

CHAPTER 2

LITERATURE REVIEW AND RELATED STUDIES

Chapter 2 was conclusion of review the related previous research studies and literature, the context and concept of the study, and theories and framework were presented.

This chapter provided the details and contents according to the below sub-headings:

- 2.1 Context of the Study: The Roles of Logistics in AEC (TH / VN / CN)
- 2.2 Concept and Theory: Foundation of Supply Chain & Logistics Management
- 2.3 The Contribution of Logistics Service Providers
- 2.4 The Determinants of Success and Failure of Logistics Performance Index (LPI)
- 2.5 Factors and Variables
- 2.6 Level of Competitiveness
- 2.7 Scaling and Weighing
- 2.8 Related Research Contents and Methods
- 2.9 Model Summary
- 2.10 Theoretical and Design Research Framework

2.1 The Roles of Logistics in ASEAN Economic Community (AEC)

2.1.1 AEC Blueprint and BAP (related to Thailand)

Asian Transport Ministry: ATM: (2010) agreed on MOU for **Brunei Action Plan (BAP)** during Year 2011-2015 for her ASTP (ASEAN Strategic Transport Plan). The 16th meeting was on November 11th, 2010 with total four modes of transport with developing plans.

The four areas of BAP were: Facilitated in transport by components which support the free flow of goods delivery, Land Transport, Sea Transport, and Air Transport. The facilitates in agreement ratified into three agendas which were:

AFAFGIT: ASEAN Framework Agreement on the Facilitation of Goods in Transit:
(The goods delivery flow in in-transit activities);

AFAFIST: ASEAN Framework Agreement on the Facilitation of Inter-State Transport
(the goods delivery flow in cross-broader activities); and

AFAFMT: ASEAN Framework Agreement on the Facilitation of Goods in Transit:
(the agreement of free Multimodal transport). (Thai-aec.com/47, May 7th, 2003)

BAP or ASEAN Strategic Transport Plan 2011-2015		
Land Transport	Air Transport	Transport Facilitation
SKRL <ul style="list-style-type: none"> • Missing link and Spur line <ol style="list-style-type: none"> 1. Aranyaprathet-Klonglak 2. Three Pagodas Pass Namtok • Track Rehabilitation 	<ul style="list-style-type: none"> • Open Sky Policy • Free Trade Transport Policy 	<ul style="list-style-type: none"> • AFAFGIT Protocol 1-9 • Monitor implementation <ol style="list-style-type: none"> 1. AFAFGIT 2. AFAFIST 3. AFAMT ● Existing bilateral & multilateral
AHN: Complete Missing Links	Maritime Transport	
<ul style="list-style-type: none"> • Road Upgrading to Class I • Connect Highway to Gateway • Road Safety Strategy Plan • Transit Transport Route (TTR) • Intelligent Transport System (ITS) • Environmental friendly transport 	Inland Waterway (IWT System) <ul style="list-style-type: none"> • Developing Plan Study • Project Launch Coastal Port <ul style="list-style-type: none"> • Acceptable Performance • Electronic Transmission • Eco-port (Energy efficient) 	

Figure 2.1 Brunei Action Plan: BAP (2010) for ASEAN Strategic Transport Plan 2011-2015

Source: Siripan (2014)

All of them were categorized and described several relate plans concentration only via Land transport, follow by Air Transport for only about Open Skies Policy and included in ASEAN Multilateral Agreement (MAFLPAS) on the Full Liberalization of Passenger Air Services. For Sea mode ignored 3PL development, logistics service provider but emphasized her plan heading as ASEAN Single Shipping Market, which today still in designing discussion.

2.1.2 Thailand's National Plan

Thai Government approved the Implication of National Plan of Logistics Development in February 2007. The initial vision was aimed to create a world-class logistics system. With a direction to support the creation of business and trade within Indo-China region, this congruent to the AEC core objectives as gathering into a whole single market with free flow of goods in distribution. All barriers tariff were eliminated by tax & duty removed out. Then the logistics activities were needed to be provided as well as their infrastructures to facilitate delivery support. AEC with her restrictions on trade service will be substantially removed and liberalization consecutive rounded by every a couple of years up to 2015.

The primary objectives of Thai's Nation Plan for reduction of logistics cost, enhancing service responsiveness, improving the reliability and security, as well as to add value to logistics and other related industries. (*See Figure 2.2*) However, the issues were directed to improve the logistics in production in her first phase while the transportation was her second (This would be around land mode than any others). The improvement of logistics business although was included in the third period, but no any agenda neither regulations performing nor promotion related to a tangible objective.

Moreover, the sub sequential abstracts of both phases two and three were aligned as development in logistics system and coordination plan to integrate information and service to support import-export procedures. Along the developing logistics transport business in her commitment, it should not jump across the service providers. More than 20 fields of transportation and related trade in this logistics industry (*See Appendix-A*), confined by Transport guidebook's index (2015-2016) and all of them were all SME enterprises rare in the big size. Such abandon leaves Thai logistics providers being confronted with the high competition after all ASEAN service providers are in the one same pool as a single market ideal.

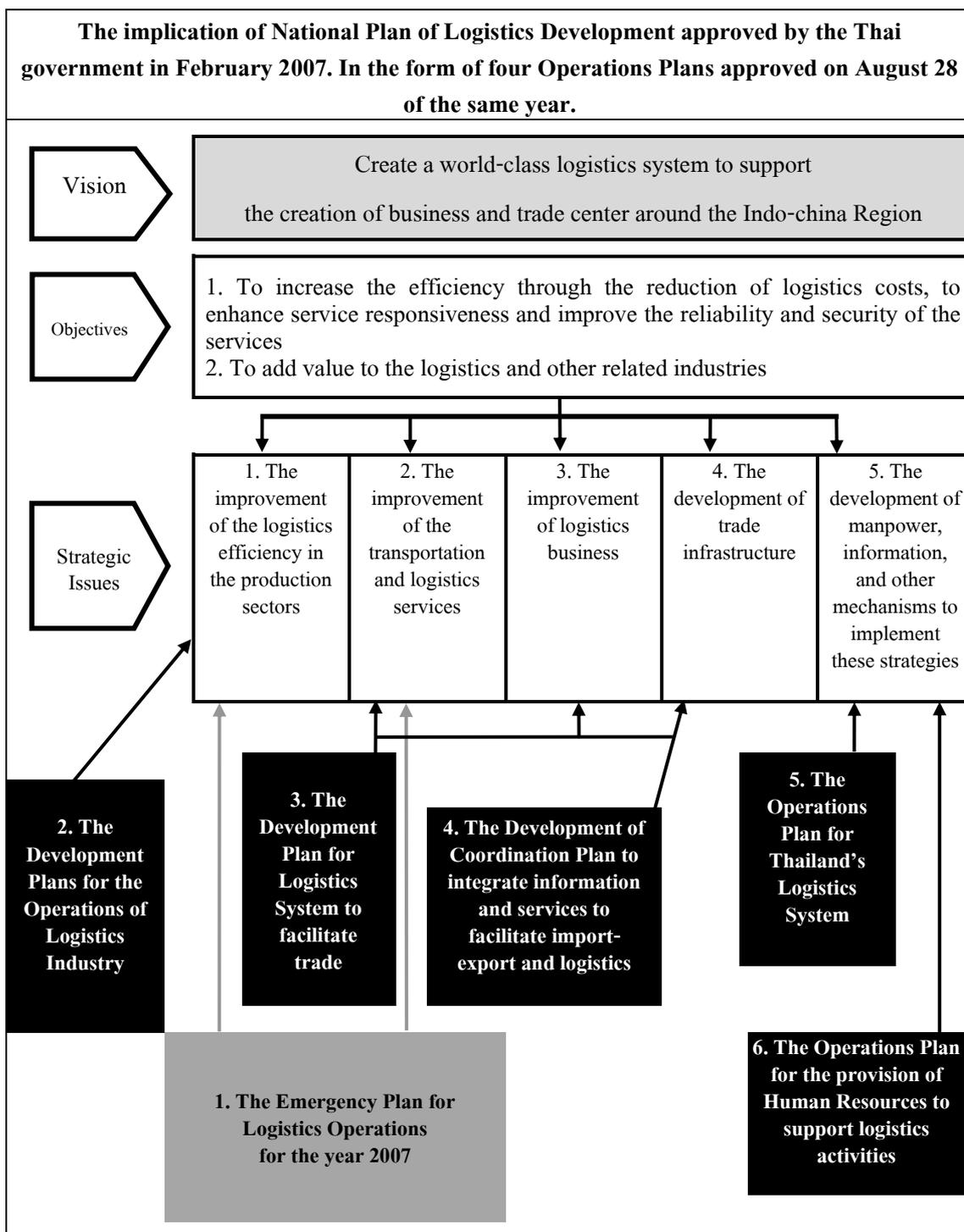


Figure 2.2 The Thai Nation plans 2007 for logistics development.

Source: Chumrit & Kiatcharoenpol (2008)

2.1.3 Vietnam's Plan (a New Dynamic Country for Investment)

A) FTA agreements

"In 2015 Vietnam signed free trade agreements with the Republic of Korea and the Eurasia Economic Union and completed European Union FTA and Trans-Pacific Partnership Agreement negotiations. The trade deals are expected to increase exports, attract foreign investment, and offer new opportunities for Vietnamese economic growth. Unlike the previous FTAs that focused on trade and commodities, the free trade agreements Vietnam has signed or completed negotiations on this year have a wider coverage not only in goods, services, and intellectual property, but also in state-owned enterprises, public procurement, customs, sustainable development, and non-commercial issues.

For instance, once the EU-Vietnam free trade agreement takes effect in 2018, more than 99% of tariff lines will be removed; Vietnam's GDP will likely gain an additional 0.5%; and exports will increase up to 6% each year.

The biggest opportunity offered by FTAs is to expand markets thanks to tax reductions and removal of trade barriers to deal with the currently limited purchasing power and Vietnamese enterprises' competitiveness shortage" (Vovworld, December 16th, 2015).

B) Benefit Investment in Vietnam

More than ten years are advising foreign clients investing and doing business in Vietnam. Mr. Lim Chor Ghee, General Director-Practice Leader of Tricor Vietnam Co., Ltd. (personal communication, December 31, 2015). The details provided in an email for acts on his workshop and venue information in VIETNAM INVESTMENT (Easier Market Entry and Effective Company Management with New Investment / Enterprise Law + Briefing on Tax Incentives), this was held on Monday 18 January 2016 (0900 - 1230) at King Power Pullman Hotel, Bangkok.

“- Trans-Pacific Partnership (TPP), EU-Vietnam FTA, RCEP, AEC 2015 - Vietnam is an excellent manufacturing hub for labor-intensive production for exporting to USA / Europe / ASEAN

- Years of protectionism and bureaucratic challenges have slowed down the development of large scale investment by multinational corporations, leaving gaps of opportunities for small to mid-sized players in many investment sectors. Moreover, the multinationals are renewing their interest in Vietnam with billion dollars commitments in the past one year alone;

- Large production facilities of major multinationals are relocating to Vietnam from China (mobile phones, consumer electronics, industrial products, garments, and textiles)

- 93millions people (and growing 1m per year), mostly young, dynamic and eager to embrace modern lifestyles

- Increasing sophistication of consumer tastes and demands as more and more Vietnamese people travel abroad and become exposed to foreign brands and international experience;

- Extensive investment provides in infrastructure and utility, opening up a vast tract of the country for rapid economic development.”

Congruent to Tang See Kit (2015) posted in Channel NewsAsia “*Why Vietnam's economy is outperforming its Southeast Asian peers? Strong exports and record-high foreign direct investments are among the reasons why Vietnam is bucking the broader regional trend of economic slowdown.*” (NewsAsia, 29 Dec 2015)

C) VIFFAS Plan for Best Competitiveness

VIFFAS (Vietnam Freight Forwarders Association) by Tran Huy Hien (2011) recommended VIFFAS’s Plan in implementation. Such an interesting committed her more objectively in Compendium of Best Practices and Benefits of National Logistics Associations (in Selected APEC Economies). This workshop held in Oakes on Collins Melbourne, 5-7 April 2011.

Implementation: (Cleary commit to supporting 3PL business and its operators)

1. Established the National Logistics Committee with a prestigious component to gather and unify in strategic planning and logistics management in Vietnam.

2. Quickly establish the Viet Nam Logistics Federation. The members should be VIFFAS, VISABA, VATA, VPA, and VNSC.

3. Need to replace the current regulation of foreign companies taking part in Association as affiliated members.

4. Amending and supplementing the Commercial Law of logistics services in line with current practices. Institutionalize the 3PL services market to develop and enhance the competitiveness of Vietnam's 3PL companies to regional and international integration.

Such a clearly objective and aiming to integrated all sectors to raise up their 3PL capabilities, competitiveness as her Nation’s Best Practice in Logistics service and providers, the parties concerned will be synchronized to project this implementation are:-

VIFFAS: Vietnam Freight Forwarders Association

VISABA: Vietnam Ship Agents and Brokers Association

VATA: Vietnam Automobile Transportation Association

VPA: Vietnam Seaports Association

VNSC: Vietnam National Satellite Center

VNSC is not similar functioned as TNSC of Thailand. Since VNSC stands for Satellite Center but TNSC of Thailand is Thai National Shippers' Council. Therefore, TNSC of Thailand would be closed to VISABA of Vietnam as well as TIFFA of Thailand regarded same as VIFFAS of Vietnam and CIFA of CHINA

2.1.4 China Logistics Providers and Rules

A new market leader ASEAN, with biggest volume and frequencies of shipments in/out China International Freight Forwarders Association (CIFA, 2015) regulated an interesting clear-cut with her logistics providers in terms & conditions for the performed service. One of the several main regulations of a service operator showed as below:-

"5.1 Unless otherwise previously agreed in writing, the Company is authorized to enter into contract on its behalf or behalf of the Customer for the following matters, without notice to the Customers:

- (1) Selecting the carrier, mode and route of transport for the goods;
- (2) Selecting whether to containerize the cargo or not and whether to carry the goods on deck or not;
- (3) For the storage, packing, unpacking, transshipping or otherwise handling of the goods;
- (4) Other arrangements in pursuance to the Instructions of the Customer or as deemed necessary by the Company.

5.2 The Company is authorized (but is not obliged) to depart or deviate from the Customer's Instructions in any respect if in the opinion of the Company such departure or deviation is necessary or desirable in the Customer's interests. The Company shall at any time comply with the instruction or orders of the governmental departments, and the Company's responsibility for the goods shall cease at the time on delivery or otherwise handling of the goods as per the above instructions and orders.

5.3 The Company is authorized (by customer) to act and the Company is not required, unless specifically requested by the Customer in writing, to inform the Customer of details of acts taken by the Company." (CIFA, 2015)

2.1.5 Associations, Number and Logistics Listed Members

- Thailand

Thailand International Freight Forwarders Association (TIFFA, 2015) operated to entertain two types of memberships (Ordinary and Associated) total 214 members were listed in her 11 WebPages (9 pages with 21 members each; 1 page with 20 members and the last page for five members).

- Vietnam

VIFFAS (Vietnam Freight Forwarders Association, 2015) operated to synchronized all logistics service providers (most in the capital city as Head Office in Hochiminh) followed by forwarders in Hanoi. The total 396 members listed in her 40 WebPages (39 pages with ten members each; and last page for six members).

- China

CIFA (China International Freight Forwarders Association, 2015) founded in Beijing on September 6th, 2000. CIFA is a nation agent organization of international freight forwarding industry who adopted FIATA's transport law and regulation applied for her memberships standardizes. Total 738 members were in CIFA Members List (Total 123 Pages with six members per web page).

2.2 Concept and Theory: Foundation of Supply Chain and Logistics Management

2.2.1 Definition of Supply Chain Management

Managing flow of information through the supply chain, this was to attain the level of synchronization that will make it more responsive to customer needs while lowering costs.

Russell & Taylor (2011) "Operation Management: Along the Supply Chain (Sixth Edition)" for Philosophy and Theory of Logistics and Supply Chain, Philosophy and advanced management theory.

2.2.2 Theories of Supply Chain Management

There was no theoretical support for explaining the existence and the boundaries of supply chain management.

However, Halldorsson et al. (2003); Ketchen & Hult (2006); Lavassani et al. (2009) their research scopes provided theoretical foundations related to supply chain based on organizational studies. The observations concluded into categories of theoretical researches in Table 2.1

Table 2.1 Theories Categories of Research Studies in Supply Chain Management

Theories categories	ABB.	Theories categories	ABB.
Just-in-Time	(JIT)	Resource-Based View	(RBV)
Material Requirements Planning	(MRP)	Transaction Cost Analysis	(TCA)
Theory of Constraints	(TOC)	Knowledge-Based View	(KBV)
Total Quality Management	(TQM)	Strategic Choice Theory	(SCT)
Agile Manufacturing	(AGM)	Agency Theory	(AT)
Time-Based Competition	(TBC)	Institutional theory	(InT)
Quick Response Manufacturing	(QRM)	Systems Theory	(ST)
Customer Relationship Management	(CRM)	Network Perspective	(NP)
Requirements Chain Management	(RCM)	Materials Logistics Management	(MLM)

Source: Halldorsson et al. (2003); Ketchen & Hult (2006); Lavassani et al. (2009)

2.2.3 Definition of Logistics

Logistics - The procurement, maintenance, distribution, and replacement of personnel and material (Websters Dictionary, n.d.).

The characteristics of era (The year 2011 and forward) of supply chain and logistics managements include the need for four shifting in changes

- large-scale changes,
- re-engineering,
- downsizing driven by cost reduction programs, and
- Widespread attention to the Japanese practice of management

His syntheses from several studies synchronized into conclusion for special issues into two phases: First, Specialization Era-Phase one: **Outsourced** manufacturing and distribution.

- In the 1990s, industries began to focus on “core competencies” and adopted a specialization model.
- Companies abandoned vertical integration, sold off non-core operations and outsourced those functions to other businesses.
- Contract manufacturers had to manage bills of material with different part numbering schemes from multiple OEMs and support customer requests for work - in-process visibility and vendor-managed inventory (VMI).

Second, Specialization Era-phase two: SCM emphasized on SERVICE

- Supply chain specialization enables companies to improve their overall competencies.
- Outsourced technology hosting for supply chain solutions debuted in the late 1990s and had taken root primarily in transportation and collaboration categories.

Besides the integration of processes through the supply chain to share valuable information, including forecast, visualize inventory management, transport's service level focus, and then potential collaboration was demanded.

Spina, Campanella & Codeluppi (2000) proposed that logistics strategy must take into account a variety of qualitative factors, concerns about the decision making about the strategic alternatives for distribution.

2.3 The Contribution of Logistics Service Providers

Rao & Yong (1994) invited that the use of single sourcing and outsourcing to third-party logistics firms, or contract logistics as some prefer, is a noteworthy phenomenon even domestically in the US.

Razzaque & Sheng (1998) confirmed that most other publications in the area either focus on specific aspects of third-party logistics or are narrow in their scope and objectives.

Bade & Mueller (1999) cited in Aktas & Ulengin (2005) defined the 4PL firm as the Supply Chain Integrator (SCI), managing the company's resources, skills, and knowledge, as well as its technologies, combining them with sub-suppliers for delivering the holistic supply chain customers.

According to Slater (2007) explained forwarding agents involved as organizations in the international physical distribution.

Logistics Corner (2009) defined a freight forwarder is a service broker that provides service for or on behalf of exporter or importer in a delivery operator. Service is starting from the freight booking, loading, transportation, import as well as export entry and clearance formalities, manage the import-export documentation.

2.3.1 Definition of Forwarders and Forwarding Industry

There are broad definitions of freight forwarder that not only performs as a freight broker or freight service operator but may also include customs brokers and including NVOCC (Passas & Jones, 2007)

Rao & Yong (1994) defined many internationally focused logistics service providers, including freight forwarders, custom house brokers, ocean and air carriers, as well as logistics management companies, characterize themselves as third-party logistics providers capable of offering bundled services for the movement of international freight.

Sankaran, Mun & Charman (2002) defined the Third-party logistics sometimes referred to as "contract logistics", which is a "process whereby the shipper and the third parties enter into an agreement for specific services at specific costs over some identifiable time horizon". However their studies sample sizes was too small by a qualitative interview with only two participators as two senior executives of two contract logistics providers in New Zealand.

