; Zhao et al., 2001; Joong-Kun Cho et al., 2008). It has been acknowledged that logistics operations affect the performance in

terms of revenue improvement as well as cost reduction. The practice of logistics capability as a method to generate distinctiveness was also examined and have found that logistics capability contributes major reassurance to business plans and performance and occasionally is a source of competitive advantage. SMEs evidently have limited resources to arrange their logistics operations for ecommerce transactions. Thus, a possible approach for business, especially SMEs, to manage their logistics operation to support the business fulfilment is the use of external resources called third party logistics (3PL) which considered as the external logistics capability. While they also have the opportunity to develop their own internal logistics capability (Daugherty et al., 1998; Delfmann et al., 2002; Joong-Kun Cho et al., 2008).

Moreover, the other relevant concept of logistics capability is obviously generated by a country known as country logistics capability, which is described as the effectiveness and efficiency of a country or region in enabling logistics activities both within the country and across regional boundaries. This is fundamental, due to the planning and development of a broader strategy for both regions and companies, which has the responsibility to meet the needs of its residents, businesses and industries for the right product, in the right quantity, at the right time, at the right place and for the right price (Panayides, 2006). Accordingly, a country should have a capability to assist and facilitate the logistics and supply chain operations within the country, to have a greater connectivity to its business entities. The greater the capability of a country to accomplish this duty, the better the domestic or regional logistics capability it will have. The concept of country logistics capability refers to the effectiveness and efficiency of a country in facilitating logistics and supply chain operations both within the country and across the country boundaries. This cover the entire logistics and supply chain processes, the whole operation of goods movement from the point of origin to the point

of consumption, encompassing inventory, warehousing, packaging, handling, transportation, distribution, and delivery (Mentzer & Konrad, 1991; Song, 2011).

Figure 42: Theoretical Framework of the Key Success Factors of SMEs Ecommerce



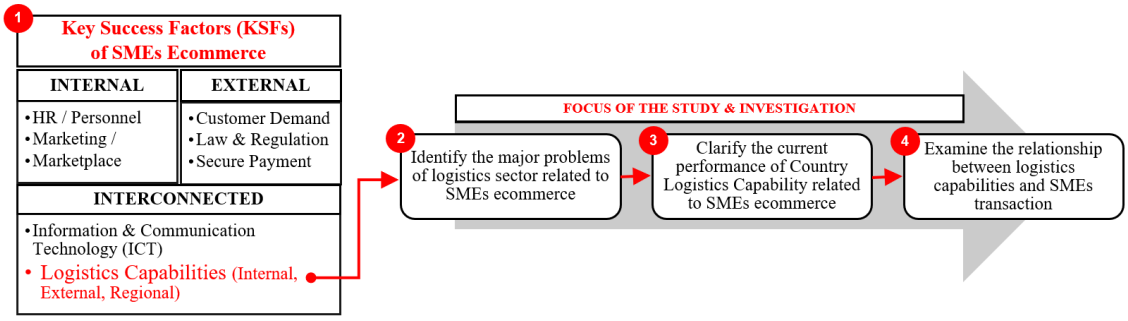
Source: Developed by Author 2018

It is identifiable in the Figure 42 above that at least there are seven discovered potential KSFs of SMEs ecommerce which are divided into three types of factors: internal, external and interconnected factors. Internally, the factors of personnel or human resources and marketing or marketplace are the influenced factors of SMEs ecommerce, which are able to determine the business achievement of SMEs ecommerce. The more qualified of the personnel and the more marketed the product and the company will bring a good impact to the SMEs business. Moreover, the external factors encourage the SMEs business performance from outside. A clear identified customer demand, supportive government's law or regulation and secure payment system are acknowledged as the factors from outside where SMEs have no authority and control towards it. These external factors are able to bring significant impact toward SMEs business. Furthermore, interconnected factors are considered as the factors, which can be defined as both internal and external factors since these factors can be reviewed internally and externally.

3.3. Conceptual Framework

The initial investigation of the research is to study the potential key success factors of SMEs ecommerce. Investigating, the potential key success factors (KSFs) of SMEs ecommerce would support SMEs ecommerce and stakeholders to understand what and how to plan and act the strategy facilitating SMEs to achieve better performance in their business transaction. Moreover, the study was conducted through the review and analysis of relevant literatures. Earlier research and study have assisted to determine applicable factors of the key success for SMEs ecommerce especially in post adoption stage of ecommerce implementation.

Figure 43: Conceptual Model of the Investigation Focus



Source: Developed by Author 2018

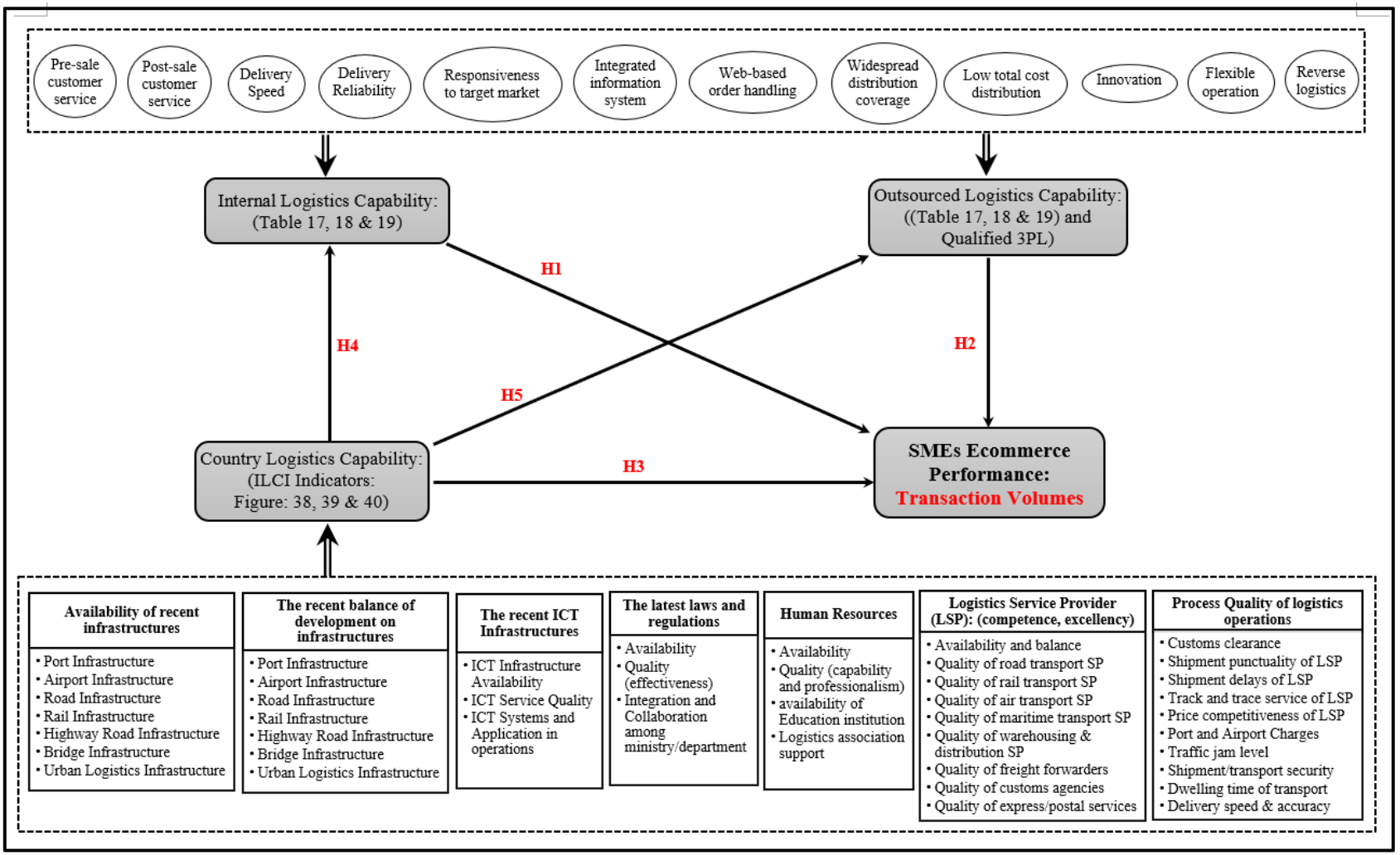
It is observable in the Figure 43 that the initial study has discovered at least seven potential KSFs of SMEs ecommerce in developing country which are divided into three types of factors: internal (HR and marketing), external (customer demand, law and regulation, secure payment system) and combined factors (ICT and logistics capabilities). The following stage of the research concerns to the area of logistics capability, which is one of the identified KSFs. At the next phase, the study would identify the major problems of logistics sector related to SMEs ecommerce practise. The results of this identification are supposed to provide relevant information for the stakeholders of logistics entities to have an appropriate policy resolving those issues. Correspondingly, the following investigation would also attempt to clarify the recent

performance of country/regional logistic capability especially related to SMEs ecommerce application. Identifying the major problem of logistics sector and the current performance of logistics capability that is related to SMEs ecommerce application would be effectively significant for stakeholders due to the development and improvement of SMEs ecommerce concerning the logistics capability as one of the KSFs in SMEs ecommerce. Finally, the study would examine the relationship between logistics capability and SMEs business transaction in order to validate that logistics capability actually has positive correlation influencing the SMEs ecommerce transaction.

3.4. Hypotheses Development

This research suggests that all types of logistics capabilities may positively influence the SMEs ecommerce transaction. In other words, this research argues that a good SMEs ecommerce transaction could be derived from excellent logistics capabilities. This study assumes that the relationships between logistics capabilities and SMEs ecommerce transaction are positive and they will be verified. Another theoretical principle of this research is that a high (low) level of logistics capabilities will stimulate a high (low) level of SMEs ecommerce performance. The following figure shows the hypotheses of relationship between all types of logistics capabilities and SMEs transaction (H1, H2, and H3). In addition, it also shows the relationship between country logistics capability and internal logistics capability (H4) and the relationship between country logistics capability and external logistics capability (H5).

Figure 44: The Proposed Conceptual Model of Relationships



Source: Developed by Author, 2018

It is identifiable from the Figure 44 above that the study attempts to develop the conceptual model of the research and its hypothesis of relationship between three types of logistics capability and SMEs' ecommerce performance. The indicators of each type of logistics capability mentioned in earlier in the literature section, which combined from various indicator. However, the indicator that will use in this research represents an applicable and relevant context of SMEs' ecommerce in developing countries, especially in Indonesia. Three hypothesis of the research represents the direct effects relationship of each type of logistics capability in relation to SMEs' ecommerce performance, which will be described as follow:

3.4.1. The significance of internal logistics capability on SMEs ecommerce performance

Strategic practice of logistics capability as a source of competitive advantage is a major consideration for numerous businesses. Widely in the logistics area, great attention has been paid to the connections between customer-focused capabilities of logistics and company performance (Innis & La Londe, 1994; Novack et al., 1995; Stank & Lackey Jr, 1997). In addition to this, the association between customer-focused capabilities and corporate performance has long been acknowledged in marketing literature in relation to customer satisfaction (Day, 1994). Correspondingly, Bowersox et al. (1999) considered information-focused capabilities as essential drivers of developed enterprise performance within best practice companies. Additionally, Morash et al. (1996) broadly analysed strategic logistics capability related to competitive advantage and corporate achievement. Moreover, the Global Logistics Research Team (GLRT) at Michigan State University (MSU) in 1995 clarified how businesses applied logistics capability to accomplish competitive advantages by dependably meeting customer expectations. The MSU conception effectively has confirmed a positive relationship between greater

logistics capability and performance enhancement. Many of investigations cited above have confirmed the positive influence that logistics capability can have on the profitability and growth of businesses. The substance of those studies provides the structure for the present research by connecting the logistics capability of SMEs to their performance in ecommerce application. For that reason, it is hypothesized that:

H1. There is a positive relationship between the quality of SMEs' internal logistics capability and their performance in the ecommerce transaction.

3.4.2. The significance of outsourced logistics capability on SMEs ecommerce performance

Subcontracting logistics operations of the businesses by utilisation of logistics service providers (LSP) capability would effectively encourage the improvement and achievement of competitive advantage in the market (Langley et al., 1999; Sink and Langley, 1997; Maltz, 1994). Langley et al. (1999) also clarified the importance of specified third party logistics (3PL) service relating to the comprehensive incorporation of its human and financial resources to create an operative and effective logistics service. The functioning of 3PL or logistics outsourcing would support the improvement in a company's logistics capability and enhance its performance by utilising the 3PL's expertise in logistics management and fulfilment (Joong-Kun Cho et al., 2008). Moreover, Lai et al. (2010) explained that the logistics capability of a company that is utilising outsourced logistics would be considered as the capability of logistics service providers (LSP) to create and manage resources to accomplish the logistics operations of their customer by providing a better quality of service performance. Their research revealed that outsourced logistics (3PL) provide substantial value by offering new solutions to businesses requiring internal logistics operations

capable of achieving competitive advantage or differentiation. Hence, a hypothesis concerning outsourced logistics SMEs ecommerce is identified as follows:

H2. There is a positive relationship between SME's outsourced logistics capability and its performance in the ecommerce transaction.

3.4.3. The significance of country logistics capability on SMEs ecommerce performance

The evaluation framework of a qualified logistics capability related to the factual circumstances of the country; is crucial to achieve the effectiveness of a country's logistics capabilities, concerning the effective approach and operation of its country improvement related to the progress of economic sectors (businesses performance within the country) (Arvis et al., 2014). The obligation for a country logistics service is to meet the needs of its homes, businesses and industries for the right product, in the right quantity, at the right time, at the right place and for the right price (Panayides, 2006). Tongzon (2007) clarified numerous features that describe international competitiveness in logistics capability of a country encompassing strategic location (on essential transport and airways routes), excellent linked seaports and airports, capabilities in warehousing and interrelated services, qualified human resources, governmental and economic constancy, and operative and supportive government policies. The concept of Regional Logistics Capability (RLC) as a universal framework of country logistics capability refers to the effectiveness and efficiency of a country in facilitating logistics and supply chain operations, both within the country and across the country boundaries (Song, 2011). Those concepts clearly influence the businesses and industries performance. Consequently, it is hypothesized that:

H3: There is a positive relationship between the quality of a country logistics capability and SMEs performance in the e-commerce transaction.

3.4.4. The significance of country logistics capability on Internal and External (Outsourced) Logistics Capability

The more qualified logistics capability in a country or regional, the more effective it will contribute to internal and external (outsourced) logistics capability in supporting SMEs performance in the ecommerce transaction. The regional concept of logistics capability is obviously generated by a country known as country logistics capability, which is described as the effectiveness and efficiency of a country in enabling logistics activities both within the country and across regional boundaries. This is fundamental, due to the planning and development of a broader strategy for both regions and companies, which has the responsibility to meet the needs of its residents, businesses and industries for the right product, in the right quantity, at the right time, at the right place and for the right price (Panayides, 2006). A country requires a capability to enable the logistics and supply chain processes within the country, to have a greater connectivity to its business entities. The greater the capability of a country to complete this duty, the better the domestic or regional logistics capability it will gain. This cover the entire logistics and supply chain processes, the whole operation of goods movement from the point of origin to the point of consumption, encompassing inventory, warehousing, packaging, handling, transportation, distribution, and delivery (Mentzer & Konrad, 1991; Song, 2011). Accordingly, it obviously shows that there should be a positive relationship between country logistics capability and internal and external logistics capability supporting the SMEs ecommerce transaction.

H4: There is a positive relationship between the quality of country logistics capability and internal logistics capabilities in supporting SMEs performance in the e-commerce transaction.

H5: There is a positive relationship between the quality of country logistics capability and outsourced logistics capabilities in supporting SMEs performance in the e-commerce transaction.

3.5. Summary

The chapter attempts to conceptualize the KSFs of SMEs ecommerce in developing countries and develop hypotheses on the relationships between all types of logistics capabilities and SMEs ecommerce performance (transaction). The discussion of theoretical frameworks described in this chapter allows the development of conceptual frame works and the hypotheses of the research. The first part defined the development of theoretical framework on the KSFs of SMEs ecommerce. The second part discussed the conceptual framework of the research. Meanwhile, the final part established the hypotheses on the relationship between all types of logistics capabilities and SMEs ecommerce transaction. The following chapter describes the methodology of this research, which encompasses the research design, method, and the data analysis, which are applied for this research.

CHAPTER 4: RESEARCH METHODOLOGY

4.1. Introduction

This section presents the research methodology applied in this research. It supports the approaches applied to attain the research objectives and to find the answers to the research questions. The positivistic paradigm and the deductive-inductive approach applied in this research are defended as the best relevant and obtainable methods to complete the research objectives. Precisely, this chapter will explore the development of the research methodology by concentrating on the data sources, the targeted data, the technique of collection that was used to empirically examine the proposed hypotheses.

4.2. Research Concepts

Obviously, each individual has different viewpoints; therefore, the means people view the world (i.e. on problems and life) has consequences towards their research. The perception of a worldview is the way towards a believed paradigm. A paradigm is fundamental to the research development in every single area of study (Mangan et al., 2004). Table 21 recapitulates the different descriptions of the paradigm (Creswell, 1994). The nature of the research problems and the research objectives will lead the researcher in selecting an applicable methodology. Accordingly, there will be particular ontological and epistemological beliefs that will encourage the methodological (how we achieve knowledge) selections of the researcher. The selection of ontology (objective or subjective) will be connected to the epistemological concerns of the research because these concerns signify the relationship between the researcher and that being researched.

Table 21: Research Paradigm

Research Paradigm			
Creswell (1994)	Question	Quantitative	Qualitative
Ontological	What is the nature of reality	Reality is objective, apart from the researcher	Reality is subjective and multiple as seen by participants in a study
Epistemological	What is the relationship of the researcher to that researched?	Researcher is independent from that being researched	Researcher interacts with that being researched
Axiological	What is the role of values?	Value-free and unbiased	Value-laden and biased
Rhetorical	What is the language of research?	Formal	Informal
		Based on set of definition	Evolving decision
		Impersonal voice	Personal voice
		Use of quantitative words	Use of qualitative words
Methodological	What is the process of research?	Deductive process	Inductive process
		Cause and effect	Mutual simultaneous shaping of factors
		Strategic decisions	Emerging design – categories identified during research process
		Context-free	Context-bound
		Generalisations leading to prediction and understanding	Pattern, theories developed for understanding
		Accurate and reliable through validity and reliability	Accurate and reliable through verification

Source: Modified by Author from Creswell (1994)

This research observes the key success factors of SMEs ecommerce and examines the relationship between three type of logistics capabilities and SMEs ecommerce transaction. As this research is explorative in nature, it is applicable to classify and conceptualize the key success factors of SMEs ecommerce and examine the impact of logistics capabilities on its transaction. It means that this research will emphasize the identification of SMEs ecommerce key success factors through systematic literature review and case study; and investigation of causative relationships between variables employing research methods such as surveys (Collis and Hussey, 2003).

This research uses inductive and deductive processes to strengthen the outcomes of systematic literature review and obtain hypotheses from a fundamental of scientific theory, which is to be verified utilizing large samples. The ontological position of this

research believes that an objective reality (realist ontology) be existent; in other words, it believes that knowledge is achieved from sense data, which can be directly experienced and confirmed between independent observers. Further, the objective of this research is to investigate the causative relationships between the acknowledged variables. Consequently, in the perspective of epistemology this researcher implements a positivist paradigm approach wherein the researcher is independent from that being researched (Creswell, 1994; Burrell and Morgan, 1979).

Moreover, it is necessary to understand the philosophical position of the research issues to recognize the different combination of research methods. The concept of Positivism is directly associated with the idea of objectivism. In this philosophical approach, the researcher will seek to understand social world with the help of objectivity in place of subjectivity (Cooper & Schindler, 2006). According to this paradigm, the researcher is interested to collect general information and data from a large sample, instead of focusing on details in the research. According to this position, the researcher's own beliefs have no influence on the research study. The positivist philosophical approach is mainly associated with the observations and experiments to collect numeric data (Easterby-Smith, 2006).

Furthermore, the most popular research approach on sustainability especially in logistics operation and supply chain management is to employ quantitative data, using the framework of positivist philosophy (Mangan et al., 2004). A number of research studies in the area of supply chain management have predominantly used quantitative methods, for example, Dunn et al. (1994), Mentzer & Kahn (1995) and Samuel (1997) during the 1990s, and also recent work by Sachan & Datta (2005), Frankel et al. (2005) and Spens & Kovács (2006). For instance, Sachan & Datta (2005) surveyed the papers published

between 1999 and 2003, in the *Journal of Business Logistics and SCM* to examine the choice of methods in these studies and they found that more than 60% research studies have used the positivist paradigm (surveys, simulation and mathematical modelling). Hence, this research will employ a mixture method, quantitative and qualitative approach in examining the research questions, underpinned by positivist philosophy as illustrated in Table 22.

Moreover, the paradigm of this research will be of mixture method, quantitative and qualitative approach, as the research will try to classify the key success factors of SMEs ecommerce in post adoption stage based on the appropriate conditions and issues. Furthermore, the research will investigate the causative relationship between ecommerce logistics capabilities and the SMEs ecommerce transaction. The identification of key success factors of SMEs ecommerce has been done in systematic literature review. However, to strengthen those findings factors, a case study through interview will be also applied to have a robust and valid investigation and outcomes.

Table 22: Methodological Framework

Research	**Annotation**
Philosophy	Positivism
Approach	Deductive and Inductive
Strategy	Survey, Case study
Choice	Mixture Method Quantitative and Qualitative
Time Horizon	Cross Sectional
Technique & Procedure	Data collection & Analysis
Data Collection Method	Questionnaire, Interview, Statistical Database
Tools/Instrument	SPSS, Analytic Hierarchy Process (AHP), Simulation, Optimization, Regression Analysis

Source: Developed by Author, 2017

4.3. Research Paradigm

Fundamentally, the paradigm of this research is evidently positivism and identified as a positivist approach since it is believed that the researcher is independent of the research itself and the research could be purely objective (Merriam, 1991; Schrag, 1992). In addition to this, independent means that the researcher attempt minimal interaction with the research participants during the research process (Crook & Garratt, 2005). Furthermore, the positivist paradigm in the research are honourably based on evidences and determine the world to be external and objective (Kaboub, 2008). Principally, positivism observes to an understanding that only "realistic" knowledge achieved through observation, containing measurement, is reliable (Schleyer et al., 2011). As a positivism research, the function of the researcher is limited to data collection and clarification using objective method or approach (Arghode, 2012). Besides, the result of the research is characteristically observable and quantifiable.

Moreover, in positivism research the process of the study would depend on measurable or quantifiable surveillance that understandably lead to statistical examination (Bryman & Bell, 2015). In addition to this, positivism research situates the researcher to be independent to form the study and there will be no necessities for human interests surrounded by the study. In common rule, positivist researches normally apply the deductive method, whereas the inductive investigation method is typically associated to a particular phenomenology of values or philosophy (Crowther & Lancaster, 2008). Consequently, positivism relates to the perspective that researcher should consider to concentrate on facts, whereas phenomenology focusses on the meaning and has determination on human attentiveness.

Positivism is generally related to philosophical positions which is emphasize empirical data and scientific approaches (Creswell & Creswell, 2017). That is why positivism paradigm is the most relevant approach in this research as it will analyse the empirical information from the experiences and historical information of numerous logistics companies, SME's and other relevant institution. Furthermore, those empirical data would be operated on measurable or quantifiable investigation that comprehensibly led to statistical examination as it is a nature of circumstances of positivist study. Consequently, it is identifiable that this could be regarded as a concrete and having a reality, which can be identified and measured. The relationship between logistics capability and SME's business transaction is something concrete that clearly able to be clarified with measurement. From the measurement in the research, it will identify a certain number representing how strong the independent variable of the research will influence the dependent variables. The scale of the measurement could be represented in a sales percentage, sales unit or sales profit. Essentially, this research would be effectively determined by quantitative data and methods (simulation, surveys, and mathematical modelling) so this is the clear reason why positivist philosophy is the most relevant circumstances of the research nature.

Furthermore, as a positivist study, it is believably that there are some major factors able to facilitate SME's commerce in developing countries. Meanwhile, these factors are convincingly capable to encourage the business transaction of SMEs through ecommerce technologies. It means that these factors have a concrete reality, which can be measured due to the ability to encourage the SME's business transaction (volume and units). Philosophically, this research attempts to explore the capability of electronic commerce as the method to do business and transaction of selling and buying using the media of electronic technology to improve the business transaction.

Moreover, this research also specifically concerning to classify the key success factor that may effectively encourage SME's in adopting e-commerce in their businesses. Those factors are identified through systematic literature review, which are internal factors (Marketing-Marketplace and Human Resources), external factors (Customer Demand, Law & Regulation and Security & Payment System) and combined factors (ICT and Logistics Capability). Accordingly, these factors are observably related to the concrete reality since it could be identified and measured. For instance, the speed of the internet (as the factors of ICT) would potentially support the effective on-line transaction of SME's ecommerce. At the same time, the quality of payment system, personnel, logistics and regulation would effectively improve the volume of SME's business transaction. Additionally, the research will be very specific determining the logistics capability factor as one of the critical success factors, which will examine the relationship between logistics capability and SME's e-commerce transaction volume. Finally, those type of believes, considerations, circumstances, operations, methods, and processes within this research are identifiable to be categorized as positivism research as the most relevant approach in conducting the research. From the perspective of a positivist, researcher recognizes what ecommerce is. Researcher understands that ecommerce would be determined by influencing factors. Researcher knows what circumstances of SMEs and ecommerce are. Moreover, key success factors of ecommerce are clear in some literatures. These realities are considered objectively by the researcher and from this potential the researcher assume that the research need the right tool to proof those factors are applicable in developing countries and then possible to reach a new ontological exist that add to the ecommerce theories especially in developing countries.

4.4. Research Epistemology

Correspondingly, regarding the ontology of this research, actually epistemology is important in order to acknowledge actuality and to achieve lives in successful chase of truth (Johnson & Duberley, 2000). Epistemology is define as an approach of understanding and clarifying on how we know and what we can know (Becker, 1996). Moreover, epistemology also focuses on considering the philosophical foundation to decide what types of information and knowledge are possible and how we are able to confirm that they are both acceptable and reasonable (Maynard, 1994). Furthermore, epistemology incorporates the development of conceptions, the character of circumstances and the legitimacy of the rationalities (Hofer & Bendixen, 2012). Because the conceptions of epistemology facilitates us to deliberate about the approach that we think, and certainly it is an advantageous method for considering the environment and the world around us (Taylor & Medina, 2013). Accordingly, without epistemology, human existences would have no motivation to rely on their beliefs and activities (Hofer & Pintrich, 2004). For instance, lecturers would have no purposes to give examinations or allocate class assignment since there would be no differences between the truth and mistake.

The epistemology of this research is a methodological approach that related to the ontological understanding as positivists try to find the knowledge, design the methodology that have been clarified objectively. In the context of this research and under this paradigm researcher will investigate the key success factors of SMEs ecommerce to encourage their business transaction and learn how those factors especially logistics factor influences SMEs' business transaction. Inductively, it is necessary to conduct systematic literature investigation that is strengthened with case study through a comprehensive interview. Moreover, researcher also have to develop

hypothesis to test the relationship between logistics capability and business transaction of SMEs ecommerce. The deductive approach will be applied to recognise the theory and examine the research hypotheses since there are reliable and valid instruments already exist. The instrument of ILCI (Indonesia Logistics Capability Index) will be used to understand the logistics capability in developing country. It will support to response the epistemological questions of how it probable to gain the knowledge of reality, how to identify what is exist, and how the reality be signified or defined. The use of ILCI as the instrument will be in alignment with the epistemological and ontological view of positivists' paradigm in producing respectable and reliable knowledge about the key success factors of SMEs ecommerce to increase the business transaction.

The philosophy of this research has the objective to determine critical success factors supporting and facilitating SME's ecommerce through effective adoption of improved ecommerce logistics strategies due to business improvement of SME's ecommerce in Indonesia. It is in order to aim the improvement of the country's logistics capability and economic performance. Therefore, epistemologically, various surveys and interviews on several aspects such as customer demand identification and SMEs ecommerce problems identifications, numerous valuable data and information will be conducted comprehensively during the operation of the research. The developed hypothesis should be proof and examine to understand the relationship between logistics capability and SMEs business performance. Consequently, the research will allow both researcher and stakeholders to recognise the typical of ecommerce customer demand due to the strategy to improve SMEs' business transaction utilising ecommerce approach.

Essentially, the research would stimulate to obtain various practical and academics contribution such guidelines, new theory and concept of a certain aspect, new design of technology, improve the security standard and regulation, knowledge diffusion of human resources and many others (Hofer & Bendixen, 2012; Hofer & Pintrich, 2004). Correspondingly, this research by operating a typical statistical approach such as regression analysis, linear or multiple programming has encouraged to understand the critical success factors facilitating SMEs commerce in Indonesia. Effectively, it will lead to recognize the relationship between the key factors of effective ecommerce logistics strategies in Indonesia that enable to achieve the development of SMEs ecommerce transaction, due to the growth of economic performance.

Consequently, this study will allow a new perspective of knowledge in the area of ecommerce logistics since ecommerce is the things of internet trading that related to information technology which is growing fast and so much dynamics. Respectively, this kind of knowledge's would be a potential information for government to be taken as a substance of reference in determining a policy and regulation of SMEs ecommerce since the research would particularly look into the specific circumstances of developing country especially Indonesia due to its concern of economic development. Furthermore, the research has a strong relationship between ecommerce and technology. One of the significant issues is that the influence of technology on ecommerce which is the development of security standard of online payment system. This security standard would be always vital to be improved constantly to protect both seller and buyer since the rapid change of internet technology.

4.5. Ethical Paradigm

In fact, researches that encompasses human focusses or contributors will possibly increases specific, unique and multifarious ethical, political, social, and legal issues (Behi & Nolan, 1995). Research ethics is definitely concerned in the investigation of ethical issues that are occurred when individuals are incorporate as participants in particular research (Homan, 1991). Moreover, ethical concerns also necessitate that researchers would not situate participants in a condition where they could probably in danger of harm as the consequence of their involvement (Sales & Folkman, 2000).

Ethical attentions could be identified as one of the most significant parts of the research (Miller et al., 2012). Dissertations or thesis may even be condemned to failure if this part is absent (Burgess, 2005). Additionally, research ethics are essential for several motives and reasons. Actually, it stimulates the objectives of research, for instance exploring the knowledge. It also supports the values needed for cooperative work, such as mutual admiration and righteousness which is important because cooperation between researchers and groups is the foundation of scientific research (Orb et al., 2001). Moreover, in circumstances that the researchers are supported by public funding, and rules on conflicts of interest, wrongdoings have encouraged the necessities to ensure that the funding is expended appropriately. It means that researchers can be understood accountable in their research activities. Afterwards, research ethics would confirm that the public could rely on the research especially for the people to support and fund the research, they have to be assertive on the research conducted. Further, the research ethics encourage the significant social and ethical principles, for instance the value of no injury deed to other individuals (Resnik, 2011).

However, this section will discuss ethics in the context of this research, which is mixed of qualitative and quantitative research. Some of the ethical approaches could be relevant and applicable to this study in certain approach. Consequently, this paper would select the most applicable ethical framework for this study. Ethical issues should be considered properly both in social research and quantitative research unless it will be difficult to be conducted and completed the entire research (Sales & Folkman, 2000), which probably because there is a lack of formal guidance while doing the research. However, many universities or institution has their own internal ethical regulation and policies since it is necessary for the researcher as guidance for their research.

The terms of ethics and morality are often applied alternately. Morality is related with the values, norms, and principles surrounded in social practices, which would describe the right and wrong for an individual or within a community. Meanwhile, ethics is more focus on the study of principles and the implementation of motivation to clarify particular rules and principles that define the right and wrong for any specified condition (Gregory, 2003). Correspondingly, these rules and principles are named ethical concepts. In some literatures, there are some normally acknowledged principles necessary during the study, encompassing necessities of goodness, justice and objectivity, respect, righteousness. In addition, ethics is correlated to daily ethical problems that happen among the researcher and the research (Resnik, 2011).

There are four classic concepts of ethics: Kantian Ethics, Utilitarianism, Virtue Ethics, and Social Contract theory. In addition, there are also other modern concepts: Marxism, Feminism, and Postmodernism. This section will discuss how each theory could be relevant with the topic of this research, and then it will recognise the most applicable

ethical theory related to this research. Next, it will also discuss how the selected ethical theory would be able to resolve the ethical issues of this research.

First, Utilitarianism targets to raise the happiness and decrease the soreness of the entire races (human and animal) and it is not significant whether the increases happiness is moral or not (Hartman, 1998). This approach is relatively relevant to this study since identifying the key success factors of SMEs' ecommerce in developing country would potentially grow the happiness of races in the long term. Also, the examination of hypotheses of this research regarding the all types of logistics capability and SMEs ecommerce transaction, will encourage the awareness on the logistics capabilities which are able to bring a positive impact to the SMEs ecommerce transaction. Effectively, this will bring benefit toward the SMEs ecommerce and the whole stakeholders of this sector. The government, companies and the society will gain the benefit from the research since the SMEs would able to develop their business through ecommerce effectively. Ethically, it would reassure to obtain several positive benefits as the constructive consequences (Bell and Bryman 2007) such as it would motivate government to improve and develop domestic SMEs adoption on ecommerce transaction; increase the economic performance of the country through the development of ecommerce logistics on SMEs adoption of ecommerce; clarify the role of logistics in SMEs ecommerce development.

The next ethical approach is Social Contract Theory. The key point of this approach is that acceptable morals originate from a contract among the logic individuals and this contract is the main source of power (Hartman, 1998). Consequently, to achieve an effective result of SMEs ecommerce, it should be developed in a commitment and agreement between government and companies and the whole stakeholders which belief

in the prominence of SMEs ecommerce to increase the domestic economic growth. However, the presumptions of this ethical approach could probably not sufficient to be applied in relation with the ethical issues of this research, and another approach could potentially more relevant to this research.

The third ethical theory is Virtue Ethics. It could be defined as the perfectionism in doing things and it regards there is a unity among the virtues (Trianosky, 1990). This approach would be potentially suitable to apply in this research, because key success factors of SMEs ecommerce are the best and critical while search for excellence in dealing with the ecommerce applied by SMEs in developing country. Moreover, those key success factors believe there is a unity among the key success factors. However, there are some limitations, which is not enough reasons to follow this approach; the statement of unity among the virtues is not quite practical in real life because, for instance, a person could be a smart person but simultaneously may be a coward. Additionally, this approach does not take account of all races; Aristotle believed that women and slaves are not proficient of virtue (Reedy, 2017). This could be counted as a critical limitation to be considered from following this approach.

The last ethical approach is the Kantian Ethical approach. The philosophy of this approach is to encourage do the right things with the reason because they are right and without the consideration whether the outcome is good or bad. In other expression, that happiness is not the main purpose (De George, 2010). For instance, in certain case that someone should tell the truth even though it will hurt others. Another example related to the context of this research, is the condition that SMEs should implement the ICT (as one of the key success factors) in their business to support their business transaction, with the consequence that it will spend a lot of cost and many challenges in advance.

The approach of this theory would probably be applicable to this research in some way since the researcher believes that SMEs should implement ecommerce in their business to expand their market and increase their business sales/transaction. In this digital era SMEs should be familiar to utilise technology for their business. It will be very challenging at the beginning including a costly investment, personnel capability, etc. However, it will bring a great influence for their business in long-term. If the SMEs do not encourage their business to implement the ecommerce technology, then their business will not be surviving in long-term since the role of technology in human life will be very important.

Furthermore, there are common ethical principles, which are applicable to any studies, for instance the value of honest and respect, the confidentiality in data collection, and security for the participants in the research (Resnik, 2011). Commonly, these values of ethics are implemented in university policies and regulation such as University of Hull applied ethical procedure before conducting the data collection for their researcher.

From those ethical theories above, this research in some way is relevant with utilitarianism approach since the research will bring benefits for government, companies and societies. However, at the same time Kantian ethical perspective also still relevant with the nature of this research since this research aims to identify the key success factors in the best perspective and outcome even though it probably difficult for some SMEs to adopt. But the long-term impact of the identified key factors implementation will bring benefit for SMEs, government, economic and societies. Besides, the investigation of the hypotheses in this research would also provide information whether a particular potential factor is correlated with the SMEs ecommerce transaction. This information would be beneficial for any stakeholders to be concerned on the area of

logistics capabilities that has examined if they are proven to have a correlation on the development of SMEs ecommerce.

Moreover, ethical concerns appear in numerous conditions of phases in business and management research, which cannot be disregarded, since they are related directly to the reliability of a research and of the disciplines. Ethical values in business research divided into four major concerns (Diener and Crandall, 1978): Whether there is a probability of harm to participants; whether there is a deficiency of informed consent; whether there is an offense toward the privacy; whether dishonesty is involved. The research should be confirmed to perform ethical process in its operation by following these “Checklist of concerns to be considered in relation with ethical issues” (Bryman and Bell, 2003):

1. Verify to make sure that there will be no probability of any harm towards the participants and ensure that the research respondents understand:
    a. What the study is about?
    b. What the objectives of the research are?
    c. What the nature of their participation in the research is?
    d. How long their involvement will be taken?
    e. That their participation is voluntary?
    f. That they can cancel the participation in the research at any time?
    g. The purpose of data that are received from them?
2. Make certain that there will be no violation respecting the privacy of the individuals involved in the research
3. Guarantee that the research respondents will not be deceived regarding the research and its objectives

4. Guarantee the confidentiality of data with regard to the research participants will be protected
5. Guarantee the names of the research respondents and the locations of the research are not recognisable
6. Confirm the strategy for data protection in electronic form comply with the standard of data protection law

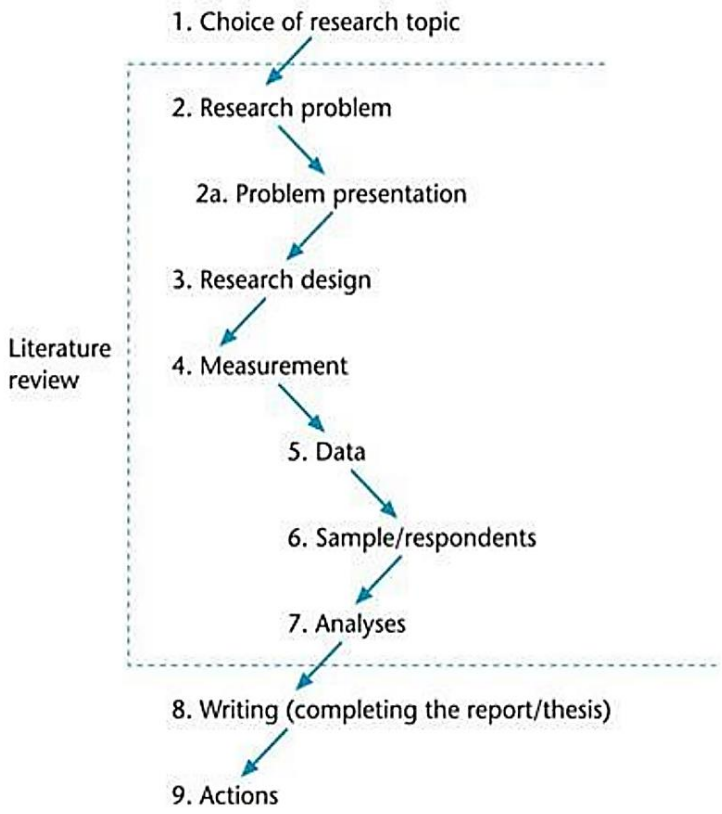
Throughout the research, careful considerations should be implemented well to guarantee the respondents are fully attentive to the purpose of processes of the research, and their identity is prudently protected. Ethical issues form implementing the rules and procedure of the Hull University concerning the research conduct could be shown in appendix.

4.6. Research Process

A research process enables to support researchers significantly to understand and steady in a correct research path since usually the research sometimes can take more time because of some reasons and other related concerns. Throughout the research process, researchers for some extent might change or modify their research planning and designs, but it would be beneficial if they acknowledge correctly their own research objectives and prepare a particular strategy for the research (Ghauri & Grønhaug, 2010). At different phases in the research, researchers might challenge different concerns, determining the research process will effectively support them to complete the tasks systematically and be able to identify what should be completed at a particular phase. For instance, sometimes researchers require to improve some essential literature with the purpose of supporting particular step within research process before the data collection steps (Sekaran & Bougie, 2010). Actually, the steps of each research process

may be different in each research. However, Ghauri and Gronhaug (2010) have suggested a typical research process (Figure 45). Even though in the real practise, the research process is not systematically described as in Figure (Morgan, 1993; Pettigrew, 1985; Bryman, 1988).

Figure 45: The Research Process

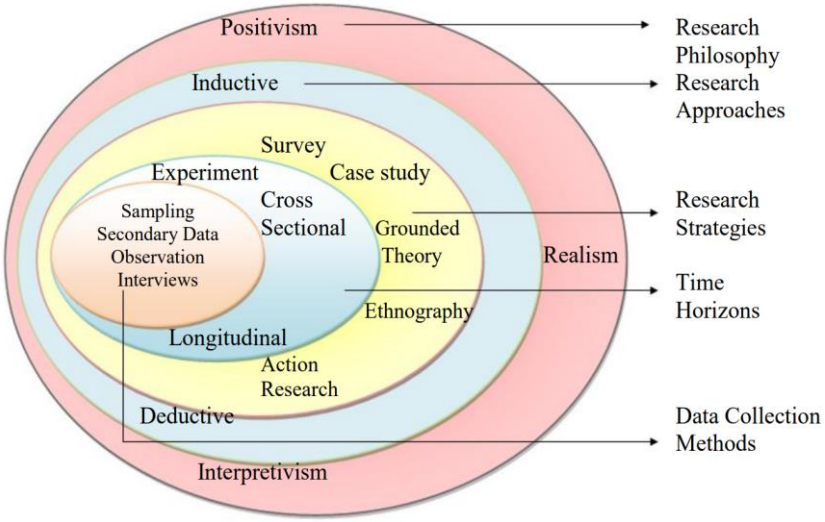


(Ghauri & Grønhaug, 2010)

Researchers might require arranging particular number of stages to accomplish the research; however, it probably may be applied in various application. Generally, it will include the clarification and construction of the topic, studying the literature, determining the philosophical approach, designing the research, collecting the data, analysing the data and finally writing up the research (Saunder et al., 2016). The following research process onion (Figure 46) will describe and support the research steps and process that discussed above since it illustrates the number of selections,

comprising philosophical orientation, research approaches, paradigms, strategies and steps that researchers can implement in their research (Saunders et al., 2003:83; 2016:164)

Figure 46: The Research Process Onion



(Saunders et al., 2003:83)

It is recognisable from the figure that the research process onion describes a resume of the essential concerns that should be considered and studied before conducting any research. The different levels showed in the onion is to reflect several concerns such as the researcher's philosophical orientation, the implemented research approach, an applicable research strategy, the research time lines; and the data collection practises applied by the researcher.

4.7. Methodology Approach

This section discusses the investigation for scientific research methodologies or strategies or research approaches to acknowledge the following four research questions defined in Chapter 2:

RQ1: What are the key success factors facilitating SME ecommerce in developing countries, for the effective achievement of SME's ecommerce transaction in Indonesia?

RQ2: What are the major problems challenged by the national logistics operation in Indonesia related to the SMEs' ecommerce practice?

RQ3: What is the current level of country logistics capabilities in Indonesia related to the SME ecommerce practices?

RQ4: What is the relationship between internal logistics capabilities and SMEs' ecommerce transaction in Indonesia?

RQ5: What is the relationship between outsourced logistics capabilities and SMEs' ecommerce transaction in Indonesia?

RQ6: What is the relationship between country logistics capabilities and SMEs' ecommerce transaction in Indonesia?

RQ7: What is the relationship between the quality of country logistics capability and internal logistics capabilities in supporting SMEs performance in the e-commerce transaction in Indonesia?

RQ8: What is the relationship between the quality of country logistics capability and outsourced logistics capabilities in supporting SMEs performance in the e-commerce transaction in Indonesia?

It is observable in Table 23 that each relevant situation will be appropriate for a certain different research strategy (Yin, 2003). Concerning to this study, the question word of "what" and "how" are likely to approve the implementation of surveys and case studies if it is necessary, particularly for the SMEs practice related to logistics capability. This shows that a survey approach is the most appropriate way to look for the answers to the research questions specified in this study. This strategy allows the collection of a huge volume of data from an appreciable population in an efficient method (Jonker & Pennink, 2010; Silverman, 2016)

Table 23 : Research Strategies for Particular Situations

Strategy	Form of Research Question	Requires Control of Behavioural Events?	Focuses on Contemporary Events?
Experiment	How, why?	Yes	Yes
Survey	Who, what, where, how many, how much?	No	Yes
Archival analysis	Who, what, where, how many, how much?	No	Yes/No
History	How, why?	No	No
Case Study	How, why?	No	Yes

Source: Yin (2003)

A survey is the most applicable method to simplify the research outcomes and to examine the hypotheses that have been developed (Collis and Hussey, 2003; Walker, 2005; Bryman and Bell, 2007). The survey would explore the logistics capability related to the SMEs ecommerce performance. It is an applicable instrument to acknowledge how each type of logistics capability would be able to encourage SMEs ecommerce transaction. It is also informative to provide information on how technically logistics capabilities are having an effective impact to the SMEs ecommerce through the survey questionnaire or the structured interview. This technique is reliable with the values and thoughts of the reputable researchers within the field (Lai et al., 2005; Brah and Lim 2006; Panayides, 2007b). Moreover, this method allows the collection of rich data on the applicable logistics capabilities in each context to improve the business volume. This will effectively arrange for the answers to research questions RQ4 to RQ8. The research also implements the systematic literature review, interviews for case study, and questionnaires for survey to response the research questions RQ1 to RQ8 successfully. A survey using a questionnaire would be the most applicable for this study; however, this method would have partial information as it needs a large number of samples which is time consuming and costly.

A case study through an interview is another methodology that is potentially to be applied. The objective of using interview is to investigate the key success factors that influence SMEs ecommerce. This will be explored more on how businesses appreciate their experiences or to elaborate their perceptions. This approach would be the most effective approach to learn the comprehensive information from the experiences of personnel in SMEs concerning keys success factors of ecommerce and the influences of logistics capability to bring positive impact to their business especially on transaction volume. It is an advantageous manner to attain the information related to KSFs of SMEs ecommerce and how the way of logistics capability improving SMEs ecommerce.

Therefore, the interview process allows SMEs to describe in detail and comprehensively their experiences and practices especially the role of logistics capability in advancing their business. The interview outcomes potentially could be used to answer research questions RQ1. And the survey study will observe questionnaire outcomes to validate and proof hypotheses that represent in research questions RQ4 to RQ8. This strategy would give opportunity for SMEs in the flexibility to explain what, how and why, in order to provide relevant answers based on the practices, understanding and proficiency in running the SMEs business. Many research operate interview questions as a means for collecting evidences (Charmaz, 2003). However, this method is potentially expensive and takes a long time while the interview data is sometimes difficult to analyse and interpret. Table 24 would summarize the advantages (strength) and disadvantages (weakness) of the interview and survey methods.

Furthermore, case study is also a potential methodology to be conducted. It effectively examines the up-to-date occurrences (actual conditions, concerns or difficulties). Case study research examines phenomena inside its realistic circumstance in which the limits

between occurrence and situation are not clearly proven and various sources of evidence are used (Yin, 1994). Case studies allow for complete description and comprehensive triangulation where multiple sources of data (archival records, observations and verbal reports) support a broader understanding of phenomenon. A case study is advantageous as an exploratory instrument. However, this research will also implement the use of case study with interview data, which is a more thoughtful arrangement of research approach to strengthen the investigation of key success factors of SMEs ecommerce application.

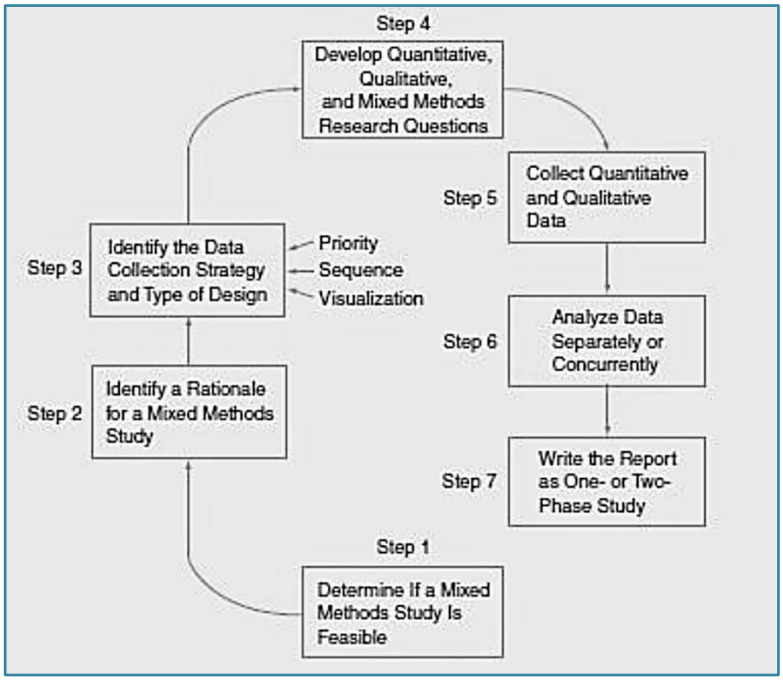
Table 24: Strength and weakness of survey and interview methodology

	Strength	Weakness
Interview Charmaz (2003)	Face-to-face validity Two-way communication Allow manager to describe what resources are meaningful and important Have the flexibility to use their knowledge expertise	Respondent's behave differently dependent on the interview style (data invalid) Training interviewer and conducting interview can be expensive and time consuming More subjective
		Analyzing and interpretive qualitative interview is much more time consuming Often difficult Require expertise Over-loaded information
Survey Collis and Hussey (2003) Look at the variation in data or learn about a large population thinks	Survey instrument is administered Easier to analyze Provide possible responses More rigid	Large group Provide limited information

Source: Charmaz (2003) and Collis and Hussey (2003)

Moreover, this research applies mixed methods study, which will combine the qualitative and quantitative method. Therefore, it will adopt the following steps mentioned in the Cannon's research (2004):

Figure 47: Steps in the Process of Conducting a Mixed Methods Study



(Adapted from Cannon, 2004)

It is observable from the figure 47 that at least there are seven steps in conducting mixed methods study. These are a brief description of each step:

1. Identify if mixed methods study is relevant and reasonable. It involves that this kind of research design can answer all the research questions.
2. Identify a rationale of mixture methods study. It is related to the reason why does the researcher choose mixed methods design to complete this study. In this study, the researcher chooses mixed methods design because of the need of the clarified research questions. The first research question requires to be accomplished using qualitative method. Then, the second, third and fourth research question needs to be finalised using quantitative method. Therefore, the researcher combines both of them in one research to achieve a better understanding.
3. Identify the data collection strategy and type of design. It involves with the sequence of collecting the data. The researcher collects qualitative and

quantitative data at the sequence time. Afterwards, it provides the specific forms of qualitative data (e.g., descriptive report) and quantitative data (e.g. numeric score, graph or diagram).

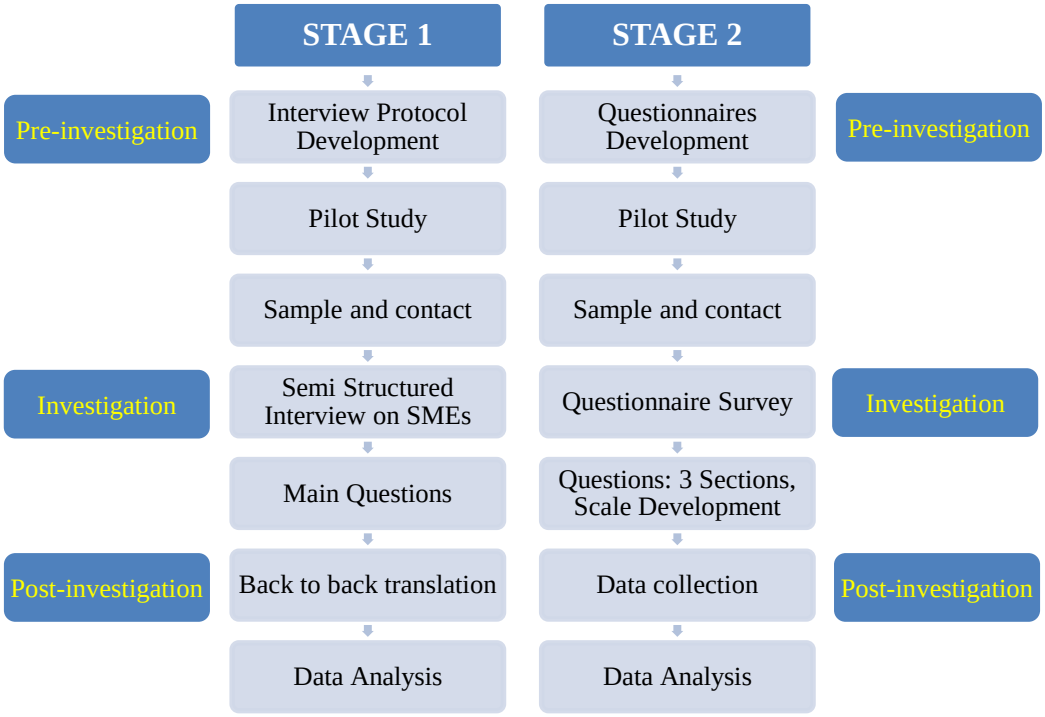
4. Develop quantitative, qualitative and mixed methods research questions. It deals with research question. In this research, first research question attempts to acknowledge the KSFs of SME's ecommerce in developing country, especially in Indonesia, which requires qualitative data. Second, third and fourth research questions attempts clarify the relationship between internal, external, country logistics capabilities and SMEs' ecommerce transaction, which requires qualitative data. Afterwards, the researcher combines both of them.
5. Collect qualitative and quantitative data. The researcher applies qualitative and quantitative procedures in collecting the data, which are interview and survey.
6. Analyse the data separately, concurrently, or both. It is related to the technique that researcher analyses the data. The researcher will use explanatory, exploratory, confirmatory factor analysis, Structural Equation Modelling (SEM) Goodness of fit and analyses the data separately. Qualitative data will be analysed first, then followed by quantitative data.
7. Write a report as one- or two-phase study or a multiple-phase study. This research uses two phases where each phase comprises of qualitative or quantitative explanation. Then, the written reports consist of the explanation of combining two methods (quantitative and qualitative).