Slater (2007) determined the forwarding agent's function as an agent handling the administrative detail, selection, and organization of international physical distribution operations, including the provision of the correct documentation.

Passas & Jones (2007) defined NVOCC as a consolidator that gathering all several shipments from various loading port into the same container for delivery to the same destination. By NVOCC consolidator rates for LCL shipment are offering more competitive and attractive pricing than vessel-operating carriers.

The Federal Maritime Commission (FMC, 2007) in the USA defines an NVOCC is a company for cargo moving service. However, it does not operate an own vessel, rather it is as the shipper in contact with the carrier.

2.3.2 Roles of Logistics Service Providers in Supply Chain

An intermediary broker in delivery, shipments dispatch is well defined as a freight handler. A worldwide shipment could book for space from carriers, documents issued, shipment handle along the routes with many activities, such as freight offers, customs clearance, inland transport, connected by the multimodal channel of transports, warehouse or cross docking service management, to reach consignee's destinations.

Rao & Yong (1994) said about logistics provider's function that was the degree to which such offerings may be employed by major importing, and exporting firms depend on several factors influencing the economy and utility of those services. In their study, they use personal interview by phone calling and mail survey for 44 firms engaged in import-export activities such as shippers; carriers, forwarders; port terminals and telecommunication operators. Their main construct drivers were about services offered by international logistics third parties falling into major classes: planning, administrative, equipment related, handling, pre or post-production, warehousing, transportation, terminal related. Their drivers divided into each specific item as below constructs:-

Planning functions: location selection, supplier selection, supplier contracting, scheduling

Equipment functions: selection, allocation, sequencing, positioning, inventory control, ordering, and repair

Terminal functions: gate checks, location control

Handling functions: pick-up, consolidation, distribution, expediting, diversion, trans-loading

Administrative functions: order management, document preparation, customs clearance, invoicing, inventory management, performance evaluation, information services, communications

Warehousing functions: receiving, inventory control, reshipment

Re/post-production: sequencing, assorting, packaging, postponement, marking

Transportation functions: intermodal coordination, line-haul services, tracking, and tracing

Finally, their findings found the most key outsourcing factors in distribution were: Cost/service, Centrality/criticality, Information services, Market Relationships, Risk liability/control. All ranked by percentage of responses by category respectively.

Razzaque & Sheng (1998) explained Logistics activities involve a substantial commitment of capital. The logistics function can be the key facilitator in the cross-functional effort towards supply chain integration.

Spina, Campanella & Codeluppi (2000) defined Activity in logistics was occasional but necessary to support the physical transport. The other activities are carried out by third parties, i.e. forwarders and carriers either individual or consortia.

The declaration of Global Transport Planning in distribution as below:-

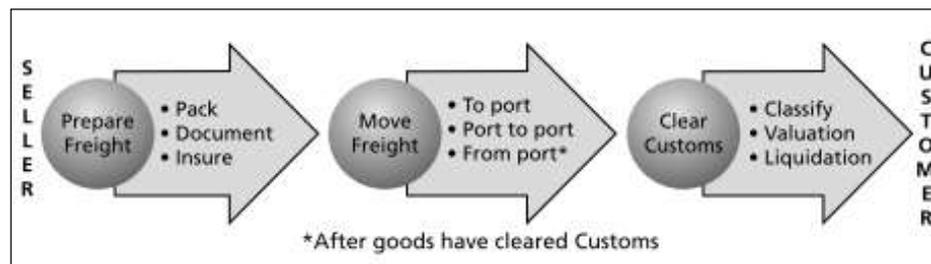


Figure 2.3 Global Transport Planning

Source: Coyle et al. (2011)

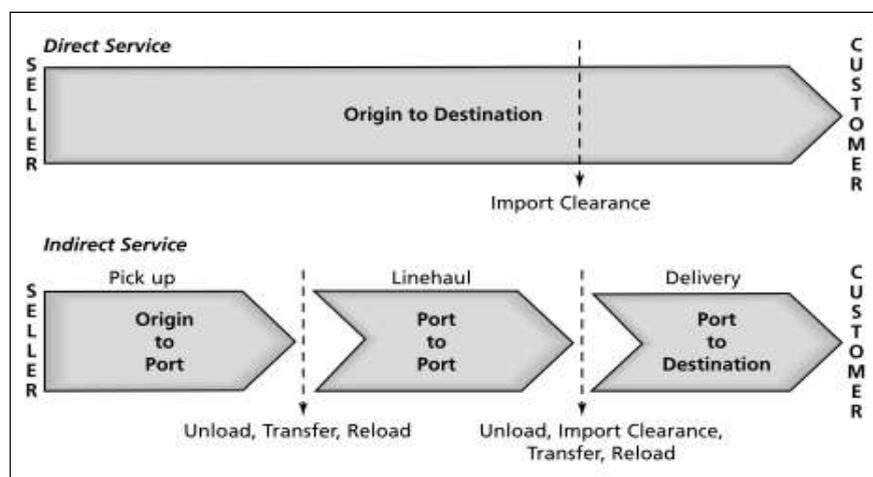


Figure 2.4 Global Transport Service Types

Source: Coyle et al. (2011)

Global recession is no easy for transportation managers, and that should not lose the fundamental issues and practices that generate effectively, efficient freight flows before freight leaves the exporter's shipping doc. Figure 2.4 described for Global Transport Service Types.

Coyle, Novack, Gibson & Bardi (2011, p. 381) defined in Transportation, A Supply Chain Perspective (7th ed.) in the section of Global Transportation Execution.

“International Freight Forwarders: The primary role of an international freight forwarder (IFF) is to help importers and exporters transport their goods. Many IFFs specialize in particular service areas, modes of transport, or markets. IFFs often be seen as the travel agents of international freight transportation. These service providers identify and book the best routes, modes of transport, and specific carriers for customers, based on their specific requirements”.

Logistics Transport Service Provider’s Structure (Maritime FCL / LCL)

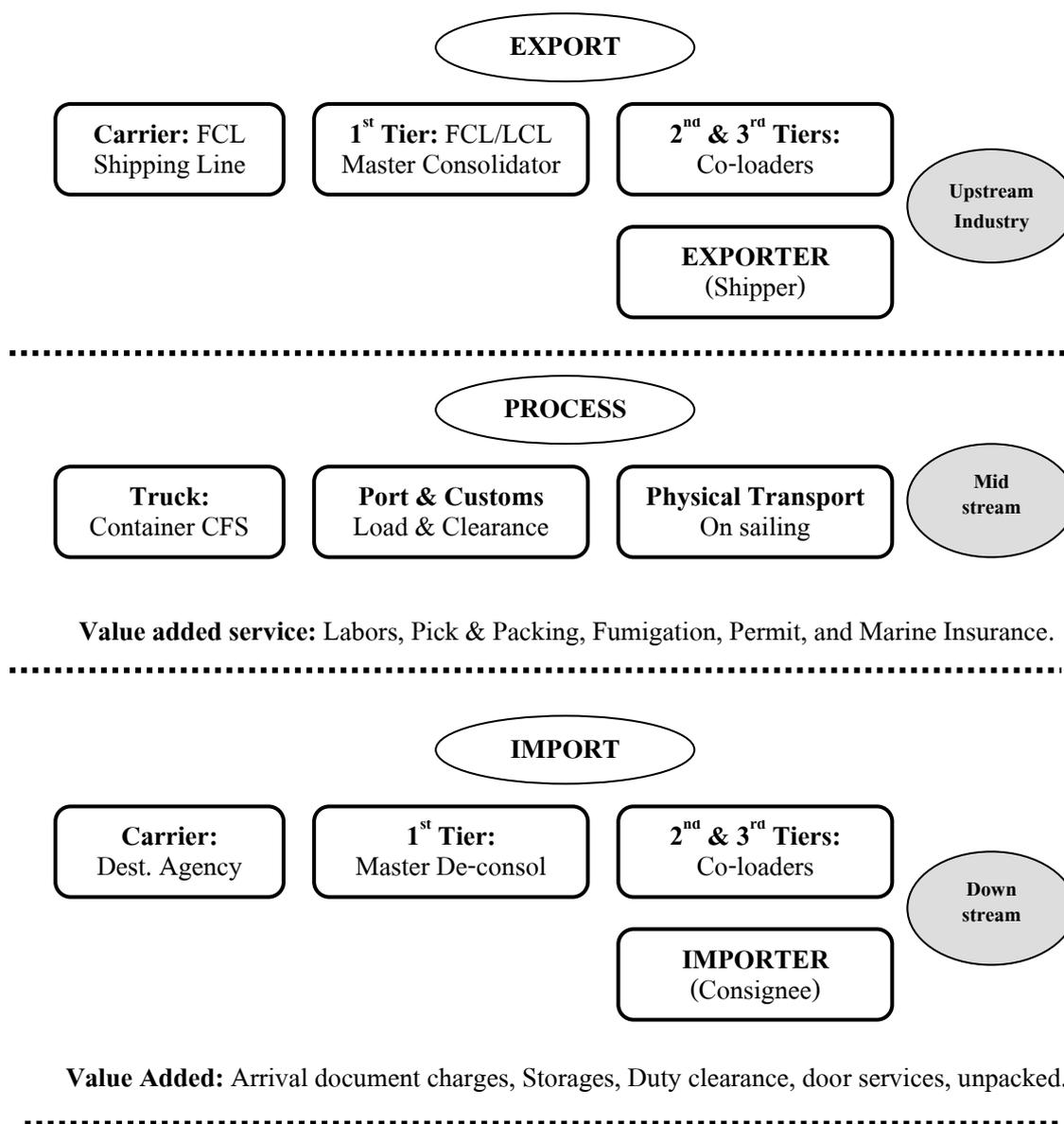


Figure 2.5 Supply Chain of Service Provider in Sea Transport (Author)

* Value added items also defined scopes from Wilding & Juriado (2004) on other activities related to value added services which were: (product returns, assembly & installation, labeling, customization, packaging, product returns, customs brokerage)

According to Barrar & Davies (1985), they defined the forwarder acts as an export expert leaving the company to their role in production and marketing for all its documentation and transportation arrangements. On the other hands, the option to integrate further downstream has not been taken by the trader, due arguably to the specialist knowledge and expertise available to the forwarder, but not the dealer. Such that the costs of his transacting for services in the marketplace perceived as being less than those which would follow through forward integration.

Barrar & Davies (1985) stated that it was hard to define precisely for the forwarder's role, because it is still evolving from its origins, which go back to before the industrial revolution wherefrom, the emphasis has been on an organization which owned neither the goods nor the means of transportation yet one which hasten the goods internationally. Moreover, Murphy & Daley (2000) added that forwarder offers more activities, such as supply freight cost, routing advisor as well as track and trace the shipment.

Murphy & Daley (2000) defined Freight Forwarder referred to an international specialist, offering delivery service for international shipment.

Magill (2000) cited in Aktas & Ulengin (2005) defined the fourth party logistics (4PL) provider integrates the logistics services provided by the shipper as part of a partnership, managing and optimizing the whole supply chain (network), including both operational and strategic levels.

R+L Global (2015) updated and defined today logistics provider as a full complement of international logistics services to provide air, sea, land transportation and plan to solve model which could not meet time-critical deadlines.

2.3.3 Container Shipment and LCL Volumes

This study tried to update the present information (secondary data) employed from Port Authority of Thailand (PAT)'s statistic. The most updated port's throughput recently was announced for December 2014 to November 2015.

The secondary data was re-analyzed and presented for Bangkok port's (PAT) throughput and Laem Chabang (LCB) port's throughput. The different items were only LCB port having the transshipment cargo and transshipped containers.

There are five standard lengths of containers, 20 ft (6.1 m), 40 ft (12.2 m), 45 ft (13.7 m), 48 ft (14.6 m), and 53 ft (16.2 m). Container capacity often expressed in Twenty-foot Equivalent unit: TEU. An equivalent unit is a measure of containerized cargo capacity equal to one standard

20 ft (length) × 8 ft (width) container. For example, a 40-ft container is the equivalent of two TEU. Figure 2.6 provides information regarding the capacity of widely available container sizes.

20' Dry Standard	40' Dry Standard	40' Dry High-Cube
		
Outside Length: 20' Outside Width: 8' Outside Height: 8'6" Inside Length: 19'4" Inside Width: 7'6" Inside Height: 7'8" Door Opening: 7'6"W x 7'4"H Tare Weight: 4,870 lbs Payload Weight: 48,000 – 62,000 lbs Cubic Capacity: 1,172 ft	Outside Length: 40' Outside Width: 8' Outside Height: 8'6" Inside Length: 39'6" Inside Width: 7'9" Inside Height: 7'10" Door Opening: 7'8"W x 7'6"H Tare Weight: 8,490 lbs Payload Weight: 58,000 – 63,000 lbs Cubic Capacity: 2,387 ft	Outside Length: 40' Outside Width: 8' Outside Height: 9'6" Inside Length: 39'6" Inside Width: 7'9" Inside Height: 8'10" Door Opening: 7'8"W x 8'6"H Tare Weight: 9,612 lbs Payload Weight: 58,000 – 63,000 lbs Cubic Capacity: 2,686 ft

Figure 2.6 Intermodal Container Dimensions (Coyle et al., 2011)

However, such Full Container Loaded (FCL) most carried by shipping lines, the exporter/importer had a choice to contact the liner for FCL service directly or outsourcing through a logistics provider. However, the LCL shipments did not provide by any liners since consolidation service is a tailor partial shipment delivery. Liner focus only per TEU service for unit provided while LCL shipment was not in their interest. Since several activities were concerned to form a consolidation service, e.g. Cargo picking, and stuffing cargo by each shipment, needs labor skill, cargo stacks planning, and experience as well as responsibilities.

Therefore, all LCL shipments were through all freight forwarders (logistics providers) provision either own consolidation or coload out to a master consolidation (consolidator of the shipment).

For the LCL volume, the most up to date provided by port were only between years 2005 to 2009 as showed in table 2.2

Table 2.2 Containers Volume (PAT & LCB) Year 2005-2009**Container movement in TEU for Port of Bangkok and Laem Chabang Port**

Fiscal Years (Unit: TEU)	2009	2008	2007	2006	2005
Fiscal Years (in Thai)	2552	2551	2550	2549	2548
BKK PORT (PAT)	(TEU)	(TEU)	(TEU)	(TEU)	(TEU)
Inbound LCL 20' (CFS)	547,000	624,000	621,000	602,000	577,000
Outbound LCL 20' (CFS)	622,000	666,000	749,000	738,000	674,000
By Costal (CFS) Inbound & Outbound	24,000	42,000	40,000	0	0
By Rail (CFS) including Empty Containers	117,000	129,000	148,000	111,000	98,000
PAT's throughput (Total TEUs)	1,310,000	1,461,000	1,558,000	1,451,000	1,349,000
Fiscal Years (Unit: TEU)	2009	2008	2007	2006	2005
Laem Chabang Port (Chonburi)	(TEU)	(TEU)	(TEU)	(TEU)	(TEU)
Inbound LCL 20' (CFS)	990,000	1,266,000	975,000	842,000	806,000
Outbound LCL 20' (CFS)	2,272,000	2,614,000	2,311,000	2,037,000	1,877,000
Empty (containers – both Inbound & Outbound)	1,360,000	1,360,000	1,355,000	1,244,000	1,082,000
LCB's throughput (Total TEUs)	4,622,000	5,240,000	4,641,000	4,123,000	3,765,000

Source: PAT (2009) Statistic of Vessel and Cargo Service

Table 2.3 Containers in TEU by LCL (Year 2005-2009)**Containers by CFS activities (LCL) in PAT & LCB (Separated Outbound & Inbound)**

Fiscal Years (Unit: TEU)	2009	2008	2007	2006	2005
Outbound LCL 20' Container (CFS) - PAT	622,000	666,000	749,000	738,000	674,000
Outbound LCL 20' Container (CFS) - LCB	2,272,000	2,614,000	2,311,000	2,037,000	1,877,000
Total Outbound LCL 20' Container (CFS)	2,894,000	3,280,000	3,060,000	2,775,000	2,551,000
Inbound LCL 20' Container (CFS) - PAT	547,000	624,000	621,000	602,000	577,000
Inbound LCL 20' Container (CFS) - LCB	990,000	1,266,000	975,000	842,000	806,000
Total Inbound LCL 20' Container (CFS)	1,537,000	1,890,000	1,596,000	1,444,000	1,383,000
LCL TEUs (Both Export & Imports)	4,431,000	5,170,000	4,656,000	4,219,000	3,934,000

Source: Researcher's analysis

The report showed total volumes from both ports (PAT and LCB) 4.4 million containers as LCL (CFS) that 2.8 million was outbound containers in the year 2009, and 1.5 million containers as inbound containers.

By assuming a Twenty Feet Container Equivalent Unit (TEU) equal to 25 CBM (Cubic Meters) per container, the LCL measurement approximated volume showed in Table 2.4

Table 2.4 LCL by CBM Volume (Year 2005-2009) assuming 25 cbm per TEU (20' container)

Fiscal Years (Unit: CBM)	2009	2008	2007	2006	2005
Outbound LCL in CBM (PAT)	12,440,000	13,320,000	14,980,000	14,760,000	13,480,000
Outbound LCL in CBM (LCB)	45,440,000	52,280,000	46,220,000	40,740,000	37,540,000
Total Outbound LCL in CBM	57,880,000	65,600,000	61,200,000	55,500,000	51,020,000
Inbound LCL 20' (CFS) - PAT	10,940,000	12,480,000	12,420,000	12,040,000	11,540,000
Inbound LCL 20' (CFS) - LCB	19,800,000	25,320,000	19,500,000	16,840,000	16,120,000
Total Inbound LCL in CBM	30,740,000	37,800,000	31,920,000	28,880,000	27,660,000
Total Turnovers LCL in CBM	88,620,000	103,400,000	93,120,000	84,380,000	78,680,000

* CBM = Cubic Meters (Measurement of W x L x H in meter)

Source: Researcher's analysis

The report showed that the volume in LCL had in large numbers at 78 million CBM (Year 2005) up to peak volume 103 million CBM in Year 2008.

2.3.4 Physical Distribution and Consolidation Service

Physical distribution was defined it is broadly scoped by Kawtummachai (2011).

The confine combined two aspects:

“Physical distribution:

- *The movement of a finished product/service to customers.*
- *In physical distribution, the customer is the final destination of a marketing channel, and the availability of the product/service is a vital part of each channel participant's marketing effort.”*

Freight forwarders basic functions are in role as suppliers' arrangement for cargo shipment and shipping documentations from a country of original to international destinations. For a small quantity cargo, forwarders manage to provide partial shipment volume by less than container loaded (LCL) consolidation. Among them, one is called as a master consolidator (freight supplier)

and customers as "co-loader" (freight buyer). Hence, the freight buyer is also a second tier freight supplier for their co-loaders (exporters/importers) in the transport market. They are in a form of freighter broker, 3PL, 4PL, logistics provider who has to handle LCL shipment from their customers (Logistics Digest 2011; Lloyd's of London, 1995).

A highlight of this activity is when a master consolidator unable to perform a service because insufficiency in volume quantities, or having no service to some restricted area, they have to co-load out. It's usually happened in everywhere and every day, of which players' strategies are served from own insourcing to be outsourcing. Such a bet is challenging in between gain or loss from cargo volume and freight cost impact.

Therefore, the consideration in the matrix of price, operation and all relevant factors have to consider carefully recommended by Bailey, Farmer, Jessop & Jones (2005).

For 3PL in China, Zhou et al. (2008) were confined to the Chinese 3PLs that still have not become multinational players in the 3PL market.

Chow, Choy & Lee (2007) suggested in the volatile Build-to-Order markets. The integrated 3PL providers have to adjust their traditional freight consolidation strategies to meet customer service commitments simultaneously and minimize distribution cost (Tyan et al., 2003 cited in Chow, Choy & Lee, 2007).

In Thailand, the freight forwarders are not exactly divided into categorization, but usually, they are all able to manage full physical distribution either under own operation or outsource for more integration abilities and services. As in the Transportation yearbook 2015 (Transportation, 2015), it contains more than 1,000 companies who able to supply the transportation and related services. The index was divided into groups of core service operates, such as air-forwarders, sea-borne carriers (shipping liners), sea-forwarders including international freight forwarder and NVOCC (consolidators). Also, local trucking companies, Cross-Land truck and rail service, customs broker as well as terminal operators and other service operators for, i.e. warehouse operator (with or without bonded privileges), packing & crating service, surveyor, fumigation, and removal companies service.

In freight forwarder industry, the association in Thailand is TIFFA (Thailand International Freight Forwarder Association). TIFFA with there are total 214 members are forwarding companies, divided into 178 as ordinary members, and 36 members are associated members. Ordinary Members must pay a Liability Insurance premium to the Association every year while member type as associated members will only obtain the news and announcements but no any liability with pool insurance premium provided by the association's assurance agent. Members of the Board of Directors of the corporate entity must have no less than three years of experience in international freight forwarding business (TIFFA, 2015).

According to Vitasek (2006) stated that consolidator forwarder who provides a combination of shipments to utilize container space and get cost reduction consolidated the delivery on same scheduling.

Spencer, Rogers & Daugherty (1994) warned the reduction cost sunk in inventory decreased for warehouse operators might considered.

Spencer, Rogers & Daugherty (1994) argued in JIT studies that contradicted to a very existence of a warehouse represents an obstacle to achieving continued inventory reductions. A more appropriate view of JIT logistics' role is that it should increase deliveries of purchased components to the points of use and, ultimately, eliminate warehousing activities.

However, as above section Passas & Jones (2007) stated that the freight forwarders were having many related activities and broadly definitions. Therefore, the service providers as an NVOCC, consolidator, intermodal transport provider, multimodal transport service provider, combined transport freight provider, 3PL and logistics service provider are in a group of forwarders.

Copper (2007) added in more about timing that freight can consolidate across time for both customers and products. The across time involves holding orders extra days to achieve larger, more economical shipment sizes.

The ocean freight forwarder and the NVOCC together comprise the category of ocean transportation intermediary within the framework of Ocean Shipping Reform Act of 1998.

United Nations Economic Commission for Europe (2003) defines intermodal transport service provider as the service provider for cargo moving in one same carrier without handle anything after changing the transport mode. For multimodal transport is that two or more mode differently to ship a shipment from origin country to different destinations.

United Nations Economic Commission for Europe (2003) also defines combined transport in same meaning of intermodal transport. Customs brokers mean activities concern to all clearance formalities with the customs that including taxes-duties payment, refund duty, document submission.

2.3.5 Freight Forwarders Functions and Multimodal Operator's Source of Income

Spencer et al. (1994) referred the rationale for using external logistics suppliers is based on resource allocation. Employing them can free workforce, managerial, and financial resources. Additionally, capital investments can be avoided which do not contribute directly to the core business, and possible includes warehouses, transportation vehicles, and computer resources. These were views of spending money in capital and investment as well as focus on assets utilization to be considered on sourcing with forwarder's functions.

Spina, Campanella & Codeluppi (2000) stated that not only concerning the economics, which remains crucial given the extremely high incidence of transportation on the total cost.

Logistics Corner (2009) listed out nine functions of the freight forwarder in Thailand as:

Customs Broker: a clearance broker for exporter (sender/consignor) and import (receiver/consignee)

Forwarding business: an agent to service in international transport for exporters' and importer's shipments.

Transportation provider: the transport service provider for air, sea and rail modes;
Packing: service for cargo packing and cargo stuffing.

Warehousing: service for warehouse that may own operated or co-operate with other warehouse service provider; *Labor:* service for labor, stevedores in container stuffing.

Multimodal transport: delivery service in multiple modes or more.

Logistics service: manage logistics or cargo distribution; *Business Consultant:* Consulate and advice for export and import related activities. With all these services, a forwarder may represent on shipper's behalf in delivery or function as the exporter of the shipments.

Coyle et al. (2011) presented the Intermodal transportation involves the use of two or more modes of transportation in moving a shipment from origin to destination. International transportation implies the use of multiple modes and carriers.

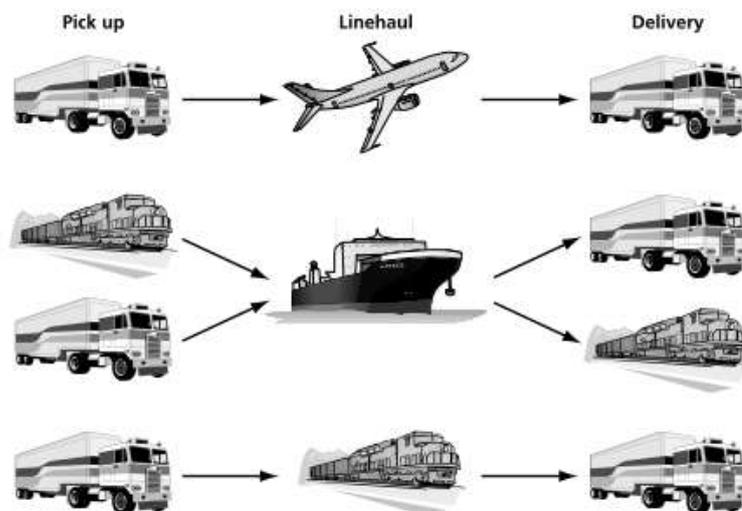


Figure 2.7 Common Intermodal Combinations (Coyle et al., 2011)

- Income from Freight Carriage

In the forwarding role, forwarder's income is derived from the commission on carriage and charges for documentation. In the case of the clearance formalities, the forwarder normally has located at or near a port, inland clearance depot or other customs point. By the physical presence at the point for duty, he is abler than the trading company to expedite clearance. The

next development in the documentation that today is already available is the paperless interchange system. Computerized customs facilities have already existed. As an intermediary, the forwarder should support the shipment information and the forecast delivery times to improve delivery service. The forwarder has a commercial need to interpose between customs and shippers in the data exchanging (Barrar & Davies, 1985).

- Income from Clearance & Other Activities (with/ without outsourcing)

For the forwarder's role in customs work, the paperless system offers the potential information and documentations to be bypassed by direct communication between customs and the trader. Both forwarders and shippers alike agreed that the forwarder's role would decline as a sender, and the carrier adopted more of the traditional forwarding function. The freight forwarder may manage all own facilities, or outsource by hire, rent, sourcing, book the service by purchase through other freight supplier and earn the commission or the service charges.

Logistic Corner (2009) emphasized such forwarder business need the long-term connection and extensive network. Either locally or international partners are important to support their customers' requirements and satisfaction. By the way, the significant amount of cash flow is also requested since they are usually to make advance payment for freight charge, port charge, and documentary. However, it is significant to the term of trading that agreed between buyer and supplier.

Leenders, Fearon, Flynn & Johnson (2002) concluded that freight forwarders consolidate small shipments into a container and delivery it and operate large fleets of carriers or trailers for delivery and cargo pick-up are also brokers. Freight brokers find loads for carrier or trucks for shippers. Foreign freight forwarders operate internationally. Customs brokers clear shipment, collect duties as well as provide the information for importers. Non-vessel-owning common carriers (NVOCC) provide the less-than-container-load (LCL).

2.3.6 Responsibility and Obligations towards Shippers/Consignees

In the international trading, a well know and standard of a trading term as "Incoterms." Incoterms allow the international buyer to choice for the paying term such as C&F (Cost and Freight); FOB (Free on board) as buyer's options for whether the transport cost will be paid at origin by the shipper or collected from the consignee. Figure 2.8 and 2.9 explained delivery term and types of responsibilities and obligations

Mode	EXW	FCA	FAS	FOB	CFR	CIF	CPT	CIP	DAF	DES	DEQ	DDU	DDP
	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	✓	✓					✓	✓	✓			✓	✓
	✓	✓					✓	✓	✓			✓	✓
	✓	✓					✓	✓	✓			✓	✓

Figure 2.8 Incoterms by Mode (Coyle et al., 2011)

The role of Incoterms used to define the relationship between exporter's and importer's obligations. The responsibilities during cargo delivery regarding delivery mode, the arrangement of clearances, transfer of risk and insurance responsibilities for whose has insured the cargo during transport, delivery terms, start and stop points to end the delivery and determine transport costs shared between the parties. Figure 2.9 described the importer's and exporter's responsibility in events.

EVENT	EXW	FCA	FAS	FOB	CFR	CIF	CPT	CIP	DAF	DES	DEQ	EXW	DDP
Exporting packing, making, labeling	E	E	E	E	E	E	E	E	E	E	E	E	E
Export clearance	I	E	E	E	E	E	E	E	E	E	E	E	E
Transport from origin to port	I	E	E	E	E	E	E	E	E	E	E	E	E
Load main carrier	I	I	I	E	E	E	E	E	E	E	E	E	E
Select main transport	I	I	I	I	E	E	E	E	E	E	E	E	E
Unload main carrier	I	I	I	I	I	I	I	I	I	I	E	E	E
Cargo insurance	I	I	I	I	I	E	I	E	E	E	E	E	E
Import clearance, pay duty & taxes	I	I	I	I	I	I	I	I	I	I	E	I	E
Transport from port to destination	I	I	I	I	I	I	I	I	I	I	I	E	E
	I = Importer E = Exporter												

Figure 2.9 Importers / Exporter Responsibility (Coyle et al., 2011)

Spina, Campanella & Codeluppi (2000) said that on outbound logistics, either direct or indirect, might strengthen the link to the final customer, especially when carriers are selected and contacted directly by the customers - which referred to as ex-work purchasing. Hence, ex-work terms (EXW) most related to the TCO concept.

Cooper (2007) defined three variance factors to be considered are: cost, mean delivery time and delivery time variance. Cost, a consolidated order apparently would not be of sufficient volume to save transportation costs over the expenses of holding the order up to one day. In contrast, a strategy of holding orders up to *four days* for shipment was always less expensive than direct shipment, this sense is about save more cost but more delay. Some shipper is expected to ship the shipment on time but due to high average cost from inefficient volume, the container must be held for the next sailing to reach minimum volume for break-even cost. Although the obligation in cost can satisfy the shipper but the consignee who face the delay in shipment (especially in JIT concept), they may claim back to the shipper to responsible to replenish by sending the substituted shipment by air service or reject the delayed shipment that unable to reach them on agreed time. Given the service capabilities, availabilities and visibilities, the obligations to both shipper and consignee, are always on lowest cost, shortest lead-time and lowest time variance that can be purposed as save cost, save time and safety cargo.

2.4 The Determinants of Success and Failure of Logistics Performance Index (LPI)

2.4.1 LPI concepts

Adopted with difficulties and constraints in assessment, same given comment by the group of authors, Arvis, Mustra, Ojala, Shepherd & Saslavsky (Eds., the World Bank, 2012) in material for LPI measurement. The indicators on page 51 addressed one of the difficulties to assessed critical elements of good logistics; cannot be evaluated using only time and cost information (the World Bank, 2012).

Along the chain, SC members from upstream to downstream consist of many tiers as stakeholders in the chain. Each participant implements logistics performance to yield only for own logistics department. This empirical study empathized for logisticians as a service provider to break out all of these constraints, enrich their performed service, the quality of logistics performance as a generality study for all service sectors.

Service performances in a way of serviceability, competitiveness, and benefit from strategic sourcing were exploratory. The holistic model illustrated the instrument for logisticians' competitiveness measurement in the service sector; to balance the lack of literature in sourcing techniques were included.

The hardness as main issues was discussed on difficulties in measuring LPI. Authors of the Trade Logistics in the Global Economy (Arvis et al., 2012) addressed its important in many

critical elements of good logistics – such as process transparency, service quality, predictability, and reliability -unable be assessed using only time and cost information (the World Bank, 2012).

Hence, to close this learning gap, they employed six components added as core components and using means of response country for each question. This interpolation was used to fill in missing values, since some respondents in various countries ignored to complete all six measured components, which were:

- 1) efficiency of customs clearance;
- 2) quality of trade and transport infrastructure;
- 3) ease of competitively priced shipments;
- 4) quality of logistics service;
- 5) ability to track and trace consignments;
- 6) frequency which shipments on punctual.

2.4.2 LPI Ranking and Scores

This study focuses on 3 Nations in ASEAN under World Bank LPI results. The six key indications showed the results for closet Competitiveness and A real Benchmark countries output produced out in a rank of not over 55th from 155th of the world (See full 155 countries' LPI Scores in Appendix-E). The below provided only neighborhood countries which connected border with Thailand.

The focus highlights to find most scores rank to fit a couple for one good benchmarking and one best practice. With scopes of not over rank 55th from 155 countries, ASEAN was the main focus. First, the strongest score over 4.0 would not be able to be competing since most having her various frequencies of sailing as the main hub (cause building and systems in many infrastructures than developing countries) and although several main ports more than two.

Therefore, Singapore, Hong Kong (as main hubs of ASEAN). As well as Japan, Taiwan, and Korean, all of them had advanced infrastructure with various ports. Table 2.5 focus only on ASEAN countries LPI showed in world rank.

In this study would highlight only countries in AEC and connected with Thailand as her closest neighborhood. However, all the neighborhood countries which connected with Thailand's borders were in lower scores to be competing. Therefore, Cambodian, Lao PDR, and Myanmar were not included in this study.

Table 2.5 LPI Ranking and Scores (2012) only ASEAN

Country	LPI Rank	LPI Score	Customs	Infra-structure	International shipments	Logistics competence	Tracking & Tracing	Timeliness
Singapore	1	4.13	4.10	4.15	3.99	4.07	4.07	4.39
Hong Kong	2	4.12	3.97	4.12	4.18	4.08	4.09	4.28
Japan	8	3.93	3.72	4.11	3.61	3.97	4.03	4.21
Taiwan	19	3.71	3.42	3.77	3.58	3.68	3.72	4.10
Korea, Rep.	21	3.70	3.42	3.74	3.67	3.65	3.68	4.02
China	26	3.52	3.25	3.61	3.46	3.47	3.52	3.80
Malaysia	29	3.49	3.28	3.43	3.40	3.45	3.54	3.86
Thailand	38	3.18	2.96	3.08	3.21	2.98	3.18	3.63
India	46	3.08	2.77	2.87	2.98	3.14	3.09	3.58
Philippines	52	3.02	2.62	2.80	2.97	3.14	3.30	3.30
Vietnam	53	3.00	2.65	2.68	3.14	2.68	3.16	3.64
Indonesia	59	2.94	2.53	2.54	2.97	2.85	3.12	3.61
Pakistan	71	2.83	2.85	2.69	2.86	2.77	2.61	3.14
Sri Lanka	81	2.75	2.58	2.50	3.00	2.80	2.65	2.90
Armenia	100	2.56	2.27	2.38	2.65	2.40	2.57	3.07
Cambodia	101	2.56	2.30	2.20	2.61	2.50	2.77	2.95
Lao PDR	109	2.50	2.38	2.40	2.40	2.49	2.49	2.82
Myanmar	129	2.37	2.24	2.10	2.47	2.42	2.34	2.59
Nepal	151	2.04	2.20	1.87	1.86	2.12	1.95	2.21
Burundi	155	1.61	1.67	1.68	1.57	1.43	1.67	1.67

Source: the World Bank (2012)

Focus on another aspect, the score of International shipment, Indian and Philippines will also not be suited to this study while Malaysian today, the country is offering for the transshipment hub service followed Singapore port. All these reasons cause unable to treat all Asian's countries partners into a fair comparison of competitiveness in this study. As a conclusion for the most selected country to suit for comparison with Thailand in this study would be Vietnam with following reasons:-

First, the scores of Track & Trace was the closest to Thailand at 3.16 with 3.18 and Timeliness (reflect delivery performance) 3.64 and 3.63 respectively.

Second, the neighborhood borders connected with Thailand.

Third, international shipment at scores of 3.14 and 3.21 respectively as well as the total scores output rank as 3.00 and 3.18. For logistic competency leads to further study of their sourcing and relationship on selection sources strategies would be an interesting to be compared.

For all of the best, China as a slept Giant awaken, with at least more than 700 forwarding companies (CIFA's list) produced output from all six indicators at highest scores (uncounted on the countries where are hubs and no any borders connecting with Thailand). This interesting to learn what a giant was done and chosen strategic decision choices since there are late coming but fast growing in this logistics industry, plenty of freight forwarders. It is an interesting to them as the benchmark of Asian (who does not operate as a transshipment hub).

2.5 Factors and Variables

2.5.1 Latent 1: Strategic Sourcing Techniques: Purchasing & Procurement

- Sourcing Techniques and Total Cost of Ownership

Sourcing techniques were not novel and well-known in many previous researchers. One of the most discussing as strategic in the purchase and strategic sourcing are Make or Buy strategy.

Dale & Cunningham (1983) defined Make or Buy: MOB strategy that the make or buy decision refers to the problem encountered by companies when deciding whether a part should be purchased from an outside supplier or manufactured internally.

In their work mentioned that majority of make or buy decisions invoked in the name of "cost", but that cost is only one of a multitude of criteria which managers need to evaluate in this strategic decision. Prescriptions for improving the make or buy decision have well documented from a variety of economic and quantitative viewpoints. For instance, the impact of this decision making on various elements of cash flow, and the differential risks associated with it.

In many works, there were so many outlines with multiple accounting procedures aid in achieving than economic procurement policies. Some had proposed an integer programming model approach to the various products make or buy decision.

In their study employed the weight choices with two categorized criteria. Reasons to Buy, these construct of items as Volume not big enough to justify capital; Plant space; Benefit of outside supplier's specific ability; demand varies; lack of skilled personnel; quantity for quicker delivery; higher quality, and less expensive.

Another reason for own making was Integration of plant operations; Transportation delivery expense; Unreliability of suppliers; Unusual complex parts requiring direct supervision

(include complexities of activities with labor supervision); Helps carry overhead; Secrecy (do not want designs widely known); Higher quality; Less expensive.

The main idea of these most used variables was reflecting aims of awareness in costing, sufficient resources, risk in both quality and information with others. However, they could be grouped into easier understanding that most related to measurable cost in transaction and process-based. Finally, they concluded the idea of the decision to "make" followed Japanese companies as Control of quality, Continuity of supply, Degree of specialist "know how", and Economics of production. Then why the skill and experiences of the maker should not ignore. In their second case study investigation, they explained the Decision-Making with Process observed into three levels of functional staff be involved: Highest or senior level in management from Directors up, Middle management was meant purchasing manager level, and junior management as the buyer.

At the conclusion, their study suggested that risk involvement such industrial relations conflict in transferring work to an outside supplier. Moreover, also, the consideration related to the latter, even after releasing a large proportion of the guillotining (steel plate cutting) section's workload to an outside supplier, two machines would still be required. This consideration also showed that final decisions will need further investment on Make or Buy or not.

Hinted by Peter Hunter (1972) on his professional career in Container Projects Consultant, the relative merits of a leasing rather a man owning equipment hinges around one primary factor, is it less costly, does it produce swings in some form for the lessee? He claimed that a new industry by the rapid development of containerization had drastically altered world shipping procedures. It leads the design; construction and provision of containers have not always waited for the demands of ship operators. Containerized shipping lines' operations have strongly influenced in securing the initial complement of containers for their vessels with the marketing advantage of their name on every container, and also often by benefits granted in subsidies by various countries to encourage national maritime interests. The container use re-evaluated with experiences in actual utilization of containers and in securing the maximum flexibility in their use as instruments of traffic movement.

"To own or lease containers is only one of the many problems facing transportation authorities, primarily steamship lines, which within the space of only three or four years have seen their industry transformed by the advent of the "big box." (Hunter, 1972) He explained that container as liner's equipment was leasing available in three forms.

(a) Finance Lease. Usually running for an extended period based upon the life expectancy of equipment, and is often really a purchase lease with equipment owned by the lessee at the designated period. For containers, this could run from 5 to 10 years.

(b) Term Lease. Usually for periods of six months to 3 to 5 years with equipment reverting to the lesser.

(c) Short Term or Per Diem leasing.