4.8. Methodology Application (Data Collection)

In this research, data collection concentrates on SMEs ecommerce business practice. This concurrently meets the research objective to acknowledge the logistics capability practice from the viewpoint of SMEs ecommerce. Moreover, it indicates that the

research context is SMEs ecommerce. The population frame of this research is taken from Indonesian SMEs ecommerce. Concerning the accessibility, some of the SME's data will be collected with the involvement of Indonesian Ministry of Cooperatives and SMEs. With the support from the ministry, it allows researcher to access the list data of SMEs in each province in Indonesia and also the SMEs marketplace where the SMEs promote their product. Moreover, these data will be used as a list to construct a representative sampling frame. This investigation applies two methodologies: interview (for case study) and survey (using questionnaire). Therefore, there will be two stages applied in this research regarding the data collection as can be seen in the figure. Additionally, both interview and survey will be performed online with the intention to testify the ability of the participants about the technology and internet things, since they are supposed to be familiar with ecommerce equipment and tools. Moreover, to response the research question RQ1, systematic literature review conducted comprehensively. Literature analyses allow collecting data and information from the systematic and depth study of literature. Relating to this, the research uses the secondary data such as research summaries reported in textbooks, journals, papers, magazines, and newspapers, reports and official statistics, which is generally in the context of SMEs ecommerce in developing country, and specifically the evidence are from Indonesia. In order to strengthen the literature review, a case study will be conducted through interview as the first stage of the research. The case study in the stage one is expected to bring a comprehensive information based on the real practise and experiences of SMEs ecommerce in the field. Through this approach, it is projected to make stronger the previous findings in literature review that is the key success of SMEs ecommerce as it will support those findings based on the information collected form the participants.

Figure 48: The Steps of Two Stages of Data Collection Conducted in this Research



(Developed by Author, 2018)

Generally, the objectives of second stage is to examine the developed hypothesises. In this stage, another secondary source (to answer RQ2, RQ3, RQ4, RQ5, RQ6, RQ7, and RQ8) will be collected through a request approach to Ministry of Cooperative and SMEs who is responsible for the management, regulation, supporting, educating and monitoring the SMEs operation in Indonesia. Conveniently, the researcher has a professional network and social capital, which provides access to the ministry and SMEs marketplace, who are able to support this research especially for data collection and connecting researcher to the SMEs. The primary data are also used in this research to answer the RQ2, RQ3, RQ4, RQ5, RQ6, RQ7, and RQ8 through survey utilising the questionnaires online. These data will be collected from SMEs who has already implemented the ecommerce approach in their business. These online questionnaires will be sent and requested to be completed by email directly to each SMEs of ecommerce.

4.8.1. Stage 1: Interview Study (Semi Structured Interview)

Normally, a strategy is considered as "a set plan of actions to achieve a particular goal" (Saunders et al.; 2016:177). Consequently, a research strategy determines as a plan on how researchers perform the research to achieve the research goals or objectives. Moreover, all those strategies will be related to methodological issues, which is encompassing a research philosophy and methods selection applied to collect and analyse the data (Denzin and Lincohn, 2011). Additionally, the preferred research strategy should be connected by research questions and should be relevantly appropriate with the research objectives.

The Stage One of this research are determined as the interview study, which is the process of qualitative research. Basically, there are several relevant available types of interviews. Meanwhile, according to Converse and Schuman (1974:53; quoted by Denzin and Lincoln, 2000:650) that "there is none single interview type that suitable for every occasion or all respondents". However, this research applies a semi-structured interview due to the relevance of the interview character or procedure and the research's needs. Bearing in mind the character of semi-structured interviews, it is necessary for researchers to arrange a clear list of questions and the checklist of specific questions related to the research (Doody and Noonan, 2013; Saunders et al., 2016). Therefore, interviewers are able to conduct the conversation and investigate comprehensively the major topics.

In particular conditions of the interview process, the sequence of the structured questions could be probably changed. Additionally, researchers can also give several further questions for deep investigation during the interview process. The interviewers are able to generate new interrogations based on the explanation of interviewees while

the researcher attempt to connect it the key problems, the research's points of views and give opportunity for the interviewees deliver the ideas of new insights based on their perspective and experience. Through this procedure, some topics that had not previously being clarified will be possibly discussed effectively. In addition, these approaches can be constructive for the analysis process since as the researcher can make a comprehensive comparison and differentiate the finding within the topics. In the other hand, the application of unstructured interviews, will offer a probability to investigate a wider scope of topics and answers, which will make difficult the analysis process due to lack of information focus; the researcher then would be difficult to compare or contrast the interview outcomes (Collis and Hussey, 2009).

There are several types of semi-structured interviews while in this research, the interview will be performed by a one-to-one base through three sensible alternatives for instance "face-to-face", telephone, internet-mediated (electronic) interviews. With the purpose to familiarise the internet communication for the SMEs ecommerce, researcher decide to select the alternative of internet-mediated through video call. Using the mobile phone and mobile apps as the tools will allow researcher to conduct the interview like as face to face but with the internet connection. The Stage One is the stage for researcher to start the interview with the SMEs ecommerce as the participants. The interview approach of face to face with the internet connection is considered as the effective way to conduct the interview. Even though separated in distance, the research is still able to collect data and information from the participants. The experience of conducting this approach is similar to the face to face directly. Using the technology, the interview can be easily performed without any major difficulties.

Generally, the approach of data collection for this approach of interviews comprises four considerations (Miles and Huberman, 1984): the setting (the research location); the actors (individual/role who will be interviewed); the events (the topic of the interview); and the process (the actor's progressing nature of events within the setting). Therefore, here are the four factors of interview in this research:

a) Setting: Indonesia (with the internet connection from UK)

b) Actors: owner of SMEs ecommerce and SMEs Marketplace

c) Events: the actors would be interviewed about the key success factors, which is influencing their business transaction

d) Process: the interview events would be discussed through directly or online video call based on the condition.

Several relevant number of SMEs which running the business utilising ecommerce will be selected from the SMEs list of Ministry of Cooperatives and SMEs. To acquire the SMEs list, the researcher should communicate and make coordination with the ministry in order to have an effective support for the research. Once, the list has already obtained, each SMEs will be contacted personally to arrange the interview schedule whether it is directly or online video call. The purpose of the interviews with SMEs of ecommerce is to explore the key success factor of SMEs ecommerce based on the perspective, experiences and practises of SMEs in Indonesia (RQ1). The interviews are conducted in order to obtain feedback from the practice of SMEs ecommerce concerning their acknowledgement of key success factors of SMEs ecommerce.

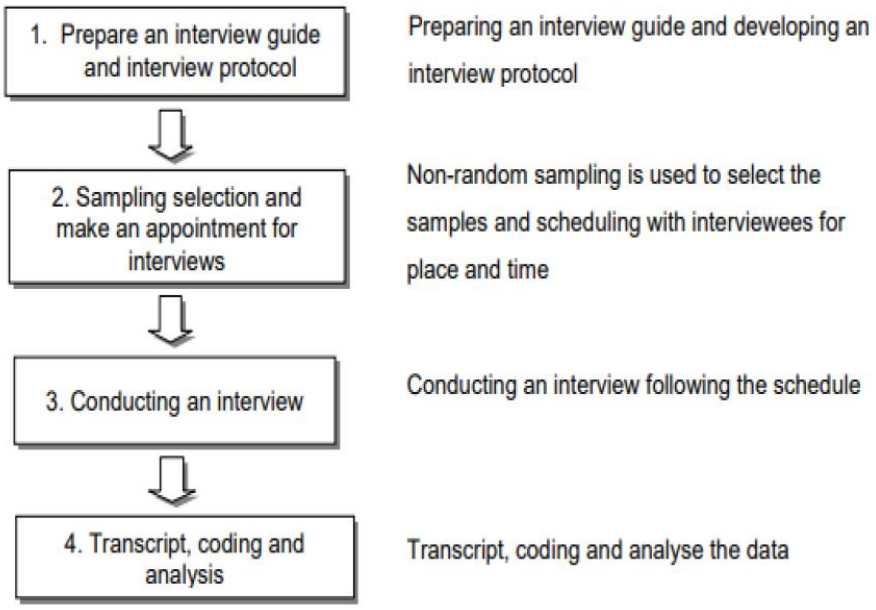
It is important that researcher should make sure the respondents are keen to be interviewed. In advance of performing the interviews, the researcher will contact the selected respondents whether through email, WhatsApp (WA), mobile message and

other relevant channel of communication. The aim of this communication is to introduce the researcher, the research and the event of interview. Consequently, this also encourage the respondents to be committed with the schedule of the interview. Therefore, the scheduled interview can be performed effectively. Concerning the ethical respect, the researcher will make an effective introduction and explain the subject of confidentiality and informed consent. The respondents should understand about the research objectives and the importance of their experiences and practises related to logistics capability are important to the research. Moreover, the researcher should also inform the respondents regarding the consent if the researcher is allowed to make record during the interview. This probably a significant thing for the respondents, therefore the consent should be informed well in order to respect them as a part of ethical issues in the research. Once the respondents are not convenient for the recording then the researcher should resolve it through a transcript note or written notes during the interview session. Through this note, researcher still have a document of interview in case it is required in the future.

Actually, there will be four steps which could be applied at this stage. The interview protocol will investigate the core focus related to the influenced factors of the SME ecommerce. Afterwards, determining the sampling and interview appointments should be conducted as a part of the interview process. Arranging the interview appointments and gaining the approval from the respondents will be conducted via email and online message (WA messaging). Through the completion of the online form, the respondent will clarify the consent to do the interview through the online WA video call at the convenient time of the respondents. Consequently, the interview is conducted based on the prepared interview protocol. Subsequently, the last step of the interview study is to

prepare the transcript, coding and analysis (Figure 49) while each interview will be completely recorded and transliterated into a Word version both in Bahasa and English.

Figure 49: Data collection processes in Phase One



Adapted from Churchill and Lacobucci (2010)

4.8.1.1 Sample and Contacting the SMEs ecommerce

Generally, there are two categories of research sampling, which can be applied by researchers including probability and non-probability (purposive) sampling (Teddie and Tashakkori, 2009). The differences between the two categories can be shown below (Table 25). In this research, the purposive sampling (non-probability sampling) is the selected sampling technique to be implemented due to the nature of the research and based on the differences and the research purpose which includes "the purposive SMEs ecommerce sampling". The purposive sampling is the technique where respondents are selected based on a particular criterion, which can include their relevance, their specialist knowledge and experience related to the research topic or the willingness to participate in the research (Sekaran and Bougie, 2011; Oliver, 2006).

Table 25: Comparisons Between Purposive and Probability Sampling Techniques

Dimension of Contrast	Purposive Sampling	Probability Sampling
Other names	Purposeful sampling Nonprobability sampling Qualitative sampling	Scientific sampling Random sampling Quantitative sampling
Overall purpose of sampling	Designed to generate a sample that will address research questions	Designed to generate a sample that will address research questions
Issue of generalizability	Sometimes seeks a form of generalizability (transferability)	Seeks a form of generalizability (external validity)
Rationale for selecting cases/units	To address specific purposes related to research questions The researcher selects cases she or he can learn the most from	Representativeness The researcher selects cases that are collectively representative of the population
Sample size	Typically small (usually 30 cases or less)	Large enough to establish representativeness (usually at least 50 units)
Depth/breadth of information per case/unit	Focus on depth of information generated by the cases	Focus on breadth of information generated by the sampling units
When the sample is selected	Before the study begins, during the study, or both	Before the study begins
How selection is made	Utilizes expert judgment	Often based on application of mathematical formulas
Sampling frame	Informal sampling frame somewhat larger than sample	Formal sampling frame typically much larger than sample
Form of data generated	Focus on narrative data Numeric data can also be generated	Focus on numeric data Narrative data can also be generated

(Teddie and Tashakkori, 2009: 179, adapted by Chaisurayakarn, 2015:115)

Moreover, there are four purposive sampling techniques, including convenience sampling, judgmental sampling, snowball sampling and quota sampling techniques, which the differences between these four techniques can be observed in Table 25. In this stage, convenience-sampling technique referring to its characteristics is implemented due to the technique's nature shown in Table 26. The literature does not provide clear-cut rules to determine the number of cases/companies in qualitative inquiry (Patton, 1990:11, quoted in Perry, 1998:793). However, there have been broad guidelines set forth by some authors in deciding the sample size. For example, Eisenhardt (1989:545) notes that qualitative researchers should proceed in adding cases (interviewees) until they reach a state of 'theoretical saturation' or 'to the point of redundancy,' as stated by Lincoln and Guba (1985:204). Both terms refer to a situation where the data being collected starts to be repetitive and little new major information

emerges. In determining a specific number of companies involved in research, Eisenhardt (1989:545) states:

> "While there is no ideal number of cases, a number between four and ten cases often works well. With fewer than four cases, it is often difficult to generate theory with much complexity".

Similarly, Hedeges (1985:76-77) proposes that, "in practice, four to six companies could form a reasonable minimum for a serious project, while twelve companies should be the maximum", considering the high cost involved and the amount of qualitative data to be analysed. To make the 'ceiling' even clearer, Miles and Huberman (1994:30) contend that "more than fifteen cases make a study unwieldy".

Therefore, considering all the arguments and suggestions above, seven companies of SMEs were selected as the sample for this qualitative research. Since the researcher has a professional network to the Ministry of SMEs and Cooperation, then it will be advantageous to support the research as it helps to contact and make communication to the ministry due to the collection of the contact list data of particular SMEs ecommerce in Indonesia. Afterwards, researcher contacted the selected SMEs ecommerce to participate in the research. Besides, researcher also published an advertisement using Facebook Add to invite SMEs ecommerce to be interviewed in the research, which involves directly the owner or the manager of the SME ecommerce in Indonesia. In order to strengthen the identified key success factors of SMEs ecommerce during literature review stage, seven-selected SMEs ecommerce conducted the interview with the topics on their practise and experience in ecommerce

Table 26: Advantages of non-probability sampling techniques

Non-probability (Purposive) Sampling Techniques	Details	Advantages
Convenience sampling	A simple technique which was available to the researcher by virtue of its accessibility	Least expensive and time consuming, most convenient
Judgemental sampling	A form of convenient sampling based on the judgement of the researcher	Low cost, convenient and not very time consuming. This kind of sampling is subjective and its value depends on the researcher's judgement.
Snowball sampling	A form of convenient sample but with this method, the researcher was able to make initial contact with a small group of people relevant to the research topic and use these to make contact with others	Can estimate rare characteristics.
Quota sampling	A form is to produce a sample reflecting a population in terms of the relative proportion of people in the different categories. It is mostly used in commercial research such as marketing research and political opinion polling.	Sampling can be controlled for certain characteristics.

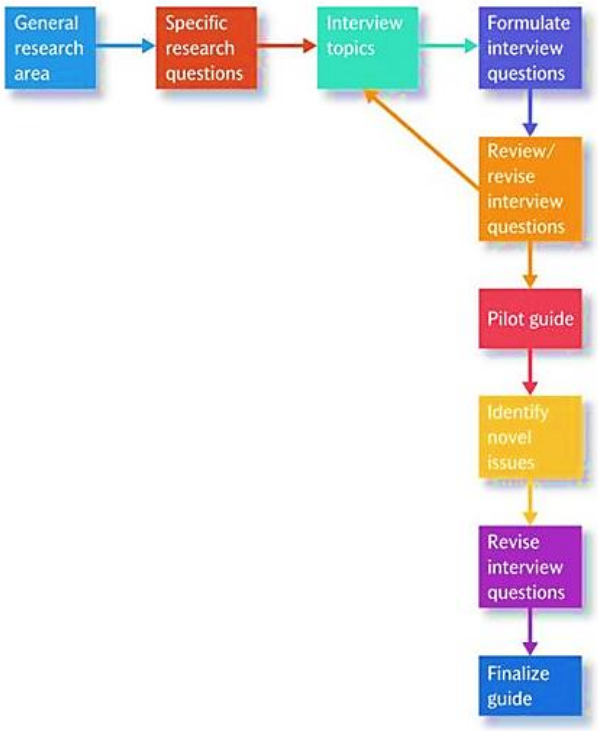
(Source: Bryman and Bell, 2015; Malhotra et al., 2012; Chaisurayakarn, 2015:95)

4.8.1.2 Interview Protocol

Interviews will offer researchers with comprehensive and detailed qualitative and quantitative data for identifying respondents' experiences and practices, how they define those experiences and practices, and the meaning they clarify of those experiences and practices (Rubin & Rubin, 2012). Concerning the significance of interviews for research, papers, journals, books and articles in conducting the research interviews are plentiful to be considered as references. These resources typically emphasize on: the situations encouraging quality interviews, such as attaining access to and selecting respondents (Rubin & Rubin, 2012; Seidman, 2013); the setting and length of time of the interview (Weiss, 1994); the command, quality, and clarity of questions (Patton, 2015); developing trust (Rubin & Rubin, 2012); and the complete process of an interview (Brinkmann & Kvale, 2015; Patton, 2015).

An interview protocol lists the questions or concerns that are to be explored in the process of an interview including the semi-structured interview (Bryman and Bell, 2015; Patton, 2015). An interview guidance is arranged to make sure that each person interviewed follows the same outlines of investigation. The guide will provide topics or subject areas within which the interviewer is freely allowed to explore, investigate, and enquire questions that will clarify and lighten that specific subject. Therefore, the interviewer still permitted to develop a discussion within a particular subject area, to ask questions spontaneously, and to create a communicative manner but with the attention on a specific subject that has been determined (Bryman and Bell, 2015). Additionally, the interview protocol assists as a checklist throughout the interview to ensure that comprehensive relevant subjects are discussed. Moreover, the advantage of an interview protocol is that it makes sure that the interviewer has wisely decided how best to spend the limited time available in an interview circumstance. The protocol supports conduct interviewing a number of different participants more systematic and comprehensive by defining in advance the subjects to be discovered. Correspondingly, a protocol is important in directing focus group interviews since it helps the communications focused while permitting individual perceptions and understandings to arise. Using an interview protocol in hand, the interviewer has a guideline to discuss the interview. It does not identify exactly what will happen at every single phase of the interview journey, how long each stopover will last, or where the interviewer will be at any specified minute, but it does conduct a clear sense of direction of the journey. Preparing and developing interview questions can assist researchers to perform an effective interview and gain the beneficial required data and information. The following figure shows the steps to be applied in developing set of questions for an interview guide:

Figure 50: Formulating Questions for an Interview Guide



(Bryman and Bell, 2015:489)

A semi structured interview protocol in this research is organised to encourage and attain answers from the respondents concerning their knowledge and practises toward the key success factors of SMEs ecommerce especially in improving their own business. Additionally, the formulation of the interview protocol would be organised based on relevant previous studies discussed in literature review. Those studies contributed to the concept of key success factors of SMEs ecommerce and logistics capability in the application for their business, which is operated for the interview (and also the questionnaire) in this study. To obtain the constructs comprehensively more valid and reliable, the interview protocol should be reviewed by qualified researchers in logistics, supply chain and operations management. Concerning further validity and reliability, the interview protocol is highly recommended to be proved by some logistic specialist.

Further, interview protocol can be established in more or fewer detail, depending on the range to which the interviewer is capable to identify essential subjects in advance and the extent to which it is significant to request questions in the same instruction to all participants. The protocol arranges for an outline within which the interviewer might expand questions, order those questions, and make decisions about which information to be chased in greater deepness. Generally, the interviewer would not be supposed to go into completely new topics that are not planned within the outline of the protocol. However, other topics might still arise throughout the interview-topics of significance to the participants that are not planned clearly on the protocol and therefore would not usually be investigated with each individual interviewed. The following table shows the references of each question in the planned interview protocol. This to ensure that the interview will have a strong foundation and able to attain the answer or data that the research is expected to be gained. The complete question of the interview is available in the appendix.

Table 27: Interview Protocol References

Question Number/Code	Concern	References
QA1 – QA11	Introduction of Interviewee and SMEs	Rubin & Rubin, 2012; Seidman, 2013
QB1 – QB2	Opportunity and Challenge of Ecommerce for SMEs	Rahayu & Day (2015), Triandini et al. (2015)
QC1 – QC2	Ecommerce Impact on SMEs	Rahayu & Day (2015), Triandini et al. (2015), Saffu et al., 2008
QD1 – QD7	Difficulties during Ecommerce Implementation (Post Adoption)	Rahayu & Day (2015), Triandini et al. (2015)
QE1	The Most Influenced Factors of Ecommerce for SMEs	Rahayu & Day (2015), Triandini et al. (2015)
QE2	Personnel or HR	H. Nguyen & S. Waring (2013)
QE3	Marketing / Marketplace	Chaffey & Ellis-Chadwick, 2016
QE4	Government's Law and Regulation	Braga (2005); Van Cleynenbreugel (2017)
QE5	Security and payment system	Dixit & Datta (2010), Efendioglu & Yip (2004)
QE6	Customer Demand	Lee & Whang (2001), Samuelson & Nordhaus (2005), Pang (2016)
QE7	ICT on ecommerce	MacGregor et al., 2002, (Ghobakhloo et al., 2011, Oliveira & Martins, 2010
QE8	Logistics Capabilities	Joong-Kun Cho et al., 2008, Wang (2016)

Source: Developed by Author, 2018

4.8.1.3 Translation and Back translation

For the purpose of conducting the interview, the developed interview protocol will be translated into original language of Indonesia, as the object of the country where the research is focused for the evidence and data collection. In the interview, it will be effective for the researcher to use the original language to avoid misunderstanding and bias of the data collection. Therefore, the developed interview protocol, which is provided in English, will be translated into Bahasa Indonesia. Once the interviewed is completed the result of the interview will be back translated into English for the next process of data analysis in the research. Commonly, back translation is an effective technique, which has been generally used by researchers to examine the correctness of translations with the intention of avoiding mistakes occurred during the translation process, mainly in cross-cultural research (Douglas and Craig, 2007; Saunders et al. (2016). The following table is the summary of the approaches, advantages and disadvantages of particular techniques in translating the research questionnaire (Usunoer, 1998). However, it is also still relevant to be applied for the other research instrument such as interview protocol.

Table 28: Translation Techniques for Questionnaires

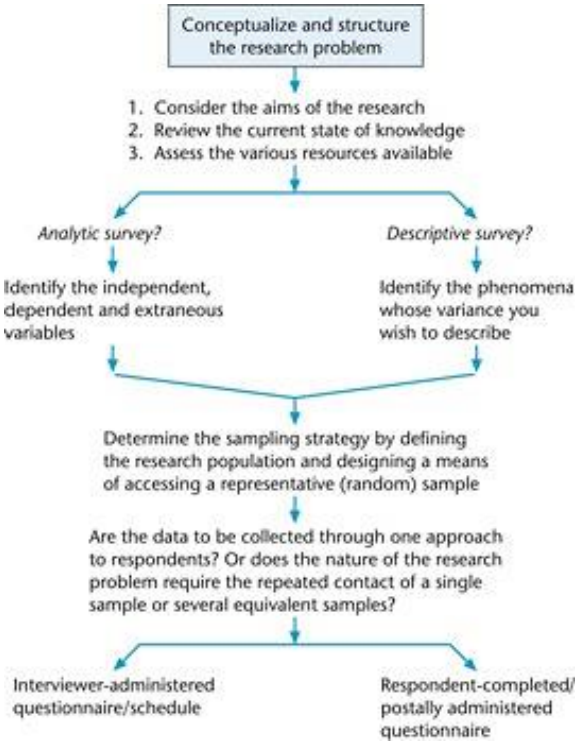
	Direct translation	**Back-translation**	**Parallel translation**	**Mixed-techniques**
Approach	Source questionnaire to target questionnaire	Source questionnaire to target questionnaire to source questionnaire; comparison of two new source questionnaires, creation final version	Source questionnaire to target questionnaire by two or more independent translators; comparison of two target questionnaires, creation final version	Back-translation undertaken by two or more independent translators, comparison of two new source questionnaires, creation final version
Advantages	Easy to implement, relatively inexpensive	Likely to discover most problems	Lead to good wording of target questionnaire	Ensures best match beween source and target questionnaires
Disadvantage	Can lead to many discrepancies (including those relating to meaning) between source and target questionnaire	Requires two translators, one a native speaker of the source language, the other a native speaker of the target language	Cannot ensure that lexical, idiomatic and experiential meanings are kept in target questionnaire	Costly, requires two or more independent translator. Implies hat the source questionnaire can also be changed.

Source: Developed from Usunoer (1998), adapted by Saunders et al. (2016:465)

4.8.2. Stage 2: Survey Study (Questionnaire)

Generally, the survey approach is related to a category of deductive research method. There is different purpose of conducting surveys, but typically it is applied with the focus to gain the answer of *"what", "where", "who", "how much" and "how many"*. In this method, a survey is applied for exploratory and descriptive research, which is to observe information on how respondents or the populations perceive, behave or understand a particular topic through several quantitative analysis tools (Saunders et al., 2016). Surveys and questionnaires are the main data collection approaches in business researches. Some of the benefits of conducting this technique are to allow researchers to collect and analyse data systematically through a formulated and organised question. Before carrying out a survey, researchers should arrange a systematic planning and do re-check (Gill and Johnson, 1991), which can be seen in the recommended following preparation:

Figure 51: Planning a Survey



Source: (Gill and Johson, 1991:76-7)

However, occasionally there are some potential weaknesses on surveys approach such as low response rate that can be occurred since this challenging problem might decrease the ability to simplify the results to the complete population (Snow and Thomas, 1994). Besides, another issue can be the concern about the response errors as a result of some confusing and ambiguous phrasing in the questionnaires (Mangione, 1998).

A survey questionnaire in this research is organised to stimulate and obtain answers from the respondents concerning their understandings and practises toward the key success factors of SMEs ecommerce, especially on the relationship of logistics capabilities improving their own business. Additionally, the design of the questionnaire items would be established based on relevant previous studies discussed in literature review. Those studies contributed to the concept of key success factors of SMEs ecommerce and logistics capability in the application for their business, which is utilised for the questionnaire and interview (in the previous section). To obtain the constructs comprehensively more valid and reliable, the questionnaire draft should be examined by qualified researchers in logistics, supply chain and operations management. Concerning further validity and reliability, the questionnaire is highly recommended to be verified by some logistic specialist. The purpose of the survey through questionnaire towards SMEs ecommerce is to explore the relationship between logistics capability and business transaction (RQ4 to RQ8). The questionnaire is arranged in order to obtain information from the practice of SMEs ecommerce concerning their strategy of logistics, which related to the logistics capability. The questionnaire will be focused about the role of logistics capability related to the improvement of SMEs ecommerce transaction, how they develop their logistics capability in their business, how effective that logistics capability encourages the transaction volume.

4.8.2.1 Sampling

Commonly, there are at least two sampling methods of the obtainable sampling methods that researchers are able to apply in their research, which are probability sampling and non-probability sampling (Saunders et al., 2016). The probability samples give a chance or probability of each example to be nominated from the object population, in which all the examples are known and usually equivalent (Saunder et al., 2016:275). Meanwhile the non-probability sample is the probability of each example being selected from the target population is not known (Saunder et al., 2016:276). It is observable from the previous table and Table 29 below what the differences between probability sampling and non-probability sampling. The survey in this research will employ the probability sampling methods refer to nature and objectives of this research with a great number of questionnaires that should be collected. Within the probability sampling methods, there are four categories of techniques, which the details and advantages could be seen in the following table. Through the relevant consideration based on the nature conditions of the technique and its advantages, simple random sample the most applicable technique to be applied in this research.

Table 29: Advantages of Probability Sampling Techniques

Probability Sampling Techniques	Details	Advantages
Simple random sample (SRS)	It is the most basic probability sample and each unit of the population had an equal probability of inclusion on the sample	Easily understood, results projectable
Systematic sample	The selection of samples is directly chosen from the sampling frame	Can increase representativeness, easier to implement than SRS. Sampling frame not always necessary
Stratified random sampling	The technique is used when the proportion of subgroups (strata) is known in the population and the selection would be random but from each of these subgroup	Includes all important subpopulations and precision
Cluster sampling	The population is divided into mutual subsets and the random samples of subsets are selected.	Easy to implement and cost effective

(Source: Bryman and Bell, 2015; Malhotra et al., 2012; Saunders et al., 2016)

Further, the number of Indonesian SMEs implementing ecommerce for their business transaction shows a percentage at 6.5%, which is 3.79 million from the total 58 million SMEs (kompas.com). It is still gross number of statements. However, the registered number of SMEs ecommerce in Ministry of Cooperative and SMEs is on investigation. The probability number is highly less since not many SMEs register their business and the ministry has no platform yet to encourage SMEs to be able to register their companies. It is required to have the exact number of registered SMEs utilising ecommerce in their business in order to decide the sample size of respondents in this research. And also, there are about 50 marketplace that are registered in the ministry. Furthermore, the SMEs and marketplace of SMEs who will be selected in this research should be the registered SMEs and marketplace. The identified SMEs who has already implemented ecommerce in their business is about 3500 SMEs (depkop.go.id).

Those potential numbers of registered SMEs and marketplace will be the relevant population and sample in this research. Concerning the sample size, it will be adjusted depend on the exact number of those registered population (SMEs ecommerce and marketplace), which is around 8-10% of the identified SMEs ecommerce, about 250 SMEs is expected to participate in the research. Moreover, the SMEs sector selection to be surveyed will be determined randomly whether it is in the sector of fashion, electronic, agriculture, food, etc. The focus will be on any sector of SMEs, which has implemented ecommerce in their business. It is in order to have general outcomes, which can be relevant and applicable for any sector of SMEs ecommerce in developing country, especially in Indonesia. Utilizing the list of registered SMEs and marketplace from the Ministry of Cooperative and SMEs, the researcher will obtain the contact names and numbers and addresses so that they will be contacted as the respondent for the research. In systematic and random sampling, the first contact number in the list will

be called in order to request respondents who are eager to be surveyed. The approach to contact the respondents will be through the massive invitation personally and publicly using any possibilities of contact such as email, social media message, WhatsApp, social media advertising, etc. Since this research is developed on a quantitative approach, large samples are required to achieve a greater reliability of the key analytical practice used in this research. There are probably three potential reasons of respondents to clarify their rejection to participate in the research: (1) not keen to expose information; (2) not available to spare time; and (3) not interested in survey. Moreover, the respondents should be the owner or manager of the SMEs and the CEO of the marketplace since they have the authority and responsibility to the business decision. Therefore, they will be effectively able to share the experiences and practice of their business.

Regarding the formalities, the researcher should have the approval or official support from the relevant ministry in performing the research data collection. This position will allow the researcher to have access into the SMEs and marketplace. Then the communication and survey to the respondent will be performed well as it has been planned. Additionally, the survey will be conducted through a direct visit or indirect visit (online communication). The researcher should ensure that respondents are keen to share information by completing the questionnaire.

Moreover, the target of questionnaire completion in a month would be about 35 to 40 completed questionnaire per month. Therefore, to enhance 200 to 250 completed questionnaire it will approximately take 6 months. It is expected that those number would an applicable number of samples in this survey. In addition, those number of samples will be randomly focused in particular areas in Indonesia. While the selected

location for those samples in this study will be concentrated in particular areas / provinces, Java, Sumatera, Kalimantan, Bali and Sulawesi. These areas have been chosen due to its major islands or province, which has potential number of SMEs ecommerce.

4.8.2.2 Questionnaire Design

The survey in this research will utilize the closed response approach in which respondents are needed to respond to the Likert 5-point scale: strongly agree, agree, neither agree nor disagree, disagree, strongly disagree (Likert, 1932; Dunn et al., 1994; Stock, 1997), by giving a particular response related to a statement or signing a tick against a certain statement. The questionnaires should be arranged with the questions are brief and simply worded so that respondents are stimulated to complete the survey items. The survey questionnaire could be possibly allocated into several sections depending on the requirement of the research. Each section should ensure that the research would obtain a sufficient and relevant data and information due to the research requirement especially on the relationship between logistics capabilities and ecommerce transaction.

The questionnaire arrangement of this research will adopt the ILCI survey (Saputra, 2016) in particular sections; section A, and C3. Meanwhile, the content of section B will be the combination of ILCI and Joong-Kun Cho et al. (2008) and Wang (2016). Moreover, section C1 and C2 will adopt the mixture content from the Joong-Kun Cho et al. (2008) and Wang (2016). Firstly, Section A of the questionnaire survey will be arranged for a set of questions in order to investigate the major problems faced by logistics and supply chain sector in Indonesia due to SMEs ecommerce implementation according to the experiences, understanding and practise of the respondents. Secondly,

Section B of the questionnaire are classified in order to acknowledge the current level of country logistics capabilities related to the SMEs ecommerce implementation in Indonesia. Finally, Section C, which consists of C1, C2 and C3 attempts to investigate the causative relationship between three types of logistics capabilities and SMEs ecommerce transaction. Based on their experience, practise and understanding, the respondents would select the applicable answer that is applied the best toward logistics capabilities especially on SMEs ecommerce in Indonesia. The score of this questionnaire represents a particular significance both to describe quality and level of problems as illustrated on Figure 52. Designed for quality concern, the score will be defined as follow; 1: very bad, 2: bad, 3: average, 4: good, 5: very good. Whereas regarding the problems level, the score will be described differently as follow: 1: very low, 2: low, 3: average, 4: urgent, 5: very urgent.

Figure 52: Description of the Questionnaire Rating Scale

	Problems	Quality	
Very Urgent	5.0 – 5.99	5.0 – 5.99	Very Good
Urgent	4.0 – 4.99	4.0 – 4.99	Good
Average	3.0 – 3.99	3.0 – 3.99	Average
Low	2.0 – 2.99	2.0 – 2.99	Bad
Very Low	1.0 – 1.99	1.0 – 1.99	Very Bad

Source: Developed by Author, 2018

The following table illustrates the references of each question that is arranged in the questionnaire (complete version can be observed in Appendix). This to describe that the questionnaire in this research have established strongly based on a good foundation of literature. Moreover, it is also to ensure that the planned questionnaire is relevant to resolve problems of the research in order to achieve the objectives effectively.

Table 30: Questionnaire Structure

Section and Question Number	Concern	References
Introduction: 1 - 8	Introduction	Arvis et.al., (2014), Saputra (2017)
Section A: 9 - 10	Major problems of Logistics Sector	Arvis et.al., (2014), Saputra (2017)
Section B: 11 - 17	Performance level of country logistics capability	Arvis et.al., (2014), Saputra (2017)
SECTION C		
Section C1: 18 - 19	Causative Relationship Between Internal Logistics Capability and SMEs ecommerce transaction.	Joong-Kun Cho et al. (2008), Wang (2016)
Section C2: 20-21	Causative Relationship Between External Logistics Capability and SMEs ecommerce transaction.	Joong-Kun Cho et al. (2008), Wang (2016)
Section C3: 22-29	Causative Relationship Between Country Logistics Capability and SMEs ecommerce transaction.	(Banomyong, 2007), Tongzon (2007), Memedovic et al. (2008), Song (2011), Arvis et.al., (2014), Saputra (2017)
SECTION D: 23 - 38	This section is only for participants who own or manage SMEs E-commerce to explore how logistics capabilities give impact to their business transactions.	Joong-Kun Cho et al. (2008), Wang (2016)

Source: Developed by Author, 2018

4.8.2.3 The Significance of the Questionnaire

This subchapter will effectively discuss the significance of the questionnaire, which will describe how the questionnaire works to gain data from respondents. Moreover, this also will explain how the set of questions in the questionnaire are qualified to resolve the objectives of the research. Firstly, introduction part will investigate the background of the respondents. It is necessary to acknowledge the respondent's circumstance since it will provide a relevant data of the respondents for the requirement of the research. Recognising respondents through this part will effectively ensure if the respondent is eligible to participate in the research or the data from respondent is eligible to be utilised in the research.

Secondly, section A attempts to identify the major problems of logistics sector in Indonesia. In this section, respondents are motivated to contribute their understanding

based on the real fact that they are experiencing from the field regarding the major problems of logistics sector in recent condition. Respondents are expected to give score of priority of the potential major problems which are referring to the clarification of Arvis et.al., (2014) and Saputra (2017). Moreover, respondents also expected to provide other potential major problems from their own perspective. Consequently, it will be also considered as a problem as long as it indicates both the relevancy and the urgency of the problems. The outcome from the Section A will be utilised as a guidance of concern for the stakeholders of logistics sector towards the continuous improvement regarding the problems of logistics sector, which always changes dynamically.

Next, section B is arranged to gain data from respondents in order to investigate the recent performance level of country logistics capability in Indonesia, which refer to the ILCI index introduced by Saputra, 2017. The ILCI investigation in this research is specifically related to the support towards SMEs ecommerce application. In this section, respondents are encouraged to evaluate the country logistics capability in Indonesia based on the following ILCI factors:

1. The availability of recent infrastructures
2. The recent balance of infrastructures development
3. The recent ICT (Information, Communication and Technology)
4. The latest laws and regulations
5. Human resources
6. Logistics service provider (LSP)
7. The process quality of logistics operations

The result on this section is expected to indicate the ILCI level at the current condition. Consequently, through this outcome, the stakeholder of logistics sector in the country will acknowledged the achievement of performance regarding the logistics capability

within the country. If the score of the ILCI is high means the logistic capability performance of the country is in great quality of operation. In the other hand, if the ILCI score is low then government and stakeholders should consider an effective improvement of national logistics system to support domestics economy especially SMEs ecommerce application as the impact of the country logistics capability.

Section C1 of the questionnaire will be expected to provide data that is able to examine hypothesis H1, which is the relationship between the quality of SMEs' internal logistics capability and their performance in the ecommerce transaction. The respondents is encouraged to evaluate the factors of internal logistics capability, which is adopted from Joong-Kun Cho et al. (2008), Wang (2016) if those factors are able to increase their business transaction either directly or indirectly. In the other hand, the respondents also requested to evaluate if those factors have negative impact to their business, which is able to decrease their business transaction. Those evaluated factors are as follow:

1. Pre-sale customer service
2. Post-sale customer service
3. Delivery speed
4. Delivery reliability
5. Responsiveness to target market
6. Integrated information system
7. Web-based order handling
8. Widespread distribution coverage
9. Low total cost distribution
10. Innovation
11. Flexible operations
12. Reverse logistics

Section C2 of the questionnaire is proposed to examine hypothesis H2 if there is a positive relationship between SMEs' outsourced logistics capability and its performance in the ecommerce transaction. In this context, outsourced logistics capability is defined as the third party logistics that is utilised by the SMEs concerning their logistics operation. Therefore, the factors used to examine this hypothesis will be similar as internal logistics capability but in different context of operator who conducts the operation, which is the third-party logistics. Through those factors mentioned above, the respondents are motivated to evaluate if the outsourced logistics capabilities are able to influence their business transaction in term of increasing or decreasing, positively or negatively.

Section C3 will be planned to gain relevant data in order to resolve the hypothesis H3 whether there is a positive relationship between the quality of a country logistics capability and SMEs performance in the e-commerce transaction. In this section, the respondents are expected to contribute their evaluation concerning the following particular areas of the country logistics capabilities related to the SMEs ecommerce business transaction:

1. The availability of recent infrastructures
2. The recent balance of infrastructures development
3. The recent ICT (Information, Communication and Technology)
4. The latest laws and regulations
5. Human resources
6. Logistics service provider (LSP)
7. The process quality of logistics operations

Those factors above used in section C3 was identified as the areas of consideration by researchers such as (Banomyong, 2007), Tongzon (2007), Memedovic et al. (2008), Song (2011), Arvis et.al., (2014), Saputra (2017). It embraces the capability factors which relevant with the circumstances in developing country especially Indonesia. Through this evaluation, the respondents will share their knowledge and experiences if there is a positive or negative relationship between country logistics capability and SMEs ecommerce transaction.

Therefore, those evaluations above will be effectively supporting the research to resolve all of the research hypotheses. The score result of the questionnaire will show a certain value which able to indicate the relationship of logistics capability either positively or negatively. The high score will be assumed of positive relationship, while low score will be regarded as negative connection. In addition to this, if the score is in average value so it will be observed as zero relationship, which means neither positive or negative.

4.9. Pilot Study

A verification by professional experts as well as academics regarding the pilot survey and interview protocol should be conducted well to make sure that the research instruments are having no indistinctness and are clear (The forms for the pilot study in this research can be observed in Appendix page). Based on the advice of the pilot test, questionnaire surveys and interview protocol will be refined and revised to obtain a qualified final research instrument. This is regarded as a trial study in this research related to the logistics capability implementation improving the business transaction of SMEs ecommerce. Consequently, it is understood essential to perform an initial test concerning the effectiveness of the research methodology and the relevance of the content, phrasing and outline of the questionnaire and interview protocol so that any

potential difficulties that might arise during the research process could be effectively acknowledged. The aim of pilot is to identify any potential deficiency in the design and arrangement of the research instruments; questionnaire and interview protocol (Lakhal et al., 2005). Obtaining the top level of reliability and validity the research instruments should be piloted on sufficient number of professional (Okpara and Wynn, 2008).

Based on the effective pilot study some modifications may made regarding the language and the outline of the questionnaire. Ambiguous questions will be re-phrased to avoid misunderstanding and to improve understanding of the questionnaire substances. For instance, any double questions will be modified according to the item being constructed. A question can either be divided into two questions or it can have the similar meaning. Moreover, in the original questionnaire, usually the backgrounds of the respondent and the firm are outlined in Part A and Part B. Somehow, it could be probably that some respondents will not be comfortable to complete the background part; henceforward, the questionnaire items relating to company resources and performance could probably be replaced in Part A and Part B. Another potential issue, some participants probably deny responding to any items related to any typical of company or personal information.

However, those articles should be kept, as they will inform the profile of company variances. Additionally, the questionnaire items concerning the logistics capability could be clustered together in one section so that participants may comfortably completing the questions relating to each question. Various lessons from the pilot survey are important to take as consideration. Commonly, respondents are more responsive completing the surveys once the research objectives are clarified well to them. Additionally, a personal communication in advance of the survey request would potentially encourage the response level due to respondents demanding it in their free

time and at their own convenience. Moreover, personal visit may ensure that the questionnaire will be completed; otherwise, it will not be completed until the researcher send a reminder.

Besides, the pilot study in this research will examine both the interview protocol and the questionnaire before the utilisation of the research instrument is launched for data collection. Firstly, to perform the pilot study toward the interview protocol, researcher will conduct a testing of the protocol which conducting the real interview to the selected of seven 3 to 5 interviewees from SME Ecommerce and academician in Indonesia. Those potential interviewees will be invited personally through email by explaining the purpose of the research and the pilot study. It is projected that the interviewees are easily to be contacted since the researcher have a professional connection toward academia and some recognised SMEs ecommerce and marketplace. In addition, the interview for pilot study will be completed online through video call, as the actual interview will be conducted similarly through video call in order to examine if the SMEs who will be interviewed is familiar with ICT and ecommerce. In the pilot study, interviewees are expected to evaluate and give their comment and advice for improvement of the interview protocol. Interviewees are free to evaluate if the interview protocol should be improved in term of word selection, simple vocabulary, and other consideration for perfection due to the effectiveness of the interview. Furthermore, the purpose of the interview for pilot study is to identify if the interview protocol is qualified to be launched for interview study towards the real respondents, which will be the 5 to 10 selected SMEs. Through the pilot study of the interview protocol, it is expected that the process and the result of interview study will be effectively achieving the purpose of the research.

Moreover, the pilot study for the questionnaire will be performed by inviting the potential respondents from relevant background such as companies, government and academician to participate in evaluating the quality of the questionnaire in term of phrasing, meaning, structure and other concerns. The selected potential respondents will be contacted through email or other possible contacts. The respondents are encouraged to assess and contribute their observation and recommendations for the improvement of the questionnaire. Respondents are welcome to assess if the questionnaire should be upgraded in term of word selection, simplicity vocabulary, and other attention meant for the excellence due to the effectiveness of the data collection. Maximum five potential respondents from qualified background such academician, government, LSPs and SMEs will be adequate for the pilot study. The most important aspect for the pilot study is the feedback from the respondents concerning the quality of the questionnaire.

4.10. Research Tool Selection

There are various tools of statistics software, which can be applied in this research. Some of the popular software such as SPSS, STATA, AMOS, R, MATLAB, SAS, and many others. From that available software, SPSS AMOS will be the selected software to be utilised in this research due to its relevancy and appropriateness between the software and the research nature. SPSS AMOS is one of the popular software among the academician, industries and statistics specialist which is used to perform quantitative analysis and is used as a complete statistical software that is based on a point and click interface. In term of data management and organization, SPSS AMOS has the ability to remember the location of the variables and cases; it correspondingly provides a quicker and accurate data analysis.

Additionally, SPSS AMOS provide the wide range of graphs, methods and charts while other type of statistical analysis has its limitation. Moreover, SPSS AMOS has a better organization of the output since the output is usually saved apart from the data, by storing all the results in a separate file that is different from the file in which the data is stored. Concerning this study, the author prefers SPSS AMOS since it is relevant and suitable with the purpose of the research. Moreover, the ability of SPSS AMOS that involves some sophisticated inferential and multivariate statistical procedures such as factor analysis, discriminant analysis, analysis of variance, regression and correlation analysis, etc. will be relevant for the application of this study. Those ability of analyses in SPSS AMOS will be affective for the investigation of causative relationship in this research. Further, the type and the range of the data in this investigation will be not massively congregated since the sample is only 250 – 350, about 8-10% of the total SMEs. Therefore, applying SPSS AMOS in this research will be sufficiently relevant.

4.11. Data Analysis

After the data collection of the research through survey and interview completed, various analyses through several steps will be conducted before examining both qualitative and quantitative data, including the hypotheses of the research. Those potential analyses to be applied are including preliminary analysis, content analysis, descriptive analysis, correlation analysis, regression, exploratory factor analysis (EFA), confirmatory factor analysis (CFA) and also structural equation modelling (SEM). During the implementation, the researcher will re-identify and re-determine if these planned analyses are applicable based on the latest conditions of the research. However, in regard to the relevance and effectiveness this study decided to apply the descriptive analysis, EFA test, CFA test, and SEM for the hypothesis testing.

Correspondingly, the research will provide the descriptive statistics or analysis, which is related to data frequencies, means, and standard deviations. While exploratory factor analysis is used to observe the data sets from the questionnaire and investigate any latent constructs, remove duplicated variables, determine basic dimensions or factors that are not acknowledged in a set of associated variables (Hair et at., 2011). Moreover, confirmatory factor analysis and structural equation modelling (SEM) will be applied in this research to define the validity, reliability and relationships between variables after the procedure of EFA. The analysis of SEM will be implemented in order to validate the relationships between various variables using regression and covariance among latent constructs or variables (Grant, 2003; Hair et at., 2011).

4.11.1 Data Analysis for Interview Study

Technically, the steps on interview data analysis classifies the data to arrange it for further analysis, define the key features of the data, and resume the findings. Interview data analysis in this research is a part of case study as an initial exploration and investigation of data collection related to the key success factors of SMEs ecommerce due to the post adoption phase. Interview data analysis allows identifying key success factors of SMEs ecommerce based on the experiences and practise of SMEs in the field. The aim of this analysis and investigation is to contribute an overview, which is ensuring and strengthening the evaluation of relevant key success factors of SMEs ecommerce that has been established through systematic literature review.

Generally, interview data analysis refers to the process of a project that determines whether the concept is practicable. Related to this research, interview data analysis based on the case study is focused to strengthen the identified key success factors from di investigation of systematic literature review. The case study attempts to explore and

investigate those factors in the perspective of the SMES ecommerce owner or manager. Additionally, an examination of content validity should be completed to assess the accuracy with which the area of the construct is recognized and to evaluate the sufficiency of the scale substances in terms of signifying the entire aspects of the area. Further, the outcomes of the case study which will be processed through the interview data analysis should strengthen the exist concept of the SMEs ecommerce key success factors or probably contribute to expand the existing knowledge.

Particularly, at least there are four steps that should be applied in the qualitative approach (Ghauri and Gronhaug (2002), Malhotra et al. (2012), Chaisurayakarn (2015:99). Firstly, the collected data from the interview will be completely transcribed. While the next step is to conduct the data reduction which is related to the process of choosing the relevant and useful data for the research. Afterward, the two final steps which are data display and data verification will be completed. This step will comprehensively be presenting the results by comparing, analysing and discussing the phenomenon and experience of each particular SME ecommerce.

Table 31: The Process of Data Analysis in Interview Study

Data analysis processes	Details of the analysis in Phase One
Data assembly	Data inputs are collected through in-depth interviews
Data reduction	This involves organising and structuring the data by disregarding some data. This part refers to the process of selection, focus, simplification, abstracting, and transformating the data which appears in transcriptions.
Data display	To refer to an organised, compressed assembly of information that permits the outlining of conclusions and taking action. It is in the form of a data matrix and figures.
Data verification	The drawing of conclusions is in the understanding and becoming able to explain the actual phenomenon

(Adapted from Ghauri and Gronhaug (2002), Miles et al. (2014), Malhotra et al. (2012), Chaisurayakarn (2015:99))

4.11.2 Descriptive Analysis (Survey)

Descriptive analysis in this research will be applied to analyses the collected data from the survey. Descriptive statistics are utilised to describe the basic features of the data in research, which has been collected through questionnaire. They will effectively supply simple reviews about the sample and the measures. In common with simple graphics analysis, they will form the foundation of fundamentally each quantitative data analysis. The use of descriptive statistics is basically to define what occurs to the data. Descriptive statistics will help researcher to simplify large quantities of data in a practical way and reduces many data into a simpler summary.

Descriptive statistics is particular technique of data analysis that supports describe, display or recapitulate data in a meaningful way. Descriptive statistics do not allow researcher to clarify conclusions further than the data we have examined regarding any hypotheses we might have made. They are only an approach to describe our data. Descriptive statistics are very essential because if researcher purely present the raw data, it will be difficult to describe and visualise what the data is presenting, particularly when there are many data in the research. Descriptive statistics therefore facilitates the researcher to provide the data in a more meaningful approach, which arrange for simpler data analysis. Typically, there are two common categories of statistic are applied to define data:

1. Measures of central tendency: these are approaches of defining the central position of a frequency distribution for a set of data. Researcher can describe central point using a statistics number, containing the mode, median, and mean.
2. Measures of spread: these are methods of compressing a set of data by describing how spread out the scores are. To define this spread, a number of statistics will be presented, including the range, quartiles, variance, standard

deviation, and absolute deviation. Descriptive statistics is beneficial to summarize group of data utilising graphical description (i.e., charts and graphs), tabulated description (i.e., tables) and statistical commentary (i.e., a discussion of the results).

4.11.3 Exploratory Factor Analysis (EFA)

Exploratory factor analysis is a type of statistical practice that is applied to decrease data to a minor set of summary variables and to discover the highlighting theoretical structure of the phenomena. Additionally, it is utilised to classify the linking structure between the variable and the respondent. Factor analysis proposes the technique for analysing the structure of the interrelationship (correlation) among a huge number of variables by determining sets of variables that are highly intercorrelated, known as factor (Hair et al., 2010:94). Moreover, EFA is also familiar as a data reduction method (Pallant, 2017). Meanwhile, the next step of EFA should be known as CFA (confirmatory factor analysis).

Furthermore, in an attempt to use EFA, 50 observations should be the number of minimum sample size and an ideal ratio of 5 observations per variable is required (Hair et al., 2010). Therefore, the statistically significant Barlett's test of sphericity with sig.< 0.5 should be applied which specifies that acceptable correlations occur among the variables, followed by the examination of the KMO index (Kaiser-Meyer-Olkin) which measuring the sampling suitability. Whereas the KMO should be higher than 0.5 and KMO values between 0.5 to 0.7 are acceptable, higher than 0.7 is great (Hair et al., 2010). Moreover, the validity and reliability of EFA test should be based on the valid value of Cronbach's Alpha. Cronbach's alpha, α (or coefficient alpha) which was established by Lee Cronbach in 1951 would measure the reliability, or internal

consistency of the data while “reliability” is additional term for consistency. In addition, Cronbach's alpha measures the internal consistency or reliability of a data set; this is one of the reflections to determine the suitability of a data set for statistical analysis (e.g., factor analysis). The application of Cronbach’s alpha tests in this research aims to see if multiple-question Likert scale in the surveys is reliable. These questions measure latent variables—hidden or unobservable variables could be a person’s carefulness, obsession or honesty. These are very problematic to be measured in the real life.

Therefore, Cronbach’s alpha would determine how closely related a set of test items are as a group. There are various range of acceptable or sufficient Cronbach’s alpha. Some literatures also presented indications of alpha having a different threshold or cut-off as an acceptable, sufficient or satisfactory level. This was normally seen as ≥ 0.70 (five instances) or > 0.70 (three instances) although one article more unclearly discussed to “the acceptable values of 0.7 or 0.6” (Van Griethuijsen et al., 2015).