Thus, the decision to purchase or lease by a leased company finance the purchase over an extended period was primarily made for purely financial reasons. The pros and cons of container utilization are however proving more decisive in its physical distribution character than in the method of financing. His ideas: the most tightly controlled operations the ratio of three containers per ship container slot — one at shipping base, one in transit, one at destination station for return—is open to question. Then the discussion on factors affecting container throughput in Britain with Mr. Dudley Perkins, Director General of the Port of London Authority, stated clearly: “*Finally, in discussing throughput, calls “the sticky box” which meant the container that remains in the berth for an unduly long period. One service the average stay of imports was seven days. On another, it was two weeks and on a third it was three weeks.*” These were not exceptions but averages, and those they were for short-sea trades. “Containers which had spent only a few days, in some cases two or three, on the ship movement. These experiences can substantiate in many areas”.

Two conclusions from these examples which affect the economic aspects of container ownership are: (a) if the ratio of containers per vessel slot is 5 or 6 to 1 rather than 3 to 1, and with a 500 or 1,000 containers complement, expenditures would be just about double some anticipated ownership costs. High in capitalized ventures, liners will carefully reassess expenditures which may double the original figure which runs into the millions of dollars. (b) Not only would the revenue earned per container significantly reduced but the placement, handling and storage costs would be greatly increased.

“The freight transport industry has contributed to this leasing pattern, most obviously in the area of container leasing. The advent of the container leasing firm was a logical offshoot of the container revolution, and these companies are now an institutional part of the industry. Parallel with the increase in the number of equipment leasing firms, there has lately been another and equally significant development.” (Hunter, 1972)

Finally, he suggested as a conclusion that all re-positioning for loading and storage charges added to by damage control and repairing fees among various factors which must consider. Either the provision of containers functioned as the responsibility of the lesser offers container operators an opportunity to estimate the real costs of this part of their business. They may own or lease, or own and lease, according to the requirements from an own assessment of costs within their particular type of container operations. These reasons encourage lighting upon consideration in between cost-based or process-based leading. In this case, he suggested consider whether makes own container purchased or better go on leasing with consideration on cost and utilization for what's the business main goal objective.

Dale & Cunningham (1983) said in the make or buy decision processes is not widely explored, but there are similarities with other cross-functional decision processes. However, there were relatively small amount of research which has been conducted as regards functional involvement in the make or buy decision process.

Harry Dugdale (1985) defined "Makes" was the same parts itself, concurrent with obtaining additional supplies from outside, as a means, preterm., of adding to its capacity without incurring further capital expenditure. Thus, it obviates the risk and cost of the idle plant. "Buy" benefit was Resorts to outside suppliers to defer, to some extent, cash outflow which would occur from self-manufacture. So the outside supplier affords reasonable commercial term for settlement. Then Outsourcing will support to save investment and cash flow requirement.

Therefore, we can conclude that Outsourcing (Buy) is another alternative to manage cash flow management and time consuming and control own workers from own makes.

Ramsay & Wilson (1990) explained the choice of sourcing strategy by the matrix shows only two sourcing strategies, three voluntary sourcing strategies exist. Buyers may choose to purchase:

- (1) from one source only (single sourcing);
- (2) from more than one source (multi-sourcing);
- (3) the source of the supply itself (backward vertical integration), and once implemented.

This particular strategy becomes the decision to supply own material or service (make in).

They suggested that the "make or buy" decision was analyzed extensively in standard purchasing textbooks, and backward vertical integration is dealt with at considerable length in the industrial economics texts. Consequently, the focus here on the relatively thinly researched subject of the advantages and disadvantages of single and multi-sourcing to aid the selection of appropriate strategies.

Ellram (1994) stated that Total Cost of Ownership (TCO) concept may include element as order placement, research, and qualification of suppliers, transportation, receiving, inspection, rejection, replacement, downtime caused by the failure, disposal costs and so on. While TCO analysis can apply to the make-or-buy decision, it should also be implemented after an organization has determined that it will use a third-party (buy) rather than an internal source (make). Transaction costs can vary among suppliers and can be a major decision factor.

Graham Southwood (1995) defined Outsourcing is the provision of a service by an outside service provider, where the service provider manages or operates facilities previously done in-house. It is not new and knows the concept as 'contracting out' or 'facilities management.'

Ellram & Maltz (1995) offered the use of total cost of ownership concepts (TCO) to model the outsourcing decision. They defined the outsourcing decision of organization should perform certain activities internally or purchase these services from third parties and suggested the use of TCO analysis as an excellent approach for understanding the true cost implications

rather than focusing on price only since key issues in outsourcing is the potential for cost reduction. This congruent to the previous work of Dugdale (1985) which the main company had facilities currently to an essential starting point of decision must be its internal costs, i.e. its manufacturing costs. These comprise the respective costs, per unit, of direct labor, direct material, and manufacturing overhead.

Dr. Probert (1996), Lecturer of Cambridge University Engineering Department Manufacturing Engineering Group suggested that the make or buy issue is of major concern to manufacturing businesses, being directly linked to the basis on which a firm chooses to compete. To formulating a make or buy strategy, must be by developing in using a systematic approach.

Finally, he proposed six different business environments to a clear view of the utility of the approach was his theoretical framework. His awareness and attention paid on reviews previous studies both academic and practitioner sources. Several action types of research have many advantages when working in the area of knowledge very close to the practical application which not at least the rapid and efficient transfer of ideas to the end-user. He suggested the short review of the contributions of the literature and nature of the action research approach adopted, most make or buy is central to the ideas of manufacturing strategy. These sources the issue is considered from a variety of perspectives including the level of vertical integration of the firm, the span of processes included in a business and the question of supplier choice and relationships.

In his work, complete 6 cases studies verified into the six areas 1) data collection 2) derive business issue 3) technology definition 4) parts family definition 5) develop tech cost model 6) matrix positioning. After investigation all these said area, he proposed how to get into the model by verifying next four steps: 7) Evaluate technology options 8) Decision support models 9) Develop strategy recommendations and 10) Evaluate implications.

It concludes that the definition and business issue with the cost model should highlight as two primary drivers. His findings, the businesses which have applied the strategic make or buy methodology have reported positively regarding its usefulness. Also, has described how a structured, multidisciplinary project team approach appears to cope well with the range of business issues.

Razzaque & Sheng (1998) defined outsourcing, third-party logistics, and contract logistics mean the same thing. Multiple logistics services provided by a single vendor on a contractual basis, they offer "at least two services that are bundled and combined. However, outsourcing "may be narrow in scope" and limited to one type of business (e.g., warehouse) only.

Lars Fallan (2000) defined MOB strategy from organization theory combined with a growing realization that transaction costs are important in organizational studies and cost transaction. Transaction cost theory in accounting service provided a way to describe and identify the most economical governance structure from the nature of the operated transactions involved. The effects of asset specificity on the make-or-buy decision support substantially in accounting services. The relational attribute of trust and the transactional attribute of frequency were in

investigations. He found the hypothesized positive link between confidence and the buy alternative and the negative association between frequency of accounting transactions and the buy alternative.

The methodology in his work, he summarized the design framework into two phases. First, basic concepts of the transaction cost approach in perspective of trust in transactional cost relationship related to the make-or-buy decision. Second, the model was adapted to a setting of the make-or-buy decision of accounting services to develop hypotheses. The attributes of the heuristic model of transactions were followed Williamson's work in 1981, 1985 as uncertainty, frequency, and asset specificity were the important transactional properties (in transaction cost model).

To discuss the theoretical interpretation, this concluded that such monetary perspective, uncertainty closed to expenses; frequency would be how occasional profit could earn as enquiring the repeating in countable profit. For asset specificity would be closed to what present a focal firm having in hand as properties (the cost/capital in hand). The research was accounting service and seemed alike to forwarding service (in term of intermediated broker) to be adopted the implementation as conceptual perception to construct into this thesis framework.

About TCO or total cost of ownership, he proposed:-

“The total cost differences of the firm and market organization are the cost difference between the make-or-buy alternatives. These cost differences of the make-or-buy alternatives consist of the differences in both production cost and governance costs. In transaction cost economics the market transactions (the buy alternative) are replaced by within-the-firm transactions (the make alternative) when the production cost advantage of the market is less than the governance cost disadvantage” (Fallan, 2000).

With two arguments in his work, one was about outside procurement both products and service had no production cost advantage over internal production. The advantage will be when firm's needs for a good or service are not sufficient to support a plant of minimum efficient scale.

Another argument was a production cost disadvantage to the market by a small firm. However, large enterprises will more easily be able to realize the same economies of scale as market procurement. It was quite true about ease of approaches among a small and a larger firm. Hence, the size of organization (measured by the number of employees) will be needed to be included in the survey.

Canez, Platts & Probert (2000) claimed that transaction cost economics leads to Make or Buy framework. Their work was a first step towards providing performance measures for the assessment of business benefit delivered by individual make-or-buy decisions.

- Considerate Focus on Outsourcing / Partnerships

Dale & Cunningham (1983) defined make or buy decision processes can be divided into two main streams: general cross-functional and single functional focus.

Dugdale (1985) suggested that in the outsourcing decision, there would be a trade-off. Although, the benefit could save the investment, cash flow management with cost efficiency.

However, it should trade-off the ability of alliance partner who able to follow our needs or instruction in aligning to secure our business competitiveness. When considering alternative sources of supply for sub-products. A variety of viewpoints can occur. Therefore, in reaching a make or buy decision. Sometimes external supply is imperative. In other cases, stringent cost comparison must justify the choice. Thus, this seems the choices had to weigh among cost efficiency and cash flow benefit as a decision for a solution.

Razzaque & Sheng (1998) suggested handling logistics activities effectively and efficiently. A company may consider the following options:

- (1) It can provide the function in-house by doing own service.
- (2) It can own logistics subsidiaries through setting up or buying a logistics firm.
- (3) It can outsource the function and purchase the service.

Spina, Campanella & Codeluppi (2000) investigated that carriers often pool to gain more bargaining power into three forms of forward integration were identified as most used. Three strategic alternatives were:

- 1) The hire and reward solution
- 2) The forward vertical integration (routing, administration in distribution, even own fleet or not)
- 3) various forms of partnership, long-term contracting, dedicated investments and the outsourcing of both physical transportation, and most of the managerial activities of the distribution processes.

Fill & Visser (2000) defined outsourcing was the decision to outsource a part of an organization's activities is often the result of an imitative to realize potential production cost efficiencies. Their work offer a Composite Outsourcing Decision Framework: **CODF**, the framework as criteria set concentrated to investigate for three constructs for principal component elements which were: First, utilize the unique contextual factors associated with the decision. Second the strategic implications of deciding to outsource. Third, investigates the traditional cost aspects.

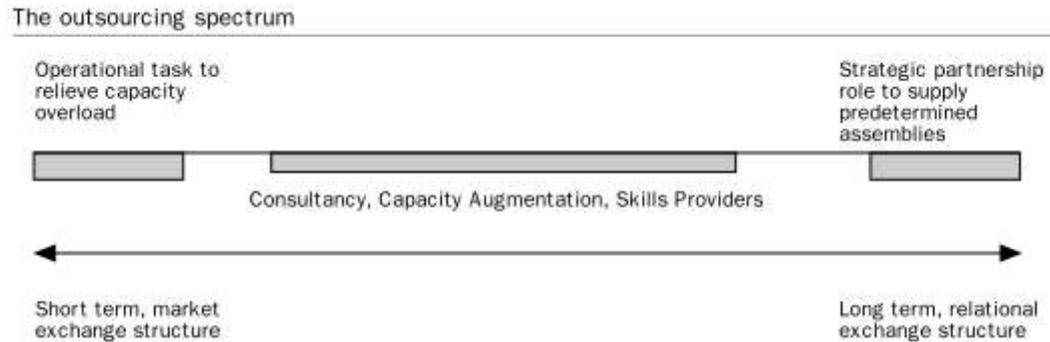


Figure 2.10 Outsourcing from Short-term to Long-term Spectrum (Fill & Visser, 2000).

Figure 2.10 showed that short-term exchange structure required the partnership as a relational exchange in structure. The six drivers were: Quality, Cost, Finance, Core-business, and Cooperation. Drivers were taken into considerate aspects as Quality because of increased quality demand, shortage of qualified personnel, and a transition period. Cost with a cost leadership strategy. To decrease costs of the company can increase its competitive position in finance because of a limited investment budget. Major funds utilized for investment in core business activities, which are long-term decisions.

Core-business is a primary activity which generates organization's revenues. All subsequent activities should outsource. Cooperation can lead to conflict between companies; those activities should be subject to total outsourcing.

CODF Element 1- Contextual Factors: utilizing the beliefs of managers and employees about the external and internal factors associated with the context of the particular process. The two approaches in the examination were contextual drivers as quantifiable and non-quantifiable criteria.

Element 1.1) Quantifiable criteria are costs, increased fixed costs, investments, and revenues.

Element 1.2) Non-quantifiable criteria are strategic interest, confidentiality, linkage with operations, and stability of employment, manageability and dependence on suppliers.

Using a Linker scale from 1 is negative (low desirability) to 5 (the highest desire to outsource), the score and rank associated result as the decision to outsourcing.

The analysis made by summing the scores for internal and external factors as a total score can determine which indicates whether outsourcing should use.

The conclusion made upon the score exceeding 50 as the decision for better outsourcing than own makes.

CODF Element 2 - Strategy and Structure were consideration of the strategic and structural dimensions. This was more qualitative approach to required customization, and then desired nine guidelines: Unique of processes, frequent of market cycles, internal capital require, influences in resources, market, expect to be a manufacturer; extended period is viable, supplier capable in technology and capacity, idiosyncrasies force by market, and change in corporate culture.

CODF Element 3 - Costs: transaction cost theory is most appropriate. Usually, will be production cost and transaction cost. For production cost was said to be lower to outsourcers because of economies of scale could be obtained, and cost advantages were normally for standardized products.

3.1) higher coordination costs to monitor supplier's behaviors, with less or few number of vendors, the customer should pay particular attention to contract details. (Such as pay bills and solving disputes.) The preventing coordination costs from escalating to the point of negating the savings from the supplier's production efficiencies.

3.2) often constructs difficult to assess on admits costs in threat of opportunism and uncertainty, shift the relative advantage whether market choice or cheaper production costs than hierarchies through economies of scale or better transaction should handle internally. Works on assessments most were categorized transactions along two dimensions: frequency and asset specificity. This consideration can regard as physical asset specificity or human asset specificity.

The Physical asset specificity refers to specialize the equipment must be used to complete the transaction. Human asset specificity relates to specialize in the knowledge must be to finish the deal (e.g. staff training, skills, and experience)

Moreover, Williamson (1979) cited in Fill & Visser (2000) classified asset specificity into three categories transactions non-specific, idiosyncratic, and mixed.

3.2.1 *Non-specific*: transactions required standard equipment with non-specialized (office supplies).

3.2.2 *Idiosyncratic*: transactions required specialized equipment or knowledge (custom made software).

3.2.3 *Mixed*: both attributes required both standard and specialized or special equipment become standard as process routine.

The conclusion in their finding, most interviewees result was mainly outsourcing since internal factor score in the first element (Contextual factor) at 57.9 which over 50 due to uncertainty about the stability of employment, although was judged unimportant that linked processes were not well controlled.

However, in the second element of strategy and structure, the employment as human resources became very famous. Since the demand swings cause much overtime and use of temporary labor. In the long-term, it is expected that the necessary capacity of the department

should be considered as higher hired employees or transferred to the outsourcer. This concept is to avoid substantial redundancy costs and retain their jobs.

For the third element as costing, most concerned to that external suppliers can use better methods and be more cost-effective than own investment, the then conclusion as outsourcing.

“The logic of outsourcing/partnerships is that the company will increasingly focus on those activities in the value chain where it has a distinctive advantage, and outsource everything else.

- This movement has been particularly evident in logistics where the provision of transport, warehousing, and inventory control increasingly subcontracted to specialists or logistics partners.
- Also, managing and controlling this network of partners and suppliers requires a blend of both central and local involvement.” (Kawtummachai, 2011)

Fallan (2000) studied 137 samples in accounting service; it found that procurement of accounting in Norwegian firms was Internal (make) 50.4 and External (buy) 49.6 percentages.

Sankaran et al. (2002) recommended that doing outsourcing with 3PL contracts from all various studies and investigations. The majority of focus on framework would be five aspects: (1) identify the need to outsource logistics; (2) develop feasible alternatives; (3) evaluate and select supplier; (4) implement service; and (5) (conduct) ongoing service assessment.

Wilding & Juriado (2004) studied on three main drivers on customer perceptions in outsourcing which were: (1) why to outsource; (2) what to outsource (need); (3) how to manage satisfactions within 3PL partnerships.

Baily et al. (2005) said that many implications of source decision-making may vary by the type of purchase made.

Bendor & Samuel (1998) cited in Aktas & Ulengin (2005) asserts that outsourcing provides a certain power that is not available in an organization’s internal departments. This power can have many dimensions: economies of scale, process expertise, access to capital, access to expensive technology.

Aktas & Ulengin (2005) also explained that by outsourcing logistics activities, firms can save on capital investments, and thus reduce financial risks. Outsource benefit in case needs of investment on logistics assets, such as physical distribution centers or information networks.

Handfield et al. (2009) recommended the supply management and operations must be aware of the components and services needed by operations to fulfill customers requirements for products or services, includes outsourced materials, services, travel, hotel, information technology, and labor.

Perrons, Richards & Platts (2005) mentioned outsourcing decisions are an important aspect of most firms’ overall strategic plans. Their investigation was on whether or not strong relationships between suppliers and customers improve performance. Their findings found that long-term supplier links seem not to play a role in the development of radical innovations.

Moreover, industry clock speed has no significant bearing on the success or failure of any outsourcing strategy for radically new technologies. However, they claimed that none of the previous papers had determined if this is equally true for slow industries and fast ones.

Hence, the decision on the make or buy as strategic in sourcing term had no testing in a relationship with the driver as time speed with innovation.

However, Bailey et al. (2005) proposed the trend of using single source approach is becoming increasingly popular, but it is not a good idea to apply in all situations. In some case, multiple sources with plenty of suppliers will be much better than only single-source, and many factors have taken into account. Valid arguments can be found on both sides, whether single sourcing has paid off handsomely as well as advantages have gained by dividing the business.

They suggested consider analyzing each situation, which was Effect on price, on the security of supply, on supplier motivation willingness to oblige, design innovation and so on.

Finally, the effect on market structure: if single sourcing leads to a monopoly, there will be no alternative supplier in the market. Thus, the international purchase is harder than a local purchase which requires more procedures and documents.

De Boer, Gaytan & Arroyo (2006) said the evolution of outsourcing in all previous studies were from the transaction cost economics, evolutionary economics, and specific functional or technical areas become an established theme.

Ramsay & Wilson (2007) concluded the choice of sourcing strategy into the matrix shows buyers may choose to purchase:

- (1) from one source only (single source).
- (2) from more than one source (multi-sources).
- (3) the source of the supply itself (backward vertical integration), and once implemented, the strategy becomes the decision to provide material or service yourself (make in).

Handfield et al. (2009) shared that in developing sourcing strategy; in ultimate combination often found is for bottleneck items, which have specific requirements with less number of suppliers. Limitation in some suppliers in the market can control the price. A detailed negotiation should take place that establishes high levels of service as critical to the business.

With specific *Service Level Agreements*, ensure capable of handling orders from multiple locations. There were many reasons for firms to do overseas outsourcing, which is: cost benefit, low labor cost, productivity levels, low production cost and material cost by capacity, different in the exchange rate, subsidize by the government, product process technology, and quality, lead local supplier to international competition.

- LCL consignment (Partial Shipment) as Insourcing or Outsourcing

LCL consolidated shipments consist of two or more orders for one carrier shipment class. At the point of received the different shipment classes requires arrangement and break them into shipments to individual customers at the destination. Although the consolidating shipments can substantially reduce transportation costs but may increase order cycle time as some orders are delayed to achieve larger shipment sizes (Cooper, 2007).

Therefore, LCL shipment by sea mode can be made either send the booking directly to an NVOCC forwarder who manages own consolidation service (consolidator's insourcing), or through any other forwarding companies that act as a broker in LCL service (outsourcing). Same expectations are on a reliable service, reliable carrier, punctual lead-time and reasonable cost while more value added in servicing that usually are expectations for the responsiveness, flexibility, and visibility. Timing is imperative especially under a Japanese concept of Just-in-Time (JIT) enabling the quantity per order in both supply and demand. The procurement leads order into the smaller size with shorter lead-time management that reflects regarding shipment size and value in transportation. With the higher number of more shipment frequencies for firm's supply chain which is keeping on track for hurry to use with zero inventories.

Ellram & Maltz (1995) proposed the Total Cost / Value Hierarchy Model. The basic price of materials up to FOB terms under the cost of transaction method, but at higher levels include initiating/maintaining a supply relationship, transportation expenses & terms, warranty term. Quality costs, lot size, logistics chain costs, and payment terms, then supplier cost commitment, downstream channel costs, and marketability. All these considerations will lead to the top level as ultimate customer cost/value. To adapt into process if handled by a third party, the modeling and analyzing of sourcing team with prospective suppliers in determining what was feasible (Ellram & Maltz, 1995).

Valsamakis & Grove (1996) explained that the supplier sourcing is important in today industry to practice. Suppliers in the chain are a factor influence the company performance.

Spina, Campanella & Codeluppi (2000) believed that forward integration into price-sensitive segments allows the supplier to charge high prices to the price-insensitive segments but prevents reselling from low-price customers to an expensive one. To consider on this, they suggested a methodology was needed to select the most suitable alternative for each local area.

Three streams of theories:

- 1) generic decision-making
- 2) transportation choices and
- 3) the evaluation of options.

For example, forward integration into selected customer (LCL shipment segments) allows a firm to benefit from price discrimination.

Choy et al. (2003) emphasized sourcing selection be outstanding in the supplier management. Appropriate suppliers who produce the good price and good quality will lead competitiveness to the company.

Aktas & Ulengin (2005) confirmed their studied results that most Turkish firms in using logistics service, they preferred to try to do own make than buy. Since most respondents showed 3PL firms in Turkey underestimated. 95 percentages were foreign capitalized cause they better do their logistics activities business themselves and not aware of the benefits of outsourcing the logistics activities.

Lysons & Farrington (2006) proposed future purchasing will increase in the strategic imperative of supplier selection, evaluation, and management. Raising the speed of ordering and automated system, low-value purchase, non-critical; standardize and more in outsourcing. Leading organizations will establish the strategic purchasing competency center or cross-functional personnel responsible for achieving competitive advantage via partners in the chain, sourcing performance is mainly measured by purchased price, and this will be as part of the overall contribution of purchasing supplier management to profit.

Buffa (2007) concluded in his study that the advantage of a consolidation strategy for LCL shipment is due primarily to the relatively significant reduction in the transportation cost component. The small shipment has more significantly affected by the cost reduction that mentioned in his paper for the factors influence the total logistic cost (effect TCO concept). Two independent variables are: reorder cycle and quantities. Changes are inventory holding, ordering and stock out the cost. Moreover, four dependent variables are the type of cargo, shipment distance, transit time and the unit freight rate structure for weight. All these reasons could be concluded the variables to consider in strategic freight purchasing among insourcing or outsourcing which suitable with the current shipment in hand.

Chow, Choy & Lee (2007) defined the consolidation service that unlike general SCM, the increase in customer delivery demand on frequent and small product quantity deliveries at BOSCO causes consolidated freight services (CFS) to emerge.

Lysons & Farrington (2006) indicated that suppliers with competitive price, quality and lead times are simply found in world class supplier attributes, world-class strategic purchasing. Suppliers are regarded as a competitive edge that responsible for a major share of product cost. Hence, in this study, strategic sourcing concreted on decisions making uses, techniques from strategies related to insourcing (make); outsourcing (buy); multi-methods (make and buy); (multiple sources – more different sources or countries), and total cost of ownership. Previous studies of Pisoot (2015), the framework had provided a set of dummy data as local charges illustrated for TCO costing.

- Strategic Purchasing and Competitiveness

Dale & Cunningham (1983) defined purchasing often has the most contact with suppliers and can contribute with input on their quality, lead times and costs.

Ramsay & Wilson (1990) suggested for a buyer who has only one source of supply for material or service was to risk accusations of either incompetence or corruption.

Today in many market sectors, buyers who retain multi-sourcing practices are regarded as curiosities. In the conclusions, they suggest that contrary to current practice where the combination of single sourcing with long-term contracts is rapidly becoming the norm, companies with large purchasing budgets would benefit from concentrating their efforts on other strategy combinations. With their further suggestion, a single sourcing with long-term contracts is best regarded as a specific option for the small, weak purchasing department.

Finally, their design illustrated the six possible combinations of sourcing and contracting strategies on a matrix as shown in figure 2.11

		Contracting strategy		
		Short term	Medium term	Long term
Sourcing strategy	Single-source	Punishment Run-in/out Limited liability strategy	NA	Low purchasing power strategy
	Multi-source	Punishment Run-in/out Limited liability strategy	Probationary strategy	Reward Growth Low power strategy

Figure 2.11 Sourcing/Contracting Strategy Combinations (Ramsay & Wilson, 1990)

Green, Zimmerer & Steadman (1994) proposed work for The Role of Buyer Sophistication in Competitive Bidding. They defined the buying process whether industrial goods usually organized, and results are complex and characterized by many decision makers, numerous decision variable, and several stages or step. For samples of variables in making a decision, such as a price, quality, delivery, service and many intangibles such as confidence in the vendor, reputation, and goodwill.

Green, Zimmerer & Steadman (1994) described that typically, a purchasing agent will be in charge of the actual purchase, but only after higher authorities have initiated the order to purchase and the staff section has written the specification. Also, the purchasing agent may have

the power to select the most appropriate vendor, and then issue the purchase order which may then issued to the lowest-priced acceptable bidder or a more complex procedure be required.

Green, Zimmerer & Steadman (1994) explained the complex procedure such as contacting each acceptable vendor to determine if he is willing to negotiate price and varies that it signifies the degree of complexity of the buying cycle for industrial products. The benefit from a response to operating inefficiencies can be quite apparent difficult to justify the purchase simply to comply with the governmental regulation. (e.g. some product related to permit of government's Environmental Protection Agency). Hence, the normative of decision variables concerned of both buyer and seller during various stages of the competitive bid process on several critical decision variables such as price, quality, and intangibles such as service, delivery. Therefore, Green, Zimmerer & Steadman (1994) described their variables into one by one:-

“Price and quality refer to the relative weight given by the buyer of these criteria when evaluating the vendor's product. Price able interpreted as the seller's ability to lower price while maintaining a reasonable level of profitability.”

“Quality refers to the product's ability to meet the durability and performance specifications of the buyer; quality as a thought of seller's ability to differentiate its offerings on respond to the needs of the purchaser better.”

“Intangibles represent a composite of other variables that important such as delivery, service, confidence in the vendor.”

These relative importance criteria may change during different stages of the competitive bid process. The low price is relatively unimportant when the buyer's primary concern is establishing the level of quality necessary to meet the needs of the user. Moreover, a firm with low quality or high price cannot expect purely social efforts on this stage to win an order in later stages without regard to other competitive influences. Building allies inside the firm enhance the success in completing the deal. The stage places the business development representative in direct contact with the potential clients and allows for greater sensitivity to the inner workings of the possible client firms was regarded as the “social stage” serves as a method of collecting valuable company intelligence. The factors included as who makes the final decisions as to what will purchase, what the company likes most (or least) from its present vendor. Attitudes of the key decision maker regarding the different vendors, and general information on how the firm views the industry in which it operates were carefully drawn in their framework (Green, Zimmerer & Steadman, 1994). The buyer sophistication led numerous opportunities to gain leverage over the vendor. Either leverage may result in lower prices, higher quality, quicker delivery, after-sales service. These concessions were part of vendor significantly reduce profit potential and not offered freely. Those knowledgeable buyers who understand the process can properly specify their needs and were skilled in the art of negotiation find the competitive edge in bidding process

beneficially. On the other hand, unsophisticated buyers were be harmed by the ineffective use of the competitive bid process. These reflected that they were no experience in challenges of bidding environment. Several dimensions: social sophistication, technical sophistication, specification sophistication, and negotiation specification will lead them who fewer experiences to inefficiency in purchasing (Green, Zimmerer & Steadman, 1994).

Razzaque & Sheng (1998) said the sourcing was as part of its strategic positioning process. A company must choose its customer service strategy, and develop logistics excellence is an important option through which customer satisfaction can achieve.

Canez, Platts & Probert (2000) concluded that make or buy in purchasing decision resulted in an increasing awareness of the importance of make-or-buy decisions. Make-or-buy decisions are often made purely by cost. Moreover, cost as a part leads the competitiveness.

McIvor & Humphreys (2000) made an argument in their study that few organizations have taken a strategic view of make or buy decisions. However, this is likely to have occurred due to a series of short-term decisions with no consideration for the long-term strategic direction of the organization.

This support to the work of Ramsay & Wilson (1990) and had fallen in their matrix of contracting strategy that firm should consider more on their sourcing for a long-term with a combination of strategies.

Spina, Campanella & Codeluppi (2000) introduced Make or buy decision about transportation, increasingly enriched by the third way of strategic partnerships. In fact, several non-cost factors should be included in MOB decision and carrier selection, which makes the quantitative model aimed exclusively at minimizing the total logistic costs hardly applicable.

Baily et al. (2005, p. 57) suggested the competitive advantages available from purchasing strategies was buyer focus on a mix of resources; emphasize creative management in resource utilization vis-à-vis competition.

De Boer, Gaytan & Arroyo (2006) suspected and argued that many managers find it difficult to transfer general frameworks for outsourcing into practical decision-making action. Take for example the outsourcing of logistics activities, since the purchasing of comprehensive logistics services was increasingly becoming more complex.

Hemsworth et al. (2006) indicated cost reduction and quality-related purchasing decisions have a potentially great impact on firms and overall business performance.

Lysons & Farrington (2006) stated that competitive advantage sought via lower cost or inventories. Lysons & Farrington (2006) recommended one of the most popular portfolio approaches be the Boston Consulting Group (BCG) matrix. The strategies to adopt at all three strategic organizational levels: corporate, business and functional/operational.

Holter, Grant, Ritchie & Shaw (2008) defined “transport purchasing” in their work for a framework for purchasing transport services in small and medium size enterprises as to enable SME to improve relationships with logistics service providers (LSPs) and enhance their

competitive advantage and profitability. The company improved the relationship power balance by the trade-off between cost and quality which was transport performance depends on purchased service. Hence, Transport management involves a series of activities both internally in the company and externally towards LSPs. These included all four areas of:-

“ . The internal procedures include managing outsourced transport; creating orders/bookings, updating transport information on internal systems and other necessary procedures.

. Monitoring transport performance to agreed service levels.

. The handling of non-conformance and unexpected events (such as delays)

. Communication of transport information within the company, there are many stakeholders involved in order fulfillment, so effective transport management must include the channeling of relevant information to the relevant stakeholders.”

(Holter, Grant, Ritchie & Shaw, 2008)

Holter, Grant, Ritchie & Shaw (2008) defined an order taker as a company that cannot benefit from the competition in the transport market. Thus, the company is not taking advantage of its purchasing power potential and receives poor service accordingly.

Handfield, Monczka, Giunipero & Patterson (2009) reviewed the communication linkage of many firms are now through co-locating supply management personnel directly at operating locations throughout purchasing so that supply management can respond quickly to operation's need.

2.5.2 Latent 2: Supplier Selection and Relationship in Freight Supplier

- Good Characteristics and reliable freight forwarders

According to supplier selection, the single buyer or the purchasing team, reviewed many attributes loaded into consideration. The most popular in freight supplier selections always produced out according to Cooper's (2007) themes of level service variances, which were considerate on cost, time, and reliability of delivery.

Dale & Cunningham (1983) confirmed empirical findings state that companies sometimes use quality as criteria for supplier selection.

Suggestion from Lambert et al. (1999) cited in Sankaran et al. (2002) that after prescribed a model for partnership development, they syntheses out most three major elements, namely, drivers, facilitators, and management components.

Hence, the supplier relationships after supplier selection able to be “guide the purchasing process”, this followed the work of Sink & Langley (1997) cited in Sankaran et al. (2002).

Spina, Campanella & Codeluppi (2000) defined, in particular, the make vs. buy decision, which increasingly considers the strategic alliances and partnerships as the third way between vertical integration and pure hire and reward. Also, they proposed that selecting supplier could solve by a multi-criteria decision making since the core alternatives perform differently. However, in building the relationship, forward integration is not the only option to market relationships. In fact, quasi-integration via partnership could be a valuable option. Since some companies integrate to defend against market power or to create market power through barriers to entry.

Their work followed Ellram & Copper (1990) cited in Spina, Campanella & Codeluppi (2000) defined Strategic alliances that first involved customer-supplier relationships, but now extend increasingly to carriers and third logistics parties. Such relationship aims at gaining or keeping the market leadership nation-wide. Choices are driven by the extremely short logistic reach the serving location.

Aktas & Ulengin (2005) showed the fact of their findings that in Turkey, in selecting the transportation carrier, customer consider different criteria, but general tendency was a carrier which has a good reputation and/or the one which easy with collaboration. This meaning that both reliability in brand name as well as goodwill with service reputation and the ease of relationship with the intention for willingness to help.

Logistics Corner (2009) listed the characteristics of freight forwarders service as:-

1. Choosing and offer the route of transport, mode, and suitable carrier as well as sailing schedule. The best recommend format be how to deliver the cargo to the receiver without damage and fastest as well as cheapest charges.
2. Booking for freight and carrier's space for its customers fit in requirement.
3. Pick up cargo and stuff in the container, prepare all documents for customs clearance and other related documentation such as a certificate of origin.
4. Deliver to loading port, operates export clearance formalities and pass the shipment through the carrier.
5. Pay or advance payment is made on behalf of the exporter.
6. Pass the Bill of lading from carrier to the exporter.
7. Follow up the shipment and route until the cargo is reached the consignee.

- Relationship in Logistics Transport and Distribution

- Collaboration and Relationship

Razzaque & Sheng (1998) recommended that in outsourcing as service purchasing like a reliable supplier of materials and parts, contract logisticians should also provide a high level of customer satisfaction so that their clients can become a tougher competitor.

Fallan (2000) defined the relationship in the uncertainty of decision makers into three forms of relationship referred to previous studies of four people in his work. The buy alternative will often give way to internal procurement as uncertainty increased for recurrent transactions. Recurrent transactions can study from a contract perspective. From relational contract theory of Macneil (1980) cited in Fallan (2000).

The interaction model by Håkansson (1987); Håkansson & Snehota (1995) cited in Fallan (2000) had the importance of building personal trust underlined.

Gambetta (1988) cited in Fallan (2000) summarized to trust on someone.

Bradach & Eccles (1989) mentioned by Fallan (2000) emphasized that trust between buyer and seller be a type of expectation that mitigates the fear of opportunistic behavior from the contracting counterpart. These were exploring the concept of trust in relationship sources from a personal, team decision up to contracting partners. The degree of intensities distinguished the collaborative boundaries into three levels of relationships, personal (single man); operational (teamwork); organizational (contract counterparts). These argued that the development of trust had built on the experience sharing of norms in relational contracting.

Spencer et al. (1994) said JIT purchasing seeks to move away from the traditional adversarial role by establishing and managing supplier-partners. Purchasing of transport and logistics services is not different from purchasing materials. Despite this, the literature suggests that only a small percentage of JIT firms view logistics providers as supplier-partners.

Småros, Lehtonen, Appelqvist & Holmström (2003) said key finding was that even for products with stable demand a partial improvement of demand visibility can improve production and inventory control efficiency, but that the value of visibility greatly depends on the target products' replenishment frequencies and the production planning cycle employed by the manufacturer. The ideal situation of demand data has to be readily available from all downstream partners or focuses on relationships involving only one vendor and one customer. However, one of the most common approaches to encourage collaboration is the implementation by the supplier of the use on VMI (Vendor Manage Inventory).

Sari (2007) claimed that rare research was discussing the problems related to dealing with a mix of VMI & non-VMI customers. This same issue as several problems found in research context limitation (Pisoot and Pasawat, 2015).

Cheung et al. (2003) cited in Chow, Choy & Lee (2007) defined CFS (Container Freight Station) as loading multiple shipments from various exporters into same consolidation container.

It was a collaborative work that deals with cargo consolidation, taking small individual shipments and consolidating them in a container and stripping it of its contents.

De Boer et al. (2006) claimed that difficulties in collaboration were factors contributing to the complexity in logistics purchasing are: First, the difficulty in specifying the logistical needs; and second, and the sometimes limited number of capable suppliers.

Simchi-Levi, D., Kaminsky, P., & Simchi-Levi, E. (2009) designed a framework for implementation of supply chain collaboration program to

- 1) increase sales revenue.
- 2) reduce the cost to maximize profits.
- 3) implementation of collaborative and initiatives to improve the firms were
 - 3.1) operational performance
 - 3.2) strengthen its relationship with trading partners.

There were several tools for Best practice concept, such as ERP, enterprise resources planning, collaboration, or building up good relations among the supply chain's members. Collaboration with Negotiation needs understanding, such a meeting between two and several fellow employees whose collaboration is necessary to get a job done (Goh, 2009).

- Trust and the Hardness

Dale & Cunningham (1983) said difficulty regarding resources when adopting cross-functionality within this decision process is involving several functions will ease coordination, it can become costly to acquire the assets required to support this activity. There is a risk of low return on the investment, where the make or buy decision yielded less in return than the effort.

Fallan (2000) combined the focus on trust relations with the transactional focus on frequency and asset specificity, has predictive power of the governance of accounting services. Trust relationship with cost transaction and asset purchased asset specificity has predictive power of the governance of accounting services. However, he said that trust would interpret as a way to reduce uncertainty in bilateral relational contracting. Perceived untrustworthiness may still lead to a buy decision, but from another supplier (Fallan, 2000).

Also, he argued that development of trust be a way to mitigate the uncertainty of incomplete contracting. The norms and personal relationships serve as rules and guidelines for the ongoing exchange processes, where trust is a safeguard against the fears of incomplete contracting. The core argument was that trust reduces transaction costs between firms since the uncertainty construct was shown to be multidimensional. The way to create more trust was, by working together on the planning and execution of promotional activity.

Eqos (2001) included the close to real time use of POS data. Since the success of promotion regarding its sales volume could be more accurately estimated. Finally, such a joint approach to managing promotions has reduced promotional “out of stocks” by 20% and saved directly more 2.5 pounds in administration and wastage costs (Barratt & Green, 2001).

Barratt (2003) suggested the hardness of collaboration is to enable truly organizations in the supply chain must move beyond a closer relationship with just a customer. Ensuring more trust and confidences, collaborative initiatives would be a highlight, regarding planning and forecasting, must be extended to upstream suppliers.

Aktas & Ulengin (2005) confirmed one of the main key drivers to select such forwarders or logistics provider must be the ease to collaborate.

Jaiswal & Kaushik (2005) presented the best practice case highlighting, how business network systems can be redesigned using enterprise systems to strengthen relationships with business partners and to enhance value to consumers, regarding deploying enterprise systems across their value chain.

Hemsworth et al. (2006) suggested the richness of information shared with the level of trust between buyers and suppliers, alliances and cost analysis significantly influences purchasing investment and planning decisions.

Their drivers in their work followed Leenders et al. (2002). Indicator construct the measures of components as target cost of materials, quality of materials purchased, on-time delivery, and level of achievement of inventory goals.

Vigtil (2007) stated current inventory status and sales forecasts are the most important kinds of information to be made available to the supplier in a VMI relationship. There is a different kind of information and problem, such as when the customer makes to stock than when he is a wholesaler or a manufacturer making to order. VMI can assure an efficient product assortment by over filling the whole pipeline.

Holter et al. (2008) agreed with Grant (2005) that relationships between SME buyers and LSP are building trust and commitment. It is possible that most SEMs are order takers (who purchase with risk attachment) due to their limited purchasing power.

Zammori, Braglia & Frosolini (2009) identified the main issues that must be covered in the agreement to fit the needs of both parties and to assure benefits on both sides. Partners must focus on their core competencies and keep together the expertise of external partners.

- Collapse on Trust than Collaboration

Wilding & Juriado (2004, p. 628) confirmed their survey studied results that most consumer goods companies are admitting soft issues in performance measurement about cultural incompatibility and poor communication, all these lead to the failure of the 3PL partnership.