A varied range of different qualitative descriptors applied in many research to understand alpha values measured. Those alpha values were defined as excellent (0.93–0.94), strong (0.91–0.93), reliable (0.84–0.90), robust (0.81), fairly high (0.76–0.95), high (0.73–0.95), good (0.71–0.91), relatively high (0.70–0.77), slightly low (0.68), reasonable (0.67–0.87), adequate (0.64–0.85), moderate (0.61–0.65), satisfactory (0.58–0.97), acceptable (0.45–0.98), sufficient (0.45–0.96), not satisfactory (0.4–0.55) and low (0.11). However, mostly Cronbach’s Alpha score of more than 0.7 is acceptable. Further, the higher values of 0.90 to 0.95. is always recommended which indicates the significance.

Table 32: Cronbach's Alpha Value

Cronbach's Alpha	Appropriateness
$\alpha \geq 0.9$	Excellent
$0.9 > \alpha \geq 0.8$	Good
$0.8 > \alpha \geq 0.7$	Acceptable
$0.7 > \alpha \geq 0.6$	Questionable
$0.6 > \alpha \geq 0.5$	Poor
$0.5 > \alpha$	Unacceptable

Source: Tavakol & Dennick (2011)

4.11.4 Confirmatory Factor Analysis (CFA)

A statistical technique which is used to validate the factor structure of a set of observed variables is known as Confirmatory factor analysis (CFA). CFA allows the researcher to examine the hypothesis of a relationship between observed variables and their underlying latent constructs exists. The researcher utilizes knowledge of the theory and empirical research, or both, assumes the relationship pattern and then tests the hypothesis statistically. CFA techniques normally attempt to determine which sets of the observed variables that share the characteristics of covariance or common variables can best describe the constructs (Schumacker & Lomax, 1996). CFA is very much alike to EFA with the exception that constraints derived from the hypotheses are embedded in the analysis. These constraints may exist in the form of the number of factors hypothesized, the nature of the connections between the factors and the magnitude of the factor loading for every variable (Schumacker & Lomax, 1996). CFA also utilised to evaluate the unidimensionality of the latent variables, convergent validity as well as the discriminant validity (Hair et al., 1998).

The practise of CFA could be influenced by some aspects; (1) the research hypothesis being testing; (2) the requirement of sufficient sample size (e.g., 5-20 cases per parameter estimate); (3) measurement instruments; (4) multivariate normality; (5)

parameter identification; (6) outliers; (7) missing data; (8) interpretation of model fit indices (Schumacker & Lomax, 1996). Furthermore, the approach of an effective CFA process could be through the following applicable process:

(1) Review the relevant theory and research literature to support the model requirement.

(2) Establish a model (e.g., figure, diagram, equations).

(3) Determine model identification (e.g., if unique values can be found for parameter estimation; the number of degrees of freedom).

(4) Data collection.

(5) Proceed preliminary descriptive statistical analysis (e.g., scaling, missing data, collinearity issues, outlier detection).

(6) Estimation of the parameters in the model.

(7) Suitability assessment of the model.

(8) Deliver and interpret the results.

4.11.5 Structural Equation Modelling (SEM)

Within social science, the employment of statistical techniques for data analysis has extended researchers' ability to develop and confirm their questions and findings. Hair Jr et al. (2013) mentioned that statistical techniques have passed two generations. The first generation of statistical techniques dominated the landscape of research. This generation relied on univariate and bivariate analysis in order to test and explore the relationships among variables.

Meanwhile, the second generation of techniques has extended the ability of researchers to analyse data at a multivariate level. According to Hair Jr et al. (2013), second generation techniques represent about 50% of the statistical tools used in empirical

research. Also, researchers have stressed the significance of having rigorous statistical techniques to test their proposed theoretical models (Shields & Shields, 1998). Within this study, the researcher employed one of the second-generation techniques, structural equation modelling.

After the wide application of the first-generation techniques, in the past 20 years, researcher have gradually shifted to the use of the second-generation techniques. This transition happened in order to overcome the various weaknesses of first-generation techniques. The second-generation methods have been referred to as structural equation modelling. This type of statistical modelling seeks to explain the relationships between variables at a multivariate level. This type of analysis is more complex and difficult than the univariate and bivariate levels. It "enables researchers to incorporate unobservable variables measured indirectly by indicator variables. They also facilitate accounting for measurement error in observed variables" (Hair Jr et al., 2013:4). Multivariate analysis provides the researcher with a level of application that enables simultaneous analysis of multiple variables. Those variables are usually representing different measures that are associated with the different phenomena under investigation. According to Hair Jr et al. (2013), such techniques have greater power of analysis than regular regression and correlation. The following Table 33 shows the different generations of analysis and the different techniques at the multivariate level.

Table 33: First- and second-generation techniques.

	Primarily Exploratory	Primarily Confirmatory
First Generation	Cluster Analysis Exploratory Factor Analysis Multidimensional Scaling	Analysis of Variance Logistic Regression Multiple regression
Second Generation	PLS-SEM*	CB-SEM** Confirmatory Factor Analysis

* PLS-SEM: Partial Least Squares – Structural Equation Modelling. ** CB-SEM: covariance based Structural Equation Modelling. Source: Hair Jr et al. (2013)

In structural equation modelling, there are two methods of analysis. The first method is covariance based structural equation modelling (CB-SEM), which is usually used to confirm or reject the theories tested. The CB-SEM "a set of systematic relationships between multiple variables that can be tested empirically" (Hair Jr et al., 2013:4). This is done by determining how the proposed model can estimate the matrix of covariance for a data set. In contrast, partial least squares structural equation modelling (PLS-SEM) is mainly applied within studies that aim to develop a model. "It does this by focusing on explaining the variance in the dependent variables when examining the model" (Hair Jr et al., 2013:4). As cited in Hair Jr et al. (2014:4) Lohmöller and Wold (1982) explain that "PLS-SEM is primarily intended for research contexts that are simultaneously data-rich and theory-skeletal. The model building is then an evolutionary process, a dialog between the investigator and the computer. In the process, the model extracts fresh knowledge from the data, thereby putting flesh on the theoretical bones. At each step PLS rests content with consistency of the unknowns". Although CB-SEM is a more popular technique, PLS-SEM has become a centre of attraction to researchers from a variety of disciplines such are marketing, strategic management, management information systems and accounting (Hair Jr et al., 2014).

Usually, when SEM is used as a statistical method to analyse data within an empirical study, CB-SEM techniques come to the attention of academics and researchers as it is popular and well known. Indeed, Hair Jr et al. (2014) added that the popularity of SEM has increased in order to test different theories and concepts. As cited in Hair Jr et al. (2014:6) "Much of SEM's success can be attributed to the method's ability to evaluate the measurement of latent variables, while also testing relationships between latent variables (Babin et al., 2008)". Initially, CB-SEM was the best-known method of SEM. However, as Peng and Lai (2012) noted, PLS-SEM, which is a variance based, is subject to a debate regarding its pros and cons and this debate extends indicating when and under which circumstances PLS-SEM should be adopted. The following section highlights the differences between CB-SEM and PLS-SEM.

Structural Equation Modelling (SEM) is a second-generation of multivariate data analysis technique that is generally used in business and marketing research because it has the capability to examine theoretically supported linear and additive causal models (Chin, 1996; Haenlein & Kaplan, 2004; Statsoft, 2013). Utilising the SEM, researcher can visually examine the relationships that occur among variables of interest in order to prioritize resources for a better service performance. The fact that unobservable, hard-to-measure latent variables can be applied by SEM which makes it effective for resolving business research difficulties. There are several different approaches to SEM. The first approach is the generally applied Covariance-based SEM (CB-SEM) which is using software packages such as SPSS AMOS, EQS, LISREL and MPlus. The second approach is Partial Least Squares (PLS), which concentrates on the analysis of variance and can be proceed utilising PLS-Graph, VisualPLS, SmartPLS, and WarpPLS. Besides, it can also be applied using the PLS module in the "r" statistical software package. The third approach is a component-based SEM known as Generalized

Structured Component Analysis (GSCA) which is employed through VisualGSCA or a web-based application called GeSCA. Additional way to perform SEM is named Nonlinear Universal Structural Relational Modeling (NEUSREL) which is using NEUSREL's Causal Analytics software.

Comparison between CB-SEM and PLS-SEM

Hair Jr et al. (2014) indicated that PLS-SEM is an approach that maximises the explained variance within the construct of the model, whereas the CB-SEM is a model that can estimate the covariance matrix for a data set. Precisely, CB-SEM attempts to generate a set of estimated parameters to minimise the difference between the sample covariance matrix and the estimated covariance matrix (Hair Jr et al., 2013). On the other hand, PLS-SEM attempts to minimise the residual variance. Apart from their objectives and aims, the CB-SEM model requires different assumptions that have to be met in order to run the analysis. Those assumptions are the normality of the data set distribution, the number of indicators for constructs and the sample size (Hair Jr et al., 2013). If one of those assumptions is violated, CB-SEM will give misleading results. However, PLS-SEM can handle non-normal data, small sample sets and the inclusion of formative and reflective indicators (Hair Jr et al., 2013). Hoyle (1999) indicated that one of the popular programs for CB-SEM is LISREL and made a comparison between PLS-SEM and CB-SEM (LISREL) in different areas. The following table, Table 30, indicates the areas that Hoyle covered in his comparison. Since the data set for this research tested negatively for normality, this led to selection of PLS-SEM over CB-SEM.

Table 34: PLS-SEM Vs CB-SEM (LISREL)

	PLS	CB-SEM (LISREL)
Objective	Prediction oriented	Parameter oriented
Approach	Variance based	Covariance based
Parameter estimates	Predictor specification (non parametric)	Typically multivariate normal distribution and independent observations (parametric)
Latent variable scores	Consistent as indicators and sample size increase (i.e., consistency at large)	Consistent
Epistemic relationship between a latent variable and its measure	Explicitly estimated	Indeterminate
Implications	Optimal for prediction accuracy	Optimal for parameter accuracy
Model complexity	Large complexity (e.g., 100 constructs and 1000 indicators)	Small to moderate complexity (e.g., less than 100 indicators)
Sample size	Power analysis based on the portion of the model with the largest number of predictors. Minimal recommendations range from 30 to 100 cases	Ideally based on power analysis of specific model – minimal recommendations range from 200 to 800 cases

Source: Hoyle (1999)

4.11.6 Measurements in Structural Equation Modelling (SEM)

The chi-square (χ2) GOF is used to investigate the differences between the observed and estimated covariance matrices (Hair et al., 2010); it is calculated as follows:

$\chi 2$ = (N-1) (observed sample covariance matrix-SEM estimated covariance matrix)

In that, N is the overall sample size. "As the sample size increases, power increases and the chi-square test can return a statistically significant outcome even when the model fits the data reasonably well. The null hypothesis is "no difference in the two covariance matrices". The expected situation is no difference between the two matrices. If the chi-square > 0.5, the null hypothesis will be accepted. An option to balance against large sample sizes driving statistical significance is to divide the chi-square value by the degrees of freedom (df) in the analysis" (Meyers et al., 2013:870). This figure is called

the normed chi-square or chi-square ratio ($\chi 2/df$), if $\chi 2/df$ is less than 2, the model is considered as a good fit (Byrne, 1989), if it is from 2 to 5, the model is considered as an acceptable fit (Marsh and Hocevar, 1985). The smaller index indicates better-fitting models. However, according to Hair et al. (2010:667), "the statistical test or resulting p-value is less meaningful as sample sizes become large or the number of observed variables becomes large". Therefore, considering another index is necessary.

Absolute fit indices

"Absolute fit measures indicate how well the proposed interrelationship between the variables match the interrelationship between the actual or observed interrelationships" (Meyers et al., 2013:870). The five most common absolute fit indices are the chi-square, the chi-square divided by the degrees of freedom test (as presented above), the goodness-of-fit index (GFI), the root mean square error of approximation (RMSEA), the root mean square residual (RMSR).

The goodness-of-fit index (GFI) demonstrates the proportion of variance in the sample correlation/covariance accounted for by the predicted model, with the value range between 0 (no fit) to 1 (a perfect fit), it means that GFI explain how well a currently proposed theory fit the sample data, that GFI is equal or higher than 0.9 will be considered as an acceptable model (Hair et al., 2010; Tabachnick and Fidell, 2007).

The Root Mean Square Error of Approximation (RMSEA) is "the average of the residuals between the observed correlation/covariance from the sample and the expected model estimated for the population" (Meyer et al., 2003:871), it presents how well the proposed model fits a whole population. An acceptable value of RMSEA is between

0.05 and 0.08 (MacCallum et al., 1996). “Lower RMSEA values indicate better fit” (Hair et al., 2010:667)

The Root Mean Square Residual (RMR) and Standardised Root Mean Residual (SRMR): RMR is “a measure of the average size of the residuals between actual covariance and the proposed model covariance” (Meyer et al., 2003:871). MacCallum et al. (2009) indicated that SRMR demonstrates how closely the model fits the correlations among the measured variables. “A rule of thumb is that an SRMR over 0.1 suggests a problem with fit”. Therefore, the smaller the RMSR, the better the fit with a target value 0.05 or less (Hair et al., 2010:668).

Relative Fit Indices

Relative fit measures are also known as “comparisons with baseline measures or incremental fit measures. It indicates the relative position on this continuum between worst fit to perfect fit, with values greater than 0.9 suggesting an acceptable model fit between the model and the data” (Meyer et al., 2013:871). Common relative fit measures are the comparative fit index (CFI) which compares a model to the data, the normed fit index (NFI), the incremental fit index (IFI), the Tucker-Lewis index (TLI) which compares a proposed model’s fit to a null model. All these indices should be equal or higher than 0.9 (Byrne, 2010; Knight et al., 1994, Hair et al., 2010)

Parsimonious fit measures

Parsimonious fit measures are sometimes called “adjusted fit measures”, it is used to adjust for an inflated fit bias. “Parsimonious fit measures have not generally accepted cut off. It is recommended to compare two competing models, and the model with the higher parsimonious fit measure should be judged as superior” (Meyer et al., 2013:872).

Common parsimonious fit measures are the adjusted GFI (AGFI) and the parsimonious GFI (PGFI), the parsimonious NFI (PNFI). The model with AGFI and PGFI equal or higher than 0.9 can be seen as an acceptable fit (Kelloway, 1998) and ideally, that PNFI is equal or greater than 0.5 indicates an acceptable model. (Mulaik et al., 1989). Table 35 will summarise the criteria of a goodness-of-fit indices mentioned above:

Table 35: The criteria of a goodness-of-fit indices for the measurement model validity

Type of model fit indices	Model fit indices		Recommended value	References
Absolute fit indices	Chi-square	χ^2	>0.05	Hair et. Al (2010)
	Chi-square ratio	χ^2/df	**< 2**	Byrne (1989)
	Goodness-of-fit index	**GFI**	**≥ 0.9**	Hair et al. (2010), Tabachnick and Fidell, (2007)
	Root mean square error of approximation	**RMSEA**	**0.05-0.08**	MacCallum et al. (1996)
	The standardised root mean residual	**SRMR**	**≤ 0.08**	MacCallum et al. (2009)
Relative fit indices	Comparative fit index	**CFI**	**≥ 0.9**	Byrne (2010); Knight et al. (1994), Hair et al. (2010), Garver and Mentzer (1999)
	Normed fit index	NFI	≥ 0.9	
	Incremental fit index	IFI	≥ 0.9	
	Tucker-Lewis index	**TLI**	**≥ 0.9**	
Parsimonious fit indices	Adjusted GFI index	AGFI	≥0.9	Kelloway (1998), Hair et al (2010)
	Parsimonious GFI index	PGFI	≥0.9	Kelloway (1998)
	Parsimonious NFI index	PNF	≥ 0.5	Mulaik et al. (1989)

Source: Developed by Author, 2018

Garver and Mentzert (1999) suggested three ideal GOF indices, including RMSEA, CFI and TLI. According to Hair et al. (2010) and Garver and Mentzert (1999), there are three measures to improve the model fit. Firstly, checking factor loadings at standardised regression weight, that the values are equal or greater than 0.5 would be considered as acceptable values. In the case of the values lower than 0.5, the items should be removed from the data set and the analysis rerun.

Secondly, standardised residuals (SRs): the large residual value strongly affects the model fit, if any variable demonstrates an SRs value greater than 2 it should be removed from the dataset. Lastly, the model fit can be improved by modification indices. The lower chi-square, the fitter model, each MI value illustrates the expected change in chi-square and the expected parameter estimate. MI can suggest which items should be

connected first to improve the chi-square index. The higher MI should be prioritised for modification first (Garver and Mentzer, 1999) and then the model should be re-calculated.

4.12. Summary

This research aims to examine the key success factors of SMEs ecommerce and determine logistics capabilities on SMEs ecommerce business transaction. Moreover, the research indicates the occurrence during the process as objective reality where knowledge and information are obtained from the evidence of data. The applied systematic literature, case study through interviews, and survey through questionnaire are the most applicable method to construct a theoretical framework for the research process, which is both inductive and deductive. The systematic literature review has established the concept of SMEs ecommerce keys success factors concerning the post adoption stage. This key success factors concept also strengthened by case study through interview to support the theoretical findings with the real practise and experiences from the field, which is defined to answer research question RQ1. Furthermore, generating a theoretical framework and clarifying hypotheses identifies as the potential appropriate method to complete the research objective RO3 and to determine answers to research questions RQ2, RQ3, RQ4, RQ5, RQ6, RQ7, and RQ8. The quantitative approach seems the most relevant approach to answer these research questions by using survey through questionnaire. Further, the relationship between logistics capabilities and SMEs ecommerce business transaction (RQ4 to RQ8) will be potentially examined by the EFA, CFA and SEM.

CHAPTER 5: PHASE ONE – QUALITATIVE DATA ANALYSIS

The Analysis of SME Ecommerce Interviewing

5.1. Introduction

This chapter presents the analysis of data collected from the interview study toward the selected SMEs in Indonesia. In addition, the interview study is aimed to strengthen the key success factors (KSFs) discovered in the literature review. The whole process of the qualitative investigation steps through the interview study including the pre-stage, the interview, and the post-stage (see **Figure 48, 49, 50 and Table 25, 26, 27, 28**) has been conducted comprehensively in this research. The next step after the interviews were conducted toward the seven selected SME ecommerce (**Table 36**), is to transcribe the interview into a word version in Bahasa (Indonesian Language). Consequently, the back translation into English is also necessary to be applied as the requirement of the research regarding the further data analysis of interview study. This back translation should be completed before the descriptive analysis takes place.

Table 36: Interview Schedule of Phase One

NO	NAME OF SME ECOMMERCE	PRODUCT	NAME OF INTERVIEWEE	OCCUPATION	INTERVIEW SCHEDULE		INTERVIEW METHOD	
					DATE	TIME (UK)	INSTRUMENT	TRANSCRIPTION
1	NAHIFA	Cake, Food	Meta Lestari	Owner	07/03/2019	10.00 - 11.00	WA Video Call	Notes, audio recorded
2	CRIPIS	Agriculture food/snack	Meta Oktavianti	Owner	12/03/2019	11.00 - 12.00	WA Video Call	Notes, audio recorded
3	FREE N STYLE	Fashion	Dadang Suryadi	Manager	15/03/2019	11.00 - 12.00	WA Video Call	Notes, audio recorded
4	CALLALEA HIJAB	Fashion	Amrini Amalia	Manager	21/03/2019	10.00 - 11.00	WA Video Call	Notes, Not recorded
5	HIFARIZ	Fashion	Arda Meidiana	Owner	27/03/2019	10.00 - 11.00	WA Video Call	Notes, Not recorded
6	SANJAI NITTA	Agriculture food/snack	Nitta	Owner	04/04/2019	11.00 - 12.00	WA Video Call	Notes, Not recorded
7	MAULANA	Plasticware	Rita Belantari	Manager	09/04/2019	10.00 - 11.00	WA Video Call	Notes, Not recorded

(Developed by Author, 2019)

Afterwards, all documentations of the transcription from the interview are essential for the data analysis preparation. Both in hardcopy and softcopy, the result of interview of each SME ecommerce will be compiled properly. This compilation will be effectively used to support the next important process which is the descriptive analysis through a thoughtful comparison between the literature findings and the SME ecommerce practices especially on the perspective of their experience and circumstances. Moreover, the descriptive analysis involved the process of **(1) data assembly, (2) data reduction, (3) data display, and (4) data verification** (see **Table 31**). After these processes, the descriptive or narrative analysis could be completed through a complete assessment concerning the SME ecommerce application particularly on the viewpoint of SME's experiences and the research findings during the literature investigation.

5.2. Data Analysis and Discussion

In order to perform the interview running well systematic and effective, the researcher has divided the interview in five following sections:

5.2.1. Interviewee and SMEs Background

At this initial section participants were asked in brief about their SME ecommerce profile. This section is important to understand the profile and background of each SME ecommerce as the participants in the interview. Relevant discussion can be investigated from this section. These are the following questions of this section which has been explored during the interview:

QA1	Is your SME officially registered?
QA2	What is your current role in this company?
QA3	How long have you been in this company? And how long this company have been operated?
QA4	How many personnel of your company?
QA5	What is your company's sector or product?

QA6	Is the product self-production?
QA7	Do you mind to tell me, how much the turnover or revenue achieved by your company in a month? ***For example:*** ○ 0 – $500 ○ $2,500 - $5,000 ○ up to $10,000 ○ $500 - $1,000 ○ $5,000 - $10,000 ○ $1,000 - $2,500 ○ $5,000 - $10,000
QA8	What is the ecommerce channel used by your company? ***For example:*** Website/Social Media/Apps, etc.?
QA9	What is the most electronic device used in company's ecommerce application? ***For example:*** *Computer, Smartphone, etc.*
QA10	What is the internet service provider that you used for the ecommerce application? ***For example:*** *Telkomsel, Indosat, XL, Three, etc.*
QA11	What is the most courier service used to delivery your product? ***For example:*** *Pos Indonesia, Tiki, JNE, etc.*
QA12	Where is the most buyer come from? ***For example:*** *local city, another province, domestic or international*

Generally, all the participants were keen to answer the questions in this section and also share the information of their profile. For the sake of the research, they didn't mind sharing the financial or revenue information of their company and other question which might be confidential for a company in common. Actually, at the initial step before they join and conduct the interview, all the participants have already given their consent that they will be pleased share their experience in SME ecommerce including all the details needed in the interview such as financial information. In addition to this, they also understand that this interview is to support the research finding the evidence based on the real experience of SME ecommerce.

From all participants, only three SMEs ecommerce are registered officially in government body. It doesn't mean that SME ecommerce who are not registered then they cannot run their business. However, this registration is only for data management of government, so the government has the data of the number or unit of SME in particular area. This is the fact of SME ecommerce in developing country especially in Indonesia which has make the number of SME reaching the number of more than

55.000 units. Even though small company can easily run their business, but for business in the area of food and beverages they still need a registration of homemade company, to ensure the quality assurance of the product. Besides, most of the participants has begun the business more than two years ago, only some of it has started for more than five years ago. The type of product each SME ecommerce are different; there are three SMEs specialised in homemade of agriculture food/snack, three companies selling fashion, and one focuses in selling plastic kitchenware. This has indicated that most of the participant are focused on food/snack and fashions as these are the potential product of selling in developing countries.

Moreover, the monthly revenue of the participants indicates that their business is relevant to be categorised as the small medium enterprises. From the participants of the interview, four of them have the revenue of $10,000 to $25,000 and the rest three companies gain $25,000 to $50,000 on their gross revenue. Concerning the ecommerce media that the participants utilise, social media has been the most selected among them since the easiness of using the social media and also it is for many of their customer are active on the social media. The social media used on their business such as Facebook, Instagram, and some with WhatsApp while smartphone is the most operated of the communication instrument regarding the ecommerce that they applied. Moreover, the most approach of shipment that the participants utilised is through the local logistics service provider which categorised as the local mail and parcel delivery such as TIKI, JNE and some using the Pos Indonesia. In addition to this, the most customers of the participants are from the local of the city or other province.

This section has briefly investigated the profile of the SME ecommerce in developing countries especially in Indonesia. It has a specific circumstance that develop the

characteristic of SME ecommerce in particular area of developing countries. The information of this section can be also taken as the consideration of a further analysis.

5.2.2. Opportunity and Challenge of Ecommerce for SMEs

The next section of the interview was a brief section to explore the knowledge and experiences of the participants about the ecommerce opportunities and challenges toward their business. This also to investigate their understanding about ecommerce in application. This section was important to clarify how further the SME ecommerce understand the potential advantages of ecommerce approach which can be utilised to improve their business. The result of the interview was quite interesting since the participants got the new information from ecommerce application that they can applied. However, they also have adequate information about the ecommerce application. Here are the following questions which was investigated in the interview:

QB1	What are the opportunities of ecommerce for your business? ***For example:*** *increasing sales, enhancing broader market, product improvement (quality/quantity), etc.* ***Probe:*** *what, how, why*
QB2	What are the challenges of ecommerce in improving your business? ***For example:*** *availability of qualified personnel, good internet service, offering cheap express delivery service, secure payment method, understanding the needs and wants of customer, effective marketing/marketplace, the use of PCs or smartphone, etc.* ***Probe:*** *what, how, why*

Until this section the interview was interesting since the questions was clear and easy to be understood. The use of example to describe the questions helped the participants to understand what the questions is about. They looked so enthusiastic to share their experience in their explanation and also asked something about ecommerce if they do not know or they do not understand. This section is important to explore and investigate the information of ecommerce challenges and opportunities for SME ecommerce in developing countries especially in Indonesia.

In this section, participants initially were asked about the opportunities of ecommerce towards their business. To be able to answer this appropriately, they surely need to understand the ecommerce approach at least in simple understanding. With a brief explanation about ecommerce and followed by the example of the possible opportunities then the participants are able to explain the opportunities which are relevant to them based on their experiences. All the participants explained that the ecommerce has given the opportunities of increasing the sales and revenue as well as the achievement of wider market which relevantly improving their business. They realised so well that the approach of ecommerce has supported their business since the ecommerce is able to bring the easiness of reaching targeted market and increasing the sales and revenue. They understand that the technology through the implementation of ecommerce has provided a new way of doing business differently from the conventional way of business where customers need to come to the shop, with a cash payment and limited marketing approach. However, ecommerce has totally changed the way of doing business which simply, easily and effectively increasing the sales. Moreover, it excellently helps them gaining a wider market within the country.

Accordingly, the next question asked the participants about the challenges of applying ecommerce in their business. Within the opportunities that is offered by ecommerce certainly there are challenges to gain benefit from it. Each participant shared a different perspective of challenges since they have different experience and characteristics of product. Overall participants especially participants who have the business focus on food, they are more concern about the speediness of delivery as the biggest challenge as they are aware to make sure that the product could be delivered as soon as possible to assure the quality of the products especially for the fresh baked type of food. In addition

to this, the participants on these products also aware about “the needs and the wants” of the customer related to their services or products. They believe that understanding “the needs and the wants” of the customer will develop a trust from the customers and correspondingly support their business gaining a better market and sales. Meanwhile, other participants also aware about the qualified personnel who will support them in the operation of the ecommerce for their business. It has come a challenge for the participants to have the personnel who has the qualification in IT and marketing which are able to deal with IT operation and ecommerce marketing. They recognised that in ecommerce, the business is supposed to be able to market their product attractively and broadly. These efforts will effectively support the achievement of their sales and revenue. Overall, the participants recognised there are some critical challenges for them in implementing ecommerce for their business. It includes the ability to provide the qualified personnel especially in IT, sales and marketing; the ability to provide a secure and easy payment approach; the ability to provide the qualified delivery service; the ability to understand “the needs and the wants” of the customers, and also the ability to market the product through an effective channel of ecommerce (such as marketplace, social media, etc.). Those challenges have been investigated as the significant challenges for the participants based on their knowledge and experience.

5.2.3. Ecommerce Impact on SMEs

This following section was to investigate the real impact of ecommerce in the business of SME. The experiences of doing business through the approach of ecommerce have given the participants the evidence of the ecommerce impact toward their business. The questions below were asked in this section:

QC1	What is the benefit or good impact of ecommerce for your business? ***For example:*** *fast transaction, increasing sales, broader marketing, etc.* ***Probe:*** *what, how, why*

QC2	Is there any negative impact of ecommerce to your business? ***For example:*** *high IT cost, high personnel cost, high delivery cost, fraud buyer risk, etc.* ***Probe:*** *what, how, why*

Those questions above looks similar to the questions in the previous section. However, it is not as same as the previous since this section investigated the real impact of the ecommerce based on their practise utilising the ecommerce. All participants recognise that their business is much easier and simple by utilising ecommerce. The process of the transaction including product inquiry, bargaining, deal and payment until the shipment of the product are conducted through the communication and process using the ecommerce tools. The buyer doesn't need to come physically to the shop, but they are able to complete the transaction. Completely, the participants acknowledge that they have the transaction easy, fast and simple. This is a direct impact that participants can take benefit from the ecommerce approach of business.

Additionally, the other impact of the ecommerce into their business could be recognised from the sales improvement and also the broader marketing to attain the large potential market which previously was not able to be reached. Besides, the impact on the financial report which is now become clearer since the transaction could be easily identified through the report of banking statement as well as the notice of payment if the participants utilised the Banking Apps features. Otherwise, they can also check the payment through the nearest cash machine which commonly not a big problem for the most participants.

The following question of this section investigated the participants if they recognise any negative impact toward their business as the consequences of utilising the ecommerce. Most of the participants approved that the risk of fraud buyer is one of the negative consequences that they have to be aware with. Throughout the ecommerce, the potential risk about this issue has been a concern among the participants. Meanwhile, the tools to

detect the fraud buyer has not effectively discovered yet. Particular marketplace applies the instrument of “report buyer” if the seller has a concern of fraud buyer to be reported to the admin of the marketplace. This at least can support to identify the fraud buyer. However, the buyer also can potentially create another account with the intention of the fraud. This issue is the negative impact within the great benefit of ecommerce approach which cannot be resolved effectively yet, but always can be aware with. Through the implementation of a secure payment the issue of fraud buyer could be minimised since this will effectively reduce the risk if the buyer doesn’t complete the payment yet. But again, the awareness of the SMEs as the seller is really important to avoid the risk of fraud buyer. Furthermore, the consequences of high implementation cost are the impact that cannot be avoided by participants. The relevant cost of IT, personnel, delivery, and internet are the costs which for some participants are expensive. However, if they acknowledge that they are having the improvement on the sales and revenue, these related costs should not be counted as a negative impact for them since it will be a fair cost with the trade of achieving a good volume of sales transaction. This is the fact that probably for some SMEs these costs are still too high for them, but for other SMEs which has massive improvement on their sales this cost counted as a normal cost as the consequences of the ecommerce implementation.

Other consequences as the impact of the ecommerce implementation were also discussed by the participants. For instance, there are the impact of doing maintenance of the computer hardware if they use computer, as well as the update of both the hardware and software. Besides, the offer or discount as the campaign of sales promotion also need to be considered as the impact of the use of ecommerce since the competition in ecommerce will be so much tight. Many online shop or marketplace give free delivery to attract the customers buying the products. The information related to additional

impact of ecommerce implementation was shared by the participants not as a negative impact, but to describe that there are relevant consequences (as the impact) needed to be done in the implementation of ecommerce towards their business.

5.2.4. Difficulties in Ecommerce Implementation (Post Adoption)

This section attempted to explore the information from the participants about the potential obstacles at the level when they have already implemented the ecommerce approach in their business. This level is acknowledged as the post adoption stage of the ecommerce implementation. According to their knowledge and experiences, the interview is supposed to attain information about these difficulties at the relevant level of ecommerce implementation. Here below are the set of questions that investigated in the interview:

QD1	Are there any difficulties once you implemented ecommerce into your business? ***For example:*** *personnel capability in IT, high cost, how to plan the payment, qualified delivery service, etc.* ***Probe:*** *what, how, why*
QD2	How do you post/send your product to customer? ***For example:*** *you deliver it by your own, or you use postal/courier service and come to their counter, or the courier offer pick up service.* ***Probe:*** *How, why*
QD3	Is there any experience that customer complain about delivery service? ***For example:*** *late delivery, broken item, or item not accepted, high delivery cost, etc.?* ***Probe:*** *what, how, why*
QD4	How do you promote your product? ***For example:*** *using your own website, promote it in marketplace, social media, etc.* ***Probe:*** *How, why*
QD5	Is it difficult for you to promote your product utilising ecommerce? ***For example:*** *don't know how to upload, how to market, how to take a quality picture, etc.* ***Probe:*** *How, why*
QD6	Are there any ICT problems during the ecommerce operation? ***For example:*** *low internet signal, familiarity of using social media, posting the product in online marketplace/website, etc.* ***Probe:*** *What, how, why*
QD7	What is the payment method of your ecommerce business? ***For example:*** *transfer to your bank account, using postal service, etc.* ***Probe:*** *What, how, why*

QD8	Are there any problems in payment method of your business? ***For example:*** *Cost of transfer because customer have different bank account, difficult to check if the money transferred or not, fraud, buyer want seller to send the product firstly, etc.* ***Probe:*** *What, how, why*

Mostly, all the participants recognised that there are some problems occurred once they begin the implementation of ecommerce into their business. As the nature of a process in ecommerce, the problems and difficulties are normal things happened since ecommerce is a new approach for SMEs. The difficulties commonly related to the problems of personnel, IT or ecommerce operation, shipment quality, secure payment, and implementation cost as the impact of employing ecommerce. Actually, every company will face this problem, for some companies perhaps it is manageable since they have adequate resources to resolve it. However, some other companies like SME which have some limitations and circumstances will have it as a difficulty for them, especially in developing countries where the resources are not provided effectively like in developed countries.

The problem of personnel or human resources has become a consideration in the beginning of ecommerce implementation in developing countries. But at this era of ecommerce implementation this problem has been decreased since the human resources in developing countries has been familiarised with the ecommerce technology. Human resources nowadays getting used to the technology and the approach of ecommerce in doing business. However, the conditions in Indonesia where the participants of the interview run their business, the problem of personnel occasionally still consider as an issue. To have skilled personnel who can operate ecommerce very well, SME need to spend more cost. However, SME has limited financial ability to compensate skilled personnel who are good in ecommerce operation. Moreover, the availability of skilled labour in ecommerce is also a part of the problem. Some participants are supported to

have good personnel who are familiar in ecommerce with a fair compensation. But some other participants are still struggling with the qualification of their personnel. All the participants expect that they have qualified personnel to support their business using ecommerce who are skilled in supporting them to market the product in social media, e-marketplace, and communicate with customers online until it comes to a deal or transaction, payment and shipment. These qualifications are needed by the participants gaining a better business performance.

In addition to this, ecommerce should be related to the IT and internet of thing. The implementation of IT for many SMEs requires a high cost developing the basic tools and equipment on the IT. Yet, as the needs of business some SMEs attempt to afford the IT equipment so as to increase their business capability. Further, implementing ecommerce would encourage participants to deal with installation and maintenance if they utilise the PCs while this needs skilled personnel to support their business. Though, the technology of smartphone has offered a simple way to change the use of PCs. With a smartphone, ecommerce application is now so much easier, simple and helpful. Participants only need to train their personnel to use the features in the smartphone effectively which usually takes few times since the smartphone technology is easy to use. Moreover, producing a good and attractive picture of their products to be advertised and post it in social media and e-marketplace utilising the smartphone also significant for SME to boost their transaction in ecommerce. Further, it would not be that simple to only utilise the IT in business operation, the SMEs also require to consider the maintenance aspect of the IT that they have deployed, consequently this also would bring a maintenance cost for SMEs which is considered as difficulties for many SMEs implementing ecommerce for their business.

Afterwards, payment would be the following process of transaction in ecommerce once the customers have placed their order. In this step, participants really need to make sure that the customer have already done the payment before the shipment is proceeded to avoid the risk of fraud buyer. Most participants recognised that the common approach of payment they provide for the customers is through bank transfer in cash machine. In this way, once buyer do the transfer, they need to send the receipt picture to the seller and then seller will check into their account whether the payment transfer really occur or not. This way of payment does not look simply, but this is the only conventional way for the participants who are not joining the e-marketplace. Some participants could stay with this approach but certainly it will affect their sales since many customers are not convenient as well with this approach. In the side of customers, this way is not simple as well, since they need to reach cash machine and do the transfer and then they need to send the receipt image to the seller while many times they need to make confirmation as they already make the transfer. Moreover, generally customers do not feel secure with this approach since they are also facing the risk of fraud seller. Moreover, it has been a common practise of customers that they do not buy products from the unknown SME ecommerce for the reasons of quality and also security. Therefore, the security of this approach will be appropriate to be applied if buyer and seller know each other. As the impact, this condition has made the wider ecommerce benefit become limited to a particular customer. Even though participants have been faced this issue, they acknowledge that it is not limit their potential sales and transaction since a number of potential customers are fine with this approach. However, all participants were agreed that a secure payment approach is important and necessary in ecommerce transaction to secure buyer and seller conducting a fair ecommerce transaction.

Furthermore, some participants who sell their product in e-marketplace website would utilise the online payment approach according to the provided approach of the e-marketplace company. This payment approach would be more secure since the customers need to complete the payment firstly while the e-marketplace company will be role as the bridging between buyer and seller regarding the payment of the transaction. This will guarantee a fair transaction of ecommerce since the e-marketplace take the role of a reliable partner to encourage both buyer and seller completing their both responsibility in the transaction until the products is really delivered to the customers. Through this approach, buyer realise that the order will not be proceeded if they do not complete the payment yet but at the same time, they will not feel worry about the money they have been transferred and the products will not be posted since the money is transferred not to the seller yet but exactly to the e-marketplace company who are the partner in securing the money of the buyer.

In the other hand, the seller realise that they will only get paid by the e-marketplace company if the products are completely accepted by the customers. This approach which provided by e-marketplace company has practised a fair and secure transaction in ecommerce. Most of the participants are interested to join the e-marketplace company selling their products the reason of this secure payment approach. However, not all the participants or SMEs have the ability to connect through the e-marketplace company even though the process is simple but for some SMEs it could be problematic for them. They need assistant to resolve this challenging issue so they can utilise the features of ecommerce through e-marketplace company. Meanwhile, it is still an obstacle for all participants and SMEs to provide the online payment through banking card in a website of ecommerce. Thus, all the participants who has participated in the interview does not have their own website. Most of them utilise the social media as the marketplace since

this approach is easy, marketable, and affordable but still cannot cover the needs of online payment system.

Afterwards, the potential problem in ecommerce will be related to the shipment quality. The shipment process is the next step of the commerce once the transaction is proceeded. When the order has been placed, the payment has been completed and the next process should be the shipment of the products to the buyer. Most of the participants would utilise the service of logistics service provider such as postal service or courier service. Certainly, the SMEs can only rely on the quality service of the logistics third party that they appointed and paid for. The more cost they spend for shipment, the better service of shipment they will earn. Not many SMEs could afford the qualified shipment, therefore the affordable standard service of shipment would always bring difficulties for SMEs in term of delivery speed and security. Customer's complaint always related to the late shipment and undelivered items related to the items loses because of the lack security in shipment process. Therefore, to avoid these risks SMEs have to spend more cost utilising the qualified shipment service. Limited budget always become the obstacles for many SMEs in developing countries especially Indonesia as they have less funding supporting their business operation.

5.2.5. The Most Influenced Factors of Ecommerce for SMEs

This section is the final section of the interview which is to summarise the shared information from the participants from the previous section. Besides, it is also to confirm if the participants recognised some particular factors related to the ecommerce in their business while these factors were initially acknowledged by the researcher as the key success factors of ecommerce in developing countries from the literature review completed in this research. The shared information from the respondents related to the

topic in this section is greatly essential for this study to support the researcher's findings in the literature review process. The following questions were the concern of the researcher in interview with the respondents:

QE1	In your experience, what are the factors of ecommerce which are able to influence the transaction volume or revenue of your business? From those factors, which are the most influenced factors? ***For example****: personnel, internet, computer, delivery service, payment method, etc.* ***Probe:*** *what, how, why*
QE2	Based on your experience, do you think **personnel (HR)** determine the transaction volume or revenue of your business? ***Probe:*** *how, why*
QE3	According to your experience, do you think utilising **ecommerce marketplace** will be able to determine the transaction volume or revenue of your business? ***For Example:*** *If you post your product in particular ecommerce marketplace (e.g.: Bukalapak, Lazada, Blibli, Tokopedia, Shopee, etc.), it will influence the increasing of your business revenue?* ***Probe:*** *how, why*
QE4	In line with your experience, do you think government's **law and regulation** affects the transaction volume or revenue of your business? ***For Example:*** *the regulation could be the obligation for private ecommerce marketplace to educate and develop SMEs, the regulation to support potential SMEs with relevant workshop, funding, technology support (smartphone, internet service for certain limit time, etc.).* ***Probe:*** *how, why*
QE5	Based on your experience, do you think **security and payment system** affects the transaction volume or revenue of your business? ***For Example:*** *easy and secure payment method (online transaction using debit/credit card) of your ecommerce transaction would encourage customer to buy or re-buy your product.* ***Probe:*** *how, why*
QE6	In accordance with your experience, do you think **customer demand** affects the transaction volume or revenue of your business? ***For Example:*** *As a business owner, if you understand and recognise what do your customers need and want, it will encourage your business revenue since you understand how to fulfil their demands.* ***Probe:*** *how, why*
QE7	Based on your practise, do you think **ICT** affects the transaction volume or revenue of your business? ***For Example:*** *The setup of ICT devices (computers, smartphone, etc.), online marketing (through Apps, marketplace, etc.), and internet services would encourage the achievement business revenue?* ***Probe:*** *how, why*
QE8	Under your experience, do you think **logistics capabilities** affects the transaction volume or revenue of your business? ***For Example:*** *The capability to deliver product to customer in the right time (on time), the right place, the right item, the right quantity would influence the increasing of business sales/revenue.* ***Probe:*** *how, why*

All of the participants actively expressed their respond at this last section of the interview. Mostly, they explained some conditions assumed as the factors that bring the influences in their business related to the application of ecommerce. The most

influences factors increasing the revenue or the volume of sales according to their real experiences when the SMEs ecommerce applies the ecommerce is the customer's trust which is achieved by the company's reliability related to the product or items to be sold, the shop or the seller, and the shipment of the products. The revenue would consequently increase once the customers trust the seller as they considered the seller as a reliable shop or seller. When the customers trust the seller then the customers will be assured that they would get the satisfaction from the product that they already bought. Moreover, the discussion has gone in deep as the respondents also explained the further factors that the sellers need to be concerned to attain the reliability which encourage them to be serious to provide or develop the qualified personnel or human resources, qualified delivery service (to deal with qualified 3rd party logistics) which is assumed as the logistics capability, provide qualified payment method reassuring the customers with high security payment, develop supportive IT equipment as well as the internet service. Moreover, the respondents also described that the approach of marketing that the company applies could influence their sales volume as well as the revenue. In this case, the effective marketing including advertising and promotion, the marketplace that company utilised to promote the products are truly support their business as this approach would successfully encourage the customer to buy even re-buy the product. Therefore, this particular factor would positively increase the company's revenue which is effectively related to the business profit as well as the sales volume.

Furthermore, most of the respondents also described their agreement on some other major factors besides those factors already mentioned previously that categorised as the most influence factors supporting their business especially in term of the improvement of the business revenue. Those major factors that the respondents also recognised are the factor of customer demand that the company really need to be aware about and the

factor of government support which enable to encourage the development of SMEs. Concerning the customer demand, the company certainly need to understand very well what the needs and wants of the customers are. This will be related to many aspects of the customer's needs and wants such the product specification, the features of a product, the best price that the customer can afford, the discount, the return policy, the delivery services, the payment method, and many others customer need and wants widely. The respondents assured that if the company understand the customer needs then the company would have a relevant reason on how to provide the product for the customers. When the company is successfully able to offer the right product to the customer, then this consequently would fulfil the customer needs and wants, and this is the point once the customers are encouraged to make their order on particular products.

Additionally, the respondents also consider that the support from government through a supportive laws and regulations would encourage their company's ecommerce capability. For instance, the government's regulations on the incentive for SMEs who are actively utilising ecommerce, the relevant training, the supportive ecommerce marketplace for SMEs, and many other helpful policies would allow the SMEs growing through the utilisation of ecommerce as the foundation of their small business. The policies and regulation that is approved by the government in some way would allow the SMEs to be qualified and encourage the customers to support those SMEs to grow up by buying the SMEs product as they should realise very well that SMEs are the sectors who are needed to be supported as a part of the country economic development. Moreover, the large companies which are owned by the government could also effectively support the SMEs through a certain government' program that is approved by the encouragement regulations and policies of relevant ministries or government's institution. Fundamentally, the government assistances toward the SMEs applying the

ecommerce are greatly expected by the SMEs since it is effectively able to support the business growing. Numerous SMEs in developing countries especially Indonesia have not educated yet utilising ecommerce platform in their business. The effective encouragement for SMEs utilising ecommerce certainly through the government's arrangement and programs. Moreover, the government really understand that the biggest domestics economy is contributed by the SMEs, therefore SMEs need to be maintained by the government as maintaining the SMEs means developing the country.

5.3. Conclusion

The interview study has positively contributed some essential points to the research. It is acknowledged that there are opportunities and challenges for SMEs in the application of ecommerce to their business. The opportunities of the ecommerce platform which is expected to be deployed by SMEs would offer positive impacts to the business supporting the growth especially on the revenue or the sales volume. The application of ecommerce in SMEs would allow the business to increase the sales, enhance a broader market, and encourage the product improvement in term of both quality and quantity. However, behind the potential opportunities there are clearly some obstacles which is needed to be resolved in order to allow the SMEs to utilise ecommerce as the platform of their business. Those challenges could be the issues of the availability of qualified personnel, excellent internet service, providing a low-priced express delivery service, developing a secure payment method, understanding the needs and wants of the customers, effective approach of marketing and selecting a powerful marketplace, and the use of PCs or smartphone in the new operational system. The successful resolutions on these problems would empower the SMEs obtaining the success in their business

where those resolutions would be evidently considered as the key success factors (KSFs) of SMEs ecommerce especially in developing country such as Indonesia as the evidence of the study.

Moreover, those particular KSFs of SMEs ecommerce which has been firstly reviewed by the author through the relevant literature and afterwards continued by the interview study has obviously clarified the appropriateness as it supports each other. The approval of these SMEs ecommerce KSFs as the result from the interview has effectively supported the findings on the literature review in this study. Therefore, the term of the reviewed and discovered KSFs will be confidently used in the study for the next step of the investigation. Those KSFs of SME ecommerce are categorised by the author as the internal, external and interconnected factors. The internal factors of an SME include human resources related to personnel qualification (HR) and marketing related to marketplace. The external factors outside management control of an SME comprise customer demand (CD), law and regulation (LR), and a secure payment system (SP). Finally, the interconnected factors (both internal and external) involve the information and communication technology (ICT) and logistics capabilities (LC).

The findings in this interview study are expected to contribute to both theory and practice and the subsequent research propositions provide guidance including stakeholders in academia, companies and government. The theoretical contributions include identifying and categorising the key success factors (KSFs) as internal, external and interconnected factors. Drilling down into each category, has the found internal factors include human resources and marketing; external factors comprise customer demand, law and regulation, and secure payment system; and interconnected factors involve information and communication technology and logistics capability. Based on

that the study also provide three research propositions to inform and motivate other researchers to conduct empirical studies of SME e-commerce as a dynamic process and business activity in order to verify and validate these baseline KSFs.

From a practical perspective, the baseline KSFs can assist SME businesses and non-business organisations in developing countries as initial key foci for the effective development of SME ecommerce and consideration of which KSFs may work for them as a precursor to further research providing further veracity. It is important that the preliminary information provision of these KSFs be delivered through seminars or webinars, dissemination and publication of non-academic reports and collaboration with government, stakeholders and SME ecommerce association in developing countries. Additionally, such initiatives would also encourage awareness of, and drivers for, arranging effective policies and strategies related to investment, resources, finance, education, and other aspects concerning the improvement of SME e-commerce business transactions. More widely, such improvement will be an effective trigger towards domestic economic growth. To that end, the findings on both the interview and the literature review are also projected in further to contribute socially by enabling developing countries to address and meet, and thus contribute, to the UN's sustainable development goals (SDGs) 8 – Good Jobs and Economic Growth and 9 – Innovation and Infrastructure, and their related targets as outlined in the Introduction.

CHAPTER 6: PHASE TWO – QUANTITATIVE DATA ANALYSIS PART 1

The Analysis of Major Problems of Logistics Sectors and Examination of Current Performance Country Logistics Capability related to SMEs Ecommerce

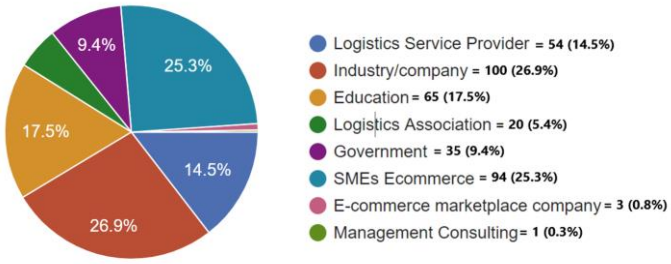
6.1. Introduction

This chapter discusses the findings of the research on the analysis of major problems of logistics sector and also the examination of current performance of country logistics capability (CLC) related to the SME ecommerce, evidence from Indonesia. The steps of this section will be completed by the quantitative analysis of the data accomplished from the research questionnaire with the objective to assess and analyse both the major problems of logistics sector and the current CLC related to the SME ecommerce practices in the country. Firstly, the analysis would be considering the data import from the online survey which has been completed upon 372 participants. Afterwards, the analysis would assess the data of weight for the major problem analysis and also the classic data calculation utilising MS Word Excel to examine the current CLC of the country since this will be looking on the average score which is the evaluation of the Indonesia Logistics Capability Index (ILCI) indicators from the participants. Finally, the analysis of major problems of logistics sector related to the SME ecommerce would be focus on the percentage result of the evaluation from the relevant participants and the examination of CLC of the country related to the practice of SME ecommerce would be concerned on the average score of the ILCI indicators. From these focuses of analysis, the result of this section will be achieved effectively.

6.1.1. Participants of the Survey based on the Type of Organisation/Institution

According to the respond in the survey, the most respondent who participated in the survey was from industry or company (26.9%) which could be assumed to represent the large company or industry followed by the SMEs ecommerce (25.3%). Afterwards, the participants from the institution of education (17.5%) and logistics service provider (14.5%) are representing the following percentage of the total respondents. While the last percentage of the respondents are from the other organization such as government (9.4%), logistics association (5.4%), ecommerce marketplace company 0.8%), and also management consulting (0.3%). These number of percentages (Figure 53) should be adequate and relevant representing the valid data and information in the survey since the participants are the related organization who is appropriate participants contributing to the study which allow the research having a valid and reliable data and information.

Figure 53: Participants based on the Type of Organisation/Institution

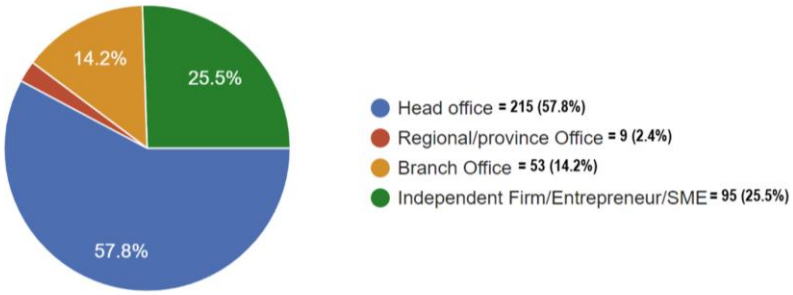


Source: Developed by Author from Google Form, 2019

6.1.2. Participants of the Survey based on the Organisation Level

The next information about the respondents is related to their level in organisation that they are representing in the survey. Most of the participants are based in the head office of the organization (57.8%) followed by the entrepreneur (25.5%) who are supposed to operate their own business as the SME ecommerce. While the rest of the respondents are in the level of branch office (14.2%) and also regional/province office (2.4%) within their organization.

Figure 54: Participants based on the Organisation Level

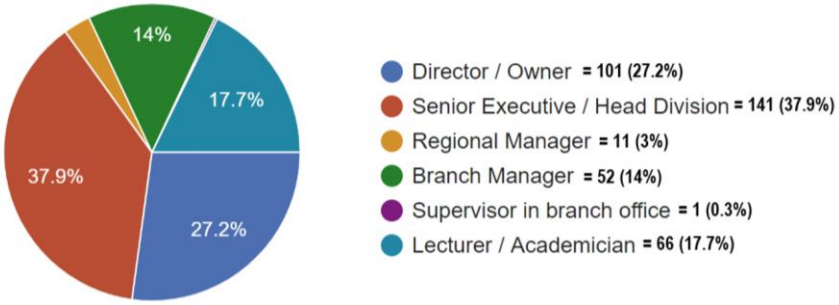


Source: Developed by Author from Google Form, 2019

6.1.3. Participants of the Survey based on the Role or Position

After the type of the organization and also the level in the organization, it is also important to understand the background of role and position of the respondents within their organization. It will increase the validity of the data as the study will have a clear information on who has obviously joined the survey. The most participants were from the top managerial of senior executive or head division (37.9%) and followed by the director of a large company (27.2%) or could be assumed as the owner of a business (SME). The 66 roles of academician or lecturer of education institution also participated in the survey at the number of 17.7% which adequate number representing the perspective of academia regarding the topic research related to the SMEs practice in Indonesia. While the rest of the respondents were active in the role of branch manager (14%), regional manager (3%), and also supervisor in branch office (0.3%).