Pisoot & Pasawat (2015) discussed in their work about the Nestlé's *impacts and difficulties* on her best practice. The possibilities on challenging the hardness in a relationship with partners could be happened by the low price and standalone decision without prior informed and sharing these were: - If a customer's behavior as shop around for the lowest price. Their supplier's selection perception and strategy are only based on the best lowest price to place the order. Nevertheless, on the customers launch their in-house promotion without prior notices.

These two classic cases should be aware that affects to break the internal chain relationship among members. Another sample of misunderstanding in the measuring "Trust", researcher found that measuring "Trust" was useless whenever it existed represent as a fact.

In work of Fallan (2000), there was a mistake adapted from work of Williamson's model cited in his work. In his first hypothesis to measure trust, this was a bias inducement:

"(H1): Perceived trust in a firm accountancy relationship increases the likelihood of a buy decision of accounting services."

Since such kind of trust perceived would definitely influence the purchasing decision. Finally, his analysis results revealed that value of trust dimension was 0.000 which only one driver highest significant than other two: frequency at 0.142, and asset specificity at 0.7224. Trust was absolutely having relationship with the decision in buying. However, the notion of power on relationships, upon purchasing decision should be a better highlight.

Ferrer, Santa, Hyland & Bretherton (2010) proposed four prominent types of inter-firms relationships: arm's-length, cooperative agreements, collaboration, and alliances.

(Arm's length = by contract, and no sharing; Cooperative = share resources; Collaboration = share mission; Alliances = develop the new resources or skills, and enhance the competitive position of each partner), A matter of survival, different approaches are adopted to build sustainable competitive advantage maximize asset utilization and increase profitability.

According to aforementioned reasons, this study framework will ignore on measuring trust directly than survey on the reliability, and focus on the notion of power. The relationship in purchasing decision, which has such notion of power influencing the sourcing and selection (level of a power source) has made on the buying decision.

2.5.3 Service Quality (ServQual) and Approaches

- Service Quality Dimensions (PZB & ServQual)

Parasuraman, Zeithaml & Berry (1988) purposed a conceptual PZB model. The most well-known component to test service quality with five dimensions RATER: Reliability,

Assurance, Tangibility, Empathy, and Responsiveness. This approach commonly used in a marketing context to study the gaps influences consumer's perception and expectation. However, several studies employed these five components into their research, but there were compatible issues into other service industry, such as logistics.

Rosen & Karwan (1994) offered an argument, based on the literature in strategic operations; that indicates why it is unlikely that the relative importance of quality dimensions could remain invariant over a wide range of service types. Reliability was demonstrated to be the most critical dimension and empathy for understanding and access across a wide variety of service types and claimed on work of Zeithaml et al. (1990) also reported using a variation of SERVQUAL, which tangibles were not necessary for their study.

Razzaque & Sheng (1998) confirmed that service considerations and outsourcing Quality of a logistics system have often equated with service quality.

McIvor & Humphreys (2000) commented on their findings that traditionally, buying by organizations had been done largely by obtaining the best price, exceptionally taking into account a few other factors such as quality and delivery. Without considering to quality and deliver, would not be a good competitive by only cost price. Many important factors ignored from previous studies. A significant number of factors, such as delivery reliability, technical capability, cost capability, and the financial stability of the supplier had not taken into consideration.

Kersten & Koch (2009) indicated in their work that **logistics practitioners did not use any items belonging to the PZB model's Empathy construct** and scarcely used items of the assurance construct in their performance evaluation. This refers to the test in modified PZB model by Franceschini & Rafele (2000) cited in Kersten & Koch (2009).

The pitfalls were about sensitive component as attributes of "Empathy" and "Assurance" were not be easily rate out, if such willingness to help term of zero damage in transport. On the other hand, the respondent who can make answering this question must have been having shipment delayed or cargo damaged experiences. As well as assurance, people dare to talk about it since "Assurance" commonly understands as warranty and safety which being given on guaranteed promising to his/her customers before start the service. It caused the respondent loss in confident to rate this scale back to the researcher (Vinh V. Thai, 2007).

Hossain & Leo (2009) raised in bank atmosphere also related to rates and charges and return on customers' deposits.

Ganguli & Roy (2010) identified the dimensions of service quality in the case of hybrid services include telecommunication, banking, insurance, air travel, public transportation and utilities. The nine service quality dimensions in the hybrid services were customer service, staff competence, reputation, price, tangibles, ease of subscription, technology security and information quality, technology convenience, and technology usage easiness and reliability.

- Quality of Service Selection

Mallen & Pernotte (1972) studied for decision making and attitudes of Canadian freight transportation buyers. In companies, customers control most traffic decisions which were difficult to establish and to follow any consistent transportation policy:-

“In a large firm have passed through the integration stage and have decentralized because of size. In this case, there is usually a central transportation group that deals with corporate transportation problems, and regional groups that meet the day-to-day operating problems.”

The main dependent variable were factors in decision-making, here are some factors which transportation buyers take into consideration in selecting a mode for a specific carrier.

These all decision-makers operate within a framework of certain inherent constraints which often severely narrow down the range of choice.

The restrictions include the location of the origin and destination, the volumes involved, the characteristics of the product, as well as the ability of carriers to meet these constraints, direct shipment, through rates, points served, special equipment, and availability of a siding or dock.

Mallen & Pernotte (1972) added in some combination of costs (including a favorable trade-off between transit and inventory costs) and service was the core criterion for the selection of a carrier.

Matear & Gray (1994) suggested market could improve by considering the extent to which the service required (or sought) matched by the service provided by the carriers.

Dugdale (1985) suggested the intention to obtain sub-products at the most favorable prices with assuming quality control standards were achieved by the outside firms - by inviting a selected number of would-be suppliers to submit tenders. It besides prices only would consider the expectation of the standard of quality.

Razzaque & Sheng (1998) introduced for Consistent service at the appropriate level is the actual output of a strategically focused, well-designed and well-run logistics system.

Leenders et al. (2002) proposed that purchasing be the process of buying, learning the need, plus supplier and price selection.

Aktas & Ulengin (2005) said although customers as respondents had different criteria but most was same the general tendency of good reputation and ease in collaboration.

Cooper (2007) defined three variance factors to be considered: cost, mean delivery time, and delivery time variance. Given the service capabilities, availabilities, and visibilities, the obligations to both shipper and consignee are always on lowest cost, shortest lead-time and lowest time variance whose purpose is to save cost, save time, and ensure safe cargo.

These said three variance factors (cost, time, and delivery reliability) usually were adopted in service level measurement by most scholars.

Handfield, Monczka, Giunipero & Patterson (2009) stated that international purchasing relates to buyer and seller in different countries. The organization has to plan for a buffer in lead-time, fluctuation in currency exchanges. As well as other external factors, such as culture and language, rules, laws and regulations besides lowest cost, cost/price benefits, productivity levels, production capacity, foreign currency exchange, lower material cost, process and technology, quality and the available sources.

Etgar & Fuchs (2009) stated that service quality does significantly affect the patients' attitudinal responses. They found that service dimensions relating to anxiety reduction and the desires to reduce perceived risk, namely the Assurance and the Reliability dimensions, are the most important for patients in types of service encounters.

This support the work of House & Stank (2001) in "Insights from a logistics partnership". They compared large firms, with five years experience partnership and the partnership was structured to achieve four major operational objectives:

- (1) reduce total logistics cost
- (2) reduce transit time
- (3) improve information
- (4) improve pipeline reliability. The customer aimed to combined power of multiple divisions to secure superior services at competitive prices.

- Quality in Perception and Expectation

Toni, Nassimbeni & Tonchia (1994) suggested that expectation depends on the initiative and competence of the buyer, who in the system becomes monitor and operator. The supply transaction induces a two-way service which is realized in a multiplicity of channels and becomes the responsibility of both parties involved. The area of service provision by buyer-supplier interactions was critical to the organization and operational. The leads to critical dimensions in the service-oriented buyer-supplier relationship for each of the two parties must be involved (the buyer and the supplier).

Sankaran et al. (2002) opened a gap that after their examined several works about the contracts of logistics providers. Most of them the buying process did not always follow the five step sequences:

- (1) identity need to outsource
- (2) feasible alternatives
- (3) select supplier
- (4) implement service
- (5) conduct service assessment

With the reasons that showed many different perceptions and expectations, “there’s still a measure of the desire of many companies, even big ones, to keep their warehouse for some reason or another. It is a mindset. A lot of the companies have not woken up to the benefits of outsourcing”. This showing that no service quality assessment with the need of use or hidden reason to manage in purchasing strategy for insourcing/ outsourcing / or measure it for the said on-going service assessment.

Wilding & Juriado (2004) showed their key findings that cost aspects play a smaller role for outsourcing in consumer goods industry than anticipated. (The 3 PL services were needed to develop expertise and sophistication).

Moreover, Baily et al. (2005) proposed the key criteria in the development of purchasing strategies. The focus on the area of greatest potential regarding contribution, exploit the competitive advantages available to the buyer as a mix of resources; emphasize creative management in resource utilization competition (buyers or sellers).

In work of Hossain & Leo (2009) studied about the perceptions of banking customers using four dimensions: reliability, competence, tangibles and empathy. These would be lacks of supplier’s or service provider perception side.

- Quality Assurance and Risk in Logistics Transport Purchasing and Relationship

Min (1994) addressed how quality assurance and perceived risk affect customer’s selection intention, in investigating potential suppliers and whether they are qualified, whether they have quality assurance as well as risk avoidance, examine their quality and reliability for quality. The hidden cost is high when risk perception is low.

Matear & Gray (1994) suggested for freight transport service to categorize of possible base variables. Further categories include characteristics of individual transactions, the purchase situation. The company should identify competitive areas which can address the pricing. Choices on differing criteria: for one group of buyers the price of the service is more important; for a second price is unimportant; while for a third routing, characteristics are the most important consideration.

Bhatnagar & Viswanathan (2000) explained the imperative of customer responsiveness has to proceed by two aggressive business strategies that are time-based and facilitate competition.

Leenders et al. (2002) stated the four factors in supplier selection as quality performance, delivery performance, price performance and service performance. They explained that in business decision to deal with a supplier, the customer usually makes a set of criteria that responds to their need and satisfaction. The attributes may include the background of business performance, company strength, reputation and its financial status.

Baily et al. (2005) emphasized that there will be risk attached to purchasing. Ritchie & Marshall (1993) explained that many people do not regularly think about common dangers until their attention to the issue by a factor that breaks the routine in the form of a communication of information.

Blomba & Axelsson (2007) suggested that in some cases, it was difficult to measure the risk perceived. Feeling risk is to balance a feeling of trust with a recommended solution.

Congruent to the paperwork of Whyte's as "Freedom from loss or damage." mentioned trust which compensates for some of the uncertainty aspects (Whyte, 1993).

Chowdhary & Prakash (2007) added up price dimension in their SERVQUAL framework; this was FEE in attributed as the sixth dimensions from five standard attributes.

Vinh V. Thai (2007) addressed these gaps in the literature and management practice by proposing and testing a new conceptual model of service quality dimensions in maritime transport verified by an empirical study conducted in Vietnam; he concluded six groups of resources, outcomes, process, management, image and social responsibility.

Holter, Grant, Ritchie & Shaw (2008) studied in Transport purchasing of SMEs; they argued that there be few academic sources on transport purchasing processes. There was ample literature on contract logistics outsourcing or third party logistics (3PL), but this could be different to the needs of many SMEs. The role of transport in the global sourcing process with a focus on modal choice, therefore, they using the literature reviewed into three aspects as the key parameters which were: Financial aspect; Customer service aspect; Production planning aspect.

The financial aspect such as Freight cost and related charges, Transit time in term long transit time cause the sunk cost in inventory in-transit which should be further revenue generation. The cost of transport management (although outsource but there were also customs compliance aspects for the shipper to manage). In their findings after the research, many resources had effectively keeping the firm from growing its core business.

For Customer service aspects, such as Transit time affect the lead time, a customer can perceives expect time on his purchase. In their case study firm, short transit times are vital as the company operated a global supply chain compete against domestic alternatives. Long lead time forced the customer to purchase from a local supplier (Holter et al., 2008).

Transport visibility reflects customers need to schedule production plan. The customer wants to know the shipment via track & trace. For On-time delivery aspects, exact schedule avoids disruption in production plan, typically inbound deliveries for raw material input. All criteria summarizing from the literature on optimizing transport and logistics cost.

Whyte (1993); Pedersen & Gray (1998); Matear & Gray (1993) cited in their paper for a discussion on shipper's selection criteria in purchasing transport. However, they argued that no one discuss how the shipper can improve its transport purchasing process as well as no existing specific management tools and also rare literature on SME-related aspects of the carriage procurement process.

However, work of Holter et al. (2008) gave a recommendation that purchasing for SMEs in general needs more research. Nature of freight is important including volume and the pattern, with another aspect related to establishing and maintaining relationships with the LSP.

They claimed that logistics activities are considered a source of competitive advantage for firms by symmetry in the power of one's influence either: business stability, legitimacy, regulatory necessity, reciprocity and ability to achieve efficiencies.

2.5.4 Latent 3: Service Performance and Measurements

Mallen & Pernotte (1972) defined Service means such things as reliability, total transit time, pick-up and delivery, damage and claims experience, and flexibility of schedule. They studied based on three modes of transportation: marine, railway and truck road. Steamship carriers are the most cost oriented, but on many occasions, they tend to use a "rail-rate minus differential" approach and lack consistency in pricing. Their study on decision making and attitudes of different buying 11 industries: Mining, Reciprocal buying, Grain, Lumber, pulp, and paper industry, oil, chemical, steel, building and glass, office equipment and consumer durable industry, food and beverage, and different industries.

The variable of constraints such as a combination of cost, including a trade off between transit and inventory costs, and service as reliability, total transit time, pick-up delivery, damage, and claims experience, and flexibility of schedule.

The findings resulted as marketability importance as a managerial function when staging as sophistication. The total physical distribution system approach to transportation decision-making from the organization of strong centralized traffic department as production executive's advisory input. The location of origin and destination, as well as volumes involved (size) with the ability of the carrier to meet the constraints, were essential in service selection. The marine and selected truck gives better service performance than railroads. Part of railroad problems stem from poor communication while the other two modes as marine and truck have significant criticisms directed towards their respondents. The consideration of rate cost and reliability were utmost important in their traffic decisions.

The combination of cost and services, especially reliability from the criteria for carrier selection, formal policies seldom developed. However, the carriers' sales representatives, in general, are of poor quality and do not serve their customer as problem solvers. There was also little dissatisfaction with pricing. A significant minority most were the lack of economic rationale in pricing methods of all three modes.

Advertising had a small impact in transportation decision, but it significantly supports in creating a healthy public image. For value-added service as intermodal arrangements, distribution

consultant development with advice were slowly gaining acceptance which in transportation market is ready for these services on a large scale. The main requirements between different types of buyers not only in terms of industries, but also in terms of size and sophistication were recommended that as a need exists for carriers to adapt their “products” service more than they have in the past to each different market segment (Mallen & Pernotte, 1972). Hence, performance should include the business size and skill in the evaluation.

Measuring service performance is not novel. Many kinds of literature offered several keys in roles of service quality and performance measurements. Appraisals made by plenty of tools and measured techniques. A powerful tool and technique were insufficient in establishing a universal service dimensions.

Moreover, Spencer et al. (1994) warned in JIT service, the reliability of transport and warehouse caused competitiveness. Perhaps this is the result of the bias introduced by early JIT research previously discussed.

Alternatively, it could be because of concerns about the reliability of transport and warehousing companies or the result of misinformation concerning the availability of competent logistics service providers. Because of this, manufacturing companies may miss opportunities to extend the JIT concept throughout the logistics channel to gain further competitive advantages.

Giunipero & Monczka (1997) guided the easiest way to test the international arena is through intermediaries (brokers, trading companies) who guarantee quality, price, and delivery.

Sankaran et al. (2002) suggested from their studied 3PL in New Zealand that the most critical to growth up the business was management expertise as a main key element. Their finding, the interviewee as a top leader in NZ market, gave them a good suggestion that “you need to have management experience. “You need to acquire the management expertise first before doing any things. Other plenty of opportunities – don’t get wrong, since experience will bring the company to the niche market and such niche was a big niche since nobody with that expertise in NZ. All were transplanted their experience and knowledge from Australia; this was a large chunk of that section of the logistics business very quickly.” It concluded that experience in the logistics industry was also an important element.

Aktas & Ulengin (2005) employed ANOVA in SPSS tested results with seven measuring factors for transport carriers: (1) Reliability of carrier, (2) Prompt response in delivery cycle, (3) Carrier prestige, (4) Financial opportunities flexibility in customer inquiry, (5) Honesty and quality of operations management and delivery cycle, (6) Ease of collaboration, (7) Accurate order receipt and follow up.

For more explanation, Aktas & Ulengin (2005) described the seven factors constructed in the meaning of factors affecting the satisfaction from the 3PL providers in transportation. Here were their items to build these said seven factors:-

(1) Reliability of carrier was composed of:

The ability of damage-free delivery; notice for delays; shipment security; the specific need for emergency shipment; promised transit times; and ability special shipping instructions.

(2) Prompt response in delivery cycle was composed of:

On time deliveries; swift action on complaints related to carrier's service; online terminal interface tracking; online interface pickup; attitude towards problems/complaints and online billing

(3) Carrier prestige was composed of:

Carrier's financial condition; reputation; clean of carrier's equipment (prestige of carrier)

(4) Financial opportunities flexibility in customer inquiry was composed of:

Low frequency of split shipments; ability to handle hazardous; willingness to negotiate rates; adequate insurance coverage of carrier; assistance in dealing with loss and damage claims

(5) Honesty and quality of operations management and delivery cycle were composed of:

Provides same day delivery; cash discount for early payment; quality of driver; accuracy response to tracking inquiries

(6) Ease of collaboration was composed of: resolve carrier's operations problems; rate structure simple and easy to understand; accurate billing (Easiness to collaborate).

(7) Accurate order receipt and follow up was composed of:

Carrier's delivery history without loss/damage; bar-coding to facilitate tracing (Accurate order receipt and follow up)

However, some items seemed not rational enough to be adopted since it contrast with their findings that 95 percent power of third party logistics in Turkey were foreign capitalized. In mean of bar-coding facilities would be stand-alone at loading port since it is impossible to force any destination to apply the same bar-coding system (especially when discharging in government's terminal or warehouse).

Moreover, the discount for early payment that if someone provides such services, then mean all the rest, other third party logistics have to do it in the same way. Otherwise, such measured items were biased.

Also, the rate structure simple and easy to understand should not be a right item that rates already included all fees and charges as TCO without any other hidden costs. Because if the rates offered were unclear (e.g. C&F or FOB), the customer would ask them to reproduce their quotation again. These were few samples that researcher found some weaken items construct to ask the respondents.

In the study of Vinh V. Thai (2007) claimed that many kinds of literature on non-common dimensions for overall service measurement. Confusions and arguments of the main factors were prevalent regarding the determination of dimensions for common use. Also, there was small number research done in maritime transport as a service sector on how service quality is defined and attributed (Vinh V. Thai, 2007). This issue was for logistics transport service that how service quality can be commonly used or adopted by the service provider. After review all the related research, researcher constructed 5Rs dimensions (reliability, rate, resources, risk avoidance and responsiveness), which cover all parameters of service performance to yield serviceability measurement.

The Synthesized variables categorized into 5Rs dimensions for Service Performance Unit: SPU (Pisoot, 2013a) showed in Table 2.6, and the attributes in Freight Purchasing – Logistics Service Selection Logistics Service Selection in Table 2.7

Table 2.6 Synthesized variables 5Rs dimensions categorized for Service Performance Unit (SPU)

Authors	Year	Reliability	Rate	Resources	Risk free	Responsiveness
Parasuraman, Zeithaml & Berry	1998	reliability		tangible	assurance	responsiveness, empathy
Min	1994	reliability	Hidden cost		perceived risk, assurance	examine quality
Rosen & Karwan	1994	reliability				empathy
Matear & Gray	1994		pricing			
Bhatnagar & Viswanathan	2000			facilitate competition		time-based
House & Stank	2001	Improve pipeline, reliability	reduce cost, competitive price			reduce transit time, improve information
Leenders et al.	2002		price		delivery perform	the process of buying
Baily et al.	2005			resources		
Cooper	2007	availability	cost	visibilities		Lead-time, lowest time, capabilities
Howard Thomas	2007		financial	operation		Org.effective
Nimit Chowdhary & Monika Prakash	2007	reliability	Fee, price	tangibles	assurance	responsiveness, empathy
Etgar & Fuchs	2009	Reliability in types of services			Reduce perceived risk, assurance	
Handfield et al.	2009		cost, price benefit, currency exchange	Available sources, technology		quality process
Hossain & Leo	2009	reliability	Rates, charge and return on deposits	tangibles		competence, empathy
Kersten & Koch	2009	reliability		tangible	(ignore assurance)	responsiveness (ignore empathy)
Ganguli & Roy	2010	reputation, information quality, technology reliability	price	staff competence, tangibles, technology convenience	technology security	customer service, ease of subscription, technology usage easiness

Source: Pisoot (2013a)

Table 2.7 Attributes in Freight Purchasing – Logistics Service Selection

Construct	Literature Reviews
RELIABILITY: Reputation; Company brand; Financial status	
Ability to handle shipments with special requirements	(Matear & Gray, 1993)
An established name and reputation	(Whyte, 1993)
Reliable management or sales persons	(Whyte, 1993)
Reliable in Financial terms, relied on foreign exchange rate	(Min, 1994) good in finance
RATE: Cost, Fee, all Charges and Rates	
Cost pricing / Fee / returns on deposit	(Handfield et al., 2009; Nimit et al., 2007)
Low freight rate	(Matear & Gray, 1993; Cooper, 2007)
Special offers / discounts on freight rate	(Matear & Gray, 1993)
Payment terms and Freight Terms	(Min, 1994)
Expected Service toward value of money	(Matear & Gray, 1993)
RESOURCE : Assets, Equipments, Staff; Availability	
High frequency of sailings	(Matear & Gray, 1993)
Availability of freight space and ease of contact	(Matear & Gray, 1993)
Resources, Staff competence	(Bailey et al., 2005; Shirshendu & Roy, 2010)
Flexibility to offer service to other destinations	(Whyte, 1993)
RISK AVOIDANCE: Safety, Liability, Claim & Compensation	
Perceives Risks, Labor disputes, Quality Assurance	(Min, 1994)
Avoidance of loss or damages	(Matear & Gray, 1993)
Feeling of Risk is to balance with Feeling of Trust	(Blomba & Axelsson, 2007)
Freedom from loss and damage	(Whyte, 1993)
RESPONSIVENESS: Quick action; Willing to Help, Solution, Support; Response time	
On-time delivery or punctuality	(Matear & Gray, 1993)
Short transit-time; Speed of delivery; Lead-time	(Matear & Gray, 1993; Whyte, 1993; Cooper, 2007)
Fast response to problems; Technical assistance	(Matear & Gray, 1993; Min, 1994)
Special offers or discount on destination charge	(Matear & Gray, 1993)
Customer acceptability-ability to provide quality service	(Whyte, 1993)
Ability to understand problems and to will to help	(Whyte, 1993);
Quick response for claim procedure as responsiveness in problem sharing	(Baily et al., 2005)

Source: Pisoot (2013a)

- Service Performance Unit (SPU)

Conceptual review on service quality, supplier selection, service purchasing and logistics attributes.

The framework constructed in performance service units as Figure 2.12

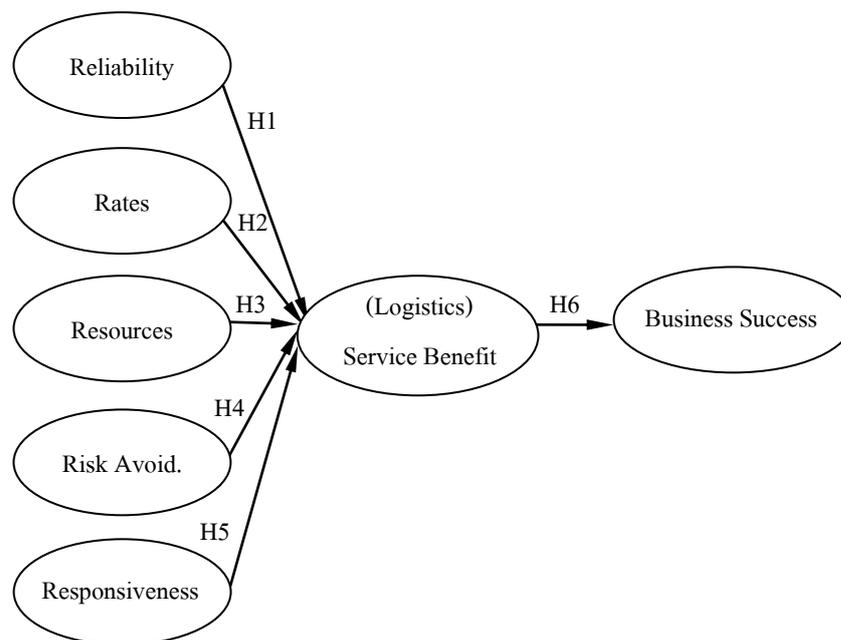


Figure 2.12 Service Performance Units (5Rs-SPU Model) (Pisoot, 2013a)

The service quality perception performed into five-R dimensions which attributes are Reliability, Rates, Resources, Risk Avoidance and Responsiveness.

The research question was about the relationship between 5Rs perceptions (Service Performance Unit) and mediator as Service Benefit impact to the response variable as Business Success, which leads to six hypotheses for developing research.

- SPU Model Test

- Developing SPU model

From the previous studies, to purify its testing, all dimensions loaded into a test with a study on logistician candidates' interest to work in the logistics industry. The work for further studies adapted with motivation factors of employees. The body provided selection concept and attributed produced with 5Rs interpretation to similar of most popular motivation theme.

Aforementioned, to fulfill the literature body lacking in job's selection, then the nearest to this study was service selection whereas all broadly topics in supply chain and relationship (not among the boss but its chain members and supply chain, then supplier selection would be adopted and adapted into the framework). Both theoretical issues on how to select suppliers attribute regarded as how a candidate has to consider during selecting his/her boss or a company to work with, as well as the exchanging of given service, pay wages as for service fee which provided, this regarded as hiring a worker to exchange their salaries. Hence, in supply chain sciences, the selections in service and relationship attributes were reviewed.

The five R(s) independent variables (5 R's) adjusted from service quality model to be SPU model (Pisoot, 2013a). Variables developed from Parasuraman, Zeithaml & Berry (1988) who came up with four types of efficiency: quality, delivery, operations, and price to determine service quality. Later, Service quality was modified.

Parasuraman et al.'s (1988) SERVQUAL model was known as "RATER" constructed by Reliability, Assurance, Tangibility, Empathy and Responsiveness.

Leenders et al. (2002) introduced the 5 dimensions SERVQUAL, consisting of:

- a. Those related to physical facilities, including service providers and communications.
- b. Those related to reliability, the ability to deliver promises and provide the right services on time.
- c. Those related to the willingness to serve customers in a responsive manner.
- d. Those related to warranty, the ability to deliver services which are free of error and damage to result in trust and credibility on the part of the service providers.
- e. Those related to the capacity to customize the services to achieve one-to-one communications scheme.

- Key variables were the same Theme along with Motivation Employees Concept

Gibson, Hardy & Buckley (2014) suggested that networking of organization behavior occurred both inside-out and outside-in of an organization utilizing interpersonal relationships. The external customer is important. However, the internal customer must also be important, this congruent to Wiley's (1995) statement that average workers frequently overlooked.

Moreover, all of them need the recognition and rewards for employees' contributions strengthen a company's reputation. The conclusion was commonly used to motivate all the staff over these 40 years. Often the strongest potential motivators are the things employees' value to perform at levels that positively affect the bottom line.

To purify all dimensions were in same understanding, genuine as a generality to all study about any selection either purchased product or service purchasing were employed. All main three theoretical backgrounds from selection attributes, selecting job attributes, partner selections (to fulfill the gap for selection a boss or career for job seeker's attributes).

The main research of this study focused on the transport service, related to supply chain management as service sector not the mythology of product. Then attributes of quality in service were reviewed and modified with an explanation of the interpretations (HR into SCM science with similar meaning). A group of variables constructed into related dimensions. The work of Wiley (1995) concluded for the strongest constructs from overall studies were five dimensions as:

- (1) Good wages (Rates)
- (2) Full appreciation for work done; (Responsiveness)
- (3) Job security; (Assurance & Risk avoidance)
- (4) Promotion and growth in organization; (Firm's Resources, system or management)
- (5) Interesting work (Reliability, brand, image, rely on work reputation)

Above mentioned in HR. Motivation key variables of Wiley (1995) interpret into SCM knowledge as in blankets. The research adopted Interest Work (Reliability), Financial Benefits (Rate), Promotion & Growth (Resource), Job Security (Risk Factors), and Responsiveness (Appreciation to response the work) to be the five independent variables in determining the level of interest in working in the logistics industry. These factors reflect the current state of affairs regarding employee needs and imply that reward systems and job redesign strategies which lead for company's competitiveness through the ability of the worker's (employees' preferences).

- SPU Framework in Survey

The holistic model illustrated a measuring instrument for intention and variables affected to work in the logistics industry. This study supports to balance the lack of literature in job selection behavioral attributes in logistics and transport filed about selecting employees' attributes. The framework modified from ServQual as Service Performance Unit (SPU). The model is employed motivation key factor of an employee for working to understand and interpret predictable perceives, service attitudes, interests or intention measuring five dimensions of service perceptions. Components of 5R's as Company's brand image concept (reliability), financial benefits (rate) included income and welfare (commission; incentive). Company Development, Promotion & Growth (resources, assets, and wealth), risk factor (assurance, safety,

and qualifying), and Appreciation work (responsiveness) are well robust constructed to explain one's individual items (qualitative) to a value as a measurable unit for more likely objectives (quantitative). The dependent variable in this study was an intention to work in the logistics field. Respondents' intention for the career selection in logistics business had explored by this framework.

Finally, the model employed five variables to construct a dimension to investigate the intention to work in the logistics industry and related field. The model showed in Figure 2.13

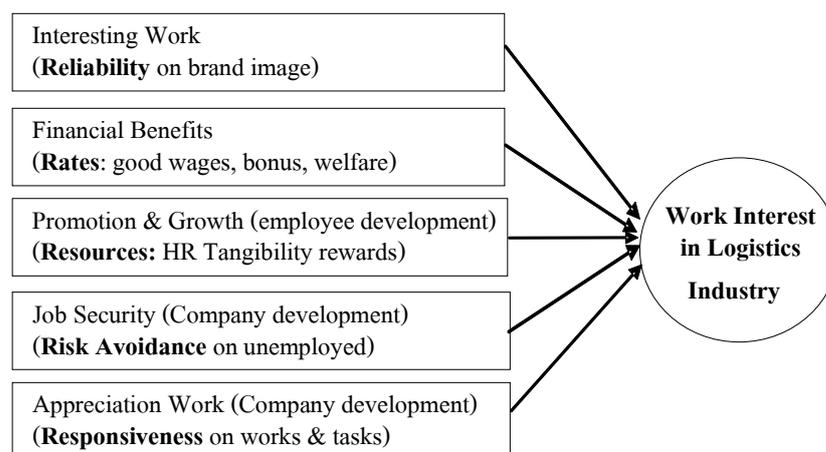


Figure 2.13 SPU test on intention to work in logistics field (Pisoot & Heesawat, 2015)

Latent 3: SPU's Attributes and Construct

(R1) Reliability / Interesting work

Leenders et al. (2002) suggested corporate reputation and financial status was a high priority for suppliers to be considered.

Baily et al. (2005) gave a support explanation that in consideration of before & after sales services, contact convenience, technical readiness and supporting facilities.

Reliability is important when it comes to supplier selection, especially in the high-value product transportation. Reliability often springs from confidence and trustworthiness. These factors are formalization, flexibility, empathy, completeness, preference (Whyte, 1993).

Reliability can be a result of operations (delivery and shipment) or finance. Small companies may hard in gaining reputation coming from financial status.

Cassola (1993) suggested reliability referred from interviews, observations. Organization members who can perform reliably are valuable assets.

Reliability is also of paramount importance for companies established a network for success in supply chain management. Each party in the supply chain must work with high reliability. Reliability determines the reputation of the companies.

Spina, Campanella & Codeluppi (2000) investigated that carriers sometimes promote different brands autonomously.

In their findings, the first market can be 35 percent of the total sales - a significant number of small independent carriers have operated the outbound transport for years.

A reliable inbound logistics system makes sure with the expectation of the customers. Therefore, reliability is treated as one of the most important factors determining the selection of the services.

Reliability in the context of this study means firms with high reliability will be able to attract more staff members either by company's brand image, service reputation or goodwill, the reliable or trust from whom it may concern.

This driver as a good reputation and confidence in relationship same to the work of Aktas & Ulengin (2005) that confirmed studied respondents in Turkey logistics, providers selection. All of them preferred the selected transport carrier by a good reputation and the ease to collaborate with the mean for the easy of establishing a relationship and looking for the willing to help by such logistics providers.

(R2) Rate / Financial Benefits

Dugdale (1985) recommended assessing the viability of such a make or buy decision becomes, inter alias, a matter of rigorous cost comparison with the same items made internally. Rates driver as the comparison costs between own make or better buys from others.

Min (1994) said the most important elements of financial strength is the maximization of profit and the minimization of process expenditure, including the community price, the transportation costs, documentation costs, fees, the costs.

Green et al. (1994) gave their resulted that unfortunately, those socially unsophisticated buyers may have a tough time ensuring that the competitive bid process results in high-quality services provided at a reasonable cost. Since buyers varied with different of leverage vendor skilled in negotiation and their buying needs. It seemed low-price and reasonable price were a challenge to trade off the higher quality and empowered by the personal relationship in negotiation.

This congruent to the latest work of Aktas & Ulengin (2005) one of outsourcing perspective in Turkish firms, using negotiations with salespersons accepted as in-house logistics activities.

Ellram & Maltz (1995) suggested that cost reduction is a key driver of the outsourcing decision, and then accurate total cost analysis must precede any correct decision. Thus, a potentially useful tool for logistics outsourcing total cost analysis is suggested.

Lysons & Farrington (2006) proposed that a competitive price structure will be possible if pricing is incorporated into a strategic planning process. The value of the firms will increase by the improvement of the profitability of the organization either through revenue or the minimization of operating costs (Ellram & Maltz, 1995).

Slater (2007) mentioned that the operational efficiency and the cost minimization were two key factors in becoming the top-of-mind operators.

Gray & Davies (2007) studied on examining the organizational relationships used by the respondents' companies that the shipping manager frequently has a wide span of control with some attitudinal statements that previous works identified a tendency for attitude to vary with salary level. The hypothesis presented that this reflected the possibility that the better-paid shipping manager was working within a significantly different role from that of his more poorly paid peers. Their article presented part of the results of a large-scale questionnaire study of shipping managers where the relationship between salary and role of a respondent's decision-making varies with salary and size of the company.

Thus, in such study researcher considered that whether earning profit, salary or income with or without fringe benefit earned by the employees as the monetary form called as "Rate" driver. Moreover, the size of the company may affect the abilities of rate pay off in hypotheses.

(R3) Resource / Promotion and Growth

Matear & Gray (1993) mentioned that the frequency of the schedule, the availability of space and the ability to attend to special requirements were very needy in the achievement of business success. A resource was meaning as assets and company's equipment and tooling, either in property, prosperous wealth with own premises/ facilities or some employees which were resources of the firm.

Aktas & Ulengin (2005) reported their findings that in Turkey, only 24 percent outsource for warehousing to other logistics companies with the rest most were outsourcing only freight transporters.

This induction could draw for this thesis should find out with a hypotheses test whether freight driver as Rate service will be more important than driver namely, Resources or not when the survey study made on outsourcing the freight transport service than warehousing service.

Baily et al. (2005) said successful companies know how to formulate and deploy effective strategies. Resource management, together with effective internal communications creates a competitive edge for businesses that know how to utilize the tools.

Baily et al. (2005) proposed that the ability of the suppliers to help minimize the workload of the customers, the convenience resulted from frequency and flexibility in the schedules were essential.

(R4) Risk Factors / Job Security

Richy & Marshall (1993) mentioned that a good practice of risk management can protect the companies from dangers. Leenders et al. (2002) said risks were unavoidable in all circumstances.

Min (1993) mentioned that risk inspections integrated into the logistics processes are planned inspections. Any processes in actions, the firm, should be planned and investigate process which inspection bring into consideration. Out of control in management or operating system, the failure would be affected by risk in operation. Recognize to risk avoidance would be a major dimension.

Richy & Marshall (1993) mentioned that many people were ignorant about risk management due to familiarity with the situations. In times of rapid change, risk management becomes correspondingly more important for setting up efficient supply chains.

Blomba & Axelsson (2007) suggested that in some situations trust could be used as a proxy to risk perception. Supply chain efficiency which directs at improving a company's financial performance is different from supply chain resilience, whose goal is risk reduction.

(R5) Responsiveness / Appreciation to Work (*Ability in Fast and Accuracy*)

Essentially responsiveness means the capacity to respond in ever-shorter lead times with the greatest possible *Flexibility*. Quick response is a concept and technology that is spreading rapidly across industries. For the foreseeable future, speed will be a prime competitive variable in most markets. The emphasis in logistics strategy will be upon developing the means to ship smaller quantities, more rapidly, direct to the point of use or consumption.

Bhatnagar & Viswanathan (2000) explained that companies were seeking a partner that had the ability to be extremely flexible and fast in this rapidly evolving climate.

Leenders et al. (2002) proposed that for companies to capitalize on the latest trends, they needed a supply chain that is flexible and responsive. Further reading was recommended for the essential of critical time management in replenishment (Pisoot & Pasawat, 2015).

Third party logistics partners can provide the necessary expertise to manage inventory levels efficiently. Knowing about a potential surge in popularity among products is only beneficial if such products delivered on time. Contract logistics can provide the partnership needed to deliver goods quickly and easily (UNESCAP, 2009).

The main idea for Responsiveness is a driver for quick and fast in response usually deals with time response. A quick respond to the customer's need, the responsiveness also included the assigned job and functions must accomplish within a reasonable timeframe. The scope of duty and responsibility were automatically attached within a proper time consuming counted.

Cheng & Karn (2008) proposed reliability be the ability to provide services, and risk management were the most important factors in supply chain management. These attributes mainly discussed across the supply chain and risk management. Perceives reflected assurance, qualify and guarantee, risk attachment upon service or purchase. When a new customer considers about risk before his/her selecting goods and service during purchasing, such attribute will be considered towards the supplier who provides and gives the goods or service. This was a reason why the candidate might consider on job selection on wages earns before taking their appreciated job. The attributes were dealing with the risk of candidates whose perception was trade-off between whether in selected workplace or risk on their task assignments.

- SPU Output Measurement Test in Intention

Predictors by ANOVA test for the most impact variables with R and R2 values

Table 2.8 Sample of Measuring Outcome & Predictors (SPU in Serviceability)

Groups	Most Impacts	Rank by Predictors: (Constant)	F-Sig.	R	r2
Logistics (Interest)	X1 (Reliability)	-R5, R2, R1, R3, R4 = 52134	0.002*	.536 ^a	0.287
Marketing (Interest)	X2 (Rates)	-R5, -R4, R2, R3, R1 = 54231	0.204	.535 ^b	0.287
Management (Interest)	X4 (Risk factor)	-R5, R4, -R2, -R1, R3 = 54213	0.110	.621 ^c	0.386
All students (Interest)	Y (Intention)	R5, R2, R4, R3, R1 = 52431	0.002*	.415 ^d	0.172
Logistics (No interest)	(X2 Rates*)	R5, R1, R2, R4, -R3 = 51243	0.137	.632 ^c	0.400
Marketing (No interest)	-X4 Risk +X5	R5, R1, R2, -R4, R3 = 51243	0.004*	.544 ^f	0.296
Management (No interest)	(X5 Responsive*)	R5, R1, R2, -R4, -R3 = 51243	0.400	.305 ^g	0.093
All students (No interest)	X5, -X4	R5, R1, R2, -R4, -R3 = 51243	0.000*	.405 ^h	0.164
Logistics Faculty (All)	X1	R5, R2, R1, -R3, R4 = 52134	0.001*	.500 ⁱ	0.250
Marketing Faculty (All)	X5	R5, -R4, R2, R3, R1 = 54231	0.100	.339 ^j	0.115
Management Faculty (All)	(X5**)	R5, R1, R2, R4, R3 = 51243	0.163	.315 ^k	0.099
All 3 majors respondents (All)	X5, (X1*)	R5, R2, R1, R4, -R3 = 52143	0.000*	.365 ^l	0.133

*upper significant >0.05<0.70 and ** best result

Source: Pisoot & Heesawat (2015)

- Developing Model:

Strategic Sourcing Techniques (SST) on MoB decision (L1)

Suggestions from Ellram & Maltz (1995) that sourcing by outsourcing on the total cost of ownership methodology is applied properly. Cost is not the only single driver of the outsourcing benefit. Companies can gain a complete picture of the costs associated with both “make” and the “buy” alternatives with appropriate information to make correct business decisions.