Figure 55: Participants based on the Role or Position

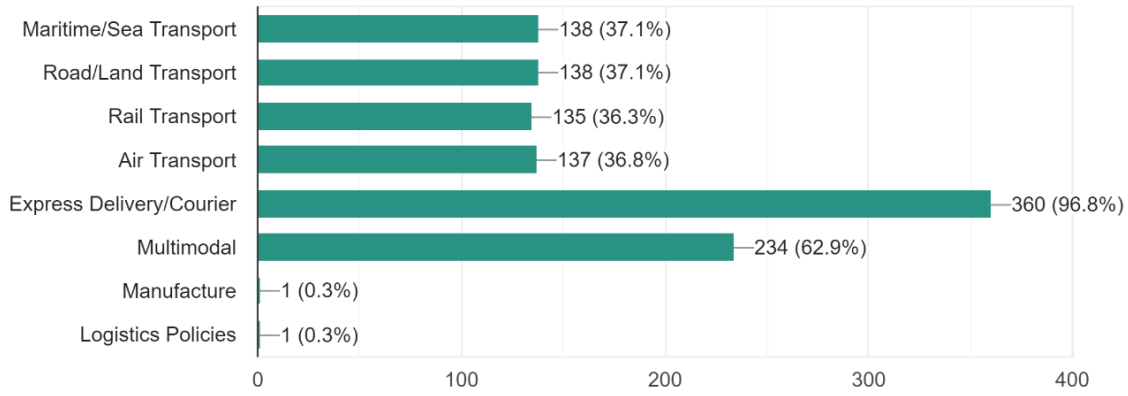


Source: Developed by Author from Google Form, 2019

6.1.4. Participants of the Survey based on the Type of Freight Mode

This category of respondent is actually based on the type of freight mode in which the respondent regularly deals with in their company's operation related to logistics activities where the participants are allowed to select more than one freight mode as they could be deal with more than one freight mode. The most participants obviously deal with express delivery or courier, where about 96.8% of respondents utilise express delivery in their regular activities which followed by multimodal transportation (62.9%) as the second most freight mode utilised by the participants. The rest of the freight mode deployed by the respondents are sea transport (37.1%), land transport 37.1%), rail transport (36.3%) and also air transport (36.8%) in the average percentage. Figure 56 shows manufacture and logistics policies which indicates that some of the respondents would like to emphasis their activities in detail. However, it is clearly not related to the question of the survey. Therefore, these kinds of answers should be disqualified as it is not appropriate response to be used in the study.

Figure 56: Participants based on the Type of Freight Mode Regularly Deal With

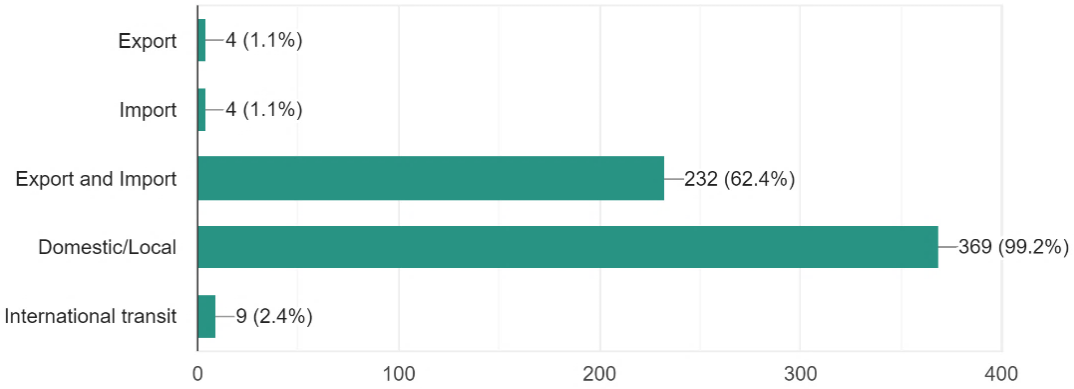


Source: Developed by Author from Google Form, 2019

6.1.5. Participants of the Survey based on the Direction of Trade and Transport

The last category of respondents which divided the participants in the study is related to the direction of trade and transport that the respondents primarily deal with. Almost of the respondents are mainly deal with domestic trade (99.2%) which means they also deal with the local transport. Moreover, export and import together (62.4%) are the following trade direction which participants utilise in their regular activities. While less of the participants deal with export alone (1.1%), import alone (1.1%), and also international transit (2.4%).

Figure 57: Participants based on the Direction of Trade and Transport



Source: Developed by Author from Google Form, 2019

6.2. Analysis of Major Problems of Logistics Sectors related to SMEs Ecommerce

In this section of the survey, the respondents were encouraged to evaluate the recent major problems in logistics sector related to the SMEs ecommerce practices in Indonesia. The respond of the participants should be based on their experience and capability due to the current issues of logistics operation related to the SMEs ecommerce. The respondents were provided with 17 current issues as the concerns of the country at this moment. From these provided matters, the respondents are requested to give evaluation if those matters are very low urgent, low urgent, in average urgent,

urgent, and very urgent. Looking at the composition of the respondents which are from the background of industry, SMEs ecommerce, logistics service provider, logistics association, logistics academician, government, and also consultant; the respondent's evaluation should represent a valid condition as the respondents are the required and relevant participants who are eligible to share the information that happening in the field related to the logistics operational within the country.

According to the total weight score of each provided problem (Table 58), there are five major problems of logistics sector related to SMEs ecommerce in the country which could be categorised as the very urgent issues in logistics sector. They are infrastructure, the level of road traffic jam, government laws and regulations, human resources, and dwelling time in port. The next five major problems absorbed from the survey which could be assumed as the urgent issues are the matters related to the integration of the IT system of the domestics/national logistics system, the wider ICT aspect still remain as the urgent problem, custom clearance process, the capability and advantage of the logistics service provider, and also the capability on the widespread of distribution coverage.

Afterwards, the survey also indicated the following issues of logistics sector which is appropriately assumed as the issues in average urgent including shipment security, the reliability on delivery, delivery speed, reverse logistics, and shipment punctuality. While the rest of the major issues captured from the survey which is presumed as the low urgent problems are the issues of price competitiveness and track n trace systems in logistics.

Table 37: The Major Problems of Logistics and Supply Chain Operation in Indonesia (related to SME Ecommerce) based on the Total Weight Score

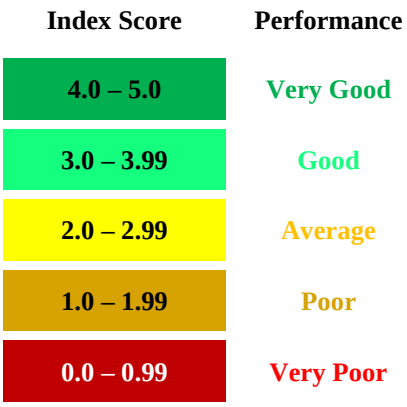
NO	Index Code	Logistics Problems related to SME Ecommerce Practices	1 Very Low Urgent		2 Low Urgent		3 Average		4 Urgent		5 Very Urgent		TOTAL	
			Number of Respondent	Weight Score	Number of Respondent	Weight Score	Number of Respondent	Weight Score	Number of Respondent	Weight Score	Number of Respondent	Weight Score	Number of Respondent	Weight Score
1	MP1	Infrastructure	0	0	0	0	0	0	6	24	366	1830	372	1,854
2	MP14	Road Traffic Jam Level	0	0	0	0	0	0	7	28	365	1825	372	1,853
3	MP4	Laws and Regulations (L/R)	0	0	0	0	1	3	6	24	365	1825	372	1,852
4	MP5	Human Resources (HR)	0	0	0	0	2	6	16	64	354	1770	372	1,840
5	MP15	Dwelling Time in Port	0	0	0	0	2	6	16	64	354	1770	372	1,840
6	MP3	Integrated IT System	0	0	0	0	0	0	52	208	320	1600	372	1,808
7	MP2	ICT	0	0	0	0	0	0	62	248	310	1550	372	1,798
8	MP7	Customs Clearance Process	0	0	0	0	3	9	58	232	311	1555	372	1,796
9	MP6	LSP (competence and Excellence)	0	0	0	0	2	6	111	444	259	1295	372	1,745
10	MP16	Widespread Distribution Coverage	0	0	0	0	3	9	152	608	217	1085	372	1,702
11	MP10	Shipment Security	0	0	0	0	2	6	229	916	141	705	372	1,627
12	MP11	Delivery Reliability	0	0	0	0	3	9	230	920	139	695	372	1,624
13	MP19	Delivery Speed	0	0	0	0	3	9	267	1068	102	510	372	1,587
14	MP17	Reverse Logistics	0	0	0	0	4	12	265	1060	103	515	372	1,587
15	MP8	Shipment Punctuality	0	0	0	0	3	9	274	1096	95	475	372	1,580
16	MP13	Price Competitiveness	0	0	0	0	8	24	284	1136	80	400	372	1,560
17	MP12	Track and Trace System	0	0	1	2	72	216	227	908	72	360	372	1,486

Source: Developed by Author from Google Form, 2019

6.3. Examination of Current Performance Country Logistics Capability related to SMEs Ecommerce

This section of the study is a part of the ILCI Survey 2019 which attempts to measure the total index score of each relevant factors or indicators utilising the Likert 0-5 range scale (Figure 58) representing the quality of the logistics performance (0.0 - 0.99: very poor, 1.0 - 1.99: poor, 2.0 – 2.99: average, 3.0 – 3.99: good, 4.0 – 4.99: very good). The index score of the survey is based on the evaluation of the respondents related to each indicator. From this evaluation, the study would gain a total score of each indicator which would be appropriately result the average score of the index score. In the last part, the average of total index score of each indicator would be accumulated and attain the outcome of the final average total score which is effectively considered the final measurement of Indonesia Logistics Capability Index 2019 (ILCI).

Figure 58: Description of the Performance Index Score



Source: Developed by Author, 2018

6.3.1. Transportation and Logistics Infrastructures Availability

In this sub-section of the survey (Table 38), the respondents were invited to share information based on their experiences and capabilities related to the evaluation of the recent transportation infrastructures in Indonesia including seaport, airport, road, railway, highway road, bridge, and urban logistics infrastructures.

Table 38: Index Score of the recent transportation infrastructures availability in Indonesia supporting the SMEs e-commerce application

Index No.	The availability of recent transportation infrastructures in Indonesia to support the SMEs e-commerce application	Index Score
1.A	Port Infrastructure	2.56
1.B	Airport Infrastructure	3.71
1.C	Road Infrastructure	3.69
1.D	Rail Infrastructure	2.88
1.E	Highway Road Infrastructure	3.47
1.F	Bridge Infrastructure	3.57
1.G	Urban Logistics Infrastructure	3.72
	Total Index Score	23.60
	Total Index Score Average	**3.37**

(Developed by Author from Google Forms, 2019)

It is identifiable in Table 38 that the score in average for the recent infrastructures is the seaport (2.56) and railway infrastructure (2.88). Meanwhile, the other infrastructures show the good performance (airport: 3.71, road: 3.69, highway road: 3.47, bridge: 3.57 and urban logistics: 3.72). Thus, the total index score average remain indicates a reasonable performance overall (3.37).

6.3.2. Balance Development of Transportation Infrastructures

The evaluation on the balance development of transportation infrastructure is related to the previous sub-section. Earlier, respondents were encouraged to evaluate the availability of the recent transportation infrastructures. While in this section, they were invited to evaluate the balance development on those clarified infrastructures if the infrastructures development is having the sense of balance within the country considering Indonesia as the wide archipelago country. The respondents were fairly encouraged to give their evaluation whether the transportation infrastructures that government has developed shows a balance from the urban to rural area, from the east to the west, from the north to the south, within the entire area of the country.

Table 39: Index Score of the balance development of recent transportation infrastructures in Indonesia supporting the SMEs e-commerce application

Index No.	The balance development of recent transportation infrastructures in Indonesia to support the SMEs e-commerce application	Index Score
2.A	Port Infrastructure	2.06
2.B	Airport Infrastructure	3.64
2.C	Road Infrastructure	3.63
2.D	Rail Infrastructure	2.84
2.E	Highway Road Infrastructure	2.06
2.F	Bridge Infrastructure	3.27
2.G	Urban Logistics Infrastructure	3.53
	Total Index Score	21.04
	Total Index Score Average	**2.06**

(Developed by Author from Google Forms, 2019)

As the result of the survey, it is observable from Table 39 that the lowest score which indicates an average performance of balance development is the indicator of port infrastructure (2.06), highway road infrastructure (2.06) and rail infrastructure (2.84). The rest of the infrastructure shows a respectable index score (airport: 3.64, road: 3.63, bridge: 3.27, and urban logistics: 3.53). Nevertheless, the total index score of this indicator overall indicates an average performance which is fairly categorised in the range of moderate performance (2.06).

6.3.3. ICT Infrastructures

The indicator of ICT infrastructure is one of the important factors in ILCI survey which invite the respondents to share their perspective in evaluating the recent ICT infrastructure performance related to the logistics operation within the country. This particular indicator is divided into three concerns including the availability, the service and quality, and also related to its systems and application in logistics operation. It is clear from Table 40 below that the index score of this indicator shows the average performance. The ICT service quality indicates the lowest index score (2.33) followed by ICT systems and application (2.36). The score of 2.84 for ICT infrastructure availability is almost reach the reasonable range but remain consider in reasonable performance. Therefore, the overall index score average (2.51) of this indicator remains indicates a fair score.

Table 40: Index Score of the recent ICT infrastructures related to logistics operations in Indonesia due to SMEs e-commerce application

Index No.	The recent ICT infrastructures (Information, Communication and Technology) related to logistics operations in Indonesia due to SMEs e-commerce application	Index Score
3.A	ICT Infrastructure Availability	2.84
3.B	ICT Service Quality	2.33
3.C	ICT Systems and Application in operations	2.36
	Total Index Score	7.53
	Total Index Score Average	**2.51**

(Developed by Author from Google Forms, 2019)

6.3.4. Laws and Regulations

The operation of logistics and supply chain within a country should be managed through the laws and regulations in order to have an effective management and control supporting each aspect of development of the country. Hence, the respondents were expected to submit their evaluation concerning the recent conditions of government's laws and regulation whether it is effective or not, effectively supporting or not, synchronize with other operation or not. The survey in this indicator would allow the study to have a clear picture of the latest condition considering the laws and regulations facilitating the logistics operation within the country. It is observable from Table 41 that the indicator of laws and regulations representing the logistics capability in Indonesia confirms a moderate index score as it is in the range of average index score. Even though the availability of the laws and regulations almost reach a good condition (2.76), yet the total index score is fairly categorised in average performance (2.33) which includes a fair score of quality indicator (2.16) and average performance of integration and collaboration among the ministries or departments (2.07).

Table 41: Index Score of the latest government's laws and regulations related to logistics operations in Indonesia due to SMEs e-commerce application

Index No.	The latest government's laws and regulations related to logistics operations in Indonesia due to SMEs e-commerce application	Index Score
4.A	Availability	2.76
4.B	Quality (effectiveness)	2.16
4.C	Integration and Collaboration among ministry/department	2.07
	Total Index Score	6.99
	Total Index Score Average	**2.33**

(Developed by Author from Google Forms, 2019)

6.3.5. Human Resources

Human resources are considered as a part of the fundamental factors in logistics capability of a country. The availability, the quality of skills, the availability of education institution, and also the support from the logistics association should be the relevant parameters of measurement to identify the performance of the human resources indicator. The survey has resulted that human resources indicator in Indonesia showed a moderate score overall (Table). It is identifiable from Table 42 that even though the availability of both human resources (2.84) and education institution (2.75) has almost reached a respectable performance, yet the quality of human resources which is related to capability and professionalism (2.54) remain in the average performance, as well as the support of logistics association (2.64). Therefore, the overall performance of this indicator should remain in a moderate performance (2.69) which is slightly move to the level of respectable range of the logistics performance.

Table 42: Index Score of the Human Resources related to logistics operations in Indonesia due to SMEs e-commerce application

Index No.	The human resources related to logistics operations in Indonesia due to SMEs e-commerce application	Index Score
5.A	Availability	2.84
5.B	Quality (capability and professionalism)	2.54
5.C	Education institution (availability)	2.75
5.D	Logistics Association support	2.64
	Total Index Score	10.77
	Total Index Score Average	**2.69**

(Developed by Author from Google Forms, 2019)

6.3.6. Logistics Service Provider (LSP)

LSP is the next indicator in ILCI 2019 that was used to identify the logistics performance of Indonesia. This specific indicator of ILCI would allow the study to complete the measurement of some relevant parameters which is related to the availability some specific qualification of each type of LSP such as the quality of road transport service provider, quality of rail transport service provider, quality of air transport service provider, quality of air transport service provider, quality of maritime transport service provider, quality of warehousing and distribution service provider, quality of freight forwarders, quality of customs agencies, quality of express courier/postal services. Those qualification of each LSP should be related clearly to their competences and excellences within their logistics operational.

It is observable from Table 43 that more than half of the measured parameters of LSP has reached a good score of performance (Quality of road transport service provider: 3.06, Quality of air transport service provider: 3.43, Quality of warehousing and distribution service provider: 3.03, Quality of freight forwarders: 3.19, Quality of express courier/postal services: 3.33), while the rest of parameters remain in average performance (Quality of rail transport service provider: 2.83, Quality of maritime

transport service provider: 2.28, Quality of customs agencies: 2.94) which is fairly reasonable to be assumed as a good performance since it almost reached the respectable range of performance. Hence, the overall performance score specified a good performance score for this indicator.

Table 43: Index Score of the Logistics Service Provider (LSP) related to logistics operations in Indonesia due to SMEs e-commerce application

Index No.	The Logistics Service Provider (LSP) in Indonesia supporting the SMEs e-commerce application	Index Score
6.A	Availability and balance in each province	3.01
6.B	Quality of road transport service provider (competence and excellence)	3.06
6.C	Quality of rail transport service provider (competence and excellence)	2.83
6.D	Quality of air transport service provider (competence and excellence)	3.43
6.E	Quality of maritime transport service provider (competence and excellence)	2.28
6.F	Quality of warehousing and distribution service provider (competence and excellence)	3.03
6.G	Quality of freight forwarders (competence and excellence)	3.19
6.H	Quality of customs agencies (competence and excellence)	2.94
6.I	Quality of express courier/postal services (competence and excellence)	3.33
	Total Index Score	27.11
	Total Index Score Average	**3.01**

(Developed by Author from Google Forms, 2019)

6.3.7. Process Quality

The process quality would be different indicator compared to LSP although LSP is clearly related to the competence and excellence. The difference between both indicators is the process quality should examine the quality of the process of the entire logistics operational within the country, while the LSP indicator focus on the competence and excellence of the LSP alone. In other word, LSP indicator would identify the performance of the logistics service company while the process quality indicator would consider broadly the process quality in logistics operational of the country through the relevant government's bodies and institutions who has the eligibility to run the logistic service and operational. There are four parameters mention

the LSP process quality, however it should be including not only the private LSP but also the government's LSP as a part of the government's bodies officially.

It is identifiable from Table 44 that the parameters of measurement of this indicator are divided into three categories of performance which is including poor, average, and good. Two parameters indicate a poor performance since the index score is below the average score range (Traffic jam level: 1.57, Dwelling time in port: 1.81), six parameters in moderate performance as it is clearly in the medium range score (Shipment punctuality of LSP: 2.92, Shipment delays of LSP: 2.90, Port and Airport Charges: 2.15, Shipment/transport security (criminal activities): 2.80, Delivery speed and accuracy: 2.97), while the other two parameters specify a respectable performance (Track and trace service of LSP: 3.04, Price competitiveness of LSP: 3.01). Thus, the overall index score of this indicator alone would remain in the average of index performance score (2.60).

Table 44: Index Score of the Process Quality related to logistics operations in Indonesia due to SMEs e-commerce application

Index No.	The process quality (e.g. speed, accuracy, price, etc.) related to logistics operations in Indonesia due to SMEs e-commerce application	Index Score
7.A	Customs clearance	2.85
7.B	Shipment punctuality of LSP	2.92
7.C	Shipment delays of LSP	2.90
7.D	Track and trace service of LSP	3.04
7.E	Price competitiveness of LSP	3.01
7.F	Port and Airport Charges	2.15
7.G	Traffic jam level	1.57
7.H	Shipment/transport security (criminal activities)	2.80
7.I	Dwelling time in port	1.81
7.J	Delivery speed and accuracy of LSP	2.97
	Total Index Score	26.03
	Total Index Score Average	**2.60**

(Developed by Author from Google Forms, 2019)

6.3.8. Indonesia Logistics Capability 2019 (ILCI)

The aggregate index score of the indicators in ILCI would allow the study to have the outcome of the ILCI final score. This should involve the whole seven indicators within the ILCI (Transportation Infrastructure availability, Balance Development of Transportation Infrastructure, ICT Infrastructures of logistics operations, Laws and regulations of logistics operations, Human Resources of logistics operations, LSP performance of logistics operations, Process quality of logistics operations). It is observable from Table 45 that more than half of the indicators in the ILCI indicates an average performance (ICT Infrastructures: 2.51, Laws and Regulations: 2.33, Human Resources: 2.69, Process Quality: 2.60), while the other three indicators show a good performance (Transportation Infrastructure: 3.37, Balance Development of Transportation Infrastructure: 3.01, LSP performance: 3.01). Consequently, the overall score which indicates the final score of ILCI 2019 has achieved the moderate performance at the final score 2.79. However, as the exact average score should be at the point 2.50, accordingly it is remaining tolerable to assume that the final score of 2.79 is slightly move to the range of good performance.

Table 45: Final Index Score of ILCI 2019 (Indonesia Logistics Capability Index)

Index No.	Indicators of ILCI 2019	Index Score
1	Transportation Infrastructure availability	3.37
2	Balance Development of Transportation Infrastructure	3.01
3	ICT Infrastructures of logistics operations	2.51
4	Laws and Regulations of logistics operations	2.33
5	Human Resources of logistics operations	2.69
6	LSP performance of logistics operations	3.01
7	Process quality of logistics operations	2.60
	Total Index Score	19.52
	Total Index Score Average	**2.79**

(Developed by Author from Google Forms, 2019)

CHAPTER 7: PHASE TWO – QUANTITATIVE DATA ANALYSIS PART 2

The Analysis of Relationship between Logistics Capabilities and SME Ecommerce Transaction

7.1. Introduction

This chapter discusses the findings of the research on the analysis of relationship between logistics capabilities and SME ecommerce transaction as it has been clarified in Chapter 3. This will be offered by quantitative analysis of the data attained from the research questionnaire (primary study) with the objective to assess and analyse the proposed model of the research which is established based on the research framework and hypothesis development discussed in Chapter 3. Initially, the preparation of the data and data screening was required to be completed related to some concerns such as missing data, outliers, non-response bias, normality, and linearity. The following stage of data analysis was to validate the model utilising the exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) especially on the technic of Covariance Based Structural Equation Modelling (CB-SEM). The EFA and CFA will be employed for data validity test to investigate which indicators and factors are valid which are eligible to be used for the model construct development. Afterward, the model development will be supported by the utilization of CB SEM software which is well-known as SPSS AMOS (Version 26) with the purpose to analyse the relationships (paths) between the latent variables (constructs) and to validate the research models which has introduced. Finally, the alternative models are produced which has been validated with the consideration of goodness of fit within the whole indicators in the research.

7.2. The Preparation of Data

Once the data collection from the respondents was completed, the next step of the study should be continued with the preparation of the collected data. As shown earlier, the questionnaire link reached about 92,324 views. This is the number, of the individuals and or SME ecommerce who saw the Survey Ads in social media which means they received the invitation of the survey, and also has received the emails and message. The use of Facebook Advertisement has roughly reached a huge number of targeted people who has relation to the SME Ecommerce, however from this huge number

From this number, only 372 individuals as the targeted respondents who has completed the questionnaire. The full 372 replied data exported from the google form as the platform for the online survey used in this research, firstly were proceed utilising the MS Excel. Here the data were adjusted with the appropriate coding including the simple title of the column and also the numeric value of the data since the original data extracted from the online survey still embracing the alphabetic value. Once the data is completely prepared in MS Excel, then it is ready to be imported into IBM SPSS AMOS (version 26) for the initial process of the data analysis which is the preparing and cleaning the data through the missing value analysis tools. In this section, the statistical examination and the model construction was performed using the coded indicators as can be seen in the following table.

Table 46: Variables and Indicators Code used for Statistical Test of the Research

Variables Code	Indicators / Items Code	Question Number in Survey	Annotation
ILC: Internal Logistics Capabilities **Number of items:** 12 items	ILC 1	18.1	Pre-sale customer service
	ILC 2	18.2	Post-sale customer service
	ILC 3	18.3	Delivery speed
	ILC 4	18.4	Delivery reliability
	ILC 5	18.5	Responsiveness to target market
	ILC 6	18.6	Integrated information system

	ILC 7	18.7	Web-based order handling
	ILC 8	18.8	Widespread distribution coverage
	ILC 9	18.9	Low total cost distribution
	ILC 10	18.10	Innovation
	ILC 11	18.11	Flexible operations
	ILC 12	18.12	Reverse logistics
ELC: External Logistics Capabilities **Number of items:** 12 items	ELC 1	20.1	Pre-sale customer service
	ELC 2	20.2	Post-sale customer service
	ELC 3	20.3	Delivery speed
	ELC 4	20.4	Delivery reliability
	ELC 5	20.5	Responsiveness to target market
	ELC 6	20.6	Integrated information system
	ELC 7	20.7	Web-based order handling
	ELC 8	20.8	Widespread distribution coverage
	ELC 9	20.9	Low total cost distribution
	ELC 10	20.10	Innovation
	ELC 11	20.11	Flexible operations
	ELC 12	20.12	Reverse logistics
CLC: Country Logistics Capabilities **Number of items:** 57 items	CLCA 1	22.1	Port Infrastructure
	CLCA 2	22.2	Airport Infrastructure
	CLCA 3	22.3	Road Infrastructure
	CLCA 4	22.4	Rail Infrastructure
	CLCA 5	22.5	Highway Road Infrastructure
	CLCA 6	22.6	Bridge Infrastructure
	CLCA 7	22.7	Urban Logistics Infrastructure
	CLCB 1	23.1	Balance Development on Port Infrastructure
	CLCB 2	23.2	Balance Development on Airport Infrastructure
	CLCB 3	23.3	Balance Development on Road Infrastructure
	CLCB 4	23.4	Balance Development on Rail Infrastructure
	CLCB 5	23.5	Balance Development on Highway Road Infrastructure
	CLCB 6	23.6	Balance Development on Bridge Infrastructure
	CLCB 7	23.7	Balance Development on Urban Logistics Infrastructure
	CLCC 1	24.1	ICT infrastructure Availability
	CLCC 2	24.2	ICT service Quality
	CLCC 3	24.3	ICT systems and application in operations
	CLCD 1	25.1	Laws and regulations Availability
	CLCD 2	25.2	Laws and regulations Quality (effectiveness)
	CLCD 3	25.3	Laws and regulations Integration and Collaboration among ministries
	CLCE 1	26.1	Human Resources Availability
	CLCE 2	26.2	Human Resources Quality
	CLCE 3	26.3	Human Resources Education Institution availability
	CLCE 4	26.4	Human Resources Logistics Association support
	CLCF 1	27.1	LSP Availability and balance in each province
	CLCF 2	27.2	LSP Quality of road transport service provider
	CLCF 3	27.3	LSP Quality of rail transport service provider
	CLCF 4	27.4	LSP Quality of air transport service provider
	CLCF 5	27.5	LSP Quality of maritime transport service provider
	CLCF 6	27.6	LSP Quality of warehousing and distribution service provider

	CLCF 7	27.7	LSP Quality of freight forwarders
	CLCF 8	27.8	LSP Quality of customs agencies
	CLCF 9	27.9	LSP Quality of express courier/postal services
	CLCG 1	28.1	Process Quality [Excellent Customs clearance]
	CLCG 2	28.2	Process Quality [Excellent Shipment punctuality of LSP]
	CLCG 3	28.3	Process Quality [Low shipment delays of LSP]
	CLCG 4	28.4	Process Quality [Excellent track and trace service of LSP]
	CLCG 5	28.5	Process Quality [Price competitiveness of LSP]
	CLCG 6	28.6	Process Quality [Low Charges in Port and Airport]
	CLCG 7	28.7	Process Quality [Low level of road traffic jam]
	CLCG 8	28.8	Process Quality [Excellent shipment (transport/delivery) security]
	CLCG 9	28.9	Process Quality [Low dwelling time in port]
	CLCG 10	28.10	Process Quality [Excellent delivery speed and accuracy]
	CLIL1	30.1	Evaluation on Relationship of Infrastructures and ILC
	CLIL2	30.2	Evaluation on Relationship of Infrastructures Balance Development and ILC
	CLIL3	30.3	Evaluation on Relationship of ICT and ILC
	CLIL4	30.4	Evaluation on Relationship of Law-Regulation and ILC
	CLIL5	30.5	Evaluation on Relationship of Human Resources and ILC
	CLIL6	30.6	Evaluation on Relationship of LSP and ILC
	CLIL7	30.7	Evaluation on Relationship of Process Quality and ILC
	CLEL1	31.1	Evaluation on Relationship of Infrastructures and ELC
	CLEL2	31.2	Evaluation on Relationship of Infrastructures Balance Development and ELC
	CLEL3	31.3	Evaluation on Relationship of ICT and ELC
	CLEL4	31.4	Evaluation on Relationship of Law-Regulation and ELC
	CLEL5	31.5	Evaluation on Relationship of Human Resources and ELC
	CLEL6	31.6	Evaluation on Relationship of LSP and ELC
	CLEL7	31.7	Evaluation on Relationship of Process Quality and ELC
SME: Small Medium Enterprises **Number of items:** 3 items	SME1 (ILSME)	19	Evaluation on Relationship between ILC and SME Transaction
	SME2 (ELSME)	21	Evaluation on Relationship between ELC and SME Transaction
	SME3 (CLSME)	29	Evaluation on Relationship between CLC and SME Transaction
Number of Variables	4 variables	**Total Items:**	84 Items

Source: Developed by Author (2019)

7.3. Preliminary Data Analysis

It is recognised that the thoroughness of statistical technic completion is essential for SEM, therefore, some concerns that could disrupt the multivariate assessments for its quality and reliability will be considered in this section. The conduct of missing values and some contention such as outliers, linearity, multicollinearity, homoscedasticity, and normality are reflected in the further following discussion.

7.3.1. Missing data/values

One of the issues in data processing in research is the concern of missing data (Hair Jr et al.,2013). Missing data could be identified as the elements of the information collected from the respondents through the survey questionnaire which are not fit the requirement to be used for analysis. To find the missing data are considerably important since they would obstruct the process of data analysis to produce an accurate result to be explained and understood related to the topics that is being investigated (McKnight et al., 2007). Moreover, missing data is recognised as one of the significant challenges in the process of data analysis related to its considerable effect on reliability, validity generalizability (Tabachnick and Fidell, 2007). The missing data could be happened for some reasons such as the respondents might probably purposely or unintentionally declined to answer to one or more questions in the questionnaire (Hair Jr et al., 2013) and also the other following reasons (Saunders et al., 2011:425 and De Vaus, 2002):

1. Some respondents have no information about the answer. It could probably the exact respond from the respondent but commonly it is considered as a missing data.
2. Some respondents declined of replying to the question
3. Some respondents may have skipped particular question mistakenly, or the respondent's reply may be ambiguous."
4. Some data were not mandatory from the respondents due to particular circumstances of the respondents therefore will be skipped automatically by a filter question.

Commonly, the maximum missing data for one sample should be 15% otherwise it could be generally eliminated from the data set (Hair Jr et al., 2013). For this research, each question of the survey were set as obligatory, therefore respondents of the online

survey in this research respondents have no opportunity to leave out from one page of to another page without accomplishing all the questions on each section in the survey since the respondent also have been asked that they would complete their participation in this survey. In regard to this research, there are 372 data collected from the survey from September 2018 to March 2019. All these data were extracted from the online survey tool and imported to MS Excel to prepare the data to be used for the next process utilising SPSS AMOS. In MS Excel the data is adjusted with simple coding of the indicators name and appropriate numeric values as the original data form the online survey forms still using the alphabetic code which would not work to be proceed in SPSS AMOS. Once the data ready, it should be imported to SPSS AMOS for the first process of missing value check.

The cases processing summary of this research indicated that the 372 collected data containing no missing value (Table 47). It means, all the respondents have completed all the survey section based on their appropriateness. The use of google form for the online survey has effectively collect the valid data since the form will just only received the submitted form or the completed forms which are replied by the respondents. Therefore, the respondents who has submitted the form indicated that they have successfully complete the form. Moreover, all of the questions in the survey are mandatory and the uncompleted form will not be able to be submitted and will not be included in the list of the data. This could be the reason that the extracted data from online survey database have filtered the valid data of the survey. Therefore, the extracted data has filtered and provided the valid required data for further investigation of the research.

Table 47: Missing Data Identification

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Pre-sale customer service	372	100.0%	0	0.0%	372	100.0%
Post-sale customer service	372	100.0%	0	0.0%	372	100.0%
Delivery speed	372	100.0%	0	0.0%	372	100.0%
Delivery reliability	372	100.0%	0	0.0%	372	100.0%
Responsiveness to target market	372	100.0%	0	0.0%	372	100.0%
Integrated information system	372	100.0%	0	0.0%	372	100.0%
Web-based order handling	372	100.0%	0	0.0%	372	100.0%
Widespread distribution coverage	372	100.0%	0	0.0%	372	100.0%
Low total cost distribution	372	100.0%	0	0.0%	372	100.0%
Innovation	372	100.0%	0	0.0%	372	100.0%
Flexible operations	372	100.0%	0	0.0%	372	100.0%
Reverse logistics	372	100.0%	0	0.0%	372	100.0%
Pre-sale customer service	372	100.0%	0	0.0%	372	100.0%
Post-sale customer service	372	100.0%	0	0.0%	372	100.0%
Delivery speed	372	100.0%	0	0.0%	372	100.0%
Delivery reliability	372	100.0%	0	0.0%	372	100.0%
Responsiveness to target market	372	100.0%	0	0.0%	372	100.0%
Integrated information system	372	100.0%	0	0.0%	372	100.0%
Web-based order handling	372	100.0%	0	0.0%	372	100.0%
Widespread distribution coverage	372	100.0%	0	0.0%	372	100.0%
Low total cost distribution	372	100.0%	0	0.0%	372	100.0%
Innovation	372	100.0%	0	0.0%	372	100.0%
Flexible operations	372	100.0%	0	0.0%	372	100.0%
Reverse logistics	372	100.0%	0	0.0%	372	100.0%
Country Logistics Infrastructures	372	100.0%	0	0.0%	372	100.0%
Balance Development of Infrastructures	372	100.0%	0	0.0%	372	100.0%
Country ICT	372	100.0%	0	0.0%	372	100.0%
Country Law and Regulation	372	100.0%	0	0.0%	372	100.0%
Country Human Resources	372	100.0%	0	0.0%	372	100.0%
Country Logistics Service Providers	372	100.0%	0	0.0%	372	100.0%
Country Logistics Process Quality	372	100.0%	0	0.0%	372	100.0%
Evaluation of CLC on ILC	372	100.0%	0	0.0%	372	100.0%
Evaluation of CLC on ELC	372	100.0%	0	0.0%	372	100.0%
Evaluation of ILC on SME	372	100.0%	0	0.0%	372	100.0%
Evaluation of ELC SME	372	100.0%	0	0.0%	372	100.0%
Evaluation of CLC SME	372	100.0%	0	0.0%	372	100.0%

Source: Developed by Author from SPSS (2020)

7.3.2. Outliers

Outliers is the term of pre-statistical process for a certain observation through a specific combination of characteristics recognisable as clearly dissimilar compared to other observations (Hair et al., 2010: 64). Normally, outlier is the condition when a set of data containing a particular extreme value on one variable (a univariate outlier) or unusual character of mark on more than one variable (multivariate outlier) which has the potential to modify the statistics process or result (Tabachnick and Fidell, 2007). Many cases of outliers, or strange replies on the data, may tremendously affect the result of any multivariate analysis. The case of outliers may possibly happen involving some reasons for instance the case of error or incorrect data entry, incorrect missing data codification, error on sampling, unusual circumstances which cannot be clarified by the researcher, or it could be a certain case occur within the tolerable series of codification on each variable (Tabachnick and Fidell, 2007; Meyers et al., 2006).

In regard to this research, the verification of outliers has been performed to all variables while the threshold preparation for outliers should be conducted at the initial place (Hair et al., 2010:66). The process of data value converts into a certain standard score, which involving a mean of 0 and a standard deviation of 1, would be the ordinary approach for this step. For instance, sample size of the research that higher than 75, the outliers are specifically considered as the cases with standard scores up to 4. In addition, the outliers do not actually occur in Likert-scales since the answer of respondents are organised from 1 to 5 or 1 to 7 according to their point of view reflecting their own perspective and experience (Gaskin and Lim, 2017). Nevertheless, the outlier detection in this study shows the normal condition since the codification of the survey utilised the code 1 to 5 in the dataset. Therefore, it was determined that outliers in this research were not a critical problem in this study. Moreover, these outliers should be hold unless reasonable

proof shows that they are really deviant and not representing any observations in the populations (Hair et al., 2010:67).

7.3.3. Non-Response Bias

Actually, the non-response bias is not exactly related to the number of non-respondents, but it refers more to the probability of bias (Oppenheim, 1992:106). The non-respondents who refuse to respond to the questionnaires or respond late might cause different results of particular occurrence (Saunders et al., 2007). Non-response bias could be an issue as the consequence of utilising a sampling method. Non-response bias in the research questionnaire commonly related to different responses of respondents and the responses from non-respondents. Additionally, the non-response could show some bias in the sample, which sometimes cannot be easily identified by statistical methods (Burkell, 2003).

In regard to this research, to reduce the effect of non-response bias, some steps were conducted effectively such as the qualitative validation and pilot study for the survey questionnaire so that it will be easy to be completed, to decide the survey on the web-based survey for the approach of the research has greatly matched the requirement of the research and typical of the respondents as well as the research area. The non-response bias could be defined as the bias that occurs when participants to a survey are dissimilar from those who did not respond related to the demographic or attitudinal variable (Sax et al., 2003: 411). Therefore, basically, one of the common approaches to observe the non-response bias is to relate the demographics of the research participants with the demographics of either a second round of participants or the targeted sample (Wasko and Faraj, 2005; De Valck et al., 2007; Fan and Yan, 2010).

7.3.4. Normality Test

A normality test is significant to be performed in order to determine the data fits a standard of normal distribution while this can be completed mathematically or graphically. Basically, the continuous variables form of a distribution in a multivariate analysis should correspond to a (univariate) normal distribution (Meyers et al., 2006). Moreover, normality assessment can be accomplished on a certain univariate and/or multivariate level. The shape of the offending distribution and the sample size are the two factors which can determine the severity of non-normal distribution (Hair et al., 2010). In this research, the normality test used the Kolmogorov-Smirnov Test which is based on the maximum difference between the observed distribution and expected cumulative-normal distribution. One of the advantages of this test is that the distribution of the K-S test statistic itself does not depend on the underlying cumulative distribution function being tested. Also, another advantage is that it is an exact test (the chi-square goodness-of-fit test depends on an adequate sample size for the approximations to be valid).

Table 48: Normality Test using Kolmogorov-Smirnov Test

One-Sample Kolmogorov-Smirnov Test

	N	Normal Parameters[a,b] Mean	Std. Deviation	Most Extreme Differences Absolute	Positive	Negative	Test Statistic	Asymp. Sig. (2-tailed)
Pre-sale customer service	372	3.68	.599	.312	.263	-.312	.312	.000[c]
Post-sale customer service	372	4.00	.532	.364	.362	-.364	.364	.000[c]
Delivery speed	372	4.95	.316	.534	.439	-.534	.534	.000[c]
Delivery reliability	372	4.95	.308	.536	.438	-.536	.536	.000[c]
Responsiveness to target market	372	4.73	.498	.454	.291	-.454	.454	.000[c]
Integrated information system	372	4.23	.484	.424	.424	-.291	.424	.000[c]
Web-based order handling	372	4.23	.472	.434	.434	-.289	.434	.000[c]
Widespread distribution coverage	372	4.94	.302	.534	.426	-.534	.534	.000[c]
Low total cost distribution	372	4.92	.328	.534	.409	-.534	.534	.000[c]
Innovation	372	4.11	.361	.493	.493	-.364	.493	.000[c]
Flexible operations	372	4.34	.502	.397	.397	-.260	.397	.000[c]
Reverse logistics	372	4.93	.337	.534	.418	-.534	.534	.000[c]
Pre-sale customer service	372	4.22	.489	.423	.423	-.301	.423	.000[c]
Post-sale customer service	372	4.65	.505	.420	.244	-.420	.420	.000[c]
Delivery speed	372	4.95	.295	.535	.438	-.535	.535	.000[c]
Delivery reliability	372	4.96	.271	.536	.437	-.536	.536	.000[c]
Responsiveness to target market	372	4.89	.346	.525	.375	-.525	.525	.000[c]
Integrated information system	372	4.85	.401	.512	.354	-.512	.512	.000[c]
Web-based order handling	372	4.85	.392	.513	.353	-.513	.513	.000[c]
Widespread distribution coverage	372	4.95	.276	.534	.434	-.534	.534	.000[c]
Low total cost distribution	372	4.92	.343	.531	.407	-.531	.531	.000[c]
Innovation	372	4.14	.377	.494	.494	-.345	.494	.000[c]
Flexible operations	372	4.39	.520	.371	.371	-.281	.371	.000[c]
Reverse logistics	372	4.94	.311	.537	.428	-.537	.537	.000[c]
Country Logistics Infrastructures	372	4.94	.330	.532	.423	-.532	.532	.000[c]
Balance Development of Infrastructures	372	4.90	.346	.527	.390	-.527	.527	.000[c]
Country ICT	372	4.92	.305	.533	.392	-.533	.533	.000[c]
Country Law and Regulation	372	4.91	.394	.527	.406	-.527	.527	.000[c]
Country Human Resources	372	4.61	.505	.397	.270	-.397	.397	.000[c]
Country Logistics Service Providers	372	4.88	.368	.521	.369	-.521	.521	.000[c]
Country Logistics Process Quality	372	4.86	.391	.516	.360	-.516	.516	.000[c]
Evaluation of CLC on ILC	372	4.60	.491	.391	.291	-.391	.391	.000[c]
Evaluation of CLC on ELC	372	.96	1.709	.473	.473	-.288	.473	.000[c]
Evaluation of ILC on SME	372	4.97	.199	.535	.441	-.535	.535	.000[c]
Evaluation of ELC SME	372	4.98	.186	.533	.448	-.533	.533	.000[c]
Evaluation of CLC SME	372	4.96	.304	.531	.447	-.531	.531	.000[c]

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

Source: Developed by Author from SPSS (2020)

Table 49: The Normality Test Comparison: Kolmogorov-Smirnov and Shapiro-Wilk

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pre-sale customer service	.312	372	.000	.750	372	.000
Post-sale customer service	.364	372	.000	.708	372	.000
Delivery speed	.534	372	.000	.140	372	.000
Delivery reliability	.536	372	.000	.144	372	.000
Responsiveness to target market	.454	372	.000	.558	372	.000
Integrated information system	.424	372	.000	.645	372	.000
Web-based order handling	.434	372	.000	.626	372	.000
Widespread distribution coverage	.534	372	.000	.185	372	.000
Low total cost distribution	.534	372	.000	.237	372	.000
Innovation	.493	372	.000	.471	372	.000
Flexible operations	.397	372	.000	.657	372	.000
Reverse logistics	.534	372	.000	.212	372	.000
Pre-sale customer service	.423	372	.000	.643	372	.000
Post-sale customer service	.420	372	.000	.627	372	.000
Delivery speed	.535	372	.000	.142	372	.000
Delivery reliability	.536	372	.000	.143	372	.000
Responsiveness to target market	.525	372	.000	.346	372	.000
Integrated information system	.512	372	.000	.412	372	.000
Web-based order handling	.513	372	.000	.412	372	.000
Widespread distribution coverage	.534	372	.000	.157	372	.000
Low total cost distribution	.531	372	.000	.249	372	.000
Innovation	.494	372	.000	.485	372	.000
Flexible operations	.371	372	.000	.665	372	.000
Reverse logistics	.537	372	.000	.172	372	.000
Country Logistics Infrastructures	.532	372	.000	.196	372	.000
Balance Development of Infrastructures	.527	372	.000	.303	372	.000
Country ICT	.533	372	.000	.291	372	.000
Country Law and Regulation	.527	372	.000	.254	372	.000
Country Human Resources	.397	372	.000	.642	372	.000
Country Logistics Service Providers	.521	372	.000	.367	372	.000
Country Logistics Process Quality	.516	372	.000	.392	372	.000
Evaluation of CLC on ILC	.391	372	.000	.623	372	.000
Evaluation of CLC on ELC	.473	372	.000	.529	372	.000
Evaluation of ILC on SME	.535	372	.000	.133	372	.000
Evaluation of ELC SME	.533	372	.000	.111	372	.000
Evaluation of CLC SME	.531	372	.000	.115	372	.000

a. Lilliefors Significance Correction

Source: Developed by Author from SPSS (2020)

Concerning the normality and the statistical method used, CB-SEM, particularly when maximum likelihood (ML) estimation is applied, is robust to “mild” and “slightly moderate” deviation from the normality (Meyers et al., 2006). Correspondingly, in their research Lei and Lomax (2005) realised that a minor deviation from normality has insignificant impact on the parameter estimates particularly when the ML is applied. Reliably, Michon and Chebat (2008) clarified that the ML in SEM is more acceptable to non-normality especially with large samples. Moreover, Hair et al. (2010) supported Michon and Chebat by confirming that the non-normality has insignificant effects on large sample size (>200).

7.3.5. Linearity and Homoscedasticity

Generally, linearity could be observed through the residual analysis. Accordingly, the condition of linearity has been accomplished once the standardised residuals illustrate a straight-line relationship with the projected (dependent) variables score. Otherwise, if the combination between the standardised residuals and dependent scores confirm a curved line, then the non-linearity is accomplished (Meyers et al., 2006). Concerning the homoscedasticity supposition, it describes that the “dependent variable(s) indicate different equal levels of variances among the range of predictor variable(s)” (Hair et al., 2010: 74). Approved homoscedasticity is acknowledged that the dependent variable’s variance is described by a wide (not concentrated) range of the independent values. Observing the diagram of regression described that the dots inclined to be equally distributed around the horizontal line of zero excluding some outliers which did not have a significant influence. Statistically, homoscedasticity could be observed by calculating Spearman's rho correlation among the absolute value of the residuals and the independent variables (e.g., Bollen, 1983, Johnston, 1997, Pivac, 2010).

7.4 Exploratory Factor Analysis (EFA)

EFA in this study is conducted in order to investigate the factorial construction of all applicable items or indicators. All indicators of each variable will be initially examined using the EFA. EFA was also used to observe the unidimensionality of the constructs rather than exploring the underlying dimensions of the factors. Afterward, the set of variables is also tested for data reliability by Cronbach's alpha. The following EFA process will show the examination for each variable or factors within its indicators or items utilising the IBM SPSS Statistics (version 26).

7.4.1 EFA for The Variable of Internal Logistics Capability (ILC)

The validated data of ILC variable which is ready to be examined was analysed by the use of IBM SPSS through the menu of analyse specifically through the tool of Dimension Reduction and Factor Analysis. The fundamental result of the process showed the KMO, and Bartlett's Test is significant with chi-square is 3943.362 and df is 55, p-value is 0.000 < 0.0001. The KMO value is 0.836 which is higher than 0.5. It means that the data for ILC factor was appropriate for factor analysis and the following results are statistically significant (Hair et al., 2010).

Table 50: KMO and Bartlett's Test of ILC Variable

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.836
Bartlett's Test of Sphericity	Approx. Chi-Square	3943.362
	df	55
	Sig.	.000

Source: Developed by Author from SPSS, 2019

Moreover, it is observable in Table 51 that the Pattern Matrix result of first run EFA on the ILC variable showed there are three dimensions in this variable while the indicator ILC10 containing the cross factor loading which means this indicator should be eliminated for the purpose of data validation. Therefore, the next run of EFA for this variable will exclude the item ILC10.

Table 51: Pattern Matrix Result of 1st run EFA on ILC variable

Indicator	Component		
	Factor Loading 1	Factor Loading 2	Factor Loading 3
ILC4	.965		
ILC3	.963		
ILC12	.920		
ILC8	.908		
ILC9	.898		
ILC5	.442		
ILC1		.859	
ILC2		.832	
ILC6		.803	
ILC7		.782	
ILC10		.611	.461
ILC11			.877

Source: Developed by Author from SPSS, 2019

Further, the exclusion of item ILC10 in the next run showed the result of data validation that there was only two dimensions remained and the elimination of item ILC11 (Table 52). This process will be continued by reliability test to examine the Cronbach's Alpha score which showed the significant scores of each item. The reliability scores (Cronbach Alpha or α) of each construct should be above the usual cut-off level of 0.7 as recommended by Nunnally and Bernstein (1994). It can be observed in Table 52 below that the score of Cronbach's Alpha for each indicator of ILC shows a significant value (0.848 and 0.910) which means the processed data is reliable. In addition, the measured Cronbach Alpha score also indicates a significant internal consistency which confirmed the suitability of the survey data set for further statistical analysis.

Table 52: Pattern Matrix and Cronbach's Alpha of 2nd run EFA on ILC variable

Indicators	Component		Cronbach's Alpha
	Factor Loading 1	Factor Loading 2	
ILC3	.972		0.910
ILC4	.970		0.910
ILC12	.913		0.910
ILC8	.911		0.910
ILC9	.909		0.910
ILC5	.485		0.910
ILC11			
ILC6		.898	0.848
ILC7		.881	0.848
ILC1		.826	0.848
ILC2		.718	0.848

Source: Developed by Author from SPSS, 2019

7.4.2 EFA for The Variable of External Logistics Capability (ELC)

Likewise, the EFA test for the variable of ELC showed the KMO and Bartlett's Test is significant with chi-square is 4544.198, df is 66, p-value is 0.000 < 0.0001 and the KMO value is 0.852 which is higher than 0.5. It indicates that the gained the appropriateness and statistically significant.

Table 53: KMO and Bartlett's Test of ELC Variable

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.852
Bartlett's Test of Sphericity	Approx. Chi-Square	4544.198
	df	66
	Sig.	.000

Source: Developed by Author from SPSS, 2019

Subsequently, the process of dimension reduction of EFA especially for the data variable of ELC has resulted the separation of three dimensions in the variable including the exclusion of indicator ELC2 from the variable. The indicators of those three dimensions of ELC indicator also showed a significant score of Cronbach's Alpha (0.605, 0.928, 0.962) as the result of reliability test (Table 54). It can be understood that

the measured Cronbach Alpha score indicates a significant internal consistency which approve the appropriateness of the survey data set for further statistical investigation.

Table 54: Pattern Matrix and Cronbach's Alpha of EFA on ELC variable

Indicators	Component			Cronbach's Alpha
	Factor Loading 1	Factor Loading 2	Factor Loading 3	
ELC4	.949			0.962
ELC12	.925			0.962
ELC3	.902			0.962
ELC8	.885			0.962
ELC9	.830			0.962
ELC2				
ELC10		.855		0.605
ELC11		.680		0.605
ELC1		.631		0.605
ELC7			-.866	0.928
ELC6			-.860	0.928
ELC5			-.730	0.928

Source: Developed by Author from SPSS, 2019

7.4.3 EFA for The Variable of Country Logistics Capability (CLC)

The EFA process of CLC variable has resulted seven dimensions as this variable includes many different indicators. CLC is the variable for country logistics capability which measured numerous relevant indicators (57 items) for the logistics capability of a country, while in this study Indonesia has been selected as the evidence of the research. The EFA on this variable has eliminated the indicator of CLA4 since the score of the factor loading is less the 0.40 which indicated the insignificancy in the data. Meanwhile, the rest of the indicators showed a significance score of factors loading. Moreover, the result of reliability test for the indicators of those seven dimensions of CLC variable also showed a significant score of Cronbach's Alpha (0.744, 0.859, 0.943, 0.958, 0.980, 0.984, 0.999). This specifies effectively the appropriateness of the survey data set for further statistical analysis (Table 55).

Table 55: Pattern Matrix and Cronbach's Alpha Result of EFA on CLC variable

Indicators	Component							Cronbach's Alpha
	1	2	3	4	5	6	7	
CLB3	.879							0.980
CLB2	.871							0.980
CLB4	.869							0.980
CLB6	.828							0.980
CLB7	.787							0.980
CLB5	.748							0.980
CLA5	.708							0.980
CLA3	.702							0.980
CLA2	.667							0.980
CLA6	.659							0.980
CLA7	.643							0.980
CLA4								
CLEL4		.993						0.999
CLEL1		.993						0.999
CLIL1		.993						0.999
CLIL4		.993						0.999
CLIL5		.993						0.999
CLEL7		.992						0.999
CLEL2		.992						0.999
CLEL6		.992						0.999
CLIL2		.991						0.999
CLIL7		.991						0.999
CLIL6		.991						0.999
CLEL5		.989						0.999
CLEL3		.975						0.999
CLIL3		.971						0.999
CLG6			.828					0.984
CLG2			.825					0.984
CLG8			.804					0.984
CLG9			.792					0.984
CLG7			.784					0.984
CLG3			.774					0.984
CLG10			.749					0.984
CLG1			.683					0.984
CLE4				.857				0.859
CLE3				.814				0.859
CLG5				.695				0.859
CLG4				.634				0.859
CLF7					-.915			0.958
CLF6					-.840			0.958
CLF8					-.800			0.958
CLF1					-.689			0.958
CLF9					-.668			0.958
CLF4					-.621			0.958
CLF2					-.619			0.958
CLF3					-.611			0.958
CLF5					-.425			0.958
CLC2						-.825		0.943
CLC3						-.779		0.943
CLC1						-.763		0.943
CLD3						-.663		0.943
CLD1						-.659		0.943
CLE2						-.628		0.943
CLD2						-.613		0.943
CLE1						-.533		0.943
CLA1							.831	0.744
CLB1							.826	0.744

Source: Developed by Author from SPSS, 2019

7.4.4 EFA for The Variable of Small Medium Enterprise (SME)

The last EFA process of the variables in this research was on the variable of SME which is related to the performance of SMEs in term of sales and profit or revenue. The KMO test showed a significant value score at 0.683 since it is more the 0.5 for the minimum requirement of the significance. Likewise, the Bartlett's test of sphericity showed the significant value as the score 0.000 is less than 0.0001 (Table 56).

Table 56: KMO and Bartlett's Test of ELC Variable

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.683
Bartlett's Test of Sphericity	Approx. Chi-Square	558.683
	df	3
	Sig.	.000

Source: Developed by Author from SPSS, 2019

There was no dimension reduction of EFA on SME variable since it resulted only the component matrix of the indicators with the significant value more than 0.5. This process also continued with the reliability test to examine the Cronbach's Alpha, the result was significant as the t value was 0.816. Additionally, it excellently approves the suitability as well as the reliability of internal consistency within the research survey data set for further statistical examination.

Table 57: Component Matrix and Cronbach's Alpha son SME variable

Indicators	Component	Cronbach's Alpha
SME2	.926	0.816
SME1	.891	0.816
SME3	.825	0.816

Source: Developed by Author from SPSS, 2019

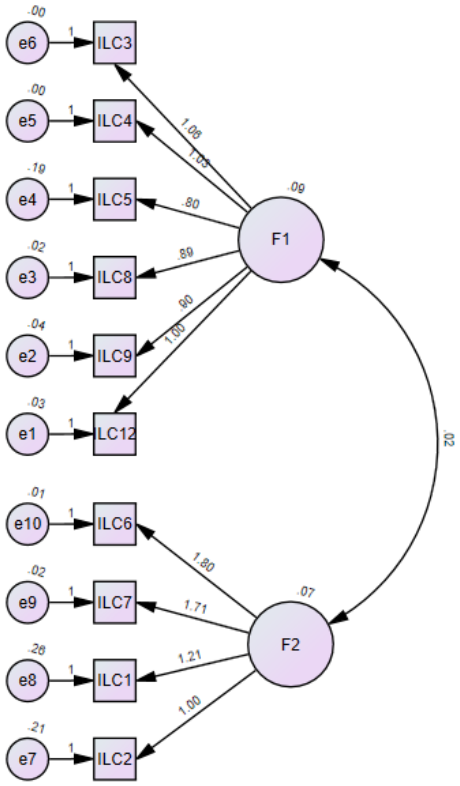
7.5 Confirmatory Factor Analysis (CFA)

From the result of the previous EFA test, the CFA test will be conducted to test further reliability and validity of the data. CFA will examine the goodness of fit for the indicators on each variable utilising SPSS AMOS (version 26). Later, the result of CFA test will be used for the hypothesis test on the next process integrating the result of CFA into the comprehensive model of SEM.

7.5.1 CFA for The Variable of Internal Logistics Capability (ILC)

The indicators of ILC variable as the result of EFA will be used to developed the model of the CFA procedure. Further this model will allow the CFA process to examine the goodness of fit for this variable where the indicators will be tested in further to find the condition of reliability and validity of the variable. The first run of the CFA test on this variable is shown as below:

Figure 59: CFA Model for the variable of ILC (1st run)



Source: Developed by Author from SPSS AMOS v.26, 2019

From the first run of the CFA using SPSS AMOS v.26, it showed that the CMIN/DF score is at the score 8.043 and the P score is 0.000 (Table). This indicated that the value of CMIN/DF is still high and need to be reduced until the score reaches the acceptable value of less than 2. Also, the P score should be more than 0.05 to reach the condition of excellent for the data reliability.

Table 58: Model Fit Summary of 1st run CFA Test for ILC Variable

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	21	273.459	34	**0.000**	**8.043**
Saturated model	55	0	0		
Independence model	10	3913.705	45	0.000	86.971
Model	**RMR**	**GFI**	**AGFI**	**PGFI**	
Default model	0.022	0.88	0.807	0.544	
Saturated model	0	1.000			
Independence model	0.075	0.3	0.145	0.246	
Model	**NFI**	**RFI**	**IFI**	**TLI**	**CFI**
	Delta1	**rho1**	**Delta2**	**rho2**	
Default model	0.93	0.908	0.938	0.918	0.938
Saturated model	1		1		1
Independence model	0	0	0	0	0
Model	**PRATIO**	**PNFI**	**PCFI**		
Default model	0.756	0.703	0.709		
Saturated model	0.000	0.000	0.000		
Independence model	1.000	0.000	0.000		
Model	**RMSEA**	**LO 90**	**HI 90**	**PCLOSE**	
Default model	0.138	0.123	0.153	0.000	
Independence model	0.481	0.469	0.494	0.000	

Source: Developed by Author from SPSS AMOS v.26, 2019

Since the scores showed in the model fit summary of the CFA model has not reached the condition of acceptable, then the CFA test would be processed in further to examine which indicators should be eliminated for the reduction so that the result of the scores could reach the range of acceptable value. This reduction process, would be based on the recommendation of the modification indices (MI) which can be seen from the following table:

Table 59: Covariances Modification Indices of ILC Variable

Residual Error / Indicators			M.I.	Par Change
e7	<-->	F1	8.118	.019
e7	<-->	e9	4.015	-.007
e7	<-->	e8	105.265	.125
e4	<-->	F2	16.115	.023
e3	<-->	F2	4.093	.004
e3	<-->	e10	4.197	-.003
e3	<-->	e9	8.473	.004
e3	<-->	e4	7.662	.010
e2	<-->	F2	4.620	-.006
e2	<-->	e9	4.278	-.003
e1	<-->	e7	7.898	.011
e1	<-->	e6	5.229	-.001
e1	<-->	e3	45.951	.009
e1	<-->	e2	12.891	.006

Source: Developed by Author from SPSS AMOS v.26, 2019

It is observable from Table 59 above that the process of elimination would be started from the highest score of MI which is 105.265. This score is the covariances between e7 and e8 which means the elimination would be selected from these two indicators. The initial result has selected e7 (ILC2) to be eliminated. Afterwards, the CFA test would identify the model fit summary if the score of P and CMIN/DF and other parameters has reached the condition of goodness. This process could be conducted several times of elimination until the result of the parameters score indicates the condition of fit for the variable model.

The final result of CFA test on the ILC variable showed the acceptable parameters score (Table 60). It is clear from the table that CMIN/DF score has reached the score 1.210 and the P value is 0.288, these two parameters has showed the acceptable condition of the model of ILC variable. Basically, through these two main parameters has adequate to conclude the appropriateness of the model. However, we could also identify the further parameters of the CFA test especially on the value of RMR, GFI, PGFI, NFI,

CFI, PNFI, PCFI, P Close and RMSEA. Generally, if the value of CMIN/DF and P has acceptable, the rest of parameters will show the similar indication.

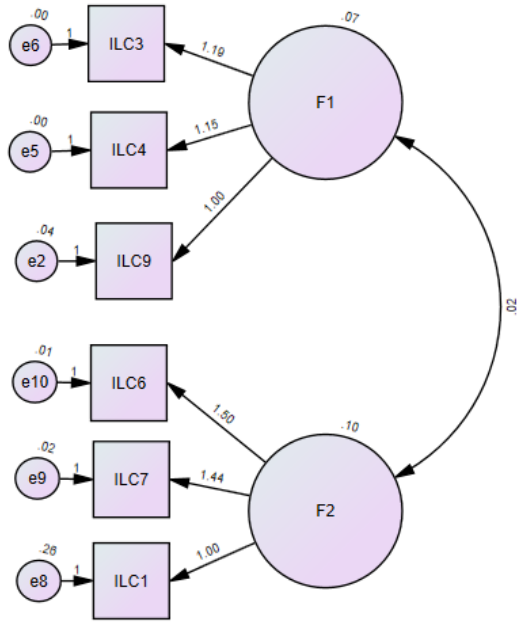
Table 60: Final Model Fit Summary of CFA Test for ILC Variable

Model	**NPAR**	**CMIN**	**DF**	**P**	**CMIN/DF**
Default model	13.000	9.682	8.000	**0.288**	**1.210**
Saturated model	21.000	-	-		
Independence model	6.000	2,467.103	15.000	-	164.474
Model	**RMR**	**GFI**	**AGFI**	**PGFI**	
Default model	**0.003**	0.992	0.978	0.378	
Saturated model	-	1.000			
Independence model	0.076	0.425	0.195	0.304	
Model	**NFI**	**RFI**	**IFI**	**TLI**	**CFI**
	Delta1	**rho1**	**Delta2**	**rho2**	
Default model	0.996	0.993	0.999	0.999	0.999
Saturated model	1.000		1.000		1.000
Independence model	-	-	-	-	-
Model	**PRATIO**	**PNFI**	**PCFI**		
Default model	0.533	0.531	0.533		
Saturated model	-	-	-		
Independence model	1.000	-	-		
Model	**RMSEA**	**LO 90**	**HI 90**	**PCLOSE**	
Default model	**0.024**	-	0.068	**0.796**	
Independence model	0.664	0.642	0.686	-	

Source: Developed by Author from SPSS AMOS v.26, 2019

Moreover, the following model of ILC variable showed the goodness of fit model as the result of CFA test on this variable (Figure 60). It showed that there are two dimensions resulted for the ILC variable which includes 3 items or indicators on each dimension.

Figure 60: Final result of CFA Test for the ILC Variable

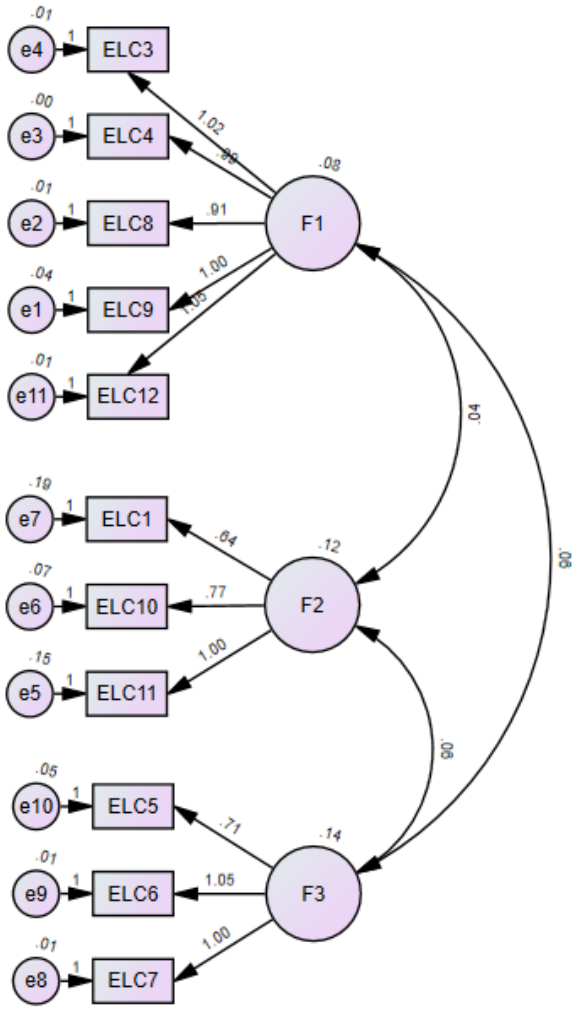


Source: Developed by Author from SPSS AMOS v.26, 2019

7.5.2 CFA for The Variable of External Logistics Capability (ELC)

CFA test on the ELC variable examined the three dimensions on the variable due to its reliability and validity on each indicator. The condition of goodness of fit would eliminate the indicators which is less valid and reliable to be applied in the variable. From the EFA test result on this variable, CFA test would continue the process with the development of the model variable as shown in the following figure. This model for CFA test has constructed utilising the SPSS AMOS v.26 which would be used also for hypothesis test through SEM procedure.

Figure 61: CFA Model for the variable of ELC (1st run)



Source: Developed by Author from SPSS AMOS v.26, 2019

The model of CFA test for ELC variable above, has been established according to the initial EFA test result which divide the variable into three dimensions with the construction of selected valid indicators according to EFA test. Meanwhile, the first run of CFA test has resulted the following summary as shown in the Table.

Table 61: Model Fit Summary of 1st run CFA Test for ELC Variable

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	25	224.837	41	0.000	5.484
Saturated model	66	0.000	0.000		
Independence model	11	4410.792	55	0.000	80.196
Model	**RMR**	**GFI**	**AGFI**	**PGFI**	
Default model	0.01	0.902	0.842	0.56	
Saturated model	0.000	1.000			
Independence model	0.059	0.248	0.098	0.207	
Model	**NFI**	**RFI**	**IFI**	**TLI**	**CFI**
	Delta1	**rho1**	**Delta2**	**rho2**	
Default model	0.949	0.932	0.958	0.943	0.958
Saturated model	1.000		1.000		1.000
Independence model	0.000	0.000	0.000	0.000	0.000
Model	**PRATIO**	**PNFI**	**PCFI**		
Default model	0.745	0.707	0.714		
Saturated model	0.000	0.000	0.000		
Independence model	1.000	0.000	0.000		
Model	**RMSEA**	**LO 90**	**HI 90**	**PCLOSE**	
Default model	0.11	0.096	0.124	0.000	
Independence model	0.462	0.451	0.474	0.000	

Source: Developed by Author from SPSS AMOS v.26, 2019

It is clear from Table 61 that the value of CMIN/DF, P and other parameters have not indicated a goodness of fit since the score of CMIN/DF > 2 and P < 0.05. Therefore, the CFA test would be operated to examine the appropriateness of the model in this variable. Similarly, the process of CFA would attempt to eliminate the indicators based on the result of modification indices score. Between the two covariance indicators with the highest MI score will be considered to be eliminated. The decision of which indicator that should be eliminated would be based on the most frequent indicator appears on the MI covariance table (see appendix). In the other hand, it also means the largest score of the targeted indicators to be eliminated. After several times conducted the elimination process as the procedure of CFA, the value of CMIN/DF and P would reach the point of appropriateness of the model. This could be identified from the model fit summary on the following table:

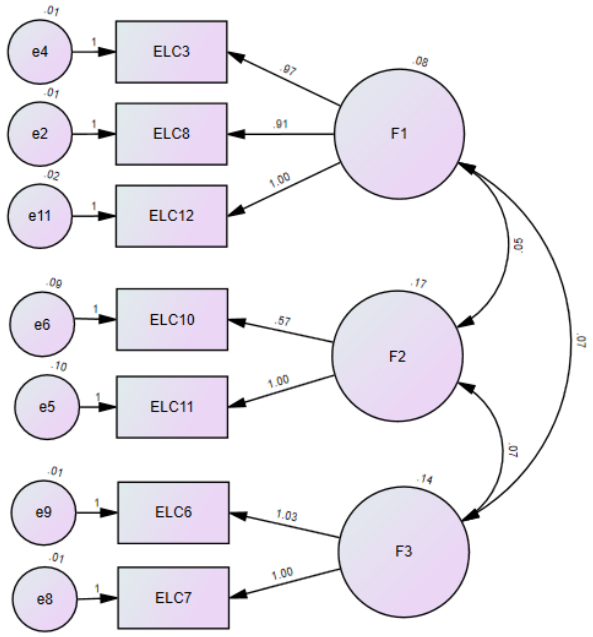
Table 62: Final Model Fit Summary of CFA Test for ELC Variable

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	17	13.448	11	**0.265**	**1.223**
Saturated model	28	0.000	0.000		
Independence model	7	2248.933	21	0.000	107.092
Model	**RMR**	**GFI**	**AGFI**	**PGFI**	
Default model	0.001	0.99	0.974	0.389	
Saturated model	0.000	1.000			
Independence model	0.059	0.361	0.148	0.27	
Model	**NFI**	**RFI**	**IFI**	**TLI**	**CFI**
	Delta1	**rho1**	**Delta2**	**rho2**	
Default model	0.994	0.989	0.999	0.998	0.999
Saturated model	1.000		1.000		1.000
Independence model	0.000	0.000	0.000	0.000	0.000
Model	**PRATIO**	**PNFI**	**PCFI**		
Default model	0.524	0.521	0.523		
Saturated model	0.000	0.000	0.000		
Independence model	1.000	0.000	0.000		
Model	**RMSEA**	**LO 90**	**HI 90**	**PCLOSE**	
Default model	0.024	0.000	0.063	0.84	
Independence model	0.535	0.516	0.554	0.000	

Source: Developed by Author from SPSS AMOS v.26, 2019

It can be observed from Table 62 that value of the parameters used in the CFA test has showed the point of goodness of fit. The score of CMIN/DF has reached the point of 1.223 which is < 2, while the P or t value also at the score 0.265 which more than 0.000. All these parameters score has indicated a significance of the model. Therefore, the model construction after the CFA test of this variable could be seen in the figure below. Later, this model would be integrated as a whole measurement model in the hypothesis testing utilising the CFA test of SEM procedure for the comprehensive proposed model of this study.

Figure 62: Final result of CFA Test for the ELC Variable



Source: Developed by Author from SPSS AMOS v.26, 2019

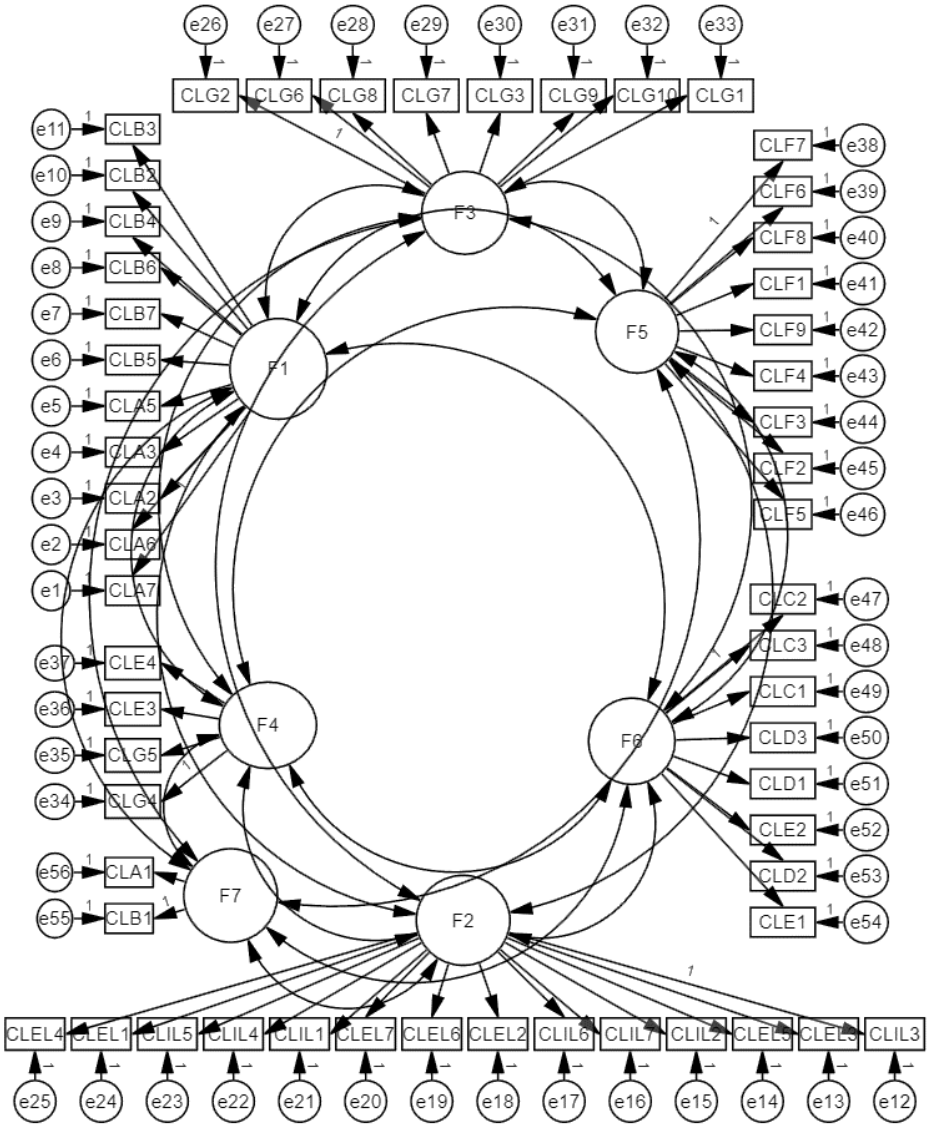
It is noticeable that the indicators resulted from the CFA test on the ELC variable remained consist of three dimensions with several reduction of indicators of each dimension. From the eleven indicators of the proposed model resulted from the previous EFA test has validated utilising the CFA test which finally resulted seven indicators remaining in the variable. These final indicators would be used for the next test of CFA with the construction of comprehensive model measurement of SEM.

7.5.3 CFA for The Variable of Country Logistics Capability (CLC)

CLC is one of the variables in the study which includes the largest number of indicators. As the variable country logistics capability, it embraces the measurement of large number of various relevant indicators. From 57 indicators of this variable, EFA test has only eliminated one indicator of CLA4 as the value of the factor loading was less the 0.4 while the threshold requires the score more than 0.4. However, EFA test has divided the entire indicators into seven dimensions. The remained 56 indicators divided into

seven dimensions has been constructed into a model to run the CFA test (Figure 63) in order to conduct a further validity and reliability test in search of the goodness of fit for the variable model.

Figure 63: CFA Model for the variable of CLC (1st run)



Source: Developed by Author from SPSS AMOS v.26, 2019

The model above has been constructed employing the SPSS AMOS v.26 where the hypothesis testing would be also operated through this software after the CFA test of each variable has been successfully completed. The first run operating CFA test for this

CLC model has resulted the initial model fit summary (Table 63) which indicated the requirement of elimination process for some indicators within this variable.

Table 63: Model Fit Summary of 1st run CFA Test for CLC Variable

Model	**NPAR**	**CMIN**		
Default model	133	-55286.516		
Model	**RMR**	**GFI**	**AGFI**	**PGFI**
Default model	0.521	-0.102		
Model	**AIC**	**BCC**	**BIC**	**CAIC**
Default model	-55020.516	-54972.229	-54499.303	-54366.303

Source: Developed by Author from SPSS AMOS v.26, 2019

As it can be seen on the table above that the value for CMIN/DF, P and other statistical parameters have not shown in the result of CFA test first run. It indicates that the model of this variable is required to be improved through the elimination of the residual error which is containing the variable indicators. After conducted more than 40 times elimination (see Appendix) based on the MI score of the covariances between the indicators (see appendix), the CFA test has resulted the fitness for the model as shown in the Table of model fit summary.

It is clear from the result that CMIN/DF has appeared with the value 1.43 which is significant as it is less than 2, while the P value has reached the minimum score of 0.05 which showed the significance. Besides, the other statistical parameters such as the RMR, CFI, Parsimony-Adjusted Measures, and also RMSEA has specified an excellent value which indicated an adequacy of for the significance of the model.

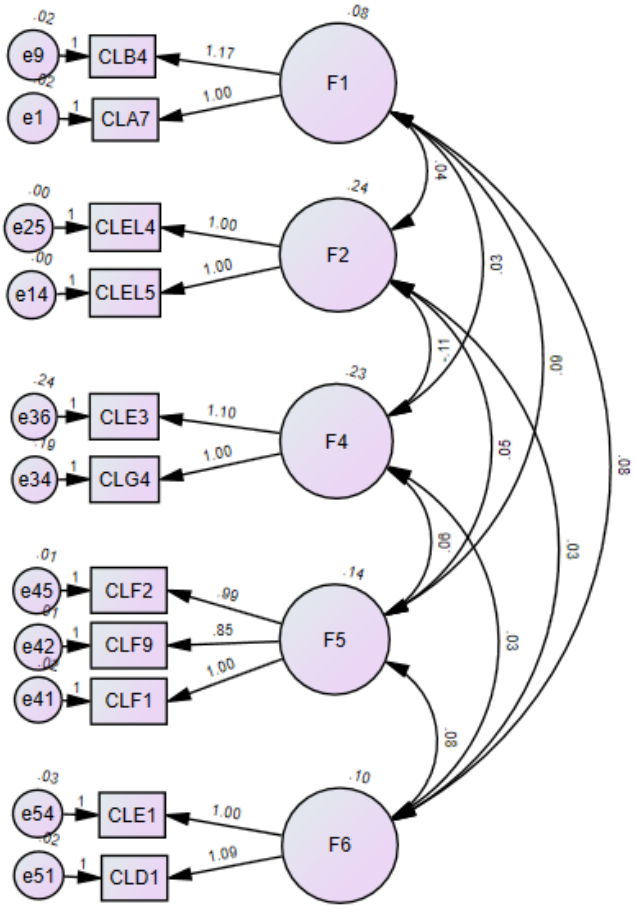
Table 64: Final Model Fit Summary of CFA Test for CLC Variable

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	32	48.637	34	0.05	1.43
Saturated model	66	0.000	0.000		
Independence model	11	4996.089	55	0.000	90.838
Model	**RMR**	**GFI**	**AGFI**	**PGFI**	
Default model	0.002	0.977	0.955	0.503	
Saturated model	0.000	1.000			
Independence model	0.08	0.281	0.137	0.234	
Model	**NFI**	**RFI**	**IFI**	**TLI**	**CFI**
	Delta1	**rho1**	**Delta2**	**rho2**	
Default model	0.99	0.984	0.997	0.995	0.997
Saturated model	1.000		1.000		1.000
Independence model	0.000	0.000	0.000	0.000	0.000
Model	**PRATIO**	**PNFI**	**PCFI**		
Default model	0.618	0.612	0.616		
Saturated model	0.000	0.000	0.000		
Independence model	1.000	0.000	0.000		
Model	**RMSEA**	**LO 90**	**HI 90**	**PCLOSE**	
Default model	0.034	0.001	0.054	0.895	
Independence model	0.492	0.481	0.504	0.000	

Source: Developed by Author from SPSS AMOS v.26, 2019

The model fit summary above has resulted some elimination of dimensions and indicators. Systematically, CFA test has eliminated 2 dimensions and 45 indicators. Therefore, from the elimination process of seven dimensions of 56 indicators has gained the final model representing the model construction of the CLC variable which comprises 5 dimensions and 11 indicators as shown in the Table. The CFA test on this variable has conducted for long process of elimination considering the MI scores, as the test itself tried to seek the goodness of fit conditions for this variable while this variable has contained massive indicators according to the nature of the indicators and the theoretical standing to construct the indicators within the variable. Later, the result of CFA test on CLC variable will be used for the hypothesis testing utilising SEM integrated with other variables as the result of CFA test.

Figure 64: Final result of CFA Test for the CLC Variable



Source: Developed by Author from SPSS AMOS v.26, 2019

7.5.4 CFA for The Variable of Small Medium Enterprise (SME)

The last CFA test on this study is the examination of SME variable investigating if the conditions of goodness of fit of this variable. Although there are only three indicators on the SME variable and the EFA test has been also conducted successfully, the process of CFA test should be conducted to assure the fairness of the investigation and to assure the result of the test. Initially, the test could not run well since the P value, CMIN/DF and all other statistical parameters had not appeared effectively. After a quite long investigation and it was acknowledged that the regression weight score of the variable to the indicators should be fulfilled with the score of balance through the annotation of

letter “a” on each arrow in order to gain a positive result. Finally, the CFA test resulted the value of P, CMIN/DF and other parameters as shown in the following table:

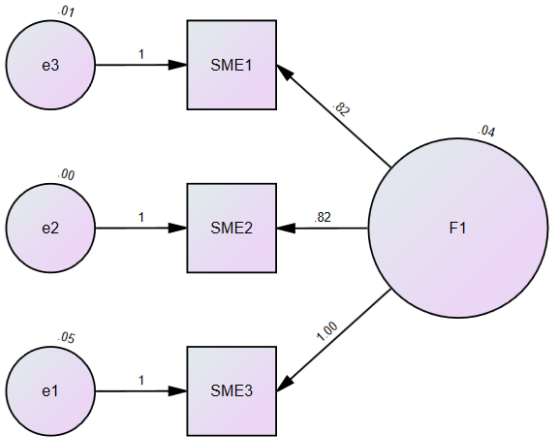
Table 65: Final Model Fit Summary of CFA Test for SME Variable

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	5	2.109	1.000	0.146	2.109
Saturated model	6	0.000	0.000		
Independence model	3	561.457	3	0.000	187.152
Model	**RMR**	**GFI**	**AGFI**	**PGFI**	
Default model	0.001	0.996	0.977	0.166	
Saturated model	0.000	1.000			
Independence model	0.024	0.526	0.053	0.263	
Model	**NFI**	**RFI**	**IFI**	**TLI**	**CFI**
	Delta1	**rho1**	**Delta2**	**rho2**	
Default model	0.996	0.989	0.998	0.994	0.998
Saturated model	1.000		1.000		1.000
Independence model	0.000	0.000	0.000	0.000	0.000
Model	**PRATIO**	**PNFI**	**PCFI**		
Default model	0.333	0.332	0.333		
Saturated model	0.000	0.000	0.000		
Independence model	1.000	0.000	0.000		
Model	**RMSEA**	**LO 90**	**HI 90**	**PCLOSE**	
Default model	0.055	0.000	0.161	0.32	
Independence model	0.708	0.66	0.758	0.000	

Source: Developed by Author from SPSS AMOS v.26, 2019

It is noticeable from Table 65 that the result was significance as the CMIN/DF showed an acceptable score as well as P value and also all other statistical parameters. Based on this result, SME variable showed similar result compared to EFA test which resulted no indicators eliminated from the CFA test as the data was remained valid. Correspondingly, the final model of SME variable remained consist of three indicators without dimension on the variable (Figure 65).

Figure 65: Final result of CFA Test for the SME Variable



Source: Developed by Author from SPSS AMOS v.26, 2019

7.6. Measurement Model Assessment using Structural Equation Modelling (Construct Validation and Hypothesis Testing)

The assessment and analysis technique in this research applied the Structural Equation Modelling (SEM) as considered in Chapter Four which is applicable for different models such as the measurement model and the structural model (Shah and Goldstein, 2006). Moreover, the type of analysis of SEM that explored and applied is the Confirmatory Analysis Factor (CFA) since it examined the relationship between variables. Related to the measurement model, CFA would allow the research to examine the proposed model then eventually to confirm or reject the assumed theory as the research hypothesis through a relationship model that encourage how the measured variables correspond to latent construct which is not measured directly (Hair et al.,2010). In other word, CFA clarifies how strong the relationship between the proposed covariance meets the observed covariance (Meyers et al., 2006), hence CFA offers a more detailed approach to investigate the unidimensional and validity of the measurements (Anderson and Gerbing, 1988). Additionally, applying CFA in SEM with different indicators for each factor would encourage the produce of a model with a strong reliability, better validity, wider generalisability, and greater examination of

challenging the models (Bollen, 1990). Furthermore, the evaluation of the measurement models ensures the fitness of the process since it is conducted based on the particular standards for instance general fit with the data and examining the unidimensional of the research constructs. The nature of the data and model assessment of the research (such as the hypothesis being tested, quantity of the sample and also the result of normality test, etc.) has encouraged this study to use CB-SEM examining the hypothesis of relationship between the factors and indicators. SPSS AMOS v.26 is utilised to support the operation of CB SEM completing the purpose of CFA in order to measure and identify the relationship of each variable and indicators in the proposed model.

7.7 Model Specification and Identification

In this section, the discussion would be related to the construction of the research model according to the result of EFA test and CFA test which has completed in the previous section. The result of those test is essential as the foundation to construct the research model for the research hypothesis testing as the next step of the main study. Actually, model specification of the research (Figure) constructed based on the main framework of the research which has discussed in Chapter 3 related to the following developed hypothesis:

H1: There is a positive relationship between the quality of SMEs' internal logistics capability and their performance in the ecommerce transaction.

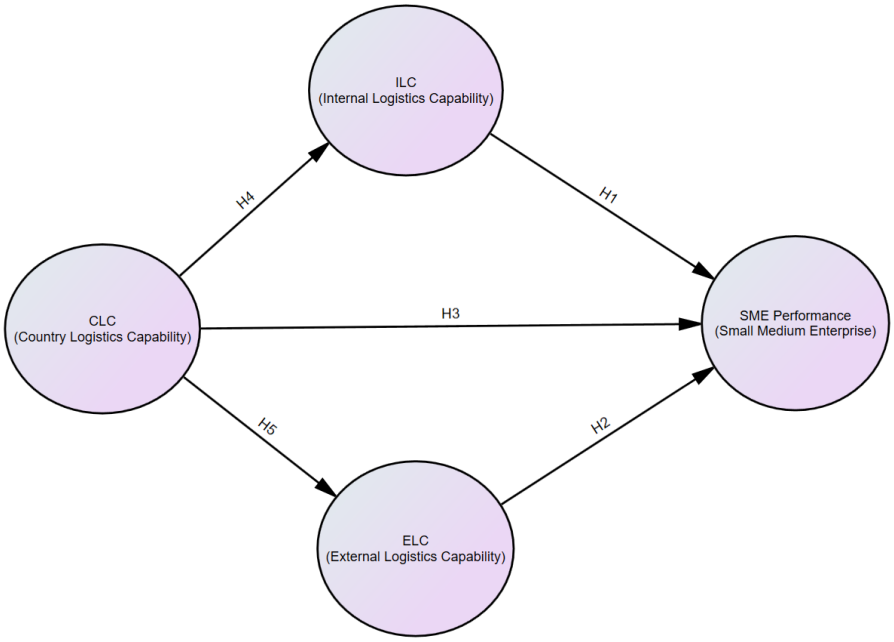
H2: There is a positive relationship between SME's outsourced logistics capability and its performance in the ecommerce transaction

H3: There is a positive relationship between the quality of a country logistics capability and SMEs performance in the e-commerce transaction

H4: There is a positive relationship between the quality of country logistics capability and internal logistics capabilities in supporting SMEs performance in the e-commerce transaction

H5: There is a positive relationship between the quality of country logistics capability and outsourced logistics capabilities in supporting SMEs performance in the e-commerce transaction

Figure 66: Framework Model of the Research

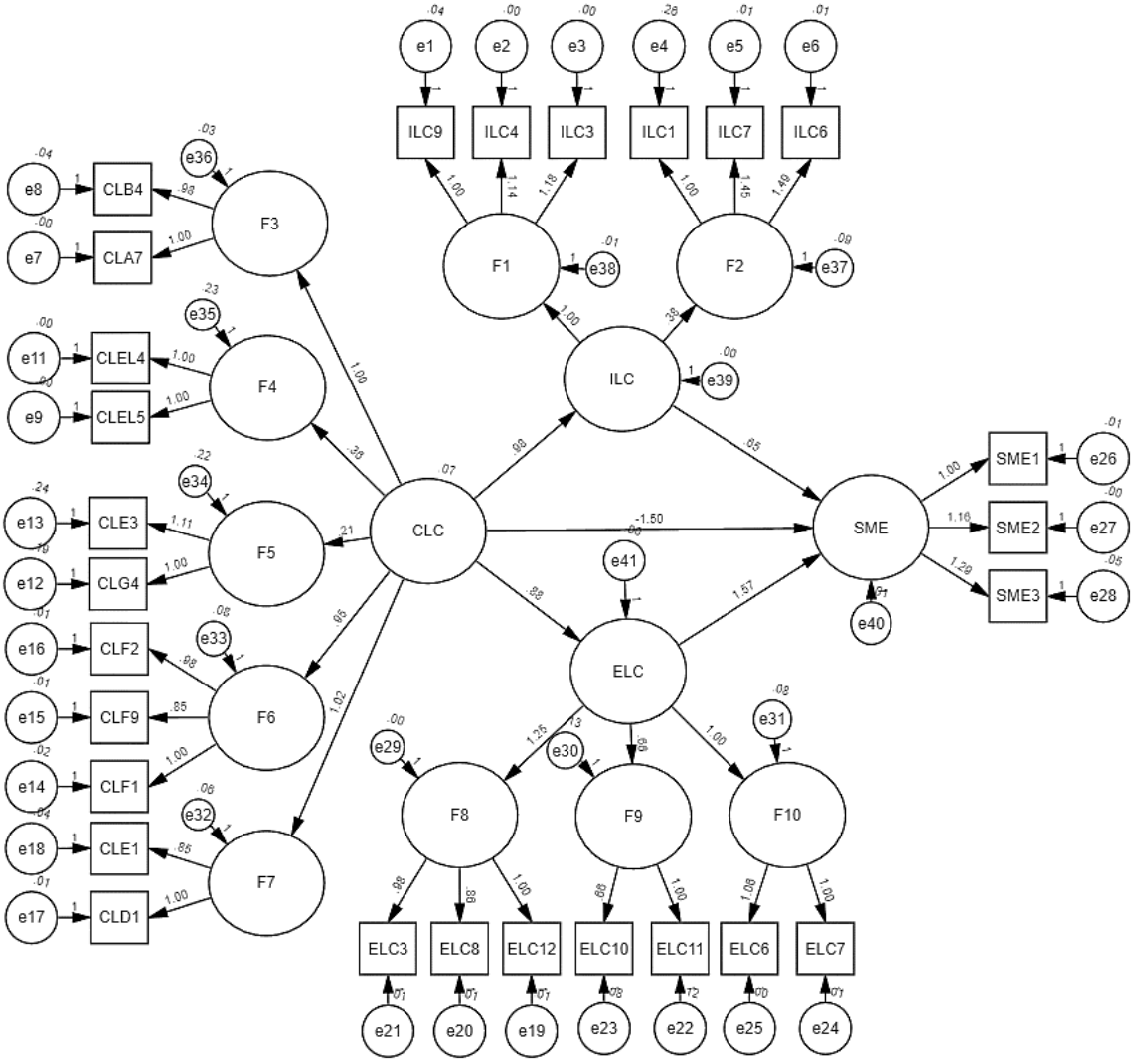


Source: Developed by Author from SPSS AMOS v.26, 2019

Afterwards, based on the main framework above (Figure 66) the research model specification would construct the measurement model of the research. It can be seen in Figure 66 that all latent constructs (ovals) were measured by using multi-item scales (rectangles) which establish the measurement model of the research while each item or indicator has its related error term (circles) known as residual error. A single headed arrow illustrates a single relationship (hypothesis) between an exogenous (independent) latent variable and endogenous (dependent) latent variable, or an exogenous (independent) variable and endogenous (dependent) variable. Moreover, as proposed by

Hair et al. (2010: 649); Byrne (2010: 174); Schumacker and Lomax (2010: 144) and Kline (2011: 100) to have the estimation of the endogenous/dependent variable(s) more reliable, all exogenous variables were considered free to both vary and covary.

Figure 67: Measurement Model Specification of the Research



Source: Developed by Author from SPSS AMOS v.26, 2019

It is observable from Figure 67 that all latent variable includes some dimensions as the result of the previous EFA test except the variable of SME which only has indicators without the separation of the dimension. Theoretically, all indicators for each latent are reflective (caused by the same underlying latent variable). Based on relevant developed theories, EFA test and CFA test to develop a parsimonious measurement model, the

theoretical relationships hypothesised in the model represent the actual relationships in the observed population. As for the model specification, all latent variables were measured by two indicators or more (no latent variable has more than five indicators).

7.8 Model Estimation and Testing

Model estimation has been measured utilising the SPSS AMOS v.26 which specifically well-known relevant software used in SEM in order to perform the measurement of hypothesis testing in research. The estimation of measurement model resulted some statistical parameters as below:

Table 66: Model Fit Summary of 1st run CFA Test for Measurement Model

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	69	2224.596	309	0.000	7.199
Saturated model	378	0.000	0.000		
Independence model	27	13910.118	351	0.000	39.630
Model	**RMR**	**GFI**	**AGFI**	**PGFI**	
Default model	0.035	0.696	0.628	0.569	
Saturated model	0.000	1.000			
Independence model	0.064	0.149	0.084	0.138	
Model	**NFI**	**RFI**	**IFI**	**TLI**	**CFI**
	Delta1	**rho1**	**Delta2**	**rho2**	
Default model	0.84	0.818	0.859	0.84	0.859
Saturated model	1.000		1.000		1.000
Independence model	0.000	0.000	0.000	0.000	0.000
Model	**PRATIO**	**PNFI**	**PCFI**		
Default model	0.88	0.74	0.756		
Saturated model	0.000	0.000	0.000		
Independence model	1.000	0.000	0.000		
Model	**RMSEA**	**LO 90**	**HI 90**	**PCLOSE**	
Default model	0.129	0.124	0.134	0.000	
Independence model	0.323	0.318	0.327	0.000	

Source: Developed by Author from SPSS AMOS v.26, 2019

It can be observed clearly that the value CMIN/DF showed a high score (7.199) which has not indicated yet the condition of goodness of fit. Likewise, the P value (0.000) and all other statistical measurement has not specified an excellent value related to the

reliability and validity. Thus, the elimination process of CFA shows in the following table should be run in this model to investigate the reliable and valid model for the hypothesis testing.

Table 67: Elimination Process using CFA Test on the Measurement Model

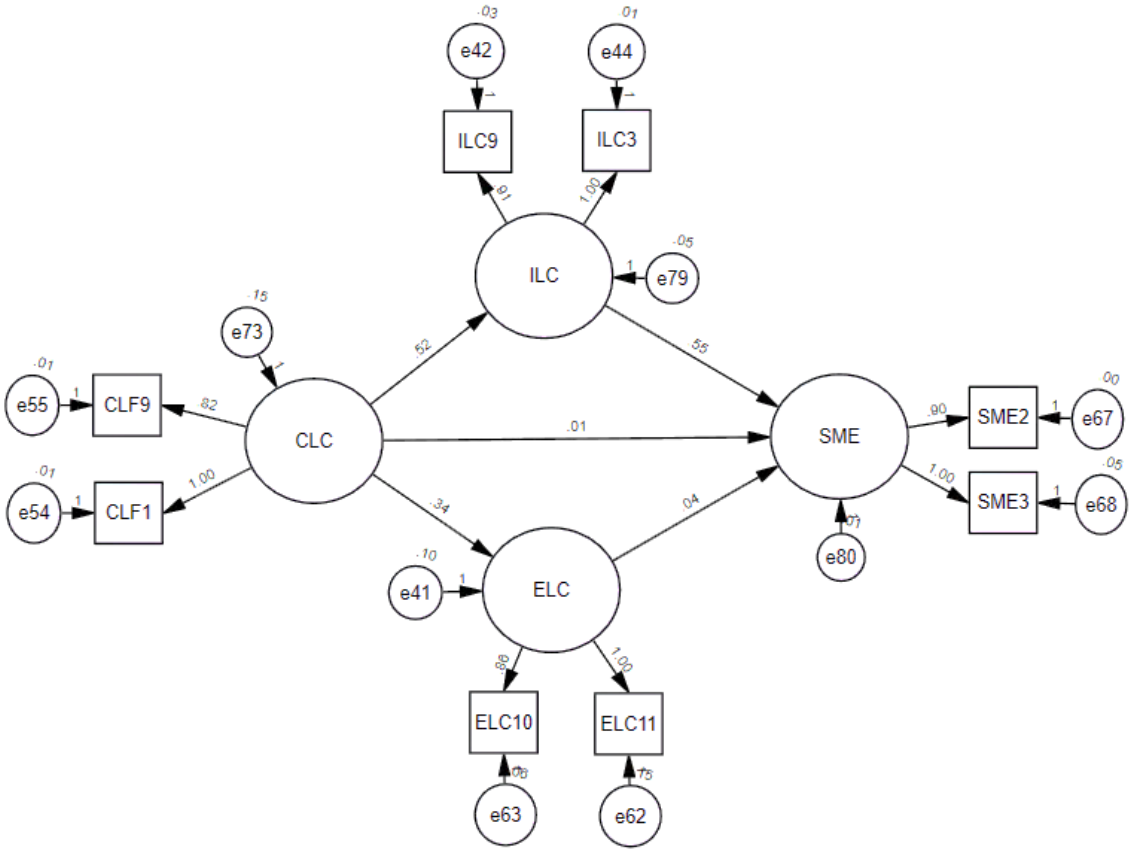
Iteration	Covariances			Eliminated Indicator	M.I.	P	CMIN/DF
1	e37	<--->	e34	**e34-->** F5= CLE3 + CLG4	182.373	0.000	7.199
2	e37	<--->	e35	**e37-->** F2= ILC1 + ILC7 + ILC6	128.907	0.000	6.687
3	e36	<--->	e32	**e32-->** F7= CLE1 + CLD1	85.866	0.000	6.684
4	e36	<--->	e33	**e36-->** F3= CLB4 + CLA7	77.980	0.000	6.623
5	e2	<--->	e8	**e2---->** ILC4	73.869	0.000	5.876
6	e16	<--->	e20	**e20-->** ELC8	66.952	0.000	5.350
7	e33	<--->	e35	**e35-->** F4= CLEL4 + CLEL5	40.011	0.000	4.247
8	e29	<--->	e39	**e29-->** F8= ELC3 + ELC8 + ELC12	95.557	0.000	17.132
9	e31	<--->	e39	**e31-->** F10= ELC6 + ELC7	72.334	0.000	4.331
10	e16	<--->	e40	**e16-->** CLF2	22.978	0.000	2.887
11	e38	<--->	e66	**e66-->** SME1	11.514	0.000	2.348
						0.063	**1.608**

Source: Developed by Author from SPSS AMOS v.26, 2019

It can be observed from Table 67 above that the elimination process has been completed for eleven times to reach the goodness of fit. The process began to identify the value statistical parameters, while in this case only took two fundamental parameters which are CMIN/DF and P. The threshold value of CMIN/DF should be less than 2 while the P value should be more than 0.05. If these values have not gained the acceptable score, then the elimination process of indicators should be conducted based on the highest score of MI to search for the goodness of fit of the measurement model. The selected highest score of MI would recommend which indicators from the covariances that should be eliminated. Afterwards, the selection between the two covariant indicators would be based on the highest total score of MI including the targeted indicators. Once the selected indicator has eliminated then the process should be repeated until the model achieved the condition of goodness of fit. The final result of the model fit summary

showed that the value of CMIN/DF at the score 1.608 and the P value is at 0.063 which indicated that the model has achieved the significance. The final result after the CFA test of elimination of the measurement model can be seen in the following figure:

Figure 68: Final Result of CFA Test for the Research Measurement Model



Source: Developed by Author from SPSS AMOS v.26, 2019

It is perceptible from Figure 68 above that the final model of the research included two indicators on each variable. In addition to this, the model fit summary of the measurement model (Table) also showed the value of the other statistical parameters such as RMR: 0.005, GFI: 0.984, CFI: 0.995, PCFI: 0.533, RMSEA: 0.040, PClose: 0.672. All these parameters correspondingly presented the satisfactory value of the measurement model through the process of CFA. It indicates that the remained indicators embracing the reliability and validity on its data to support the model for the next process of the research which is hypothesis testing.

Table 68: Final Model Fit Summary of CFA Test for the Research Model

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	21.000	24.125	15.000	0.063	1.608
Saturated model	36.000	0.000	0.000		
Independence model	8.000	1943.435	28.000	0.000	69.408
Model	**RMR**	**GFI**	**AGFI**	**PGFI**	
Default model	0.005	0.984	0.962	0.410	
Saturated model	0.000	1.000			
Independence model	0.048	0.374	0.195	0.291	
Model	**NFI**	**RFI**	**IFI**	**TLI**	**CFI**
	Delta1	**rho1**	**Delta2**	**rho2**	
Default model	0.988	0.977	0.995	0.991	0.995
Saturated model	1.000		1.000		1.000
Independence model	0.000	0.000	0.000	0.000	0.000
Model	**PRATIO**	**PNFI**	**PCFI**		
Default model	0.536	0.529	0.533		
Saturated model	0.000	0.000	0.000		
Independence model	1.000	0.000	0.000		
Model	**RMSEA**	**LO 90**	**HI 90**	**PCLOSE**	
Default model	0.040	0.000	0.069	0.672	
Independence model	0.429	0.413	0.446	0.000	

Source: Developed by Author from SPSS AMOS v.26, 2019

Table 69: Measurement Summary of the Research Model

Measures	Recommended Threshold	Output
Goodness-of fit statistic **(GFI)**	Above 0.90 (Hair et al., 2010)	0.984
The root mean square error of approximation **(RMSEA)**	Below 0.08 (MacCallum et al., 1996)	0.040
The root mean square residual **(RMR)**	Below 0.08 (Hooper et al., 2008)	0.005
Normed Fit Index **(NFI)**	Above 0.90 (Hooper et al., 2008)	0.988
Comparative Fit Index **(CFI)**	Above 0.90 (Bentler, 1992)	0.995
Tucker-Lewis Index **(TLI)**	Above 0.90 (Hair et al., 2010)	0.991
The adjusted goodness-of-fit statistic **(AGFI)**	Above 0.85 (Hair et al., 2006)	0.962
Chi-square **(CMIN) /df**	Below 5.00 (Wheaton et al., 1977)	1.608

Source: Developed by Author from SPSS AMOS v.26, 2019

7.9 Hypotheses Testing

Having performed a satisfactory structural model fit of the research, the next process was to examine the research hypotheses. Each path in the framework model of the research between the variables, represents a specific research hypothesis (Figure 66). In the stage of hypotheses testing, validity of the hypothesized path is verified by evaluating the statistical significance of each structural parameter value. Moreover, this analysis aims to investigate the causal relationship between each variable according to the research hypothesis. The statistical parameters that were used to investigate the research hypothesis was the regression weight which concluding the result of statistical parameters used to investigate the relationship of the variable (Table 70).

Table 70: Path Results and Hypotheses testing (N= 372)

Variable Path / Hypothesis		Estimate	S.E.	C.R. (t-value)	P	Result	
ILC ← CLC	H4	0.524	0.036	14.677	***	Supported	CLC has a positive direct effect on ILC (effect size = 0.524)
ELC ← CLC	H5	0.337	0.069	4.903	***	Supported	CLC has a positive direct effect on ELC (effect size = 0.337)
SME ← CLC	H3	0.015	0.026	0.559	0.576	Not Supported	The positive effect of CLC on SME is not supported at probability level (P) <0.05 (e.g. t-value < 0.196)
SME ← ILC	H1	0.549	0.052	10.579	***	Supported	ILC has a positive direct effect on SME (effect size = 0.549)
SME ← ELC	H2	0.044	0.024	1.798	0.072	Supported (Weak)	The positive effect of ELC on SME is not supported at probability level (P) <0.05 (i.e. t-value < 0.196) but can be supported at probability level (P) <0.1

***p<0.001, ** p<0.01, *p<0.05

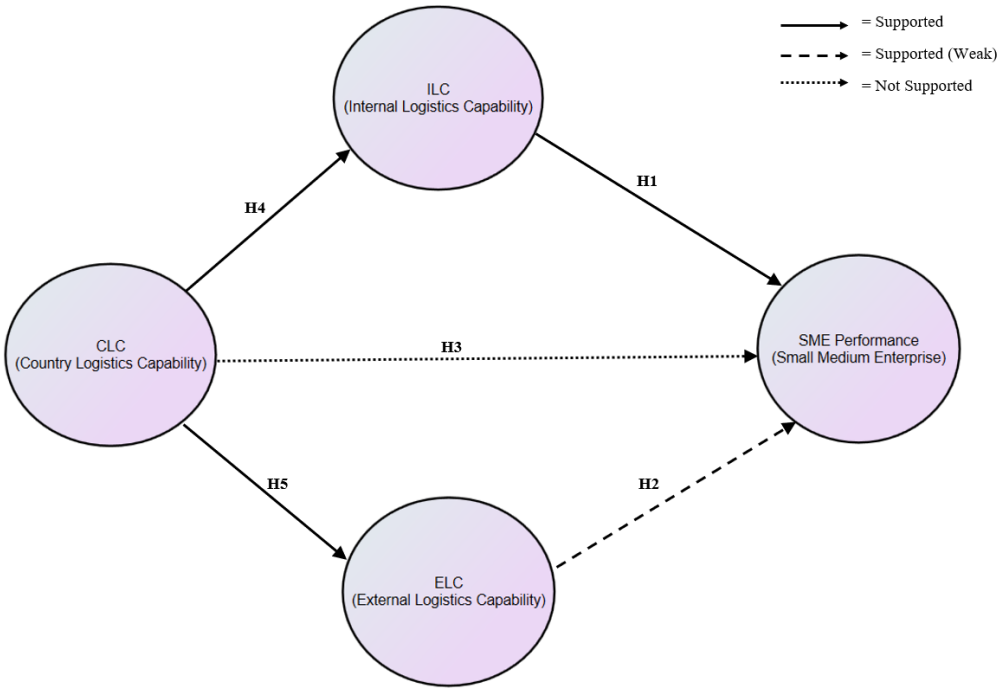
Source: Developed by Author from SPSS AMOS v.26, 2019

It is observable from Table 70 that the verified result of H1 is supported, means ILC has a positive direct effect on SME (effect size = 0.549, CR= 10.579, P < 0.001). Whereas, H2 showed a weak support, indicated that the positive effect of ELC on SME is not strongly supported at probability level (P) <0.05 (i.e., t-value < 0.196) but can be supported at probability level (P) < 0.1. Moreover, the result of relationship for H3 is

not supported as the positive effect of CLC on SME is not supported at probability level (P) < 0.05 (e.g., t-value < 0.196). Additionally, the result of H4 showed the relationship between CLC on ILC is supported, CLC has a positive direct effect on ILC (effect size = 0.524, CR= 14.677, P < 0.001). Furthermore, the relationship of H5 is also supported, CLC has a positive direct effect on ELC (effect size = 0.337, CR= 4.903, P < 0.001).

Accordingly, three hypotheses of the research (H1, H4, H5) was accepted since the score of the statistical parameters are significance, one hypothesis (H2) weakly supported as the statistical score indicated a light significance but remain reasonable since the score was only 0,2 lower than the acceptable range and one hypothesis (H3) was rejected since the score indicated very low value from the reasonable range. Consequently, the variable path of the research hypotheses could be seen on the following figure.

Figure 69: Final Variable Path based on the Hypothesis Result



Source: Developed by Author, 2019

CHAPTER 8: RESEARCH FINDINGS AND DISCUSSION

8.1. Introduction

As it has been acknowledged previously in Chapter 1 that this study aims to identify the key success factors facilitating SME's ecommerce in developing countries with the evidence from Indonesia (RQ1). Besides, the research also aims to identify the major problems of logistics sector and the current level of the logistics performance related to the SME ecommerce (RQ2 and RQ3). Moreover, this study attempts to investigate the relationship between each type of logistics capabilities and SME ecommerce transaction (RQ4, RQ5, RQ6, RQ7 and RQ8). The investigation of those clarified objectives has been completed through the qualitive and quantitative studies. The qualitative study was completed through interview study in order to investigate the RQ1 which initially has been completed by the systematic literature review. While the quantitative study was conducted effectively with the purpose of investigating the RQ2, RQ3, RQ4, RQ5, RQ6, RQ7 and RQ8

Therefore, this chapter discusses the findings of the research on each phase completed in the investigation which presented in Chapter 5, 6 and 7 included the qualitative research (interview study) and quantitative research (survey study) in regard to the research objectives, questions and hypotheses. The interview study in this research has cross-examined the literature findings and the exact practices of SME ecommerce related to the factors which influence their business. Moreover, there are three quantitative research conducted in this study which divided into two chapter. Those quantitative research are (1) the analysis study of major problems of logistics sectors, (2) the examination of current performance country logistics capability related to SMEs Ecommerce, and (3) the analysis study of relationship between each category of

logistics capabilities and SME ecommerce transaction. The findings on those studies would be deliberated comprehensively in this chapter.

8.2. Findings and Discussion on the Analysis of SME Ecommerce Interviewing

This section would reclarify and re-summarise the discussion in Chapter 5 after the data analysis of the interview study has been completed. The interview study in this research has discovered some positive facts to the research that the application of ecommerce toward the SME's operational in developing countries especially Indonesia as the evidence of the study has allowed some potential opportunities. In addition to this, the ecommerce application by SME in developing countries especially Indonesia also brings the impacts to the businesses of small companies. However, behind those positive opportunities and impacts of ecommerce application by SMEs, there are also challenges which by some means could be counted as difficulties for some SMEs considering its limitations and circumstances.

The opportunities of the SMES ecommerce application provide some optimistic impacts to the business supporting the growth especially on the revenue or the sales volume. The effective transaction such as the faster process and the simpler approach are amongst the positive impacts on the SME ecommerce application. Moreover, the application of ecommerce in SMEs would allow the business to increase the transaction volume and sales revenue, improve a larger market, as well as reassure the product improvement in term of both quality and quantity as the consequence of the bigger market that ecommerce can effectively obtain.

Nevertheless, behind the potential opportunities and good impacts of the SME ecommerce application there are undoubtedly some challenges and difficulties which is

needed to be managed in order to allow the SMEs to employ ecommerce as the new approach in their business. Those challenges and concerns could be the matters of the availability and the accessibility of qualified personnel, good internet service, arranging a low-rated express delivery service, emerging a secure online payment method, the ability to acknowledge the customer needs and wants, the effective technique of marketing, the selection of a powerful marketplace, and the employment of PCs or smartphone in the ecommerce operational system. The successful accomplishment on these challenges and difficulties would empower the SMEs achieving the good performance in their business. Hence, the resolves of those concerned problems would be evidently considered as the key success factors (KSFs) of SMEs ecommerce especially in developing country. Furthermore, those KSFs of SMEs ecommerce found through the investigation in interview study has actually aligned with the initial author's review in the literature. The result of the literature review and the interview study obviously supported each other as it is resourced by the fact of experiences in the practical circumstances.

Those KSFs of SME ecommerce are considered specifically by the author as the internal, external and interconnected factors. The internal factors of an SME ecommerce embrace the human resources related to personnel qualification (HR) and the activities of marketing related to the marketplace. The external factors which is the outside of management control of an SME ecommerce encompass the customer demand (CD), law and regulation (LR), and a secure payment system (SP). Finally, the interconnected factors (both internal and external) involve the information and communication technology (ICT) and logistics capabilities (LC).

The discoveries in this interview study could be effectively projected to contribute to both theory and practice and the following research propositions provide guidance including stakeholders in academia, companies and government. From a practical viewpoint, the baseline KSFs can assist SME businesses and non-business organisations in developing countries as the initial significant attentions for the effective development of SME ecommerce and consideration of which KSFs may be successful for them as a precursor to further research providing further reliability.

8.3. Findings and Discussion on the Major Problems of Logistics Sectors related to SME Ecommerce

This section discusses the topic refers to the findings of the research which has shown in the Table 37 in Chapter 6. The survey of the study employed the approach of weight score assessment to identify the major problems of logistics sector related to the SME ecommerce practices in developing countries with the evidence from Indonesia. The respondents obviously invited to evaluate the provided set of problems which initially has discussed with the expert panel representing the government bodies, academia, industries, and service providers and also adopted the results from the previous research related to this topic.

Generally, referring to the agreement of the logistics problems in the survey that the whole provided problems used in the investigation has projected as the urgent problems in Indonesia. However, the survey investigated the level of the urgency of those provided problems which representing the exact conditions of Indonesia. The survey has resulted that the total weight score of each problem as the indicator showed the order of the weight score from the highest score to the lowest score. The author specified that the five highest weight score as the very urgent issues in the logistics area

related to the SME ecommerce practices. While the next five highest weight score will be considered as the urgent problems. Afterwards, the following five highest weight score would be appropriately determined as the average urgent. Further, the last sequence of the weight score would refer to the category of low and very low urgent.

8.3.1. The Five Very Urgent Problems of Logistics Sector Related to the SME Ecommerce Practices in Indonesia

According to the survey findings (Table), there are five discovered major problems of logistics area in Indonesia which related to the SME ecommerce which was considered as the very urgent problems. Those problems are the matters related to the infrastructure whether it is related to the availability or the balance development, the concerns of the road traffic jam level, the availability and the integration of government laws and regulations, human resources in term of quantity and quality, and the issues of dwelling time in port which always perform a long lead time. These very urgent problems discovered in the survey are fit by looking at the actual conditions since the study is confident ton the result as the respondents has confirmed the factual circumstances based on their own experiences. Even though at this moment the government and related stakeholders are working to resolve these very urgent problems, the result of this survey should encourage more attention to the improvement of those very urgent problems facilitating the most effective way to resolve these problems. The infrastructure improvement requires a comprehensive analysis of the most appropriate infrastructure which is needed and relevant to the exact circumstances of the country considering Indonesia as the archipelago country consist of more than seven thousand islands. This particular issue also related to the financial capability of the country which also requires the budget planning due to the economic conditions of the country.

Moreover, the issue of road traffic jam level needs an effective management refers to approach of transportation management perspective supported by the appropriate capacity of transportation infrastructures. The flow and schedule management within the transportation management would be also suitable approach to be implemented resolving the road traffic jam issues especially in the location where the logistics activities are at the busiest circumstances such sea port location, airport, highway road, railway area, warehouses zone, etc.

Besides, the issues of government laws and regulations also can be a disruption to the logistics sectors. The circumstances of government bureaucracy, ineffective procedures which is caused by the unsupportive policies and regulations and also the lack of integration amongst the government bodies has brought this particular issue to be the very urgent problems in the logistics operation related to the SME ecommerce. As the establishment of a law, regulations and polices would take a very long time, the effective design and planning seriously needs an effective completion with the purpose of the effective implementation of those rules and policies supporting the process and operational of logistics activities and supply chain operation widely.

Furthermore, the availability and the capability of the human resources in the area of logistics and supply chain remain consider as the lack of the quantity as well as the quality. The matter of quantity as well as the quality, possibly has supported by the emerging subject and study related to the logistics and supply chain through the higher education program. Numerous domestic universities nowadays have provided the related program facilitating the qualified human resources in the area of logistics and supply chain, as well as the certification institution who provides the certified program from the basic to the professional level of the logistics and supply chain personnel.

However, the logistics and supply chain sector in this country requires to absorb a massive number of logistics and supply chain professional. The gaps between supply and demand on this specific area remain as an issue for the country. By the time, gaps will be completed in line with the improvement of logistics and supply chain sector within the country.

In addition, the issue of dwelling time in port especially in seaport has always perform a poor quality of process. Compared to the neighbour country, Indonesia is the poorest performance concerning this issue. The government through the relevant ministries and bodies has attempt to improve this performance. However, this specific issue really needs a synchronised arrangement between the official bodies of the government as this operation involves some of the official government bodies such as the regulator of the port, customs, ministry of transportation, ministry of industry and commercial, as well as the private sectors as the users of the service. The principal of good and clean governance is the absolute requirement to improve the performance of dwelling time professionally as the dwelling time performance is essential within the entire logistics and supply chain process and operation.

8.3.2. The Five Urgent Problems of Logistics Sector Related to the SME Ecommerce Practices in Indonesia

After the very urgent level of the problems, the next category should be the urgent problems. The subsequent five urgent problems which was identified from the survey are the issues related to the factors of the integration and synchronisation of the IT system within the national logistics system of the country while the ICT itself extensively related to the infrastructure availability and the quality service still remain as a part of the urgent problem, as well as the custom clearance process, competence

and excellence of the logistics service provider, and also the capability on the widespread of distribution coverage in logistics operation.

IT system integration is fundamental in modern logistics and supply chain operation. Each functions of the operation would apply the IT system. However, the integration of every function within the logistics and supply chain process is really significant to assure the accuracy of the data and effectiveness of the operation. This IT system integration has been found as the urgent problem in Indonesia since the poor performance of its integration where each function on each institution, and also amongst the organisation has not been integrated each other. Therefore, the potential of mismatch, less accuracy, mismanagement within the entire operation is highly occurred as the outcome of the stand-alone IT system performance. IT system integration is definitely required for a country emerging its logistics capability. Moreover, the problems of ICT infrastructure and quality of ICT service remain as a problem in the developing countries especially Indonesia. Excellent ICT infrastructures and internet service requires a huge investment as it is essential due to domestic development of a country where nowadays every aspect of development would utilise and rely on the ICT and internet of things including the logistics and supply chain operation. The employment of ICT hardware and software as well as the internet service supporting the logistics operation to achieve the effectiveness within the entire process.

Furthermore, customs clearance process has also considered as the urgent issue in Indonesia since the process in this area has performed with highly bureaucracy arranged by government related bodies. The process of customs clearance should be arranged supportively aligned with the needs of business especially within the logistics and supply chain operational. The involvement of private sectors, logistics association,

academician, expert panel, and industries through the government initiative is greatly necessary and brilliant to achieve an effective process of customs clearance which facilitates the need and wants, the conditions and circumstances of related stakeholders within the entity of the business environment in the country. Through this approach would allow the country to produce the effective procedure in customs clearance connecting the government needs and private sector requirements in term of effectiveness and security.

Besides, the competence and excellence of the logistics service provider has found in the survey remain an issue of logistics sector in Indonesia which is included its capability on the widespread of distribution coverage in logistics and supply chain operation. This concern has considered as an urgent problem as almost respondents assumed the low quality of performance of the logistics service provider according to the number of customer complaints who experienced the service of those logistics provider. The low quality of performance in this issue could be potentially caused by the low quality of personnel as a part of the human resources problem, and also the high challenges of operation within this country including the geographic of the country as the island nation, the complexity in social and culture circumstances, and also the diversity of the logistics infrastructure from the urban area to the rural area. Number of logistics service provider attempts to improve the service performance which is encouraged by the private international company who expanded the business in Indonesia. This expansion has brought positive impact to the improvement of domestic service provider as the nature encouragement in business achieving the competitive advantage of a company.

8.3.3. The Five Average Urgent Problems of Logistics Sector Related to the SME Ecommerce Practices in Indonesia

The next level of five problems in logistics operations related to the SME ecommerce practices would be determined as the average urgent category. The problems in this category are urgent average as it is not that very urgent or urgent like other major problems discussed in the previous section. Consequently, the survey also indicated the following issues as the issues in average urgent including shipment security, the reliability on delivery, delivery speed, reverse logistics, and shipment punctuality. Some of the issues in this category such as the reliability on delivery process, delivery speed (lead time), reverse logistics operation, and shipment punctuality also related to the problem indicator in the urgent category of problems which is the quality of logistics service provider. Therefore, the problems in this category also represented in the problem of logistics service provider as the urgent one. The improvement of these problems especially on the matter of delivery reliability, lead time, return process of logistics and shipment punctuality would positively improve the performance of the logistics service provider since these problems involves within the operational of the logistics provider. In addition to this, these problems are essential to the logistics provider since these problems represents the performance indicator of a qualified logistics provider.

Moreover, concerning the problem of shipment security it is related to the problem of security during the shipment process. Even though the survey result categorised this specific problem in to the average urgent somehow it is still among the urgent problem of the logistics major problems in Indonesia. The seriousness of the government improving the logistics infrastructures such as highway road connecting the main province in Indonesia aligned with the security program of national security program

through the relevant government bodies such as police department involving the unit of highway patrol, inter-province patrol, etc. has supported the improvement of this concern.

8.3.4. The Low Urgent Problems of Logistics Sector Related to the SME Ecommerce Practices in Indonesia

The last category within the major problems investigated in the survey is the category of low and very low urgent. Accordingly, the final of the major issues acknowledged from the survey which is approved as the low urgent matters are the factor of price competitiveness and track ‘n trace systems in logistics and supply chain operation. The weight score of these two problems clearly indicated the lowest score resulted from the survey. There could be some potential reason assuming these problems approved as the low urgent issues, for instance the issue of service price is not that essential since the competitive price has been established when the market mechanism works in the area of logistics and supply chain operation especially in the circumstances of market competition between the local companies and international offering the excellent service to the market. This would allow the market price grow adapting the market mechanism until the market achieve the competitiveness point in term of price offered by those logistics provider companies.

Moreover, the matter of track and trace in Indonesia’s logistics and supply chain operation which mentioned among the problems evaluated in the survey also has been acknowledged by respondents as the low urgent problems. This could be happened through the grow of IT system which is utilised comprehensively in the operation of logistics and supply chain. Almost companies have developed the track and trace

system utilising the IT system. Excluding small number of local companies of logistics service provider who has lack of capability to establish it.

Similarly, the government IT system has developed the track and trace system to monitor the logistics and supply chain process within the government operation to control the entire process within the national logistics and supply chain which is applied effectively in the system called Indonesia National Single Window (INSW). Therefore, the issue track and trace in Indonesia logistics operation could be categorised as low urgent problems for the country.

8.4. Findings and Discussion on the Examination of Current Performance of Country Logistics Capability related to SME Ecommerce

This section discusses the findings of the study on the investigation of current performance of country logistics capability related to SME ecommerce practices in Indonesia which will be presented by the performance index score. Additionally, the current performance of country logistics capability in this study would refer to the term of ILCI (Indonesia Logistics Capability Index) through the completed survey in 2019 which has involved 372 relevant respondents from many backgrounds such as industries, logistics expert, related government bodies, SMEs, academician, logistics associations, and also logistics service providers (LSP).

Therefore, it is expected that the survey in this study would provide valid and reliable data evaluating the performance index score of the country logistics capability namely ILCI 2019. The score result of ILCI 2019 would be highly essential toward the stakeholders in the country since it provides fundamental measurement of the logistics performance index of the country which is representing the logistics capability of the country overall. Acknowledging the ILCI 2019 index score would allow the

government and the entire stakeholders to work together, synergize each other focusing on the improvement of the country logistics capability. Moreover, the ILCI 2019 score would facilitate the priority on which indicators or factors of logistics capabilities that are required to be resolved at the first place.

Effectively, the ILCI 2019 score not only provide a fundamental image and conditions of the country concerning the country logistics capability, but it is also allowing the government and the whole stakeholder to decide their focus on the specific improvement. The indicators which has already above the average are needed to be maintained, while the factors which are still below the average score, significantly should be improved. These priority concerns would allow the effective economic development of the country along with the entire aspect of development.

8.4.1. Performance Index of Transportation and Logistics Infrastructures Availability

Transportation and logistics infrastructures are greatly important in measuring the logistics performance of a country. The availability of those infrastructures are the essential factors facilitating and supporting the logistics and supply chain operation within the country. The availability of the seaport infrastructures, airport, road infrastructures, railway infrastructures, highway road, bridge infrastructures, and also urban logistics infrastructures are the significant indicators enabling the effective operation of logistics and supply chain especially related to the SME ecommerce as the topic of the research. Indonesia is obviously categorised as the islands country in southeast Asia consist of more than 17.000 islands which has the wide of the country equal to the widespread of UK to Russia. These circumstances should encourage the country to have a priority attention concerning the development of the infrastructures.

Seaport infrastructures are substantial for Indonesia as a maritime country. However, the survey resulted the average score index for the seaport performance (2.56). This should encourage a great concern to the stakeholders of the country on how to improve the availability of the seaport facilitating the effective operation of logistics and supply chain. Financial budget and list of priority improvement related to the seaport development within the entire provinces of the country should be arranged successfully improving the capacity of services due to the seaport infrastructures development. The capacity of main seaport in the capital city, Jakarta, should be improved in order to increase the capacity of export and import as the main gate of the country to the international logistics and supply chain operation. As well as the improvement of another seaport in each province which is spread within more than 30 provinces. Additionally, the network of sea-network transportation should be also developed effectively to increase the productivity of the transportation volume distributing the commodities and products throughout the country.

Similarly, the railway infrastructures as a part of the main transportation mode in the country also require a serious attention to support the logistics capability of the country considering its surveyed index score slightly above the average level of capability (2.88). Actually, the railway infrastructures in Indonesia have established in some of the urban areas. However, there are remain other cities which should be also developed with railway infrastructures as well as its utilisation and optimisation supporting the logistics and supply chain operation. The employment of railway mode in logistics and supply chain operation in Indonesia shows the lack of optimisation since there are minimum capacity, less directions, and also inadequate infrastructures to facilitate the use of this mode. Whereas the railway transportation is one of the effective solutions for logistics and supply chain operation deal with the road traffic jam. Therefore, the

capture of the index score on this particular infrastructure should bring a positive attention to the country administrative to consider and improve the railway infrastructures.

Furthermore, the ILCI evaluation of performance index in transportation infrastructure also considered the measurement of other indexes including airport, road infrastructures, highway road infrastructures, bridge infrastructures and also urban logistics infrastructures. According to the survey result, these infrastructures availability indicated a good performance as the index score of these infrastructures are above the average of index score performance (up to 3.5). This performance is aligned with the real conditions in the country recently. Indonesian government nowadays concerns to the infrastructures development which fundamentally progress the development of road, highway road and bridge infrastructure connecting the major provinces in the country.

Moreover, the airport infrastructures development also includes within the attention of the government, as well as the urban logistics infrastructures in numerous major cities in the country. Surely, the infrastructures development is a mega project of the country which is needed a mega planning and designing including the financial budget. Hence, there are massive challenges for the country to complete and improve its country logistics capability achieving the excellent logistics and supply chain operation as the competitive advantage due to the enhancement of high volume of global trade supporting the domestics economy. Overall, the transportation infrastructures availability in Indonesia showed a good performance for the average index score for this particular indicator is above the average range (3.37). Therefore, Indonesia needs to maintain this good performance and also improve the other sub-indictors within this

factor to be better in its performance in term of the availability of the transportation infrastructures.

8.4.2. Performance Index of Balance Development of Transportation Infrastructures

This sub-section discusses the findings of the research especially in regard to the evaluation of the performance index of Balance development in transportation infrastructures. As the logistics and transportation infrastructures are substantial to the country logistics capability, its balance development also significant to facilitate the country with a widespread logistics and supply chain operation. Through an effective balance development of the transportation infrastructures, there should be an effective distribution of the service in logistics and supply chain especially related to the SME ecommerce within the entire country. The transportation infrastructure outspread which is reaching each province until the rural areas positively increases the country logistics capability as the service and operation of logistics and supply chain capability can be assured until the last mile of the country.

In fact, the survey resulted the overall performance index of this particular indicator (balance development of transportation infrastructure) exactly in the average standard index (2.06). The average index score which indicates the average performance is started from 2.0 to 2.99. The scores within this range would be considered as a moderate performance. This score should bring a special attention to the whole stakeholder to improve the performance of this particular indicator concerning its significance assuring the widespread service and facilitation of logistics and supply chain operation throughout the country which is effectively enabled to improve the country logistic capability. According to the outcome of the survey, the balance

development of seaport and highway road remain in the lowest index score within the average performance (2.06), whilst railway infrastructure fairly can be assumed to be in good performance as it is almost reached the good performance index score (2.84). In the other hand, the balance development of airport, road, bridge and urban logistics infrastructure has showed a good performance contributing to the country logistics capability as the index score of these indicators achieved the range of good performance (airport: 3.64, road: 3.63, bridge: 3.27, urban logistics infrastructure: 3.53)

Therefore, observing on the result of the investigation, it is important for government and the whole stake holders to specify the improvement on the three indicators of the balance development of transportation infrastructures which are seaport, railway, and highway road as its balance development has not reached a good performance of index score. Meanwhile, balance development of airport, road, bridge and urban logistics infrastructure remain to be maintained gradually to improve the overall score index of the infrastructure balance development.

The low score of balance development on some infrastructures could be caused by some potential background. For instance, the lack of government focusses on those infrastructure developments (seaport, railway and highway road) during the survey was held. Meanwhile, the lack of focusses could be occurred by the limited financial budget therefore the government allocate the priority development on the other infrastructure. However, based on the author observation at least for the time being the highway road infrastructure is on its progress that government attempted to improve. It is expected that balance development on transportation infrastructure in Indonesia would be improved gradually within the next five years. The appropriate identification of the quantity and the capacity of the current balance development of infrastructure should

allow an effective approach of improvement. Then progressively increase the number of developments in the area which is required to be established increasing the country logistics capability.

8.4.3. Performance Index of ICT Infrastructures

In modern era nowadays through the grow of technology and internet of things, ICT is an absolute infrastructure for a country. ICT for the time being has been a substantial factor in many aspects of life such as education, politics, social including business and economy. The application of ICT in every sector has increased the quality of life especially in the activities and operations. The benefits and advantages of ICT deployment in human life can be perceived obviously in term of effectiveness and efficiency. Certain activities which are utilising ICT effectively can be faster, secure, and efficient in total. Accordingly, there are many opportunities and challenges within the implementation of ICT in business especially in logistics and supply chain operation related to the practices of SME ecommerce. The application of ICT in SME ecommerce would offer a much wider of market expansion, faster transaction, simple and easy process, secure through a professional procedure and effectively increasing the sales volume. However, there are common challenges within the ICT implementation especially in small business operation. The most challenge for small enterprises in the ICT application for their business is the ICT investment which is related to the financial capability of the business to adopt and apply the ICT in their business operation. For many SMEs especially in developing countries, ICT investment always bring problems in the ability to buy the technology, while larger business would probably have less difficulty for this issue. Moreover, the matter of ability to operate the ICT also remain as an issue. The availability of skilled personnel supporting the ICT operation in business is also considered as the essential factor. Dealing with ICT will be always

related to the ability to buy and to use, as well as to maintain it for sustainable operation utilising ICT.

The result of the survey showed a moderate performance for the overall Indonesia's ICT performance index related to the logistics operation of SME practice since the index score was measured by the study in the range of average performance (2.51). This result indicated that the ICT performance in logistics and supply chain operation facilitating the SME practice is in fair conditions in term of the infrastructure availability (2.84), quality service (2.33), and the applications in operations (2.36). For many developing countries especially Indonesia, the achievement of this index score is good concerning the complexity of difficulties, circumstance and limitations of the country. The circumstance of emerging countries like Indonesia always in the process and progress of development as these countries are emerging their country's quality and capability. However, the result could be positively assumed that the country should take a consideration to improve the ICT in further increasing the capacity and capability of logistics and supply chain operation facilitating the SME practices. The improvement of ICT would always provide a benefits and advantage to the country facilitating and improving the economy especially in the operation of logistics and supply chain. An effective ICT would productively support country logistics capability since for instance the ICT facilitates the operation of track and trace system in logistics and supply chain, ICT allows the effective supply chain visibility, supporting the effective customer order process, as well as the entire supply chain process within the country. Moreover, the ICT connect the government system and support the integration amongst the functional process especially in the operation of logistics and supply chain in the country. Hence, the improvement on ICT should be a never-ending process since the ICT would be very dynamic thus the implementation of the ICT itself seems now already an obligation to

all countries in order to improve the competitiveness of the country. Amongst the approaches that Indonesia and the other developing countries can effectively consider improving the country's ICT is to develop an effective cooperation with developed country improving the domestics ICT system and infrastructures. Certainly, the initial effective identification and measurement of priority should be taken in the first place to have a productive outcome supporting the improvement. Afterwards, the ICT improvement should be expected to be progressed in appropriate way based on the planning and design of the approaches and procedures determined.

8.4.4. Performance Index of Laws and Regulations

Bureaucracy concerning the laws and regulations is another complicated issue in many developing countries including Indonesia. The circumstances of politics could bring a positive or negative impact to the economic development of a country. It is a big challenge for many developing countries improving the competitiveness of the country in global environment. A supportive law and regulations as a guidance and procedures arranging and managing the logistics and supply chain operations within a country is substantial factor due to economic development. The law and regulations would produce a set of policies which provides and standard of procedures in many aspects of country development including the logistics and supply chain operations. The role of government providing the facilitation toward the domestics and international operation of logistics and supply chain would encourage productive process within the entire chain of supply as well as the logistics operations. The logistics activities in supply chain operations are the long set of process which requires integration and synchronization in each function and process especially within a complex process amongst many industries and businesses of a country. Hence, the effective policies to regulate and support those complicated process is definitely important for a country.

Moreover, to arrange a supportive and productive policies requires an effective collaboration between government bodies, industries, SMEs, logistics service providers, and logistics associations. The effective collaboration between these organizations would assure an appropriate polices and regulations which facilitate the appropriate circumstances for the whole related stakeholders in logistics and supply chain operations.

According to the outcome of the survey in the study, the indicator of government laws and regulation in Indonesia remain indicated a moderate performance since the index score result showed in average range in total (2.33). This indicator contained some factors of measurement including the availability, the quality, and the integration followed by collaboration amongst the ministries or government bodies. All of these factors showed the middling performance supporting the total score for the laws and regulations indicator (Availability: 2.76, Quality: 2.16, Integration and Collaboration among ministries: 2.07). Therefore, the total index score of this indicator remained in the level of fair performance. There some possible assumptions can be considered according to the surveyed index score of government laws and regulations. The index score could be assumed that the government has attempted to provide a good policies and regulations facilitating and supporting the logistics and supply chain operations related to SME practices, however, those regulation and policies have only supported the operations in ordinary way and not adequate to achieve an excellent performance maintaining the entire process of logistics and supply chain.

The effectiveness of the government regulations and policies should be improved in order to achieve a better performance of the whole country logistics capability. Those regulation should be followed by the productive standard operating procedures of

logistics and supply chain which is integrated with other processes and organization within the entire activities of logistics and supply chain domestically. The effective standard comes from the supportive regulations would allow to provide an easy and simple process, effective in lead time, efficient in cost, flexible in procedures, and agile in particular circumstances. Through these effective policies, there should be an excellent outcome supporting the logistics and supply chain operations due to SME ecommerce practices. Consequently, this should also improve the country logistics capability supporting the economic development of the country. It is expected that the acknowledgement of the index score of this indicator would encourage the attention of government to be more serious providing the productive laws and regulations in order to support the logistics and supply chain operations due to SME ecommerce practices for the better achievement of the total country logistics capability of Indonesia.

8.4.5. Performance Index of Human Resources

Human resources should be the next substantial factor in country development including the operation of logistics and supply chain which is connected to the achievement of country logistics capability. Although the information technologies are in massive utilisation in this era, however the entire process in logistics and supply chain remains to be run and managed by the assistance of human resources. The involvement of human assistance in business process still in priority even though in some process the utilisation of robot and IT system has been started since those technologies have not been able to replace the position of human being. Therefore, to support the logistics and supply chain operation, the skilled and knowledgeable personnel are required and important assisting the operation. Moreover, in term of competitiveness, human resources is a part of the competitive advantage of a country which should be developed through educational program formal and informal in order to improve its skilled and

knowledge to fulfil the required standard, nationally and internationally. Actually, human resources remain a serious problem in many developing countries since improving the human resources competitiveness would be related to the relevant development such as education infrastructure, education program, etc.

According to the survey, Indonesia should be satisfied with the moderate performance of the human resources indicator (2.69) within the country logistics capability indicators. Although the total index score of human resources indicator is in the range of average, but fairly 2.69 is slightly above the exact average performance index score (2.50). This index score described the current condition of the country which is required to be improved in term of the human resources indicators including the availability (2.84), quality related to the capability and professionalism (2.54), the availability of education institution (2.75), and the support of logistics association (2.64). All of the factors within the human resources indicator of ILCI indicated a middling performance which is showed by the result of index score in the average index score range. The ordinary performance of Indonesian human resource indicator could be caused by deficiency of educational program in the area of logistics and supply chain management. Meanwhile, the skills certification for professional in this area also necessary to be improved in term of quantity and quality. The skills certification of logistics and supply chain operation is usually expensive which is not affordable for individual, therefore the staff only count on the company's program to send them for certification improving their skills and knowledge in logistics and supply chain operations. Besides, the training program which is arranged by the logistics association could also support the improvement of country logistics capability by increasing the performance index score of human resources indicator. The support of logistics association for its staff member of the company's member could be widely related to

other concern such as managerial and leadership in the operation of logistics and supply chain operation. Further, link to the government policies and regulation, this issue should also be supported by the government educational program. The set of educational programs increasing the skills and knowledge of staffs within the relevant companies so as to improve the quality of the human resources. Through this specific government program would be very beneficial for the SMEs in the country which requires the government assistances improving their business especially in ecommerce practices.

In general, the results of ILCI survey particularly in the indicator of human resources related to the logistics and supply chain operations have positioned Indonesia to maintain and improve the human resources indicator especially related to its availability, quality related to the capability and professionalism, the availability of education institution and also the support from the logistics association. The concern and attention for this specific indicator would be very productive and effective through the government initiative and programs since the government should have the responsibility improving the country logistics capability. Moreover, the government should have the authority and capability improving the country development especially in the issue of human resources related to the logistics and supply chain operation within the SME ecommerce practices.

8.4.6. Performance Index of Logistics Service Provider (LSP)

Amongst the country logistics capability, the measurement of logistics service provider (LSP) would be relevantly evaluating the performance of LSP in the country especially in term of its competence and excellence. There are numerous types of LSP based on its speciality of services such as the LSP in road transport, rail transport, air transport,

maritime transport, warehousing and distribution service, freight forwarders, customs agencies, including the express courier or postal services. Besides, the indicator measurement also considered the LSP availability of the service within the country with the widespread in each province throughout the country. The evaluation of the LSP is a key measurement which is focus on the main aspect related to the logistics and supply chain operation.

Generally, the result of survey indicated a good performance on the quality of LSP in Indonesia in term of its competence and excellence since the index score reached the range of respectable performance (3.01). Most of the measurement factors within the LSP indicators performed in good range (availability: 3.01, quality of road transport service: 3.06, quality of air transport service: 3.43, quality of warehousing and distribution service: 3.03, quality of freight forwarder service: 3.19, and quality of courier service: 3.33) , while only some factors remained in average index score (quality of rail transport: 2.83, quality of maritime transport service: 2.28, quality of customs agencies: 2.94). It is great achievement of index score for Indonesia country logistics capability on its domestics LSP performance which has been potentially improved by the encouragement of good business competition among the LSPs. In addition, the standard and performance of international LSP which has expanded their operation to Indonesia also has increased the motivation of local LSPs to improve the standard and quality in the operation of logistics and supply chain. Moreover, the massive growth of ecommerce practices through the online shopping positively persuade the improvement of quality and standard operating procedures among the courier service as the local LSPs offering the excellent delivery service for SMEs ecommerce.

Furthermore, the customer needs and wants of reliable delivery service as well as the services of logistics and supply chain operation have also encouraged the LSPs to pay attention on their service improvement. The LSPs are stimulated to increase the quality standard especially on the performance of on time delivery as well the accuracy, shipment security, and many LSPs also confident to offer the cash back guarantee to reassure the customer about high service quality. These circumstances have effectively encouraged the LSPs in Indonesia to improve the standard in logistics and supply chain operation concerning the order fulfilment of the customers who uses the delivery services in daily basis with the increasing volume of parcels as the massive impact of SMEs ecommerce practices within the country.

Additionally, the quality improvement on its services among the local LSPs in the country also stimulated by the impact of huge growing market in ecommerce practice. The number of online shopping has increased rapidly which oblige the customer to consider the delivery service offered by the seller. This surely encourage the businesses to select the most reliable service offered by the LSPs in the country. Therefore, the only way for LSPs to be endured in the LSP business competition is through the improvement of service and quality within the internal operation. The non-reliable LSPs wouldn't be able to survive by itself following the market mechanism since the services would be left by the customers for its low quality and standard.

8.4.7. Performance Index of Process Quality

The previous indicator has measured the performance of each type of LSP in general related to its competence and excellence. Afterwards, the following indicator would investigate the further quality of the LSP concerning the internal standard and operational including the process quality of those type of LSPs. Besides, this section

also attempts to identify the process quality of logistics and supply chain process which is officially arranged and regulated by the government bodies facilitating the public services for national logistics sector. The factors within the indicator of process quality related to the further performance of LSPs are including the shipment punctuality, shipment delays, track and trace service, price competitiveness and also delivery speed and accuracy. While the rest of the factors would be related to the process quality of public services in logistics and supply chain operation such as customs clearance, seaport and airport charges, traffic jam level, shipment or transport security, and dwelling time in port.

The factors measurement involving the process quality of LSP fairly indicated a good performance since there are two factors have reached a good performance of index score (LSP's track and trace: 3.04, LSP's price competitiveness: 3.01). Meanwhile, the rest of the factors showed the index score 0.1 below the range of good performance (LSP' shipment punctuality: 2.92, LSP's shipment delays: 2.90, LSP's delivery speed and accuracy: 2.97). Therefore, the discussion for this set of LSP factors could fairly assume that LSP's performance concerning the internal process quality and operation standard has evidently achieved a respectable performance as it is also aligned with the index score result of the previous measurement for LSP indicator which has investigated the general LSP's competence and excellence. As it has been discussed that the good performance of LSP operation has been encouraged by a fair business competition between LSPs offering the excellence and reliable services of logistics and supply chain to the customers which are massively from industries and SMEs within the country. This fair business competition has motivated the LSPs to realize that the major approach to achieve the market should be through the improvement of competitive

advantage related to the quality of standard operation concerning the customers satisfaction.

Furthermore, the measurement of process quality indicator related to the country performance especially in public services of logistics and supply chain operation showed an average result of performance (customs clearance: 2.85, seaport and airport charges: 2.15, shipment/transport security: 2.80), however some factors remain indicated a poor performance (traffic jam level: 1.57, dwelling time in port: 1.81). The performance outcome of these factors showed by the surveyed index score should be essential for government and stake holders encouraging a serious attention and effective improvement especially on the public services which are utilised by the industries and business supporting the logistics and supply chain operation in business. The average performance on the process of customs clearance, charges in seaport and airport, and shipment security should be maintained successfully and improved progressively contributing a positive impact to the total country logistics performance. In the other hand, the poor performance of some factors including traffic jam level and dwelling time in port seriously needs extra attention of improvement from government related bodies. Both of these factors are substantial for the logistics and supply chain management since these factors would affect the entire process and operation in logistics and supply chain and widely to the whole aspects of development in the country. The poor lead time in logistics and supply chain operation should be the most obvious negative influence which caused by the poor dwelling time and traffic jam.

The resolution and improvement on these issues are the responsibility of the government. The collaboration amongst the ministries and government bodies as well as the private sector are essential facilitating the steps and approaches of improvement.

This would encourage the government to regulate the operation with a supportive and productive regulations and policies. Simplification on the bureaucracy within the seaport and airport operational is an obligation to reduce the dwelling time. There should be an effective systems and mechanism supported by the IT application improving the performance of the dwelling time. Obviously, the success improvement on this issue would increase the acceleration in the movement of goods and commodities, both incoming and outgoing, whether export or import. As well as the issue of traffic jam since this issue always increase the process lead time which negatively influences the production, distribution and delivery. The improvement of road capacity followed by the supportive policies of the road utilisation and the transport management should effectively resolve the traffic jam issue in many developing countries including Indonesia. On condition that the government would have a serious attention through the collaboration amongst the government bodies and private sectors, traffic jam issue would be resolved successfully. There are challenges that government should be aware in order to arrange a better approach. Political problems, financial issues, sectoral interests, social impacts are some of the challenges which is obviously occurred in developing country such as Indonesia. However, the collective motivation amongst the government bodies with the involvement of the entire stakeholders should produce a better management and resolution for these issues concerning the improvement of country logistics capability facilitating the national logistic and supply chain operation.

8.4.8. Overall Performance Index of Indonesia Logistics Capability 2019 (ILCI)

In conclusion, the investigation of Indonesia country logistic capability through the measurement of ILCI in 2019 indicated a final result of performance index score which is in the moderate range of performance (2.79). Although the overall result of ILCI 2019

showed an average performance, however some indicators has achieved a good performance such as the transportation infrastructure availability (3.37), the balance development of transportation infrastructure (3.01) and also the LSP performance in logistics operations (3.01). The index score of these three important indicators within the element of ILCI 2019 has reached respectable achievement which effectively supports the country logistics capability facilitating the logistics and supply chain operations. Meanwhile, the rest of indicators amongst the ILCI 2019 are adequate to be in average range of performance which bring the attention for maintenance and improvement on these particular indicators (ICT infrastructures of logistics operations: 2.51, laws and regulations of logistics operations: 2.33, human resources of logistics operations: 2.69 and the process quality of logistics operations: 2.60). Looking at the indicators which performed in the average index score, it is fairly would not be difficult for Indonesia to improve those performance index score as the current performance has reached 0.5 point to go to a good range of index score. It is expected that the survey of ILCI 2019 would encourage a thoughtful drive for the government of the country improving the country logistics capability due to the competitive advantages.

The good performance of indicator related to the transportation infrastructure availability in Indonesia (index score: 3.37) has aligned with the support and effort of government to improve the infrastructure in transportation. With total determination the current government attempts to progress the infrastructure of the country especially in transportation which enables the improvement of logistics and supply chain operation throughout the state. For the time being, a massive development of highway road connecting the provinces and cities in Indonesia are remain in continuous progress. Therefore, the index score of this indicator fairly showed a positive alignment with the current condition of the country which is followed by the good progress (index score:

3.01) of the balance in term of development of those infrastructures as the subsequent indicator of ILCI 2019. As a big country, it should be a great challenge for Indonesia to reassure the balance development on the transportation infrastructure connecting the cities in the country with a proper and effective transportation infrastructure since the geographical circumstance of the country as the archipelago state. The areas throughout the country should be linked by the land, maritime and air infrastructures of transportation.

Furthermore, the rest of the indicators in ILCI 2019 which has reached the moderate performance indicated a good progress of country logistics capability amongst the other developing countries especially in south east Asia. The average achievement of these indicators should bring another great motivation for the country to improve the current achievement to better in the future. The performance improvement could be identified and investigated in the next survey of ILCI. Those improvements should involve the indicator of ICT infrastructures, supportive laws and regulations, human resources development, and the process quality which is all related to the logistics and supply chain operation facilitating a good performance of Indonesia country logistics capability.

8.5. Findings and Discussion on the Analysis of Relationship between Logistics Capabilities and SME Ecommerce Transaction

This subchapter discusses the findings on the procedures of conducting the analysis of relationship between logistics capabilities and SME ecommerce. Those procedures included the EFA test, CFA test and also the hypothesis testing using the CFA of SEM supported by SPSS AMOS v.26 which has completed comprehensively during the investigation of this research.

8.5.1. Findings and Discussion on the EFA of the research

The EFA test in this research has been conducted among the four variables of the research included ILC variable, ELC variable, CLC variable and also the SME variable. The EFA test in this research has been conducted through the utilisation of the IBM SPSS Statistics V.26 in order to investigate the unidimensionality of the variables. The factor loadings on each variable were examined if there were dimensions on the variable and also the data of the research were checked on its validity and reliability. This investigation has resulted some indicators which are necessary to be eliminated from the data. The findings and discussion on the EFA test of each variable would be discussed in the following section.

8.5.1.a. EFA for The Variable of Internal Logistics Capability (ILC)

Identifying the result on the process of dimension reduction of the data through the SPSS, it is always recommended to check the KMO and Bartlett's Test of the tested variable. From the Table 50 it is clear that the result showed the significance which indicated to continue the process to look at the pattern matrix result of the EFA. The first run of the EFA has resulted the division of three dimension of the variables, dimension-1 involved the indicators of ILC4, ILC3, ILC12, ILC8, ILC9, ILC5; dimension-2 involved the indicators of ILC1, ILC2, ILC6, ILC7, ILC10; while dimension-3 involved the indicators of ILC10 and ILC11. These dimensions separated the indicators generally based on the nature of the data related to the character of the indicators so that those indicators which have the similar type of data should be divided into the same dimensions. The result of first run indicated that there was a cross loading on the factors, which showed the indicators of ILC10 has allocated in two dimensions (dimension 2 and 3). This specified to a requirement of elimination on ILC10 as this indicator contained a cross loading factor. Hence, the next EFA process should be

completed by eliminating the ILC10 from the data for the purpose of validity. Accordingly, Table 52 showed the pattern matrix of second run EFA test excluding the ILC10 which gained the new result of two dimensions, but this time excluding ILC11 as there was no result of the factor loading score on this indicator. Finally, the EFA test of ILC variable has resulted dimension-1 involved the indicators of ILC3, ILC4, ILC12, ILC8, ILC9 and ILC5; dimension-2 included the indicators of ILC6, ILC7, ILC1 and ILC2.

Accordingly, it can be observed evidently that dimension-1 specified the group of indicators which have similar type of measurement area. ILC3, ILC4, and ILC5 illustrated the indicators of delivery speed, delivery reliability, and responsiveness to target market. Meanwhile, ILC8, ILC9, ILC12 remain in the same area of measurement which is the widespread distribution coverage, low total cost distribution, and reverse logistics. From the way of grouping, this dimension divided based on the indicator of logistics or delivery activities especially on its quality of service such as speed, reliability, distribution coverage, total cost, and also responsiveness. Moreover, dimension-2 showed another measurement of grouping which indicators of ILC1 and ILC 2 related to the pre-sale customer service and post-sale customer service. Whilst indicators of ILC6 and ILC7 illustrated the measurement on integrated information system and web-based order handling which related to the aspect of IT. Those dimensions developed by the SPSS Statistics v.26 has reasonably grouped the indicators of the ILC variable since the data has contained the unidimensionality aspect in regard to the validity and reliability of the data. This can be observed from the score of the Cronbach's Alpha of the EFA test which showed significant value of more than 0.80 (dimension-1= 0.910, dimension-2=0.848).

8.5.1.b. EFA for The Variable of External Logistics Capability (ELC)

Next EFA test have been completed on the variable of ELC. KMO and Bartlett's Test of this variable showed a significant value which indicated that the data has the adequacy for the next procedures. KMO value of this variable (0.852) showed the excellent score for the suitability of the statistical requirement, as well as the chi-square and also the P-value of this variable showed the acceptability of statistical condition. Moreover, the pattern matrix result of dimension reduction showed that there were three factor loadings divided which indicated that this variable containing three dimensions. The first run of the EFA test has excluded the indicator of ELC2 from this variable. This could be happened since the value of factor loading for ELC2 most probably less than 0.40 as the requirement to be accepted in regards of the data validity. According to the pattern matrix of this variable, dimension-1 of the result involved the indicators of ELC4, EL12, ELC,3, ELC8, and ELC9; dimension-2 included the indicators of ELC10, ELC11 and ELC1, while in dimension-3 there were ELC7, ELC6 and ELC5.

Accordingly, the dimension should be established based on the similar type of the indicators data. The set of indicators within the dimension-1 which was formed by the dimension reduction procedure of SPSS referred to the similar data character which is in the area of service quality such as delivery speed (ELC3), reliability (ELC4), widespread distribution coverage (ELC9), low total cost distribution (ELC9), and reverse logistics (ELC12). All these indicators seem related to the quality measurement especially in the activity of movement in logistics operations. Whilst the indicators in dimension-2 have grouped by the type of indicator measurement related to the other quality of service such as pre-sale customer service (ELC1), innovation (ELC10) and flexible operations (ELC11). Whereas dimenson-3 of this variable has clustered the indicators within this dimension based on the type of data related to the ICT aspect such

as responsiveness to target market (ELC5), integrated information system (ELC6), and web-based order handling (ELC7). Similarly, ILC variable and ELC variable referred to the same approach of grouping the dimensions in the variable since basically the type of indicators of these two variables are the same. The difference among these variables is only about the subject who applies the activities or the measurements whether it is conducted by internal of the SME or the external (third party/outsource) of the SME. However, the indicators of measurement would remain on the same concern. This could be the reason behind the similar approach of grouping on these two variables. SPSS statistic v.26 has effectively identified the similarity of the indicators in these variable and divided them through the similar approach of grouping.

Furthermore, the value of the Cronbach's Alpha of the three dimensions within this variable has showed the significance since the score was more than 0.90. However, dimension-2 showed different score at 0.605 which indicated a lower score than two other dimensions. This value still tolerable to be accepted even though it showed less significance as the value is in the range of the minimum threshold of the Cronbach's Alpha. Therefore, this dimension with a lower Cronbach's Alpha would be remain considered for the next procedure of CFA test in order to complete the further examination in regard to the further validity and reliability of the data. Although these indicators would be accepted in the stage of EFA test, however the next CFA test would re-examine the validity and reliability of the data. If these indicators are really containing the valid and reliable data, then they would remain accepted within its variable.

8.5.1.c. EFA for The Variable of Country Logistics Capability (CLC)

CLC variable involved many indicators within the variable as the nature of the variable require various measurement in which there were 57 indicators involved in this variable.

EFA test has effectively examined the validity and reliability of the data on the items. Pattern matrix as the result of EFA test on this variable showed the grouping of seven dimensions. The only indicator that excluded resulted from the test was CL4 since it was assured by the lower value of factor loadings (< 0.40). Moreover, all the Cronbach's Alpha of this variable indicated the significance of excellent value (dimension-1 = 0.980, dimension-2 = 0.999, dimension-3 = 0.984, dimension-4 = 0.859, dimension-5 = 0.958, dimension-6 = 0.943 and dimension-7 = 0.744). Furthermore, the grouping approach of each dimension should be assured by the approach of similar character on the data of each indicator.

Eleven indicators in dimension-1 (CLB2, CLB3, CLB4, CLB5, CLB6, CLB7, CLA2, CLA3, CLA5, CLA6, CLA7) has divided into the same dimension as these indicators related to the area of infrastructures in logistics of a country in term of the availability and the balance of the availability distribution of the infrastructures. While the assembling of 14 items in dimension-2 (CLEL4, CLEL1, CLIL1, CLIL4, CLIL5, CLEL7, CLEL2, CLEL6, CLIL2, CLIL7, CLIL6, CLEL5, CLEL3, CLIL3) also applied the same approach in its indicators which considered the measurement of the correlation between country logistics capability and both internal and external logistics capability. For the eight indicators in dimension-3 (CLG6, CLG2, CLG8, CLG9, CLG7, CLG3, CLG10, CLG1) assumed to be grouped according to its character of the items which are related to the process quality of the logistics sector in a country. Next, the four items of dimension-4 (CLE4, CLE3, CLG5, CLG4) has grouped for certain reasons related to the type of the data since it curiously didn't show the similarity in the area of measurement. However, the SPSS has grouped these indicators statistically should be based on the particular similarity of the data. Whilst the dimension-5 was formed by the grouping of the nine indicators (CLF7, CLF6, CLF8, CLF1, CLF9, CLF4, CLF2, CLF3, CLF5)

referred to the similar type of measurement area which all related to the logistics service provider (LSP). Further, the eight indictors within the dimension-6 (CLC2, CLC3, CLC1, CLD3, CLD1, CLE2, CLD2, CLE1) interestingly has assembled form different type of measurement. However, there should be the unfamiliar reason based on the data character of these indicators which encouraged SPSS to form these indicators into one specific dimension. Even though, the reason of the grouping was not identified by the area of measurement, but surely there should be statistical character of the data which has encouraged these indicators to be in one unique dimension as it was grouped by SPSS systematically. Last dimension was the clustered indicators within the dimension-7 which only included two items of CLA1 and CLB1. These indicators within this dimension specified quite similar type of measurement which are related to the port infrastructure and its balance development. Although dimension-7 was only involving two indicators, however the result of EFA test through the operation of SPSS has analytically suggested them to be in one single dimension. Therefore, those seven dimensions of CLC variable developed by the process of EFA test would be considered as the result which considered for the next procedure of CFA test.

8.5.1.d. EFA for The Variable of Small Medium Enterprise (SME)

The last EFA test within the variable of the research was the examination of the SME variable which has simply observed through the procedure EFA test. Likewise, the result of dimension reduction of EFA test through the operation of SPSS statistics v.26 showed that this variable has not contained any dimension. However, the component matrix of this variable indicated a significant value of the factor loadings as well as the value of Cronbach's Alpha (0.816). This result has fulfilled the acceptable conditions for the data to be considered in the next procedure of CFA test for further examination of validity and reliability.

8.5.2. Findings and Discussion on the CFA of the research

CFA test was the further examination to be completed in this research. Correspondingly, EFA test through the operation of SPSS statistics v.26 has initially analysed the data through a statistical procedure to achieve the requirement of validity and reliability, while CFA test is the further examination for its validity through the approach of SEM by the utilisation of SPSS AMOS v.26. CFA test through the operation of this software remained using the statistical data imported from the SPSS Statistic v.26 as the basic data in the study. Starting the CFA test, the model construction of the variable according to the method of SEM should be completed appropriately. The model for the dimensions should be figured by the circle representing the latent variable, while the indicators or also known as items should be formed by the rectangle. Moreover, each figure of indicators should be attached by the residual error as the procedure in SEM (Blunch, 2012; Byrne, 2010; Hair et al., 1998; Schumacker & Lomax, 2004). The model of each dimension should be developed according to the result of initial EFA test which involved the grouped indicators. Subsequently, each dimension should be connected by the covariance arrow representing the procedure of CFA test in order to run the examination of the data validity and reliability.

8.5.2.a. CFA for the Variable of Internal Logistics Capability (ILC)

The developed model of ILC variable in the CFA test representing two dimensions involved by the selected indicators based on the previous EFA test. The first run of CFA test on this variable has resulted some statistical parameters which some parameters showed acceptable value while the others has not indicated the significance.

Table 71: Measurement Result of CFA 1st run on ILC Variable

Measures	Recommended Threshold	Output
Goodness-of fit statistic **(GFI)**	Above 0.90 (Hair et al., 2010)	0.88
The root mean square error of approximation **(RMSEA)**	Below 0.08 (MacCallum et al., 1996)	0.138
The root mean square residual **(RMR)**	Below 0.08 (Hooper et al., 2008)	0.022
Normed Fit Index **(NFI)**	Above 0.90 (Hooper et al., 2008)	0.93
Comparative Fit Index **(CFI)**	Above 0.90 (Bentler, 1992)	0.938
Tucker-Lewis Index **(TLI)**	Above 0.90 (Hair et al., 2010)	0.918
The adjusted goodness-of-fit statistic **(AGFI)**	Above 0.85 (Hair et al., 2006)	0.807
Chi-square **(CMIN) /df**	Below 5.00 (Wheaton et al., 1977)	8.043

Source: Developed by Author from SPSS AMOS v.26, 2019

It is observable from the table above that the parameters which are presented in green highlight (RMR, NFI, CFI, TLI, AGFI) has fulfilled the requirement of the threshold value of an acceptable condition. However, the other score highlighted in yellow (GFI, RMASEA, and CMIN/DF) has not reached the value of significance. Therefore, the CFA test would be continued to attain the required value for the model reaching the validity and reliability. This had been conducted through the observation of covariances between the items which involved the highest score of the modification indices (MI). In this test, the covariances items which have the highest MI score should be considered to be observed which one between the two indicators should be selected for the elimination in order to achieve the tolerable value of measurement which are required to be improved until the measurement scores achieve the threshold value. This CFA test procedures would allow the model achieving the goodness of fit condition as the proposed model of the variable. The following table shows the final result of the CFA measurement for ILC variable.

Table 72: Final Measurement Result of CFA on ILC Variable

Measures	Recommended Threshold	Output
Goodness-of fit statistic **(GFI)**	Above 0.90 (Hair et al., 2010)	0.992
The root mean square error of approximation **(RMSEA)**	Below 0.08 (MacCallum et al., 1996)	0.024
The root mean square residual **(RMR)**	Below 0.08 (Hooper et al., 2008)	0.003
Normed Fit Index **(NFI)**	Above 0.90 (Hooper et al., 2008)	0.996
Comparative Fit Index **(CFI)**	Above 0.90 (Bentler, 1992)	0.999
Tucker-Lewis Index **(TLI)**	Above 0.90 (Hair et al., 2010)	0.999
The adjusted goodness-of-fit statistic **(AGFI)**	Above 0.85 (Hair et al., 2006)	0.978
Chi-square **(CMIN) /df**	Below 5.00 (Wheaton et al., 1977)	1.210

Source: Developed by Author from SPSS AMOS v.26, 2019

It is clear from Table 72 above that all the measurement value of the CFA test has fulfilled the significance of the value as it has reached the recommended value of acceptable model. This measurement result indicated that the final model of ILC variable has reached effectively. The completed CFA test of this variable has suggested two dimensions with the involvement of three indicator in each dimension (Figure). Evidently, this model would be also used for the last measurement of CFA test which is considered as the examination of the hypothesis testing of the research model.

8.5.2.b. CFA for the Variable of External Logistics Capability (ELC)

CFA test of ELC variable involved three dimensions and eleven indicators within the variable. The first run of the examination through the support of SPSS AMOS v.26 resulted the significant value on the almost of its statistical measurement except two measurements of RMSEA and CMIN/DF as it can be seen in the Table. It indicated that the CFA model of this variable has almost reached the validity and reliability of the data and the goodness of fit on the model. Therefore, the CFA test for this variable has completed simply through few iterations of the examination.

Table 73: Measurement Result of CFA 1st run on ELC Variable

Measures	Recommended Threshold	Output
Goodness-of fit statistic **(GFI)**	Above 0.90 (Hair et al., 2010)	0.902
The root mean square error of approximation **(RMSEA)**	Below 0.08 (MacCallum et al., 1996)	0.11
The root mean square residual **(RMR)**	Below 0.08 (Hooper et al., 2008)	0.01
Normed Fit Index **(NFI)**	Above 0.90 (Hooper et al., 2008)	0.949
Comparative Fit Index **(CFI)**	Above 0.90 (Bentler, 1992)	0.958
Tucker-Lewis Index **(TLI)**	Above 0.90 (Hair et al., 2010)	0.943
The adjusted goodness-of-fit statistic **(AGFI)**	Above 0.85 (Hair et al., 2006)	0.842
Chi-square **(CMIN) /df**	Below 5.00 (Wheaton et al., 1977)	5.484

Source: Developed by Author from SPSS AMOS v.26, 2019

The final measurement of ELC variable showed the significance on the value of all measurement (Table 73). All scores achieved effectively the recommended threshold value for the appropriateness of the model so that the result can be suitably integrated with the entire model of the research. Final CFA test of this variable has considered three remained dimensions and seven indicators left from total eleven indicators which has observed initially through EFA test. There are at least four indicators eliminated from the CFA procedure in order to attain the model fitness while the three dimensions were remained considered in the model.

Table 74: Final Measurement Result of CFA on ELC Variable

Measures	Recommended Threshold	Output
Goodness-of fit statistic **(GFI)**	Above 0.90 (Hair et al., 2010)	0.990
The root mean square error of approximation **(RMSEA)**	Below 0.08 (MacCallum et al., 1996)	0.024
The root mean square residual **(RMR)**	Below 0.08 (Hooper et al., 2008)	0.001
Normed Fit Index **(NFI)**	Above 0.90 (Hooper et al., 2008)	0.994
Comparative Fit Index **(CFI)**	Above 0.90 (Bentler, 1992)	0.999
Tucker-Lewis Index **(TLI)**	Above 0.90 (Hair et al., 2010)	0.998
The adjusted goodness-of-fit statistic **(AGFI)**	Above 0.85 (Hair et al., 2006)	0.974
Chi-square **(CMIN) /df**	Below 5.00 (Wheaton et al., 1977)	1.223

Source: Developed by Author from SPSS AMOS v.26, 2019

8.5.2.c. CFA for the Variable of Country Logistics Capability (CLC)

The next test of CFA in this study has been completed toward the variable of CLC. This variable which contained 57 indicators within seven dimensions and has eliminated one indicator firstly through EFA test should be examined further through the procedure of CFA of SEM gaining the validity and reliability. As it can be seen in the following table that the summary of CFA first run indicated that the measurement of the statistical values required by CFA procedure mostly have not attained the edge of minimum point of a significant model. The first run of the investigation was only presented the insignificant values of GFI (-0.102) and RMR (0.521) while other values showed the null results. It can be assured that CFA test should be conducted in further for this variable so that the study would be allowed to achieve an improvement model of the variable.

Table 75: Measurement Result of CFA 1st run on CLC Variable

Measures	Recommended Threshold	Output
Goodness-of fit statistic **(GFI)**	Above 0.90 (Hair et al., 2010)	-0.102
The root mean square error of approximation **(RMSEA)**	Below 0.08 (MacCallum et al., 1996)	-
The root mean square residual **(RMR)**	Below 0.08 (Hooper et al., 2008)	0.521
Normed Fit Index **(NFI)**	Above 0.90 (Hooper et al., 2008)	-
Comparative Fit Index **(CFI)**	Above 0.90 (Bentler, 1992)	-
Tucker-Lewis Index **(TLI)**	Above 0.90 (Hair et al., 2010)	-
The adjusted goodness-of-fit statistic **(AGFI)**	Above 0.85 (Hair et al., 2006)	-
Chi-square **(CMIN) /df**	Below 5.00 (Wheaton et al., 1977)	-

Source: Developed by Author from SPSS AMOS v.26, 2019

The CFA examination through the elimination procedure of the covariances items had been exactly conducted for 43 times in this variable. The reduction process had been completed accurately through the observation of the highest MI score resulted from the summary of the process in each iteration. This process accomplished for may times since the CLC variable involved many indicators as the items of the data. Since the

table of the summary presented numerous covariance items, consequently this process should be done very precisely while selecting both the highest MI score and also the highest total score between two covariances items that had been selected from the highest MI score. The accurate process would allow the observation achieving the effective result of the model measurement. As it can be observed in the following table that the CFA test has showed the effective measurement result of the acceptable model. Evidently, 43 times iterations of CFA test have achieved successfully the significant value of measurement since all the measurement values (GFI, RMSEA, RMR, NFI, CFI, TLI, AGFI, CMIN/DF) has reached the minimum point of recommended threshold score (Table). Attaining this measurement value, the CFA test on this variable has suggested the new model which involved five dimensions including eleven indicators. Next, the result model of this variable would be combined by the CFA result of other variables for the research hypotheses testing.

Table 76: Final Measurement Result of CFA on CLC Variable

Measures	Recommended Threshold	Output
Goodness-of fit statistic **(GFI)**	Above 0.90 (Hair et al., 2010)	0.977
The root mean square error of approximation **(RMSEA)**	Below 0.08 (MacCallum et al., 1996)	0.034
The root mean square residual **(RMR)**	Below 0.08 (Hooper et al., 2008)	0.002
Normed Fit Index **(NFI)**	Above 0.90 (Hooper et al., 2008)	0.990
Comparative Fit Index **(CFI)**	Above 0.90 (Bentler, 1992)	0.997
Tucker-Lewis Index **(TLI)**	Above 0.90 (Hair et al., 2010)	0.995
The adjusted goodness-of-fit statistic **(AGFI)**	Above 0.85 (Hair et al., 2006)	0.955
Chi-square **(CMIN) /df**	Below 5.00 (Wheaton et al., 1977)	1.43

Source: Developed by Author from SPSS AMOS v.26, 2019

8.5.2.d. CFA for the Variable of Small Medium Enterprise (SME)

The last CFA test of this study was completed for the variable of SME while the procedure conducted similarly to the approach on the other variables. However, in this variable the observation was completed in simple way since the variable contained a

smaller number of indicators (three items). Therefore, the final result of the examination has successfully achieved from the first run of the CFA test. As it can be identified from the Table that all the measurement values have attained the acceptable score of a suitable model in term of validity and reliability. The CFA test on this variable proposed null change on the model as it has considered as the valid and reliable data involved in this variable. Therefore, the original model of this variable could be directly joined by other variable within the entire variable of the research.

Table 77: Measurement Result of CFA 1st run on SME Variable

Measures	Recommended Threshold	Output
Goodness-of fit statistic **(GFI)**	Above 0.90 (Hair et al., 2010)	0.996
The root mean square error of approximation **(RMSEA)**	Below 0.08 (MacCallum et al., 1996)	0.055
The root mean square residual **(RMR)**	Below 0.08 (Hooper et al., 2008)	0.001
Normed Fit Index **(NFI)**	Above 0.90 (Hooper et al., 2008)	0.996
Comparative Fit Index **(CFI)**	Above 0.90 (Bentler, 1992)	0.998
Tucker-Lewis Index **(TLI)**	Above 0.90 (Hair et al., 2010)	0.994
The adjusted goodness-of-fit statistic **(AGFI)**	Above 0.85 (Hair et al., 2006)	0.977
Chi-square **(CMIN) /df**	Below 5.00 (Wheaton et al., 1977)	2.109

Source: Developed by Author from SPSS AMOS v.26, 2019

8.5.3. Findings and Discussion on the Hypotheses Testing

The main investigation of the research was CFA test on the entire variables of the research model. The combination of all variables which has been examined through the EFA and CFA procedures should be observed in further through the SEM whereas the CFA examination would be applied toward the entire variables of the research model. This CFA test on the entire research model would allow the comprehensive examination looking for the appropriateness of the model. Afterward, as it has been discussed in chapter three that the model of the research which involving the hypotheses of the study should be examined comprehensively whether the hypotheses are accepted or rejected.

The first run of CFA test within the research model (Figure) has achieved the following statistical measurements:

Table 78: Measurement Result of CFA 1st run on the Research Model

Measures	Recommended Threshold	Output
Goodness-of fit statistic **(GFI)**	Above 0.90 (Hair et al., 2010)	0.696
The root mean square error of approximation **(RMSEA)**	Below 0.08 (MacCallum et al., 1996)	0.129
The root mean square residual **(RMR)**	Below 0.08 (Hooper et al., 2008)	0.035
Normed Fit Index **(NFI)**	Above 0.90 (Hooper et al., 2008)	0.840
Comparative Fit Index **(CFI)**	Above 0.90 (Bentler, 1992)	0.859
Tucker-Lewis Index **(TLI)**	Above 0.90 (Hair et al., 2010)	0.840
The adjusted goodness-of-fit statistic **(AGFI)**	Above 0.85 (Hair et al., 2006)	0.628
Chi-square **(CMIN) /df**	Below 5.00 (Wheaton et al., 1977)	7.199

Source: Developed by Author from SPSS AMOS v.26, 2019

It is observable from the summary of first run CFA test above that most of the measurement indicated the insignificant score while only RMR value (0.035) has reached the acceptable score of below 0.08 as recommended by Hooper et. Al (2008). This result encouraged the study to perform further observation of CFA so that the research model could be improved to reach the acceptable condition in term validity and reliability of the model. Therefore, the reduction process within the covariance indicators should completed accurately toward the entire research model. The approach of seeking the highest MI score and selecting items between the covariance should be remain completed precisely. Even though the observation considered the highest MI score, however, the result observation should be focus on two fundamental result which are the value of P and CMIN/DF and also other measurement (GFI, RMSEA, RMR, NFI, CFI, TLI, AGFI) since usually the goodness of fit of a model could be determined from these two measurements (P and CMIN/DF). After eleven times of iteration in CFA test completed toward the research model, the result showed the acceptable value of P and CMIN/DF (Table) and also other measurements showed in the following table:

Table 79: Final Measurement Result of CFA on the Research Model

Measures	Recommended Threshold	Output
Goodness-of fit statistic **(GFI)**	Above 0.90 (Hair et al., 2010)	0.984
The root mean square error of approximation **(RMSEA)**	Below 0.08 (MacCallum et al., 1996)	0.040
The root mean square residual **(RMR)**	Below 0.08 (Hooper et al., 2008)	0.005
Normed Fit Index **(NFI)**	Above 0.90 (Hooper et al., 2008)	0.988
Comparative Fit Index **(CFI)**	Above 0.90 (Bentler, 1992)	0.995
Tucker-Lewis Index **(TLI)**	Above 0.90 (Hair et al., 2010)	0.991
The adjusted goodness-of-fit statistic **(AGFI)**	Above 0.85 (Hair et al., 2006)	0.962
Chi-square **(CMIN) /df**	Below 5.00 (Wheaton et al., 1977)	1.608

Source: Developed by Author from SPSS AMOS v.26, 2019

It is clear from Table 79 above that the CFA test has allowed the investigation to achieve the model goodness of fit for the research model since all the measurements value have indicated the acceptable score of the recommended score for the valid and reliable model. Therefore, the next step of the study which is the hypotheses testing could be completed referring the result of this final model resulted from the CFA test. Observing the result of the hypotheses, the study would focus on the observation of the summary of regression which involved the result of variable path representing of each hypothesis.

8.5.3.a. H1: There is a positive relationship between the quality of SMEs' internal logistics capability (ILC) and their performance in the ecommerce transaction.

Based on the literature studied in this research, the statement of this hypothesis has a confidence that there is an effective relationship between the internal logistics capability (ILC: the capability to run the logistics operation by internal of the SME) and the performance of the SME itself achieving good performance in transaction. Actually, this investigation of this hypothesis enthusiastic to prove that the ILC could have positive impact to the SME transaction. Evidently, the result of the research from the survey data process utilising the EFA, CFA of SEM method supported by SPSS Amos v.26 showed

that this hypothesis is accepted. The value of critical ratio (t-value) indicated a significant score (10.579) whereas the acceptable score of t-value should be more than > 1.98. Moreover, the P value of the result also specified a significance ($P < 0.001$) which supported the hypothesis. ILC has been proved to have a positive direct effect on the SME transaction. The investigation has effectively supported the rational thinking of ILC as the logistics operation run by the internal of a company (SME) would affect the performance of the company transaction within the ecommerce practice. In other word, the more of an SME could effectively manage the logistics operation such as delivery of the customer order so as to achieve the fastest effective delivery time, the more it could effectively increase the satisfaction of the customer hence they would do the repeat buying of the products since they trust the company (SME) through reliable delivery performance which involves in the logistics capability. It is also easy to perceive from the result of the survey that most of the respondents who are from the various background including SME owners, customers, logistics experts, logistics providers; agreed that internal logistics capability of an SME would effectually support the SME achieving more transaction in their business.

Practically, internal logistics capability of a company refers to the activities of business process related to the logistics operation which facilitates a company supporting its business. Logistics operation in SME activities could be in the process of upstream and downstream. The upstream activities of logistics operation will be related to the flow of raw materials, items and goods (including the flow of information and financial) from the suppliers to the company supporting the production, if the SME produces or manufactures their own product. Concerning the logistics capability in the upstream side, it would indirectly support the transaction of SME since the company would not be able to do transaction if there the products are not available. Meanwhile, the production

process is supported by logistics capability of upstream side. Therefore, the internal logistics capability in at the upstream side would not directly increase the business transaction of an SME, however it would effectively support the SME indirectly increasing its transaction by assuring the production process for the aims of product availability.

In the other hand, the downstream side activities of logistics refer to the process of logistics operation from the company to the customers. The logistics operations in downstream side should support the company to make sure that the ordered products are delivered to customers at the right time, at the right place, at the right quality, and at the right quantity. The downstream logistics operation directly related to the customers as the it supports the last mile of logistics activities through a delivery operation, distribution and transportation. Therefore, the effective operation of those activities would determine the customers satisfaction which is significant for the company. The satisfied customer through an effective delivery would increase and stimulate customers to do re-buying of a certain products especially for the regular buying products. Positively, the effective delivery supports the SME increasing their business transaction.

Concerning the positive relationship between ILC and SME transaction based on this study, probably the stakeholders of SME ecommerce have not realised it yet, however, this research would allow the stakeholders including SME itself recognise that ILC has a significant role supporting the SME ecommerce increasing transaction in business. Consequently, this awareness would increase the concern of SME improving their ILC in the commerce platform of the business. The improvement of ILC achieving the effectiveness on its operation would directly support the improvement of SME business

transaction. The insights from this study related to the ILC improvement would be very much essential for SME as one of the key success factors in SME ecommerce.

8.5.3.b. H2: There is a positive relationship between SME's outsourced/external logistics capability (ELC) and its performance in the ecommerce transaction

In this hypothesis, the study would investigate if the outsourced or external logistics capability (ILC) also has a positive effect to the SME transaction. Likewise, ELC represented the similar indicators of measurement compared to ILC, however the difference is on the subject who conducts the logistics operation within the company. On ILC, the logistics capability would be completed by internal of the SME while on ELC, the logistics activities should be run by external of the SME which could be an outsourced company or other external party who collaborate with the SME to support its logistics operation. Thus, the result of this hypothesis should indicate the same result of positive impact toward the SME transaction. However, the evident of the result showed slightly different result compared to H1. Obviously, the result from CFA of SEM indicated a weak support for this hypothesis as it can be observed in the value of CR (t-value) at the score 1.798. Actually, the CR value is lower than 1.98 but remained close to the threshold value therefore it could be expected as a light significance or indicated as low level of acceptable value. Even though the result indicated a weak support, it could be remaining assumed that ELC showed a positive effect on SME. The positive effect of ELC on SME could be probably not supported at the probability level (P) <0.05 (i.e., t-value < 0.196) however it could be strongly supported at probability level (P) <0.1. This weak result could be probably presumed that some of the respondents might didn't acknowledge comprehensively about the roles of external logistics capability. Therefore, this circumstance possibly would bring the un-fair value on the survey which influenced the level of the support to the hypothesis result. Generally, the

result of the hypothesis testing on this proposed hypothesis remain reasonable to be considered as supported lowly.

As it has been discussed that the operational of ELC basically would be exactly the same as ILC. Practically, ILC is operated by the company internally related to the logistics activities and processes, whilst ELC is completed by external logistics company/party since the SME has no capability yet to run their own logistics activities. The goals of ELC operation would be exactly similar as ILC's which to run an effective and efficient process of logistics achieving the effectiveness on the entire logistics operation of a company supporting the business. ILC is run by the company itself, while ELC is conducted by other party/company which is hired by the SME supporting the business. Therefore, the ELC is expected to be able to support the SME transaction through the effective operational of logistics.

The insight of the study related to the ELC, and SME transaction should increase the awareness of SME to consider the ELC as an important role in the business. Accordingly, SME would apply the high standard of logistics operation toward the logistics company when the SME cooperates with particular third-party logistics company since the investment on the logistics operational that they spend should be able increase the business transaction of their company.

8.5.3.c. H3: There is a positive relationship between the quality of a country logistics capability (CLC) and SMEs performance in the e-commerce transaction

The next hypothesis result is related to the correlation between country logistics capability and SME transaction. Evidently, the result did not support the hypothesis since the score of CR (t-value) was quite low (0.559) while the threshold value of an

acceptable measurement should be minimum at 1.98. The result could indicate a very weak support to the hypothesis since actually CLC is the set of indicators that measure the capability of a country facilitating and supporting the logistics sector within the country. Therefore, the result could be analysed positively in which CLC conceivably does not support the transaction of an SME in a country directly however it could believably support SME indirectly since the CLC performance of a country should generally bring positive impact toward the domestic economy. The development of logistics capability in a country which represents the CLC would indirectly support the economy within the country not only for SME, but it is also to the entire business and economy. Therefore, it would be not fair if the inference of the result interpretation concludes that CLC do not support the SME totally, instead it would fair if the last analysis of this hypothesis accomplishes that CLC would influence the SME transaction indirectly since the country development would generally allow the development of its economy.

Even though the result of this hypothesis between CLC and SME transaction showed a very weak relationship, however the CLC development should be the concern of a country administrative. It is probably showing a less positive of relationship to the SME directly, but the CLC improvement would be a requirement of a country improving the domestic economy. CLC would have a large impact to the entire business and aspects instead of only SME since the CLC would related with any aspects of development in a country such as education, social, economy, culture and many other aspects of country development.

8.5.3.d. H4: There is a positive relationship between the quality of country logistics capability (CLC) and internal logistics capabilities (ILC) in supporting SMEs performance in the e-commerce transaction

As it can be observed in the result of the research discussed in Chapter 7 that the relationship between CLC and ILC showed a positive direct effect observing the score of the CR (t-value) and the also the score of the Probability. The measurements value indicated a significant score (CR = 14.667, P = <0.001) as it was evidently achieved the threshold value of an acceptable measurements which has effectively proved the hypothesis as an accepted theory. CLC as the indicator of logistics capability in a country positively supports the logistics capability of the internal of a company (SME). The development of a country related to the logistics sector has proved to bring positive impact to the logistics capability of businesses broadly whether small businesses of the large business. It is a common-sense that development of a country due to the economic achievement should be completed by the government through the focus development of the infrastructures and all concerns related to the support toward the logistics operation such as the infrastructures of airport, seaport, land road, railway, etc. The country development in the area of logistics sector would allow the improvement of the country logistics capability which positively support the logistics capability of the businesses within the country.

Evidently, the positive impact of CLC on the ILC should increase the awareness of country administrative (i.e., related ministries) especially to be concern on the CLC improvement which comprehensively involves the development of infrastructures (seaport, airport, road, railway, highway road, bridge, ICT), supportive law and regulations, human resources, logistics service provider and the process quality of logistics sector. Consequently, the development of CLC as fundamental pillar of

economy development would effectively encourage the qualified logistics operational within the country which is one of the key success factors of a country emerging its domestic economy. The greater CLC of a country would motivate the greater logistics operation within the country which supports many sectors increasing the economic achievement.

8.5.3.e. H5: There is a positive relationship between the quality of country logistics capability (CLC) and outsourced logistics capabilities (ELC) in supporting SMEs performance in the e-commerce transaction

The last investigation of the research hypothesis was the analysis of the relationship between country logistics capability and the external logistics capability. As it has been acknowledged that the external logistics capability similarly utilised the same measurement of indicators whereas the difference is merely about the subject who run the logistics operation in which the external logistics capability should be run by the external of the company or other party (third party) out from the company (SME). In this case, the company (SME) could probably hire or do outsource contract with the logistics company to support the SME business related to the logistics operation. In regard to the hypothesis, it is believed that CLC has positive impact to the ELC while the result of the hypothesis investigation supported this theory based on the observation of the score of CR, P, and the regression or the size effect which showed significant value (CR = 4.9032, $P < 0.001$, size effect = 0.337) for this hypothesis. The result has proved the hypothesis that the improved CLC in a country would allow the support and facilitation to a good operation of ELC for businesses widely, whether for SME or even large companies. CLC as the logistics capability of a country has positive direct impact on the ELC supporting the SMEs in overall.

Similar to ILC, the improved CLC in a country encourages the ELC positively within the SME ecommerce. As it has been discussed that ILC and ELC apply the similar activities of logistics operation, but the difference is on the subject who runs the operation whether it is the company itself (internally) or the company hires the third-party logistics company to support the logistics operation in the business. As in this study, CLC has been proved have a positive impact on both ILC and ELC, again it should seriously increase the attention of the country administrative through the related ministries to improve the level of CLC since those ILC and ELC also has been proved that they have a positive impact on the SME ecommerce and broadly on the other aspect of country development. Further, the result of this investigation especially on these particular hypotheses (H4 and H5) should not only bring the attention and awareness of the stakeholders, but also should be applied in real actions which could be started with the supportive laws and regulation as the initial step of implementation. Afterwards, the project development of CLC could be applied further from the strategic development of infrastructure, ICT, human resources, qualified LSP, and also high quality of the logistics process within the country. Finally, country logistics capability should be considered as the one of the essential pillars in country development especially in emerging country as this concern would allow the speed of the development progress.

CHAPTER 9: CONCLUSION, LIMITATIONS AND RECOMMENDATION

9.1. Introduction

This final chapter discusses the conclusions of the research including the limitations and recommendation for future research. The conclusions discuss the summary related to the objectives of the research responding the whole questions in the study addressed in Chapter 2. Moreover, it also discusses the contribution of the research in theory as well as in practices. Afterwards, the discussion would be continued by the discussion of the research limitations which is followed by some recommendations for the future research agenda.

9.2 Conclusion Related to the Research Questions

This subsection discusses briefly the conclusions of the study responding to the six-research question as the objectives of the study.

9.2.1. RQ1: What are the key success factors facilitating SME ecommerce in developing countries, for the effective achievement of SME's ecommerce transaction in Indonesia?

There were two approaches has been accomplished responding to this specific research questions. First, the systematic literature review completed at the initial stage of the study. The selection of relevant sources of literature including journal papers and book chapter has allowed the study to discover the key success factors of SME ecommerce in developing countries with the evidence from Indonesia. Those discovered key success factors are the extension of the previous factors which was discussed in a partial perspective. The previous factors were only discussed about the four aspects of

technological, personal, organisational and the environmental. Most of them discussed the context of business in general with the cases occurred in developed countries and limited at the pre-adoption stage of ecommerce practice. Meanwhile, this study has successfully extended the context and circumstances of the topics in different perspectives which investigated the key success factors of SME ecommerce in developing countries specifically for small business in the practices of ecommerce particularly at the post adoption stage. Therefore, the study has concluded some key factors which has been considered into three category of factors including internal factors, external factors, and interconnected factors.

Summarising this section, the emerging factors above include aspects not considered in previous research, but which are especially important for SME e-commerce implementation in developing countries as opposed to previous studies more concerned with developed countries. These factors are customer demand, marketing and marketplace, payment system, and logistics capability as a reflection of a logistical aspect and all are considered key success factors or KSFs. They all play a decisive role in the post adoption phase, which according to the reviewed literature, seems to be less investigated and more interesting than the pre-adoption phase. The application of the CIMO approach in the systematic literature study has enabled the finding of potential factors related to the practice of ecommerce for SMEs in developing countries. The identification of the context has defined a clear focus of the study, while the clarification of the intervention has encouraged a robust review of potential factors of the most influencing aspects related to the SME e-commerce practice in developing countries. Thus, the study has effectively led to the findings and classification of what we term internal, external and interconnected factors. Further, mechanism and outcomes

have determined a clear insight of the approach and results in theory and practices related to SME ecommerce in developing countries.

The KSFs found in this review through the CIMO procedure has provided new insights and classifications of the most influencing factors on SME e-commerce in developing countries, which are classified as internal, external and interconnected (both internal and external) factors. This classification is from a particular perspective and attention on how SME e-commerce should be supported and facilitated to achieving and improve business performance. For instance, internal factors should bring awareness for SMEs to improve their internal capabilities in order to increase their capability in ecommerce practise. Likewise, external factors should also reassure the attention of specific stakeholders, mainly government, to be concerned about their role in providing appropriate infrastructure for ICT, logistics, law and regulation, and a platform for a secure payment system. This classification has effectively identified the responsibilities for each stakeholder.

Internal factors of an SME include human resources related to personnel qualification (HR) and marketing. External factors outside management control of an SME comprise customer demand (CD), law and regulation (LR), and a secure payment system (SP). Finally, the interconnected factors (both internal and external) involve information and communication technology (ICT) and logistics capabilities (LC). Principally, these influencing factors were identified at the post-adoption stage of an SME's e-commerce implementation, i.e. once they have adopted e-commerce in their business activities due to the improvement of business transaction volumes. SMEs should recognise and understand these influencing factors, if they have not already done so, to improve these specific aspects of their business. For example, in term of marketing and marketplace, it

is important for SMEs to apply an effective marketing and utilise well-known marketplace in order to promote their products and business. These KSFs should provide insights and attention for SMEs as an applicable guidance to improve the SMEs' business through the effective implementation of e-commerce and are discussed in turn next.

Furthermore, the interview study completed in this research has effectively strengthened the findings in literature study. All the respondents addressed the similar factors which influence the most to their small business. Although those factors have described in different way of explanation as the background of the respondents exactly from the ground of small businesses in Indonesia as one of developing country in southeast Asia, the clarified key factors by the respondents evidently aligned with the findings in literature review. The whole respondents agreed with the perceived key factors based on their experiences such as the personnel, marketing through the utilisation of marketplace, government laws and regulations, customer demand, secure payment system, ICT and logistics capability. Finally, the interview study accomplished toward the SMEs in Indonesia who has practised ecommerce in their operations, has effectively support the findings of the study in the literature review stage especially in term of key success factors facilitating SME ecommerce in developing countries.

9.2.2. RQ2: What are the major problems challenged by the national logistics operation in Indonesia related to the SME ecommerce practices?

The survey in the study has effectively acknowledged some results amongst the major problems in logistics sector related to the SME ecommerce practices. The weight analysis in the study has concluded that the major problems investigated in the study were categorised in four level of major problems including very urgent, urgent, average

urgent and low urgent. The very urgent major problems involve five major issues including the infrastructures related to the logistics and supply chain operation especially in SME ecommerce practices, road traffic jam level, governments laws and regulations, skilled and knowledgeable human resources related to the personnel in logistics and supply chain, and dwelling time in port.

Moreover, the urgent major problems as the second level of urgent logistics and supply chain problems in Indonesia comprise five major issues such as integrated IT system which connects the entire system amongst the related institutions, ICT problems related to its infrastructures, quality services and applications, customs clearance process operated by government bodies, the competence and excellence of logistics service providers (LSP), and also the widespread distribution coverage of a logistics service providers influenced by the infrastructures availability throughout the country. In addition, the next major problems are in the level of average urgent encompassing shipment security, delivery reliability, delivery speed, reverse logistics, and shipment punctuality. All of these major problems in this level are related to the further quality of the logistics service providers which is a part of the major problems in the previous level of urgent major issues. Lastly, the next major problems in the category of low urgent issues including the matter of price competitiveness and track and trace system within the logistics and supply chain operation in Indonesia.

9.2.3. RQ3: What is the current level of country logistics capabilities in Indonesia related to the SME ecommerce practices?

The current level of country logistics capability which is represented by the ILCI 2019 index performance as the result of the survey in the study shows the moderate performance with the index score achievement of 2.79. This performance slightly above

the exact average score (2.50) which means this performance is moving to the good progress of performance. With more than 0.20 points the Indonesia country logistics capability could be improved in a respectable performance. Further, the country logistics capability resulted from this study consist of some indicators which three of the indicators has showed a good performance (transportation infrastructure availability: 3.37, the balance development of transportation infrastructure: 3.01, and also the LSP performance in logistics operations: 3.01). Meanwhile, the rest for indicators are in the average performance which requires more maintenance and improvement in order to achieve a good performance due to the total score of ILCI 2019 (ICT infrastructures of logistics operations: 2.51, laws and regulations of logistics operations: 2.33, human resources of logistics operations: 2.69 and the process quality of logistics operations: 2.60).

9.2.4. RQ4: What is the relationship between internal logistics capabilities (ILC) and SME ecommerce transaction in Indonesia?

The research hypothesis testing through the employment of confirmatory factor analysis of structural equation modelling has successfully proved that internal logistics capability (ILC) has a positive impact to the SME ecommerce transaction evidence from Indonesia. It could be concluded that the more an SME improve the ILC the more the company would achieve a better transaction volume. ILC refer to the capability of SME internally managing the logistics operation and services to the customer who order the product, which is including the capability to manage the warehouse, inventory, secure packaging, distribution, transportation and delivery till to the last mile delivery. Once the SME has the capability concerning these logistics activities then there is a clear potential for the SME to earn better sales and profit since the ILC would positively support the SME performance in term of transaction volume as well as the sales.

9.2.5. RQ5: What is the relationship between outsourced/external logistics capabilities (ELC) and SMEs' ecommerce transaction in Indonesia?

This particular research question has been completed by the testing of H2 of the research. Initially the testing showed a weak support of ELC toward SME transaction as the t value indicated a low score. In the other word, the definite effect of ELC on SME could be possibly not supported at the probability level (P) < 0.05 (i.e., t-value < 0.196) nevertheless it could be strongly supported at probability level (P) < 0.1. Therefore, the test result on H2 could be tolerable to be considered as lowly supported. As the conclusion, the ELC somehow remain has the connection on SME transaction even not in strong relationship. The more of an SME has a good capability in ELC, it could lowly bring a positive impact to the transaction volume and sales.

9.2.6. RQ6: What is the relationship between country logistics capabilities (CLC) and SME ecommerce transaction in Indonesia?

The research hypothesis testing has proved that CLC has been rejected to have a positive relationship on SME transaction. The testing result was insignificance to indicate CLC having a positive relationship on SME transaction. Therefore, it is concluded that CLC has no relationship in improving directly the SME transaction. In the other word, the better performance of country logistics capability would not directly give impact to the SME transaction. However, the good performance of CLC generally would give a positive impact to the development of a country in many aspects of development.

9.2.7. RQ7: What is the relationship between the quality of country logistics capability (CLC) and internal logistics capabilities (ILC) in supporting SMEs performance in the e-commerce transaction in Indonesia?

The conclusion on the relationship of CLC on ILC has been evidently proved by the testing of H4 in the research. The result showed a supportive relationship of CLC on ILC. It clearly indicated that the better CLC of a country, the greater it would support the ILC of companies throughout the country. CLC is the country logistics capability which is measured by the set of indicators related to the capabilities of a country facilitating as well as managing the logistics and supply chain operation within the country. These capabilities encourage a better development of a country especially in the sector of logistics and supply chain which influence the better performance of domestic businesses and industries in the country especially in its operation of logistics and supply chain (i.e., ILC: internal logistics capability of a company).

9.2.8. RQ8: What is the relationship between the quality of country logistics capability (CLC) and outsourced/external logistics capabilities (ELC) in supporting SMEs performance in the e-commerce transaction in Indonesia?

In regard to the last question of the research, it could be concluded that the CLC also has a positive relationship on the ELC. Likewise, the better performance of CLC would productively support the better performance of ELC of a company. CLC does not only effectively support the ILC, but also positively support the ELC since the ELC basically refer to the external logistics capability of a company which utilises a third-party logistics accompany or a company of logistics service provider to support the client company facilitating and improving their logistics and supply chain operations. In the other word, the CLC would similarly support the companies who provide logistics and supply chain services toward the companies who has limitation arranging logistic and

supply chain operations for their company. Therefore, CLC would effectively support the ELC of a company as they deploy the external logistics provider supporting the internal operations of the company related to the logistics and supply chain operations.

9.3 Contribution of the Research

This research has completed the investigations in some areas related to the SME ecommerce practices in developing countries especially Indonesia and its relationship to each type of logistics capabilities. In so doing, the findings of the research productively contribute to both theory and practice and the subsequent research propositions provide guidance including stakeholders in academia, companies and government.

9.3.1. Theoretical Contribution

The theoretical contributions of the research include identifying and categorising the key success factors (KSFs) as internal, external and interconnected factors as the further extension factors from the limited result of the previous research. Drilling down into each category of KSFs, it is found that internal factors include human resources and marketing; external factors comprise customer demand, law and regulation, and secure payment system; and interconnected factors involve information and communication technology and logistics capability. Based on that this study also provide three research propositions to inform and motivate other researchers to conduct empirical studies of SME e-commerce as a dynamic process and business activity in order to verify and validate these baseline KSFs. Moreover, the findings of the research on the categorisation of major problems of logistics sector related to the SME ecommerce practices has effectively encourage the attention toward the academia and stakeholders especially government to acknowledge the basic problems of the logistics sector in developing countries specifically Indonesia as the evidence of the research. The findings

and classifications of these logistics problems into particular urgency level could be considered as the insights in theoretical discussions as the common urgent problems within developing countries related to the logistics operation of SME ecommerce.

Furthermore, the utilisation of ILCI (Indonesia Logistics Capability Index) in the research has been also considerable as the theoretical contribution since the ILCI effectively support the research through specific indicators according to the recent relevance and circumstances occurs in Indonesia. The ILCI could be deployed continuously in the future investigating and measuring the specific country logistics capability for Indonesia. In addition, the findings of the research especially in the hypotheses testing related to the relationship between logistics capabilities and SME transaction has evidently provided insights and advice for the stakeholders including academia, government, logistics associations and industries. The acknowledgement of these hypotheses result should theoretically encourage a positive awareness toward the whole stakeholders due to the development of SME ecommerce related to the logistics and supply chain operations throughout the country.

9.3.2. Practical Contribution

From a practical perspective, firstly, the baseline KSFs can assist SME businesses and non-business organisations in developing countries especially Indonesia as initial key foci for the effective development of SME ecommerce and consideration of which KSFs may work for them as a precursor to further research providing further veracity. Likewise, the findings on major problems of logistics sectors related to the SME ecommerce practices and also the ILCI performance score should bring positive understandings to the practical implementation. It is suggested that preliminary information provision of these KSFs, logistics major problems, ILCI score, and the

hypotheses examination be delivered through seminars or webinars, dissemination and publication of non-academic reports and collaboration with government, stakeholders and SME ecommerce association in developing countries especially in Indonesia. Additionally, such initiatives would also encourage awareness of, and drivers for, arranging effective policies and strategies related to investment, resources, finance, education, and other aspects within the country concerning the improvement of SME e-commerce business transactions. Thus, the findings in this research are greatly valuable to the whole stakeholders including SMEs, government, service provider, industries, business association and also academia. Further practical implications of the research would be advantageous for government in conducting the re-examination and improvement of existing systems, laws and regulations. More widely, such improvement will be an effective trigger towards domestic economic growth concerning the economy development in developing countries especially Indonesia.

9.3.3. Social Impact of the Research

This study also contributes socially by enabling developing countries particularly Indonesia to address and meet, and thus contribute, to the UN's sustainable development goals (SDGs) 8 - Good Jobs and Economic Growth and 9 - Innovation and Infrastructure, and their related targets as outlined in the Introduction. Moreover, it effectively supports the development of SMEs in developing countries especially Indonesia, in the adoption of ecommerce technology within the SMEs business and operation. Therefore, the SMEs would have the good achievement in the business and improve the low-middle economy in developing countries.

9.4 Limitations of the Research

As with all research, this study is not without its limitations. Firstly, the literature review completed was an SLR and while rigorously and robustly undertaken using the CIMO method does not provide any empirical support for the KSFs identified, particularly when only 27 articles have done so previously. Therefore, the interview study was also necessary to be completed strengthening the findings on the initial SLR of the study. The interview study conducted to seven respondents of SME ecommerce whereas more respondents could probably more robust for the study, at least seven respondents has represented the findings for the study as the aims of the interview study was to validate and strengthen the finding on the SLR.

Afterwards, a massive growth of ICT and Ecommerce cannot stop a potential change of circumstances during the study before the study is completed, therefore the context of the study should be related to the range of time while the study was conducted. In addition to this, the research propositions in this study provide a research agenda for further research to address some limitations in this study, including the research domain.

9.5 Recommendation for Future Research

There are some recommendations for future research especially concerning the findings from the SLR in this study suggest the following research propositions (RPs) and specific topic areas that could form an agenda for future research:

RP1: How are KSFs of SME e-commerce understood and applied in developing countries, i.e., Southeast Asian countries versus the People's Republic of China, a more developed country versus Latin American countries versus Middle Eastern countries versus African countries, etc.?

RP2: What other aspects of e-commerce might be important in developing countries and that are specific to them, i.e., geography, culture, security, unique delivery platforms, etc.?

RP3: What's the actual impact of the three identified categories of KSFs on SME e-commerce, i.e. transaction volumes, fulfilment and distribution, payment mechanisms, etc.?

KSFs were identified in the SLR process and strengthened by the interview study toward some respondents of SME ecommerce Indonesia but have not been empirically tested to determine their veracity across individual country contexts, particularly differing levels of development maturity such as the People's Republic of China versus other countries in Southeast Asia such as Thailand, Vietnam, and Cambodia, thus suggesting research to address RP1. Overall, the general factors found are categorised into four contexts; technological, organisational, environmental (i.e. customer demand) and personal and these could form a basis for investigation and comparison.

These KSFs were developed from a lack evidence and information in the e-commerce studies reviewed, particularly in a post-adoption stage concerning SMEs and emerging countries. Consequently, while the resultant KSFs have provided new information on ecommerce research and reflect recent conditions and situations of SMEs in developing countries they require testing to assess their importance and usefulness in different contexts and circumstances. Investigating these contexts and circumstances is also important as they may change dynamically due to e-commerce being related to the rapid growth of technology. This may provide new or alternative KSFs hitherto not considered. For example, there may be cultural or geographical conditions that may affect logistical or distribution operations for fulfilment. Also, there may be aspects of

e-commerce security related to fraud-buyers or fraud-sellers which is occurring in developing countries. Additionally, delivery security also an issue in developing countries where the e-commerce delivery function might utilize the platform of online services such as Uber and local companies like Grab or other start-ups focusing delivery using motorbikes. Correspondingly, this will effectively address RP2.

Finally, the resultant KSFs also added several new aspects of context which are logistical, marketing, payment system, and governmental (law and regulations). Thus, addressing RP3 could provide effective and substantial empirical studies that have not been considered in previous literature reviews. There should be various factors related to SME e-commerce, however the investigation of such studies would verify the most influencing or key factors facilitating SME e-commerce performance, particularly in developing countries.

In summary, the KSFs from the SLR, and any others emerging from further research, may provide applicable guidance for stakeholders and business entities regarding e-commerce in developing countries. This guidance would be significant for planning and strategies that comprise planning of regulations, investment, resources, education, etc. The planning and policies might be arranged by government to support SMEs achieving their business objectives considering this identified KSFs which is applicable for the circumstances of developing countries. But in order to do this, it is necessary to ascertain the actual impact of the identified categories of KSFs on the development, diffusion and success of e-commerce systems in developing countries so that a roadmap for policy makers can be investigated and developed. Further studies should focus on the investigation of the relationship between outcomes in terms of e-commerce transactions and the effect of the KSFs. Acknowledging and understanding this would

enable also governments and policy makers in fostering actions and developments on this front from several viewpoints (support and incentive mechanisms, technological progress, logistics and infrastructure developments, culture fostering, etc.).

Moreover, It is acknowledged that there is a rapid growth on the ecommerce practices whether it is adopted by large business or small business (SME), therefore a continuous investigation considering the recent major problems in logistics sector and supply chain related to the SME ecommerce in Indonesia including the ILCI index score for future evaluation should be completed in the future to reassure the latest conditions of the country's performance in term of the major problems and the ILCI performance which potentially change positively or negatively. This continuous evaluation would support the stakeholders to have a valid recent information concerning the latest conditions and circumstances of the country due to the policy, regulations and business approach facilitating the development of the domestic economy in general and the logistics and supply chain operations in particular.

Additionally, a further study in the future could be also suggested to involve the government in the research in further with the purpose to attain the official approval on the findings of the research would be effectively beneficial for the study since the result of the research would be directly utilised by the initiative of the government involving the whole stakeholders. This involvement would offer a wider concern of the research, effective diffusion on the result of the research, and robust progress on the application to the practical aspects thus the findings of the study would effectively perceived by any aspects of development of the country especially in logistics and supply chain operations related to the SME ecommerce practices.

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APPENDICES

Appendix A: Research Ethic Approval

UNIVERSITY
OF HULL

Hijrah Saputra

Faculty of Business, Law & Politics
Quality Office
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Ref: HUBSREC 2018/37

20th September 2019

Dear Hijrah

Research Title: Key Success Factors Facilitating SMEs' Ecommerce in Developing Countries: Evidence from Indonesia

Thank you for your research ethics application.

I am pleased to inform you that the Faculty of Business, Law and Politics Research Ethics Committee at the University of Hull, have approved your application on 16th September 2019. You now have permission to proceed with the research.

I am advised by the committee to remind you of the following points:

- You must comply with the Data Protection act 1998;
- You must refer proposed amendments to the committee for further review and obtain the committee's approval prior to implementation (except only in cases of emergency where the welfare of the subject is paramount).
- You are authorised to present this University of Hull Research Ethics committee letter of approval to outside bodies in support of any application for further research clearance.

On behalf of the committee, I wish you every success with your research.

Yours sincerely,

David Griffiths
Faculty Ethics Officer,
Research Ethics Committee
Faculty of Business, Law and Politics

Faculty of Business, Law and Politics
University of Hull
Hull, HU6 7RX
United Kingdom

Appendix B: Pilot Study Feed Back Form of Interview Protocol

This pilot study should be completed to examine the quality of the interview protocol before the real interview conducted toward the participants which is translated from English to Bahasa. You are invited to give your comment regarding the following interview protocol for the purpose of improvement related to the language, word selection, structure, and effectiveness. Your feedback in this pilot study is greatly appreciated and will support the improvements prior to the main interview study.

Name of Pilot Study Participant	……..
Institution	……..
Role in organisation	……..
Email	……..

Evaluation to the Interview Protocol

	very poor	poor	average	good	very good
	1	**2**	**3**	**4**	**5**
1. What is your opinion about the length of the interview protocol?	○	○	○	○	○
2. What is your opinion about the clarity of the questions?	○	○	○	○	○
3. What is your opinion about the structure and format of the interview protocol?	○	○	○	○	○
4. What is your opinion about the translation language (Bahasa) used in the interview protocol?	○	○	○	○	○
5. What is your opinion about the easiness to answer the questions of the interview?	○	○	○	○	○
6. How long it will take you to answer the questions in interview protocol? ○ Less than 15 minutes ○ 15 minutes to 30 minutes ○ 30 minutes to 60 minutes ○ Up to 60 minutes					

Additional Comments *(You can please write any general or specific comments for the purpose of improvement of the interview protocol)*	
Signature	……..
Date	……..

Appendix C: Interview Protocol: Key Success Factors of SMEs Ecommerce

Name of SMEs	……..
SME's Location & Contact	……..
Interviewer	Hijrah Saputra
Interviewee	……..
Interview Section Used	A. Interviewee and SMEs Background B. Opportunity and Challenge of Ecommerce for SMEs C. Ecommerce Impact on SMEs D. Difficulties during ecommerce implementation E. The Most Influenced Factors of Ecommerce for SMEs
Other Topics Discussed	……..
Documents Obtained	……..

Introductory Protocol:

Good morning, my name is Hijrah Saputra. I am now doing PhD research in Logistics SCM in University of Hull, England. My research is focused on the investigation of key success factors of SMEs ecommerce related to the post adoption stage, which have been initially acknowledged from a systematic literature review. You or your company have been nominated to be interviewed with me today because it has been identified that your company is categorised as potential SMEs, which is practicing ecommerce in the business operation. My investigation has no intention to assess your company's business. Rather, I attempt to explore and identify further about the key success factors of SMEs ecommerce based on the actual practices of the business owner.

Thank you for your approval to participate in this interview, which will be arranged to last no longer than one hour. Regarding notetaking, I would like to audio record our discussions today to obtain a comprehensive information while simultaneously be able to continue an attentive discussion with you. I guarantee you that all your explanations will be kept on confidential. For your information, only researchers on this study will be privy to the record and will be kept for the purpose of further investigation. Moreover, you must sign a statement form planned to fulfil our human subject requirements. Basically, this document declares that: (1) your involvement is voluntary, and you may stop at any time if you feel uncomfortable (2) all information will be held confidential, and (3) I do not expect to cause any harm.

A. Interviewee and SMEs Background

QA1	Is your SME officially registered?	
QA2	What is your current role in this company?	
QA3	How long have you been in this company? And how long this company have been operated?	
QA4	How many personnel of your company?	
QA5	What is your company's sector or product?	
QA6	Is the product self-production?	
QA7	Do you mind telling me, how much the omzet or revenue achieved by your company in a month? ***For example:*** ○ 0 – $500 ○ $500 - $1,000 ○ $1,000 - $2,500 ○ $2,500 - $5,000 ○ $5,000 - $10,000 ○ up to $10,000	
QA8	What is the ecommerce channel used by your company? ***For example:*** Website/social media/Apps, etc.?	
QA9	What is the most electronic device used in company's ecommerce application? ***For example:*** *Computer, Smartphone, etc.*	
QA10	What is the internet service provider that you used for the ecommerce application? ***For example:*** *Telkomsel, Indosat, XL, Three, etc.*	
QA11	What is the most courier service used to delivery your product? ***For example:*** *Pos Indonesia, Tiki, JNE, etc.*	
QA12	Where is the most buyer come from? ***For example:*** *local city, other province, domestic or international*	

B. Opportunity and Challenge of Ecommerce for SMEs

QB1	What are the opportunities of ecommerce for your business? ***For example:*** *increasing sales, enhancing broader market, product improvement (quality/quantity), etc.* ***Probe:*** *what, how, why*	
QB2	What are the challenges of ecommerce in improving your business? ***For example:*** *availability of qualified personnel, good internet service, offering cheap express delivery service, secure payment method, understanding the needs and wants of customer, effective marketing/marketplace, the use of PCs or smartphone, etc.* ***Probe:*** *what, how, why*	

C. Ecommerce Impact on SMEs

QC1	What is the benefit or good impact of ecommerce for your business? ***For example:*** *fast transaction, increasing sales, broader marketing, etc.* ***Probe:*** *what, how, why*	
QC2	Is there any negative impact of ecommerce to your business? ***For example:*** *high IT cost, high personnel cost, high delivery cost, fraud buyer risk, etc.* ***Probe:*** *what, how, why*	

D. Difficulties during Ecommerce Implementation (Post Adoption)

QD1	Are there any difficulties once you implemented ecommerce into your business? ***For example:*** *personnel capability in IT, high cost, how to plan the payment, qualified delivery service, etc.* ***Probe:*** *what, how, why*	
QD2	How do you post/send your product to customer? ***For example:*** *you deliver it by your own, or you use postal/courier service and come to their counter, or the courier offer pick up service.* ***Probe:*** *How, why*	
QD3	Is there any experience that customer complain about delivery service? ***For example:*** *late delivery, broken item, or item not accepted, high delivery cost, etc.?* ***Probe:*** *what, how, why*	
QD4	How do you promote your product? ***For example:*** *using your own website, promote it in marketplace, social media, etc.* ***Probe:*** *How, why*	
QD5	Is it difficult for you to promote your product utilising ecommerce? ***For example:*** *don't know how to upload, how to market, how to make a quality picture, etc.* ***Probe:*** *How, why*	
QD6	Are there any ICT problems during the ecommerce operation? ***For example:*** *low internet signal, familiarity of using social media, posting the product in online marketplace/website, etc.* ***Probe:*** *What, how, why*	
QD7	What is the payment method of your ecommerce business? ***For example:*** *transfer to your bank account, using postal service, etc.* ***Probe:*** *What, how, why*	
QD8	Are there any problems in payment method of your business? ***For example:*** *Cost of transfer because customer have different bank account, difficult to check if the money transferred or not, fraud, buyer want seller to send the product firstly, etc.* ***Probe:*** *What, how, why*	

E. The Most Influenced Factors of Ecommerce for SMEs

QE1	In your experience, what are the factors of ecommerce which are able to influence the transaction volume or revenue of your business? From those factors, which are the most influenced factors? ***For example**: personnel, internet, computer, delivery service, payment method, etc. **Probe:** what, how, why*	
QE2	Based on your experience, do you think personnel (HR) determine the transaction volume or revenue of your business? ***Probe:** how, why*	
QE3	According to your experience, do you think utilising ecommerce marketplace will be able to determine the transaction volume or revenue of your business? ***For Example:** If you post your product in particular ecommerce marketplace (e.g.: Bukalapak, Lazada, Blibli, Tokopedia, Shopee, etc.), it will influence the increasing of your business revenue?**Probe:** how, why*	
QE4	In line with your experience, do you think government's law and regulation affects the transaction volume or revenue of your business? ***For Example:** the regulation could be the obligation for private ecommerce marketplace to educate and develop SMEs, the regulation to support potential SMEs with relevant workshop, funding, technology support (smartphone, internet service for certain limit time, etc.).* ***Probe:** how, why*	
QE5	Based on your experience, do you think security and payment system affects the transaction volume or revenue of your business? ***For Example:** easy and secure payment method (online transaction using debit/credit card) of your ecommerce transaction would encourage customer to buy or re-buy your product. **Probe:** how, why*	
QE6	In accordance with your experience, do you think Customer Demand affects the transaction volume or revenue of your business? ***For Example:** As a business owner, if you understand and recognise what do your customers need and want, it will encourage your business revenue since you understand how to fulfil their demands.* ***Probe:** how, why*	
QE7	Based on your practise, do you think ICT affects the transaction volume or revenue of your business? ***For Example:** The setup of ICT devices (computers, smartphone, etc.), online marketing (through Apps, marketplace, etc.), and internet services would encourage the achievement business revenue? **Probe:** how, why*	
QE8	Under your experience, do you think Logistics Capabilities affects the transaction volume or revenue of your business? ***For Example:** The capability to deliver product to customer in the right time (on time), the right place, the right item, the right quantity would influence the increasing of business sales/revenue. **Probe:** how, why*	

Appendix D: Protokol Wawancara: Faktor-Faktor Kunci Sukses UMKM Ecommerce (Interview Protocol in Bahasa)

Nama UMKM	……..
Alamat dan Kontak	……..
Pewawancara	Hijrah Saputra
Yang diwawancara	……..
Bagian Interview	A. Perkenalan dan latar belakang UMKM B. Peluang dan tantangan ecommerce bagi UMKM C. Dampak ecommerce bagi UMKM D. Kendala yang dihadapi dalam menerapkan ecommerce E. Faktor-faktor yang paling mempengaruhi dalam penerapan ecommerce bagi UMKM
Topik lain yang didiskusikan	……..
Dokumen yang diperoleh	……..

Pembukaan Protokol:
Selamat pagi. Nama saya Hijrah Saputra. Saat ini, saya sedang melakukan penelitian S3 dibidang logistik dan manajemen rantai pasok di University of Hull, Inggris. Penelitian yang saya lakukan difokuskan pada investigasi terhadap faktor-faktor kunci sukses UMKM ecommerce terutama pada tahap setelah implementasi, dimana faktor-faktor ini sebelumnya sudah dilakukan identifikasi awal pada saat analisis literatur. Anda atau UMKM anda dipilih untuk diwawancara dengan saya saat ini, dikarenakan UMKM anda masuk dalam kategori UMKM yang berpotensi, yang sudah menerapkan ecommerce dalam aktivitas bisnisnya. Penelitian ini tidak bermaksud mengevaluasi atau memberikan penilaian terhadap UMKM anda. Namun, penelitian ini dimaksudkan untuk menggali dan mengidentifikasi lebih jauh tentang faktor-faktor kunci sukses UMKM ecommerce berdasarkan pada praktek yang sebenarnya yang dilakukan oleh para pemilik UMKM.

Terima kasih atas kesediaan anda dalam wawancara ini, yang mudah-mudahan akan kita laksanakan selama tidak lebih dari satu jam. Untuk kepentingan dokumentasi, saya bermaksud melakukan perekaman audio atas diskusi hari ini, agar mendapatkan informasi yang komprehensif. Saya menjamin bahwa semua penjelasan anda akan dijaga kerahasiaannya. Sebagai informasi bagi anda, bahwa hanya peneliti dalam studi ini yang berhak mengetahui catatan/rekaman dalam penelitian dan akan disimpan secara rahasia untuk kepentingan lebih lanjut. Selanjutnya, anda harus menandatangani formulir pernyataan sebagai persyaratan penelitian. Formulir ini menyatakan bahwa (1) keterlibatan anda dalam penelitian adalah secara sukarela dan anda boleh berhenti kapan saja jika anda merasa berkebaratan. (2) Semua informasi akan dijaga kerahasiaannya dan (3) Peneliti tidak bermaksud menyebabkan hal-hal yang berbahaya atau merugikan.

A. Latar belakang peserta wawancara dan UMKM

QA1	Apakah UMKM anda terdaftar secara formal?	
QA2	Apa peran/fungsi anda pada UMKM ini?	
QA3	Sudah berapa lama anda mulai bekerja di UMKM ini dan sudah berapa lama UMKM ini dioperasikan?	
QA4	Berapa orang karyawan yang ada di UMKM ini?	
QA5	Bergerak dibidang apa UMKM ini, apa jenis produk yang dihasilkan?	
QA6	Apakah produk UMKM ini diproduksi sendiri?	
QA7	Apakah anda bersedia memberikan informasi, berapa kisaran omset atau pendapatan UMKM anda perbulannya? ○ 0 – 5jt ○ 5jt – 10jt ○ 10jt – 25jt ○ 25jt – 50jt ○ 5jt – 100jt ○ diatas 100jt	
QA8	Apa jenis ecommerce yang anda terapkan dalam bisnis anda? Sebagai contoh: menggunakan website, media sosial, sistem aplikasi, dll.?	
QA9	Alat elekronik apa yang anda gunakan dalam menerapkan ecommerce? ***Misalnya:*** *computer, smartphone, dll.*	
QA10	Apa layanan internet yang anda gunakan dalam aktifitas ecommerce? ***Misalnya:*** *Telkomsel, Indosat, XL, Three, dll.*	
QA11	Apa layanan kurir atau pengiriman yang sering anda gunakan untuk mengirim produk anda? ***Misalnya:*** *Pos Indonesia, Tiki, JNE, etc.*	
QA12	Darimana pembeli kebanyakan berasal? ***Misalnya:*** *dari satu kota yang sama, provinsi atau kota lainnya, dalam negeri/luar negeri.*	

B. Peluang dan Tantangan Ecommerce bagi UMKM

QB1	Apa saja peluang dengan adanya ecommerce bagi UMKM anda? ***Misalnya:*** *meningkatkan penjualan, meraih pasar yang lebih luas, memacu meningkatkan produksi dan kualitas produk, dll.*	
QB2	Apa saja tantangan ecommerce dalam meningkatkan/membenahi UMKM anda? ***Misalnya:*** *ketersediaan SDM yang handal, layanan internet yang bagus, menyediakan layanan pengiriman ekspress yang murah, tersedianya metode pembayaran yang aman, memahami kebutuhan dan keinginan pelanggan, pemasaran dan marketplace yang efektif, penggunaan computer dan smartphone, dll.* ***Apa, bagaimana dan mengapa.***	

C. Dampak Ecommerce terhadap UMKM

QC1	Apa saja manfaat atau dampak positif ecommerce bagi UMKM anda? ***Misalnya:*** *transaksi menjadi lebih cepat, meningkatkan penjualan, jangkauan pemasaran yang lebih luas, dll.* ***Apa, bagaimana dan mengapa.***	
QC2	Apakah ada dampak negative ecommerce terhadap UMKM anda? ***Misalnya:*** *Biaya IT yang mahal, biaya SDM yang tinggi, biaya pengiriman yang mahal, resiko penipuan oleh pembeli, dll.* ***Apa, bagaimana dan mengapa.***	

D. Kendala/Kesulitan dalam Penerapan Ecommerce (pasca implementasi)

QD1	Apakah ada kendala pada saat anda menerapkan ecommerce dalam bisnis anda? ***Misalnya:*** *kapabilitas SDM di bidang IT, biaya yang tinggi, bagaimana menyiapkan metode pembayaran, layanan pengiriman yang handal, dll.* ***Apa, bagaimana dan mengapa.***	
QD2	Bagaimana cara anda mengirim produk kepada para pelanggan? ***Misalnya:*** *anda mengantarnya sendiri, atau menggunakan jasa pengiriman pos/ekspress dengan mendatangi konter/loket pengiriman atau kurir/pos yang menjemput kiriman ke tempat anda.* ***Bagaimana dan mengapa.***	
QD3	Apakah ada pengalaman bahwa pelanggan komplain mengenai layanan pengiriman? ***Misalnya:*** *pengiriman terlambat, produk yang dibeli rusak, atau barang tidak diterima, biaya pengiriman yang mahal, dll.* ***Apa, bagaimana dan mengapa.***	
QD4	Bagaimana cara anda mempromosikan produk anda? Misalnya: dengan memasarkannya melalui website anda sendiri, melalui ecommerce marketplace, melalui media sosial, dll. ***Bagaimana dan mengapa.***	
QD5	Apakah sulit bagi anda mempromosikan produk anda menggunakan/dengan cara ecommerce? ***Misalnya:*** *tidak tahu cara mengupload produk, tidak tahu cara memasarkan, tidak tahu bagaimana cara menyiapkan gambar yang bagus, dll.* ***Apa, bagaimana dan mengapa.***	
QD6	Apakah ada kendala dalam hal ICT selama menerapkan ecommerce? ***Misalnya:*** *sinyal internet yang lemah, tidak biasa menggunakan media sosial, kendala dalam mem-posting produk di ecommerce marketplace/website, dll.* ***Apa, bagaimana dan mengapa.***	
QD7	Apa metode pembayaran dalam bisnis ecommerce anda. ***Misalnya:*** *dengan cara men-transfer ke rekening bank anda, menggunakan layanan pos (wesel), dll.* ***Apa, bagaimana dan mengapa.***	
QD8	Apakah ada permasalahan dalam metode pembayaran di bisnis anda? ***Misalnya:*** *masalah biaya transfer karena perbedaan bank, kesulitan untuk mengetahui apakah uang sudah dikirim oleh pembeli atau belum, khawatir akan penipuan, pembeli ingin barang dikirim terlebih dahulu, dll.* ***Apa, bagaimana dan mengapa.***	

E. Faktor-Faktor yang Paling Berpengaruh dalam ecommerce bagi UMKM

QE1	Dalam pengalaman anda, faktor-faktor apa saja didalam ecommerce yang dapat mempengaruhi jumlah transaksi atau pendapatan dalam bisnis anda? Dari faktor-faktor itu yang manakah yang paling kuat pengaruhnya? ***Misalnya:*** *SDM, internet, komputer, layanan pengiriman, metode pembayaran, dll.* ***Apa, bagaimana dan mengapa.***	
QE2	Berdasarkan pengalaman anda, menurut anda, apakah SDM menentukan jumlah transaksi/pendapatan dalam bisnis anda? ***Bagaimana dan mengapa.***	
QE3	Berdasarkan penglaman anda, menurut anda, apakah dengan menggunakan ecommerce marketplace akan dapat menentukan jumlah transaksi/pendapatan dalam bisnis anda? ***Misalnya:*** *Jika anda memposting produk anda di ecommerce marketplace tertentu (seperti: Bukalapak, Lazada, Blibli, Tokopedia, Shopee, dll.), maka dengan hal ini akan dapat mempengaruhi kenaikan pendapatan dalam bisnis anda?* ***Bagaimana dan mengapa.***	
QE4	Berdasarkan pengalaman anda, menurut anda, apakah hukum dan peraturan pemerintah dapat mempengaruhi jumlah transaksi/pendapatan dalam bisnis anda? ***Misalnya:*** *peraturan itu dapat berupa peraturan yang mengharuskan ecommerce marketplace swasta untuk mengedukasi dan mengembangkan UMKM, peraturan yang mendukung UMKM potensial melalui kegiatan workshop, pembiayaan, dukungan teknologi (pemberian smartphone, layanan internet gratis untuk jangka waktu tertentu, dll.)* ***Bagaimana dan mengapa.***	
QE5	Berdasarkan pengalaman anda, menurut anda, apakah keamanan dan metode pembayaran dapat mempengaruhi jumlah transaksi/pendapatan dalam bisnis anda? ***Misalnya:*** *metode pembayaran yang mudah dan aman (transaksi online dengan menggunakan debit/credit card) dalam transaksi ecommerce akan memotivasi pembeli untuk membeli atau melakukan pembelian ulang produk yang anda jual.* ***Bagaimana dan mengapa.***	
QE6	Berdasarkan penglaman anda, menurut anda, apakah permintaan pelanggan dapat mempengaruhi jumlah transaksi/pendapatan dalam bisnis anda? ***Misalnya:*** *sebagai pemilik UMKM, jika anda mengerti dan faham apa yang pelanggan anda butuhkan, maka hal ini akan dapat meningkatkan transaksi/pendapatan karena anda mengerti bagaimana memenuhi permintaan pelanggan.* ***Bagaimana dan mengapa.***	
QE7	Berdasarkan pengalaman anda, menurut anda apakah ICT dapat mempengaruhi jumlah transaksi/pendapatan bisnis anda? ***Misalnya:*** *Penggunaan peralatan IT (seperti komputer, smartphone, dll.), pemasaran online (melalaui Apps, marketplace, etc.) dan layanan internet dapat mempengaruhi pencapaian pendapatan dalam bisnis anda.* ***Bagaimana dan mengapa.***	
QE8	Berdasarkan pengalaman anda, menurut anda, apakah kapabilitas logistik dapat mempengaruhi jumlah transaksi/pendapatan dalam bisnis anda? ***Misalnya:*** *kemampuan untuk mengirim produk ke pelanggan tepat waktu, alamat yang benar, produk yang tepat, dengan jumlah yang tepat dapat mempengaruhi kenaikan pendapatan.* ***Bagaimana dan mengapa.***	

Pilot Study Invitation/Information sheet

We would like you to consider participating in a pilot study we are conducting at Hull University, Faculty of Business, Law and Politics. This invitation sheet provides further information about this project and your involvement in the pilot study.

This research will investigate the major problems and current level of regional/country logistics capability in Indonesia related to the ecommerce implementation especially within the SMEs practise based on the issues and conditions that occurs in Indonesia. In addition, it also attempts to examine the causative relationship between logistics capabilities and SMEs ecommerce sales.

We guarantee you that all your comments regarding the questionnaire in this pilot study will be kept on confidential. Please keep in mind that by completing this pilot study means you have given a consent to the researcher to use the data for the research and further study.

Consequently, you are aware that (1) your involvement is voluntary, and you may decide to withdraw from this pilot study at any time without any negative consequences by advising the researcher(s) (2) all information you provide is considered strictly confidential.

Your name and your organisation's name will not appear in any thesis or report resulting from this study, except at your request and on your authorisation.

Data collected during this pilot study will be retained for 1 year in a locked office at the University of Hull. Only researchers associated with this project will have access.

Your contribution in this pilot study survey is greatly appreciated since your comments are very significant due to the process of the research which is aiming the development of logistics and supply chain sector in Indonesia specially to encourage the growth of SMEs ecommerce application.

There are no known or anticipated risks to you as a participant in this pilot study.

Should you [the participant of pilot study] have any concerns about the conduct of this research project, please contact the Secretary, Faculty of Business, Law and Politics Research Ethics Committee, University of Hull, Cottingham Road, Hull, HU6 7RX; Tel No (+44) (0)1482 463536.

We hope that the results of our study will be of benefit to the organisations directly involved in the study, as well as to the broader research community.

We very much look forward to speaking with you and thank you in advance for your assistance in this project/pilot study.

Yours Sincerely,

Researcher: Hijrah Saputra
Email: H.Saputra@2015.hull.ac.uk

Name of Supervisor: Dr. Alessandro Creazza
Email of Supervisor: A.Creazza@hull.ac.uk

Name of Supervisor: Prof. David B. Grant
Email of Supervisor: D.GrantCreazza@hull.ac.uk

Appendix E: Pilot Study Informed Consent Form

Pilot Study Informed Consent form
(to be completed by researcher and signed by participants of pilot study)

I, ... *(Name of pilot study participant)*

of ..... *(Company/Institution)*

Hereby agree to participate in this pilot study to be undertaken

By Hijrah Saputra

and I understand that the aims and purpose of the research is to investigate the major problems and current level of regional/country logistics capability in Indonesia related to the ecommerce implementation especially within the SMEs practice based on the issues and conditions that occurs in Indonesia. In addition, it also attempts to examine the causative relationship between logistics capabilities and SMEs ecommerce sales.

By signing this consent form are agreeing to your participation in this pilot study process and to the collation of the material. Participants of pilot study have the right to withdraw from participation in the research process at any point and materials collated from them up to that point will be removed.

I understand that

1. Upon receipt, my pilot study form will be coded and my name and address kept separately from it.
2. My name and my organisation's name will not be released and will not appear in any thesis or report resulting from this study, except at my request and on my authorisation.
3. Aggregated results will be used for research purposes and may be reported in scientific and academic journals (including online publications).
4. That I am free to withdraw my consent at any time during the pilot study in which event my participation in the research pilot study will immediately cease and any information obtained from me will not be used.

Participant's Signature: Date:

The email contact details of the Researcher are: H.Saputra@2015.hull.ac.uk

The email contact details of the Supervisor are: A.Creazza@hull.ac.uk ; D.Grant@hull.ac.uk

In some cases, consent will need to be witnessed e.g., where the subject is blind/ intellectually disabled. A witness must be independent of the project and may only sign a certification to the level of his/her involvement. The form should also record the witnesses' signature, printed name and occupation. For particularly sensitive or exceptional research, further information can be obtained from the Faculty Research Ethics Committee Secretary, e.g., absence of parental consent, use of pseudonyms, etc.

Appendix F: Pilot Study Feed Back Form of Questionnaire

This pilot study should be completed to examine the quality of the survey questionnaire before it is launched to the participants. You are invited to give your comment regarding the following survey questionnaire for the purpose of improvement related to the language, word selection, structure, and effectiveness. Your feedback in this pilot study is greatly appreciated and will support the improvements prior to the main study.

Name of Pilot Study Participant	……..
Institution	……..
Role in organisation	……..
Email	……..

Evaluation to the Questionnaire

	very poor	poor	average	good	very good
	1	**2**	**3**	**4**	**5**
1. What is your opinion about the length of the questionnaire?	○	○	○	○	○
2. What is your opinion about the clarity of the questions?	○	○	○	○	○
3. What is your opinion about the structure and format of the questionnaire?	○	○	○	○	○
4. What is your opinion about the language used in the questionnaire?	○	○	○	○	○
5. What is your opinion about the easiness to complete the questionnaire?	○	○	○	○	○
6. How long did it take you to complete the questionnaire? ○ Less than 15 minutes ○ 15 minutes to 30 minutes ○ 30 minutes to 60 minutes ○ Up to 60 minutes					

Additional Comments *(You can please write any general or specific comments for the purpose of improvement of the questionnaire)*	
Signature	……..
Date	……..

Appendix G: Survey Questionnaire

ECOMMERCE LOGISTICS CAPABILITY SURVEY 2019

EVIDENCE FROM: INDONESIA

This survey will investigate the major problems and current level of regional/country logistics capability related to the ecommerce implementation especially within the SMEs practise based on the issues and conditions that occurs in Indonesia. In addition, it also attempts to examine the causative relationship between logistics capabilities and SMEs ecommerce sales.

I guarantee you that all your answer in this questionnaire will be kept on confidential. Please keep in mind that by completing this questionnaire means you have given a consent to the researcher to use the data for the research and further study.
Consequently, you are aware that (1) your involvement is voluntary, and you may stop at any time if you feel uncomfortable (2) all information will be held confidential. Your contribution in this survey is greatly appreciated since your answers are very significant due to the continuous development of logistics and supply chain sector in Indonesia specially to encourage the growth of SMEs ecommerce application.

As the guidance of completion, this questionnaire consists of three sections: Section A, B and C. If your background is other than the SMEs, you are kindly requested to complete only section A and B. Meanwhile, if your background is SMEs, you are kindly invited to complete the whole section of the questionnaire.
* required

INTRODUCTION

1/40. Name: *
2/40. Name of Institution/Company: *
3/40. Email: *
4/40. Type of Organisation/Institution * ○ Logistics Service Provider ○ Education ○ Logistics Association ○ Government ○ Industry or Company ○ Marketplace / Ecommerce Company ○ SMEs Ecommerce ○ Other:
5/40. Organizational Level ○ Head office ○ Regional office ○ Branch Office ○ Independent Firm/Entrepreneur/SME ○ Other:

6/40. Role/Position *
○ Director / Owner
○ Senior Executive / Head Division
○ Regional Manager
○ Branch Manager
○ Supervisor in branch office
○ Lecturer / Academician
○ Other:

7/40. The freight mode you typically deal with in your work / business
☐ Maritime
☐ Road
☐ Rail
☐ Air Transport
☐ Express Delivery
☐ Multimodal
☐ Other:

8/40. Direction of trade and transport you are primarily dealing with *
☐ Export
☐ Import
☐ Export and Import
☐ Domestic / Local
☐ International transit
☐ Most of the above

Continue to NEXT section

SECTION A: Evaluation of Major Problems in Logistics Sector

In this part of the questionnaire, question 9 to 10, you are invited to identify the major problems faced by logistics and supply chain sector in Indonesia specifically related to SME ecommerce operation

9/40. What are the major problems faced by logistics and supply chain operation in Indonesia? *
The score represents your option which 1: very low, 2: low, 3: average, 4: urgent, 5: very urgent.

	Very low urgent	Low urgent	Average	Urgent	Very Urgent
	1	**2**	**3**	**4**	**5**
MP1. Infrastructure	○	○	○	○	○
MP2. Information, Communication and Technology	○	○	○	○	○
MP3. Integrated information system	○	○	○	○	○
MP4. Laws and regulations	○	○	○	○	○
MP5. Human Resources	○	○	○	○	○
MP6. Logistics Service Provider (competence and Excellency)	○	○	○	○	○
MP7. Custom clearance process	○	○	○	○	○
MP8. Shipment punctuality	○	○	○	○	○
MP9. Delivery speed	○	○	○	○	○
MP10. Shipment security	○	○	○	○	○
MP11. Delivery reliability	○	○	○	○	○
MP12. Track and trace	○	○	○	○	○
MP13. Price competitiveness	○	○	○	○	○
MP14. Road traffic jam level	○	○	○	○	○
MP15. Dwelling time in port	○	○	○	○	○
MP16. Widespread distribution coverage	○	○	○	○	○
MP17. Reverse logistics	○	○	○	○	○

10/40. Brief reasons / explanation related to your answer above
Your answer:

Continue to NEXT section

SECTION B: Performance Level of Regional Logistics Capability

In this section, question 11 to 17, you are invited to identify the logistics capabilities level according to ILCI indicator. Based on your experience and knowledge, please select the applicable answer that is applied the best toward logistics capabilities especially on SMEs ecommerce application in Indonesia. The score represents your option which 1: very poor, 2: poor, 3: average, 4: good, 5: very good.

11/40. Evaluate the availability of recent infrastructures of transportation in Indonesia to support the SMEs ecommerce application *

	very poor	poor	average	good	very good
	1	**2**	**3**	**4**	**5**
PLA1. Port Infrastructure	○	○	○	○	○
PLA2. Airport Infrastructure	○	○	○	○	○
PLA3. Road Infrastructure	○	○	○	○	○
PLA4. Rail Infrastructure	○	○	○	○	○
PLA5. Highway Road Infrastructure	○	○	○	○	○
PLA6. Bridge Infrastructure	○	○	○	○	○
PLA7. Urban Logistics Infrastructure	○	○	○	○	○

12/40. Evaluate the recent balance of development on infrastructures of transportation in Indonesia to support the SMEs ecommerce application *

	very poor	poor	average	good	very good
	1	**2**	**3**	**4**	**5**
PLB1. Port Infrastructure	○	○	○	○	○
PLB2. Airport Infrastructure	○	○	○	○	○
PLB3. Road Infrastructure	○	○	○	○	○
PLB4. Highway Road Infrastructure	○	○	○	○	○
PLB5. Rail Infrastructure	○	○	○	○	○
PLB6. Bridge Infrastructure	○	○	○	○	○
PLB7. Urban Logistics Infrastructure	○	○	○	○	○

13/40. Evaluate the recent ICT infrastructures (Information, Communication and Technology) related to logistics operations in Indonesia due to SMEs ecommerce application *

	very poor	poor	average	good	very good
	1	**2**	**3**	**4**	**5**
PLC1. ICT Infrastructure Availability	○	○	○	○	○
PLC2. ICT Service Quality	○	○	○	○	○
PLC3. ICT Systems and Application in operations	○	○	○	○	○

14/40. Evaluate the latest government's laws and regulations related to logistics operations in Indonesia due to SMEs ecommerce application *

	very poor	poor	average	good	very good
	1	**2**	**3**	**4**	**5**
PLD1. Availability	○	○	○	○	○
PLD2. Quality (effectiveness)	○	○	○	○	○
PLD3. Integration and Collaboration among ministry/ department	○	○	○	○	○

15/40. Evaluate the human resources related to logistics operations in Indonesia due to SMEs ecommerce application *

	very poor	poor	average	good	very good
	1	**2**	**3**	**4**	**5**
PLE1. Availability	○	○	○	○	○
PLE2. Quality (capability and professionalism)	○	○	○	○	○
PLE3. Education institution (availability)	○	○	○	○	○
PLE4. Logistics association support	○	○	○	○	○

16/40. Evaluate the logistics service provider (LSP) related to logistics operations in Indonesia due to SMEs ecommerce application *

	very poor	poor	average	good	very good
	1	**2**	**3**	**4**	**5**
PLF1. Availability and balance in each province	○	○	○	○	○
PLF2. Quality of road transport service provider (competence and excellency)	○	○	○	○	○
PLF3. Quality of rail transport service provider (competence and excellency)	○	○	○	○	○
PLF4. Quality of air transport service provider (competence and excellency)	○	○	○	○	○
PLF5. Quality of maritime transport service provider (competence and excellency)	○	○	○	○	○
PLF6. Quality of warehousing and distribution service provider (competence and excellency)	○	○	○	○	○
PLF7. Quality of freight forwarders (competence and excellency)	○	○	○	○	○
PLF8. Quality of customs agencies (competence and excellency)	○	○	○	○	○
PLF9. Quality of express courier / postal services (competence and excellency)	○	○	○	○	○

17/40. Evaluate the process quality (e.g., speed, accuracy, price, etc.) related to logistics operations in Indonesia due to SMEs ecommerce application *

	very poor	poor	average	good	very good
	1	**2**	**3**	**4**	**5**
PLG1. Customs clearance	○	○	○	○	○
PLG2. Shipment punctuality of LSP	○	○	○	○	○
PLG3. Shipment delays of LSP	○	○	○	○	○
PLG4. Track and trace service of LSP	○	○	○	○	○
PLG5. Price competitiveness of LSP	○	○	○	○	○
PLG6. Port and Airport charges	○	○	○	○	○
PLG7. Road traffic jam level	○	○	○	○	○
PLG8. Shipment/transport/delivery security (criminal activities)	○	○	○	○	○
PLG9. Dwelling time in port	○	○	○	○	○
PLG10. Delivery speed & accuracy	○	○	○	○	○

Continue to NEXT section

SECTION C: Causative Relationship between Logistics Capabilities (Internal, External, and Regional) and SMEs transaction

In this section you are invited to identify the Causative Relationship between Logistics Capabilities and SMEs transaction concerning the SMEs ecommerce application in Indonesia.

C.1: Causative Relationship between Internal Logistics Capability (ILC) and SMEs ecommerce transaction (H1).

Internal logistics capability factors are the indicator of logistics capability which is operated by internal of an enterprises or SMEs.

18/40. Evaluate the whole following internal logistics capability if it has impact (increasing or decreasing) in SMEs ecommerce transaction/revenue *

Questions and Code	Strongly decreasing very poor **1**	Decreasing poor **2**	Neutral / No Relationship average **3**	Increasing good **4**	Strongly increasing very good **5**
ILC1. Pre-sale customer service	○	○	○	○	○
ILC2. Post-sale customer service	○	○	○	○	○
ILC3. Delivery speed	○	○	○	○	○
ILC4. Delivery reliability	○	○	○	○	○
ILC5. Responsiveness to target market	○	○	○	○	○
ILC6. Integrated information system	○	○	○	○	○
ILC7. Web-based order handling	○	○	○	○	○
ILC8. Widespread distribution coverage	○	○	○	○	○
ILC9. Low total cost distribution	○	○	○	○	○
ILC10. Innovation	○	○	○	○	○
ILC11. Flexible operations	○	○	○	○	○
ILC12. Reverse logistics	○	○	○	○	○
	Strongly disagree **1**	disagree **2**	Neutral **3**	Agree **4**	Strongly agree **5**
19/40. **SME1:** Qualified internal logistics capability will increase SMEs ecommerce sales/revenue	○	○	○	○	○

C.2: Causative Relationship between External Logistics Capability (ELC) and SMEs ecommerce transaction (H2).

External logistics capability factors are similar to internal logistics capability however it is operated by external (e.g., third-party logistics, LSP, courier service, postal service, etc.)

20/40. Evaluate the whole following external logistics capability <u>if it has impact (increasing or decreasing) in SMEs ecommerce transaction/revenue</u> *

Questions and Code	Strongly decreasing very poor **1**	Decreasing poor **2**	Neutral / No Relationship average **3**	Increasing good **4**	Strongly increasing very good **5**
ELC1. Pre-sale customer service	○	○	○	○	○
ELC2. Post-sale customer service	○	○	○	○	○
ELC3. Delivery speed	○	○	○	○	○
ELC4. Delivery reliability	○	○	○	○	○
ELC5. Responsiveness to target market	○	○	○	○	○
ELC6. Integrated information system	○	○	○	○	○
ELC7. Web-based order handling	○	○	○	○	○
ELC8. Widespread distribution coverage	○	○	○	○	○
ELC9. Low total cost distribution	○	○	○	○	○
ELC10. Innovation	○	○	○	○	○
ELC11. Flexible operations	○	○	○	○	○
ELC12. Reverse logistics	○	○	○	○	○
	Strongly disagree	disagree	Neutral	Agree	Strongly agree
	1	**2**	**3**	**4**	**5**
21/40. **SME2:** Qualified external logistics capability will increase SMEs ecommerce sales/revenue	○	○	○	○	○

C.3: Causative Relationship between Regional/Country Logistics Capability (CLC) and SMEs ecommerce transaction (H3).

Regional logistics capability factors are the indicator of logistics capability which is facilitated and operated by government and private sector due to the regional logistics services to facilitate the industries and residences.

22/40. Evaluate the availability of recent infrastructures in Indonesia if it has a relationship of capability to effectively increase or decrease SMEs ecommerce transaction/revenue *

Questions and Code	Strongly decreasing	Decreasing	Neutral / No Relationship	Increasing	Strongly increasing
	very poor	poor	average	good	very good
	1	**2**	**3**	**4**	**5**
CLA1. Port Infrastructure	○	○	○	○	○
CLA2. Airport Infrastructure	○	○	○	○	○
CLA3. Road Infrastructure	○	○	○	○	○
CLA4. Rail Infrastructure	○	○	○	○	○
CLA5. Highway Road Infrastructure	○	○	○	○	○
CLA6. Bridge Infrastructure	○	○	○	○	○
CLA7. Urban Logistics Infrastructure	○	○	○	○	○

23/40. Evaluate the recent balance of development on infrastructures in Indonesia if it has a relationship of capability to effectively increase or decrease SMEs ecommerce transaction/revenue *

Questions and Code	Strongly decreasing	Decreasing	Neutral / No Relationship	Increasing	Strongly increasing
	very poor	poor	average	good	very good
	1	**2**	**3**	**4**	**5**
CLB1. Port Infrastructure	○	○	○	○	○
CLB2. Airport Infrastructure	○	○	○	○	○
CLB3. Road Infrastructure	○	○	○	○	○
CLB4. Highway Road Infrastructure	○	○	○	○	○
CLB5. Rail Infrastructure	○	○	○	○	○
CLB6. Bridge Infrastructure	○	○	○	○	○
CLB7. Urban Logistics Infrastructure	○	○	○	○	○

24/40. Evaluate the recent ICT (Information, Communication and Technology) related to logistics operations in Indonesia if it has a relationship of capability to effectively increase or decrease SMEs ecommerce transaction/revenue *

Questions and Code	Strongly decreasing	Decreasing	Neutral / No Relationship	Increasing	Strongly increasing
	very poor	poor	average	good	very good
	1	**2**	**3**	**4**	**5**
CLC1. ICT Infrastructure Availability	○	○	○	○	○
CLC2. ICT Service Quality	○	○	○	○	○
CLC3. ICT Systems and Application in operations	○	○	○	○	○

25/40. Evaluate the latest laws and regulations related to logistics operations in Indonesia if it has a relationship of capability to effectively increase or decrease SMEs ecommerce transaction/revenue *

Questions and Code	Strongly decreasing	Decreasing	Neutral / No Relationship	Increasing	Strongly increasing
	very poor	poor	average	good	very good

	1	2	3	4	5
CLD1. Availability **CLD2.** Quality (effectiveness) **CLD3.** Integration and Collaboration among ministry/ department	○ ○ ○	○ ○ ○	○ ○ ○	○ ○ ○	○ ○ ○

26/40. Evaluate the human resources related to logistics operations in Indonesia if it has a relationship of capability to effectively increase or decrease SMEs ecommerce transaction/revenue *

Questions and Code	Strongly decreasing	Decreasing	Neutral / No Relationship	Increasing	Strongly increasing
	very poor	poor	average	good	very good
	1	**2**	**3**	**4**	**5**
CLE1. Availability **CLE2.** Quality (capability and professionalism) **CLE3.** availability of Education institution **CLE4.** Logistics association support	○ ○ ○ ○	○ ○ ○ ○	○ ○ ○ ○	○ ○ ○ ○	○ ○ ○ ○

27/40. Evaluate the logistics service provider (LSP) related to logistics operations in Indonesia if it has a relationship of capability to effectively increase or decrease SMEs ecommerce transaction/revenue *

Questions and Code	Strongly decreasing	Decreasing	Neutral / No Relationship	Increasing	Strongly increasing
	very poor	poor	average	good	very good
	1	**2**	**3**	**4**	**5**
CLF1. Availability and balance in each province	○	○	○	○	○
CLF2. Quality of road transport service provider (competence and excellency	○	○	○	○	○
CLF3. Quality of rail transport service provider (competence and excellency)	○	○	○	○	○
CLF4. Quality of air transport service provider (competence and excellency)	○	○	○	○	○
CLF5. Quality of maritime transport service provider (competence and excellency)	○	○	○	○	○
CLF6. Quality of warehousing and distribution service provider (competence and excellency)	○	○	○	○	○
CLF7. Quality of freight forwarders (competence and excellency)	○	○	○	○	○
CLF8. Quality of customs agencies (competence and excellency)	○	○	○	○	○
CLF9. Quality of express courier/postal services (competence and excellency)					

28/40. Evaluate the process quality (e.g. speed, accuracy, price, etc.) of logistics operations due to ecommerce application in Indonesia if it has a relationship of capability to effectively increase or decrease SMEs ecommerce transaction/revenue *

Questions and Code	Strongly decreasing	Decreasing	Neutral / No Relationship	Increasing	Strongly increasing
	very poor	poor	average	good	very good
	1	**2**	**3**	**4**	**5**

CLG1. Customs clearance	○	○	○	○	○
CLG2. Shipment punctuality of LSP / courier services	○	○	○	○	○
CLG3. Shipment delays of LSP / courier services	○	○	○	○	○
CLG4. Track and trace service of LSP / courier services	○	○	○	○	○
CLG5. Price competitiveness of LSP / courier services	○	○	○	○	○
CLG6. Port and Airport Charges	○	○	○	○	○
CLG7. Traffic jam level	○	○	○	○	○
CLG8. Shipment/transport security (criminal activities)	○	○	○	○	○
CLG9. Dwelling time of transport	○	○	○	○	○
CLG10. Delivery speed & accuracy	○	○	○	○	○
	Strongly disagree	disagree	Neutral	Agree	Strongly agree
	1	**2**	**3**	**4**	**5**
29/40. **SME3:** Qualified country/regional logistics capability will increase SMEs ecommerce sales/revenue	○	○	○	○	○

C.4: Causative Relationship between Regional/Country Logistics Capability and Internal Logistics Capability (H4).

Regional logistics capability factors are the indicator of logistics capability which is facilitated and operated by government and private sector due to the regional logistics services to facilitate the industries and residences. Meanwhile internal logistics capability factors are the indicator of logistics capability which is operated by internal of an enterprises or SMEs.

30/40. Evaluate the following indicators of Country Logistics Capability in Indonesia <u>if it has a relationship to effectively support the internal logistics capability*</u>

Questions and Code	Strongly decreasing very poor **1**	Decreasing poor **2**	Neutral / No Relationship average **3**	Increasing good **4**	Strongly increasing very good **5**
CLIL1. Infrastructures (For example: port, airport, road, rail, highway road, bridge)	○	○	○	○	○
CLIL2. The balance of infrastructures development	○	○	○	○	○
CLIL3. ICT (infrastructure, service, systems)	○	○	○	○	○
CLIL4. Law and regulations of logistics	○	○	○	○	○
CLIL5. Human Resources on logistics	○	○	○	○	○
CLIL6. LSP (availability and quality)	○	○	○	○	○
CLIL7. The process quality (e.g., speed, accuracy, price, etc.) of logistics operations	○	○	○	○	○

C.5: Causative Relationship between Regional/Country Logistics Capability and External/Outsourced Logistics Capability (H5).

Regional logistics capability factors are the indicator of logistics capability which is facilitated and operated by government and private sector due to the regional logistics services to facilitate the industries and residences. Meanwhile External logistics capability factors are similar to internal logistics capability however it is operated by external (e.g., third-party logistics, LSP, courier service, postal service, etc.)

31/40. Evaluate the following indicators of Country Logistics Capability in Indonesia <u>if it has a relationship to effectively support the external/outsourced logistics capability*</u>

Questions and Code	Strongly decreasing very poor **1**	Decreasing poor **2**	Neutral / No Relationship average **3**	Increasing good **4**	Strongly increasing very good **5**
CLEL1. Infrastructures (For example: port, airport, road, rail, highway road, bridge)	○	○	○	○	○
CLEL2. The balance of infrastructures development	○	○	○	○	○
CLEL3. ICT (infrastructure, service, systems)	○	○	○	○	○
CLEL4. Law and regulations of logistics	○	○	○	○	○
CLEL5. Human Resources on logistics	○	○	○	○	○
CLEL6. LSP (availability and quality)	○	○	○	○	○
CLEL7. The process quality (e.g., speed, accuracy, price, etc.) of logistics operations	○	○	○	○	○

SECTION D: SMEs Ecommerce

This section is only for participants who own or manage SMEs E-commerce.

32/40. Type of SMEs ecommerce sector (if you own or manage SME) *
- ○ Fashion
- ○ Electronics, computers
- ○ Food and beverages
- ○ Agriculture products
- ○ Other: ……

33/40. Range of your SMEs' omzet per month (if you own or manage SME) *
- ○ 0 – $500
- ○ $500 - $1,000
- ○ $1,000 - $2,500
- ○ $2,500 - $5,000
- ○ $5,000 - $10,000
- ○ up to $10,000

34/40. What type of logistics capability do you manage for your SME?
- ○ Self-management (internal logistics capability)
- ○ Outsourcing / 3PL (External logistics capability)
- ○ Combination (self-management and outsourcing; internal & external)

Continue to complete the following questions if you apply self-management (internal logistics capability); or combination (internal and external):

35/40. What is the direction of logistics service that you manage?
- ○ Domestic / Local
- ○ International
- ○ Domestic and International

36/40. Is your logistics service performance good enough?
- ○ Yes
- ○ No
- ○ Average

If you choose Yes or Average, you can please continue to question No. 34a/40

36a/40. If yes (good) or average, do you think it will affect the increasing of your SMEs' revenue?
- ○ Yes
- ○ No

If you choose Yes, you can please continue to question No. 34a.1/40

36a.1/40. If yes (affect the revenue increasing), how many percent of the increasing per month?
- ○ 0 – 5 %
- ○ 5 – 10 %
- ○ up to 10%
- ○ Other: ……

36b/40. If your logistics service performance is not good, are there any complain related to your logistics service from your customers?
- ○ Yes
- ○ No

If you choose Yes, you can please continue to question No. 34b.1/40

36b.1/40. How many complaints in a month usually?
- ○ 0 – 5 complaints
- ○ 5 – 10 complaints
- ○ up to 10 complaints
- ○ Other: ……

36b.2/40. Do you think those complaints will affect the decreasing of your revenue?
○ Yes
○ No
If you choose Yes, you can please continue to question No. 34b.2a/40

34b.2a/40. If yes, how many percent of the revenue decreasing per month?
○ 0 – 5 %
○ 5 – 10 %
○ up to 10%
○ Other: ……

Continue to complete these following questions if your SMEs utilise the 3PL (External logistics capability) or combination (internal and external):

37/40. How many 3PL / LSP do you use:
○ only one
○ 1 to 5 LSPs
○ More than 5 LSPs

38/40. Are those LSPs private or state-owned companies:
○ Private companies
○ State companies
○ Private and state companies

39/40. What is the name of the LSPs do you use:
○ Pos Indonesia
○ TIKI
○ JNE
○ J&T Express
○ Sicepat Express
○ Other: ……

40/40. Do the LSPs that you used have a good performance?
○ Yes
○ No
○ Average
If you choose Yes or Average, you can please continue to question No. 40a/40

40a/40. If yes (good) or average, do you think it affect the increasing of revenue?
○ Yes
○ No
If you choose Yes, you can please continue to question No. 40a.1/40

40a.1/40. If yes (affect the revenue increasing), how many percent of the increasing per month?
○ 0 – 5 %
○ 5 – 10 %
○ up to 10%
○ Other: ……

40b/40. If the LSPs' performance is not good, are there any complain from your customers related to LSPs performance?
○ Yes
○ No
If you choose Yes, you can please continue to question No. 40b.1/40

40b.1/40. How many complaints in a month usually?
○ 0 – 5 complaints
○ 5 – 10 complaints
○ up to 10 complaints
○ Other: ……

40b.2/40. Do you think those complaints will affect the decreasing of your revenue? ○ Yes ○ No *If you choose Yes, you can please continue to question No. 40b.2a/40*
40b.2a/40. If yes, how many percent of the revenue decreasing per month? ○ 0 – 5 % ○ 5 – 10 % ○ up to 10% ○ Other: ……

Appendix H: Research Questionnaire Structure

Section and Question Number	Indicator Code	Concern / Variable / Indicator	Source
Introduction: 1 - 8		**Introduction (Demographic Question)**	Arvis et.al., (2014), Saputra (2017)
SECTION A: 9 - 10		**Major problems of Logistics Sector**	Arvis et.al., (2014), Saputra (2017)
9.1	**MP1**	Infrastructure	
9.2	**MP2**	Information, Communication and Technology	
9.3	**MP3**	Integrated information system	
9.4	**MP4**	Laws and regulations	
9.5	**MP5**	Human Resources	
9.6	**MP6**	Logistics Service Provider (competence and Excellency)	
9.7	**MP7**	Custom clearance process	
9.8	**MP8**	Shipment punctuality	
9.9	**MP9**	Delivery speed	
9.10	**MP10**	Shipment security	
9.11	**MP11**	Delivery reliability	
9.12	**MP12**	Track and trace	
9.13	**MP13**	Price competitiveness	
9.14	**MP14**	Road traffic jam level	
9.15	**MP15**	Dwelling time in port	
9.16	**MP16**	Widespread distribution coverage	
9.17	**MP17**	Reverse logistics	

SECTION B: 11 - 17		**Performance Level of Country Logistics Capability (PL)**	(Banomyong, 2007), Tongzon (2007), Memedovic et al. (2008), Song (2011), Arvis et.al., (2014), Saputra (2017)
11.1	**PLA1**	Port Infrastructure	(Banomyong, 2007), Tongzon (2007), Memedovic et al. (2008), Song (2011), Arvis et.al., (2014), Saputra (2017)
11.2	**PLA2**	Airport Infrastructure	
11.3	**PLA3**	Road Infrastructure	
11.4	**PLA4**	Rail Infrastructure	
11.5	**PLA5**	Highway Road Infrastructure	
11.6	**PLA6**	Bridge Infrastructure	
11.7	**PLA7**	Urban Logistics Infrastructure	
12.1	**PLB1**	Balance Development on Port Infrastructure	(Banomyong, 2007), Tongzon (2007), Memedovic et al. (2008), Song (2011), Arvis et.al., (2014), Saputra (2017)
12.2	**PLB2**	Balance Development on Airport Infrastructure	
12.3	**PLB3**	Balance Development on Road Infrastructure	
12.4	**PLB4**	Balance Development on Rail Infrastructure	
12.5	**PLB5**	Balance Development on Highway Road Infrastructure	
12.6	**PLB6**	Balance Development on Bridge Infrastructure	
12.7	**PLB7**	Balance Development on Urban Logistics Infrastructure	
13.1	**PLC1**	ICT infrastructure Availability	(Banomyong, 2007), Tongzon (2007), Memedovic et al. (2008), Song (2011), Arvis et.al., (2014), Saputra (2017)
13.2	**PLC2**	ICT service Quality	
13.3	**PLC3**	ICT systems and application in operations	
14.1	**PLD1**	Laws and regulations Availability	(Banomyong, 2007), Tongzon (2007), Memedovic et al. (2008), Song (2011), Arvis et.al., (2014), Saputra (2017)
14.2	**PLD2**	Laws and regulations Quality (effectiveness)	
14.3	**PLD3**	Laws and regulations Integration and Collaboration among ministries	
15.1	**PLE1**	Human Resources Availability	(Banomyong, 2007), Tongzon (2007), Memedovic et al. (2008), Song (2011), Arvis et.al., (2014), Saputra (2017)
15.2	**PLE2**	Human Resources Quality	
15.3	**PLE3**	Human Resources Education Institution availability	
15.4	**PLE4**	Human Resources Logistics Association support	

16.1	**PLF1**	LSP Availability and balance in each province	(Banomyong, 2007), Tongzon (2007), Memedovic et al. (2008), Song (2011), Arvis et.al., (2014), Saputra (2017)
16.2	**PLF2**	LSP Quality of road transport service provider	
16.3	**PLF3**	LSP Quality of rail transport service provider	
16.4	**PLF4**	LSP Quality of air transport service provider	
16.5	**PLF5**	LSP Quality of maritime transport service provider	
16.6	**PLF6**	LSP Quality of warehousing and distribution service provider	
16.7	**PLF7**	LSP Quality of freight forwarders	
16.8	**PLF8**	LSP Quality of customs agencies	
16.9	**PLF9**	LSP Quality of express courier/postal services	
17.1	**PLG1**	Process Quality [Excellent Customs clearance]	(Banomyong, 2007), Tongzon (2007), Memedovic et al. (2008), Song (2011), Arvis et.al., (2014), Saputra (2017)
17.2	**PLG2**	Process Quality [Excellent Shipment punctuality of LSP]	
17.3	**PLG3**	Process Quality [Low shipment delays of LSP]	
17.4	**PLG4**	Process Quality [Excellent track and trace service of LSP]	
17.5	**PLG5**	Process Quality [Price competitiveness of LSP]	
17.6	**PLG6**	Process Quality [Low Charges in Port and Airport]	
17.7	**PLG7**	Process Quality [Low level of road traffic jam]	
17.8	**PLG8**	Process Quality [Excellent shipment (transport/delivery) security]	
17.9	**PLG9**	Process Quality [Low dwelling time in port]	
17.10	**PLG10**	Process Quality [Excellent delivery speed and accuracy]	
SECTION C:			
Section C1: 18 - 19		**Variable ILC (Internal Logistics Capability)** Causative Relationship Between Internal Logistics Capability and SMEs ecommerce transaction.	Joong-Kun Cho et al. (2008), Wang (2016)
18.1	**ILC1**	Pre-sale customer service	Joong-Kun Cho et al. (2008), Wang (2016)
18.2	**ILC2**	Post-sale customer service	
18.3	**ILC3**	Delivery speed	

18.4	**ILC4**	Delivery reliability	Joong-Kun Cho et al. (2008), Wang (2016)
18.5	**ILC5**	Responsiveness to target market	
18.6	**ILC6**	Integrated information system	
18.7	**ILC7**	Web-based order handling	
18.8	**ILC8**	Widespread distribution coverage	
18.9	**ILC9**	Low total cost distribution	
18.10	**ILC10**	Innovation	
18.11	**ILC11**	Flexible operations	
18.12	**ILC12**	Reverse logistics	
19	**SME1**	Evaluation on Relationship between ILC and SME Transaction	Joong-Kun Cho et al. (2008), Wang (2016)
Section C2: 20-21		**Variable ELC (External Logistics Capability)** Causative Relationship Between External Logistics Capability and SMEs ecommerce transaction.	Joong-Kun Cho et al. (2008), Wang (2016)
20.1	**ELC1**	Pre-sale customer service	Joong-Kun Cho et al. (2008), Wang (2016)
20.2	**ELC2**	Post-sale customer service	
20.3	**ELC3**	Delivery speed	
20.4	**ELC4**	Delivery reliability	
20.5	**ELC5**	Responsiveness to target market	
20.6	**ELC6**	Integrated information system	
20.7	**ELC7**	Web-based order handling	
20.8	**ELC8**	Widespread distribution coverage	
20.9	**ELC9**	Low total cost distribution	
20.10	**ELC10**	Innovation	
20.11	**ELC11**	Flexible operations	
20.12	**ELC12**	Reverse logistics	
21	**SME2**	Evaluation on Relationship between ELC and SME Transaction	Joong-Kun Cho et al. (2008), Wang (2016)

Section C3: 22-29		**Variable CLC (Country Logistics Capability)** Causative Relationship Between Country Logistics Capability and SMEs ecommerce transaction.	(Banomyong, 2007), Tongzon (2007), Memedovic et al. (2008), Song (2011), Arvis et.al., (2014), Saputra (2017)
22.1	**CLA1**	Port Infrastructure	(Banomyong, 2007), Tongzon (2007), Memedovic et al. (2008), Song (2011), Arvis et.al., (2014), Saputra (2017)
22.2	**CLA2**	Airport Infrastructure	
22.3	**CLA3**	Road Infrastructure	
22.4	**CLA4**	Rail Infrastructure	
22.5	**CLA5**	Highway Road Infrastructure	
22.6	**CLA6**	Bridge Infrastructure	
22.7	**CLA7**	Urban Logistics Infrastructure	
23.1	**CLB1**	Balance Development on Port Infrastructure	(Banomyong, 2007), Tongzon (2007), Memedovic et al. (2008), Song (2011), Arvis et.al., (2014), Saputra (2017)
23.2	**CLB2**	Balance Development on Airport Infrastructure	
23.3	**CLB3**	Balance Development on Road Infrastructure	
23.4	**CLB4**	Balance Development on Rail Infrastructure	
23.5	**CLB5**	Balance Development on Highway Road Infrastructure	
23.6	**CLB6**	Balance Development on Bridge Infrastructure	
23.7	**CLB7**	Balance Development on Urban Logistics Infrastructure	
24.1	**CLC1**	ICT infrastructure Availability	(Banomyong, 2007), Tongzon (2007), Memedovic et al. (2008), Song (2011), Arvis et.al., (2014), Saputra (2017)
24.2	**CLC2**	ICT service Quality	
24.3	**CLC3**	ICT systems and application in operations	
25.1	**CLD1**	Laws and regulations Availability	(Banomyong, 2007), Tongzon (2007), Memedovic et al. (2008), Song (2011), Arvis et.al., (2014), Saputra (2017)
25.2	**CLD2**	Laws and regulations Quality (effectiveness)	
25.3	**CLD3**	Laws and regulations Integration and Collaboration among ministries	
26.1	**CLE1**	Human Resources Availability	(Banomyong, 2007), Tongzon (2007), Memedovic et al. (2008), Song (2011), Arvis et.al., (2014), Saputra (2017)
26.2	**CLE2**	Human Resources Quality	
26.3	**CLE3**	Human Resources Education Institution availability	

26.4	**CLE4**	Human Resources Logistics Association support	
27.1	**CLF1**	LSP Availability and balance in each province	(Banomyong, 2007), Tongzon (2007), Memedovic et al. (2008), Song (2011), Arvis et.al., (2014), Saputra (2017)
27.2	**CLF2**	LSP Quality of road transport service provider	
27.3	**CLF3**	LSP Quality of rail transport service provider	
27.4	**CLF4**	LSP Quality of air transport service provider	
27.5	**CLF5**	LSP Quality of maritime transport service provider	
27.6	**CLF6**	LSP Quality of warehousing and distribution service provider	
27.7	**CLF7**	LSP Quality of freight forwarders	
27.8	**CLF8**	LSP Quality of customs agencies	
27.9	**CLF9**	LSP Quality of express courier/postal services	
28.1	**CLG1**	Process Quality [Excellent Customs clearance]	(Banomyong, 2007), Tongzon (2007), Memedovic et al. (2008), Song (2011), Arvis et.al., (2014), Saputra (2017)
28.2	**CLG2**	Process Quality [Excellent Shipment punctuality of LSP]	
28.3	**CLG3**	Process Quality [Low shipment delays of LSP]	
28.4	**CLG4**	Process Quality [Excellent track and trace service of LSP]	
28.5	**CLG5**	Process Quality [Price competitiveness of LSP]	
28.6	**CLG6**	Process Quality [Low Charges in Port and Airport]	
28.7	**CLG7**	Process Quality [Low level of road traffic jam]	
28.8	**CLG8**	Process Quality [Excellent shipment (transport/delivery) security]	
28.9	**CLG9**	Process Quality [Low dwelling time in port]	
28.10	**CLG10**	Process Quality [Excellent delivery speed and accuracy]	
30.1	**CLIL1**	Evaluation on Relationship of Infrastructures and ILC	(Banomyong, 2007), Tongzon (2007), Memedovic et al. (2008), Song (2011), Arvis et.al., (2014), Saputra (2017)
30.2	**CLIL2**	Evaluation on Relationship of Infrastructures Balance Development and ILC	
30.3	**CLIL3**	Evaluation on Relationship of ICT and ILC	
30.4	**CLIL4**	Evaluation on Relationship of Law-Regulation and ILC	
30.5	**CLIL5**	Evaluation on Relationship of Human Resources and ILC	

30.6	**CLIL6**	Evaluation on Relationship of LSP and ILC	(Banomyong, 2007), Tongzon (2007), Memedovic et al. (2008), Song (2011), Arvis et.al., (2014), Saputra (2017)
30.7	**CLIL7**	Evaluation on Relationship of Process Quality and ILC	
31.1	**CLEL1**	Evaluation on Relationship of Infrastructures and ELC	(Banomyong, 2007), Tongzon (2007), Memedovic et al. (2008), Song (2011), Arvis et.al., (2014), Saputra (2017)
31.2	**CLEL2**	Evaluation on Relationship of Infrastructures Balance Development and ELC	
31.3	**CLEL3**	Evaluation on Relationship of ICT and ELC	
31.4	**CLEL4**	Evaluation on Relationship of Law-Regulation and ELC	
31.5	**CLEL5**	Evaluation on Relationship of Human Resources and ELC	
31.6	**CLEL6**	Evaluation on Relationship of LSP and ELC	
31.7	**CLEL7**	Evaluation on Relationship of Process Quality and ELC	
29	**SME3**	Evaluation on Relationship between CLC and SME Transaction	
SECTION D: 23 - 38	This section is only for participants who own or manage SMEs E-commerce to explore how logistics capabilities give impact to their business transactions.		Joong-Kun Cho et al. (2008), Wang (2016)

Appendix I: Study Findings on Hypotheses Testing (N= 372)

Variable Path / Hypothesis		Estimate	S.E.	C.R. (t-value)	P	Result	
ILC ← CLC	H4	0.524	0.036	14.677	***	Supported	CLC has a positive direct effect on ILC (effect size = 0.524)
ELC ← CLC	H5	0.337	0.069	4.903	***	Supported	CLC has a positive direct effect on ELC (effect size = 0.337)
SME ← CLC	H3	0.015	0.026	0.559	0.576	Not Supported	The positive effect of CLC on SME is not supported at probability level (P) <0.05 (e.g. t-value < 0.196)
SME ← ILC	H1	0.549	0.052	10.579	***	Supported	ILC has a positive direct effect on SME (effect size = 0.549)
SME ← ELC	H2	0.044	0.024	1.798	0.072	Supported (Weak)	The positive effect of ELC on SME is not supported at probability level (P) <0.05 (i.e. t-value < 0.196) but can be supported at probability level (P) <0.1

***p<0.001, ** p<0.01, *p<0.05