To stipulate a holistic design managed together with SST coherent non-financial model, further hypotheses formulated from the literature review, key success factors to considered in strategic sourcing techniques (e.g. make-or-buy decisions, multi-sources, and total cost of ownership: TCO).

Perceives would identify and group into categories, from interviews with academics and service industrialists’ recommendation for relationship studies on non-financial items (such as service dimensions) in Service Performance Unit: SPU (Pisoot, 2013a) for future work in sustainability development.

Relationship on Strategic Supplier Selection (SSS) and Dominant Factors (DOM)

Dugdale (1985) claimed that the reason for the use of a subcontractor was an obvious method of increasing output. If the subcontracted cost is reasonably comparable with internal variable manufacturing cost and recognition that further profitability will stem from the alternative items made on the internal plant, possibly exceeding the shortfall created by a larger subcontracted cost. In his finding, with a marginal costing system, the factor of un-recovered fixed overhead was not examined.

Therefore, is a decision to be formulated as to which products it is preferable?

- (a) To make internally,
- (b) To buy-in (even if the subcontractor's quotation is greater than the unit internal, variable manufacturing cost)?

Hence, to compare the internal ratio of contribution: variable cost for different products. These furnishes a range of preferential selectivity for internal manufacture, and indicate where some offset may obtain against any excess of the subcontract price over internal unit variable cost. Therefore, such relationship establishment was to control the unit variable cost. However, his studies on such findings in the comparison it may appear more profitable for the main company to undertake self-manufacture.

Price / Personal / Policy and Money / Man / Management (L2)

Green et al. (1994) defined one of their variable called as “Social specification” referred to the ability of the buyer to interact with vendors during the time before the request for quotation.

These skills allow for the development of cordial, assertive relationship with the suppliers. *Buyers who are socially sophisticated, empowered by their ability to use personal persuasion to gain influence with competitive bidders*

“Social sophistication allows the buyer to obtain critical intelligence concerning the vendor’s offerings without providing information that may give the vendor an advantage once the request for quotation identified. However, socially sophisticated buyers may often inform the sales representative of changes in the buyers’ products, technology, or the environment. It provides the socially skilled seller’s firm with an advantage over competitors in anticipating and complying with new specifications that may result” (Green et al., 1994).

Dale & Cunningham (1983) said not many researchers have detailed the outline of who should be involved in the make or buy decision process. However, there is a few strategic positioning decision process that a project leader from senior management is involved. To recognize and arrange all necessary internal resources, together with a supply chain director who would provide knowledgeable input on inbound activities. About people be involved, companies have applied different approaches to the make or buy the team. Some dedicated people full-time to the teamwork while others assign parts of the individuals’ time to the team while the cross-functional team focused on the bigger picture, and it helps company-wide communications as well as strategy alignments.

Their work found that the deciding managers get input on the existing competences, together with what is lacking in-house regarding resources and capabilities, while the need of on a long-term basis, personnel development and infrastructure investments that match the best suppliers.

The argument made that several functions have argued as playing important parts in this decision process. Functions should be involved in the make or buy decision process, but little mentioned as to how this involvement conducted. The need for make or buy decision processes to be cross-functional or has a single functional focus, the focus is on one specific function’s involvement together with its contribution to the make or buy decision. This gap concluded that it is possible to be functional focus bases on personal, single or cross-functional, or by people who need for further investigate.

Contribution from the previous study, the interpretation of Relationship sources, resources management (5M), related effects, Valuation, Performance, sourcing techniques, profitability, purchasing in logistics service to both efficiency and effectiveness (Table 2.9).

Theoretical bases interpretation: Sourcing to strategic approaches

Table 2.9 Sourcing to Foundation Theories and Approaches

Relationship sources	Resources management (5M)	Systems approach
price	money	input
private/people	man	process
practice (policy)	management	output
	(machine)	throughput
	(material)	
Cost + Q'ity + Design	Related effects	Performance
profit	price	efficiency
lifetime	personal	effectiveness
lifetime + design	practice + personal	effectiveness + effectiveness
cost + lifetime	price + practice	efficiency + effectiveness
cost + lifetime + design	price + practice + personal	efficiency + effectiveness + effectiveness
Sourcing Techniques	Profitability	Valuation
Insource	competitiveness	the value of money
outsource	competitive advantage	value added
multiple strategies	sustainability	the value of quality + value added
TCO	sustainable competitiveness	the value of money + value of quality
(Hybrid sourcing)*	sustainable competitive advantage	the value of money + value of quality +value added
Sourcing Techniques	Logistics provider is in purchasing	
Insource	do own consolidated service for the direct cost	
outsource	co-load to other for direct cost	
multiple strategies	choices between MoB	
TCO	focus in total cost (freight + local charge + agent's charges)	
(Hybrid sourcing)*	focus all total related costs (value added) with the mixed method of MoB	

Source: Pisoot (2015)

Dugdale (1985) claimed that uses the subcontractors because of their people's specialist expertise. Such know-how was not available in the main company or the essential plant. Then such people forced to select the desired partner. Another type by puts out the work to subcontractors where the latter were subsidiary companies: motivating a policy of retaining manufacture within the group. (This concluded that the sourcing relationship would be affected by focus on people or agreed policy).

Synthesis of the work of Ramsay & Wilson (1990) defined in 1990s about Risk accusations as corruption on Single sources and invited the Multi-sourcing practices are curiosities. Moreover, then since the year, 1980 majority of professional buyers would have rejected the idea of voluntarily relinquishing the use of competitive pressure on suppliers. Most of them up to the recent year 1990 purchasing professions have succumbed to the attractions of single sourcing. It means that the shifting from purchasing done personally was shifting to more several parties concerned either more people or by cross-functional and also with multi-sourcing.

The five M (resources management) highlighted by the sources of relationship (purchasing usually produces as Price focus or low price effects, low-cost attractiveness. The interpersonal relationship, the confident in skill and experiences with trust or respect; and by enforcement of reasonable standard whether follow their management's instruction, partner's (agent's) requirement or under trade terms or firm's policy. The agreement commitment or unit of MOU agenda as a regulation; these limitations affect the freedom of choice in selection alternatives.

Rao & Yong (1994) suggested relationship by access to a multitude of interpersonal networks can also be a valuable asset when entering new international markets, operating in areas with cultural, financial or political barriers.

Cavusgil & Das (1997) offered across national and cultural boundaries must be solved by cross-functional which methodology issues as cross-cultural sourcing research. Constructs expressed behavior or attitudes in different cultures.

Fallan (2000, p. 54) said the theoretical relationships in 3 facets: Network relationship; core transaction processes and personal relationship via trust building. All these influent to the make or buy decisions. The relationships were through bilateral relational contracting being intermediate forms. Transactions and exchange processes are at the core of network relationships. The focus on building personal trust emphasized relationships. Trust relationships are not part of the efficient boundaries framework of transaction cost theory, but in relational contract theory and the interaction model trust has been revealed to be an important safeguard against opportunism and thereby has paved the way for long-term network relationships.

The preceding section and the literature review of representative studies suggest a conceptual clustering of three SCI elements by Pleumpirom & Amornsawadwatana (2010); Jayaram, Tan & Nachiappan (2010).

Pleumpirom & Amornsawadwatana (2010) explained costs are the expenses of work task which may be in-source or outsource for materials, manpower, tools, and processes. Therefore, in purchasing while consideration about costs either regarding financial or non-financial, the gaining from materials would be price focus, manpower was how to relate the sufficient team to produce, and process control by particle management and monitoring according to the production plan or policy.

In their article, they defined the performance measurement system constructed by seven facets:

1. Cost (higher cost and prices make the lower competitiveness)
2. Quality assurance (quality inspection help to identify gaps and to design effective and efficient improvement strategies)
3. Reliability (Low reliability indicates frequently failures)
4. Maintainability (is the ease and speed with which any maintenance activity can be carried out on an item of equipment.)
5. Time (lead-time since service requested by the customer until completely fulfills). To select maintenance logistics providers is part of management in supplier relationship. These can found passengers miss their appointment when flight delayed. The on-time airline is a significant concern to airline travelers, business meeting, and connecting flight.
6. Availability (the readiness of a system to fulfill its assigned function)
7. Flexibility/ Replaceability (ability to switch the operation to another process with solution to meet the customer expectation) Flexibility is composed of two dimensions:
 - 7.1) Resource flexibility, this included cost, obstacles, resources and time to switching.
 - 7.2) Coordination Flexibilities, this means all require policy, strategies plan, tools, relationship, to manage or control resources. Emphasize on such Coordination; the studies related congruent to the work Jayaram, Tan & Nachiappan (2010) for the scope of Coordination in SCI.

Jayaram, Tan & Nachiappan (2010) investigated the interrelationships between supply chain integration (SCI) scope and supply chain management (SCM) efforts. The three-faceted construct of supply chain management effort arrived at by relying on the principles of Coordination Theory. They offered total three main facets of coordination mechanisms, price, non-price and flow-based coordination mechanisms in a supply chain.

1. Price based coordination mechanism (Price focus) is the use of quantity discounts to elicit buyers to buy ahead of need. (price forces)
2. Non-price based coordination mechanism (People & interrelation focus) is ability to negotiate on quantity flexibility contracts when the buyer buys in quantities different from contracted quantities (interrelation's forces)

3. Flow-based coordination mechanism (Policy or Management Instruction) is process based on objective organizational goals (e.g. VMI: vendor managed inventories or quick response programs. (Organizational Forces)

Moses & Pär Åhlström (2008) found out that the majority of the surveyed companies took an operational or cost-based approach to the decision. The decision was making by individual decisions (Personal / Man) to achieve short-term cost-savings (cost as Price / Money) or operational advantage (benefits). Such bears no relation to overall company strategies (Policy / Management). They identified two other approaches to the decision: the business approach using cross-functional teams (People); and the policy approach (Policy) taking into account the strategic teams; and the policy approach the given strategic.

From all above reasons and for the best conclusions, in this thesis employed three facets under foundations sourcing / SCI and terms of interrelationships which mainly found as factors influencing the decision in making for Strategic Make or Buy in Purchasing as well as Supplier Relationship under the sources of power impact on making a decision. The previous studies all showed us as three facets as Transaction cost based (or cost-saving in term of price focus); Asset & resources based (in term of people focus and teamwork); and Process-based (in term of organization goal, policy and management's directions).

Purifying and deliberately chosen were facets in three constructs as Price / People / Policy or similarly to Money / Man & Tooling Instrument / Management (in trading terms and partners' contract or agreement; commitment). All these enforcements will employed into survey study for these said three main relationship sources of Empower than another general study of supplier relationship in collaboration which just only contribute on types of its boundaries (e.g. Arm-length, partnership or jointed-venture).

This had congruent to support the work of Moses & Pär Åhlström (2008). They claimed that asset based and policy based, both these approaches were rarely used by the responding companies (than transaction cost based). Moreover, that was why it caused over half of the respondents in their survey did not have a strategy for make or buy decisions.

2.5.5 Latent 4: Measuring Competitiveness

- Service Level Measurement

Razzaque & Sheng (1998) recommended well-designed and well-run logistics system have extraordinary power in achieving goals such as high-quality service despite some cost constraints or low cost despite some service limitations. The logistics system of the company can be differentiated to produce its target service level.

Spina, Campanella & Codeluppi (2000) suggested investigating service level, market control, and other intangibles vary depending on the alternative. Such factors should be evaluated systematically, and a framework is needed to appraise both quantitative and qualitative elements.

For the competitiveness, this calls for differentiated competitive strategies according to national conditions. In particular, mature and declining markets put strong pressure on prices and producers strive to maintain market share, by reducing manufacturing and selling costs, while increasing service level.

Thus, logistics strategies change across countries. In order to improve competitiveness by service level, the strategic goals - reduce costs and increase service level. Their findings were 15 percentages of total selling prices and the incidences were expected to increase, due to the increasing cost of labor, and re-balancing of the structural overcapacity of the transport sector will terminate the massive discounts that characterize the transport supply.

De Boer et al. (2006) recommended that most previous outsourcing studies into practical decision-making action models were in three same common aspects, which were:

- (1) Definition of core competencies and strategy
- (2) Assessment component costs
- (3) Analysis of suppliers and competitors.

Holter et al. (2008) suggested service level by obtaining competitive rates and specifies service levels on which those rates quoted. An order maker is proactive, has some level of expertise in transport purchasing and a set of processes and tools to achieve competitive deals and make the most of its purchasing power. An order maker maximizes its potential benefit from the buying power. To measure the service level as the dependent variable, however, Holter et al. (2008) stated that there are several vital parameters in the process of shipping:

- . Transport rates and related charges. Often the largest logistics cost element.
- . Transit time (dispatch date to date of delivery), often expressed as door-to-door transit times
- . Transport visibility. Accurate track-and-trace information and firm estimated dates of delivery
- . On-time delivery by keeping delivery appointments or time-windows
- . The cost of transport management

The effort required on the shipper's part to expedite the container movement, which includes tasks like chasing updates, preparing customs documentation and other administrative duties. Transport should not be treated as an isolated management task, as it constitutes a vital component of the supply chain.

One of the best examples to illustrate for the measurement of Service Level was made to see the performance by using stock cover day to compare the service level. A simple driver to explain service level by time usage with trip and capacity delivered (Figure 2.14).

These means that three driver factors congruent with aforementioned of Cooper (2007) work that reduce transportation costs but may increase order cycle time as some orders are delayed to achieve larger shipment sizes. However Cooper (2007) intercepted his three most favorite in several of his studied to produce the standard of service level measurement are cost variance, time variance and reliability (flexibility) of affordable in transport capability. An illustration of how Nestlé (Thailand) measures her service level performance on practical VMI project in Figure 2.14

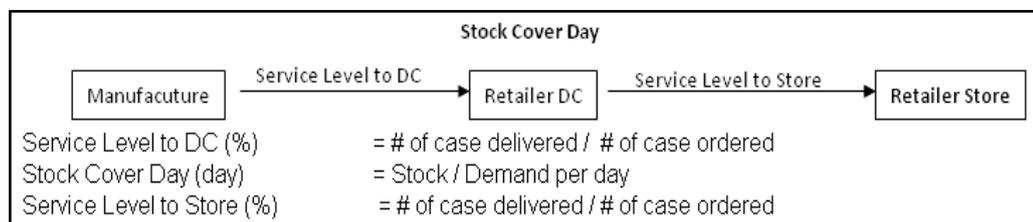


Figure 2.14 Stock Cover Day and Service Level (Pisoot & Pasawat, 2015)

Service levels measured into two stages. First, the route from the manufacturer to the retailer's distribution center, by the number of cases delivered divided by the number of cases ordered. At this step, the manufacturer also could plan for a buffer (safety stock) as stock cover day which is the stock that needed to cover the demand per day. Secondly, the route from retailer DC to the retailer store. In conclusion, the related variables with this study are **Cost** perceives, **Time** in quick respond and **Flexibility** perceives.

Cost in Service Level

Dugdale (1985) suggested to measure the cost in many aspects, in the alternative aspect of marginal cost analysis, a computation is made only of the variable costs involved, i.e. direct material, direct labor and variable overhead. Deduction of these, from product sales values, shows the resulting contribution which is then subject to the total charge for fixed overhead in respect of the relevant accounting period. About selling price, using the p/v ratio, it is desirable not to stop at this point but also to formulate the relationship between variable cost and contribution. These data can then be used to reveal products with superior ratios. A range of product selectivity is thus made available showing how a greater contribution to manufacturing fixed cost might be obtainable on specific plant items.

Ellram & Maltz (1995) found their findings that most respondents with a straight price comparison would have led to the rejection of the third-party alternative, even though outsourcing resulted in both initial and long-term cost reductions. TCO makes it possible for companies properly to evaluate realistic costs for in-house and purchase alternatives, make-or-buy, is chosen with cost reduction is usually a major concern.

Spina, Campanella & Codeluppi (2000) confirmed that the cost competition plays a dominant role, and it is almost impossible to create a differential quality of the products. However, customer service is increasingly becoming a differentiation factor, and a superior service level can ensure customers' loyalty.

Time in Service Level

Real-time and quick offered by Hemsworth et al. (2006) they concentrated only on two categories constructs had a relationship to firm's commitment in purchasing-related. Therefore, they studied only on the purchasing rely on the ability to use real-time information (EDI), and investments in information systems practices (internet). Their study explained mainly as a quick response for tracking and visibilities as enabling the information sharing.

Flexibility in Service Level

Ramsay & Wilson (1990) suggested the flexibility accusation could caused by the disadvantage of single sourcing. Reduced market intelligence and thus reduced flexibility— being tied to one source of R&D. The buyer may be slow to take advantage of new technologies developed elsewhere in the market. The single-sourced buyer restricted to one supplier's view of the product, one level and speed of innovation.

Southwood (1995) defined Flexibility was the service can be adapted more easily than in-house services to meet changing needs.

Flexibility was one of the drivers that bring in consideration whether the firm should outsourced. The other related drivers were outsourcing for a benefit such as a cost saving, particularly fixed cost, improved quality as a service provider is a specialist, core business focus, introducing new ideas which can provide an independent perspective, better staff resources, satisfying legislation when government policy requires. He suggested at that stage need to manage in logistics transport were: evaluation, specification, selection, implementation, and consolidation. Therefore, when choosing a contractor as a service supplier should a commit to ensuring a smooth service and provide flexibility when need it.

Work of Pleumpirom & Amornsawadwatana (2010) defined clearly for Flexibility, and Replaceability was ability to switch the operation to another plan or process. However, it must provide the solution to meet the customer expectation.

Coyle et al. (2011) mentioned “Flexibility” as Companies can use any combination of the five transportation modes that flexible best suits their freight. The Intermodal Transportation facilitates global trade.

The capacity and efficiency of ocean transportation allow large-volume shipments to transport between continents at relatively low per unit *Costs*. The *Time* speed of air-transport allows perishable goods to flow quickly between countries. The final domestic leg of the delivery can take place via truck (Coyle et al., 2011).

Therefore, Coyle et al. (2011)’s conceptual flexibility could be summarized for two facets as drivers of cost and speed.

R+L Global (2015) explained the new thread of next shift of forwarder’s in service obligation that they must plan to a solved model which could not meet time-critical deadlines. Measuring the ability of Flexibility, most previous works indicated for time scheduling in modifiable, adjustable as well as on elastic of compromising.

Flexibility is another valuable trait of intermodal transportation. Flexibility included cost, obstacles, resources and time to switching. The Flexibilities in Coordination leads people to multifunctional, multidisciplinary of teamwork, relations, and interrelations to build upon mutual benefit solutions. A layout of laws and regulations were important policy, strategies plan, tools, and relationship to manage or control resources to reach the top hierarchy of goal objectives.

- Benchmarking and Best Practice

Southwood (1995) recommended the best one of outsourcing in service provider should guarantee the servicing quality. In the case of things, go wrong must need to apply a sanction, such as compensation as a fine for poor performance or bone which is forfeited if the service level could not meet. Pricing structure can be fixed price on core service or related to usage. Contract parameters were about size and value, specification, deliverables, performance measurement, and duration. Partnership with service provider must be flexible, innovative, improvement driven service. Therefore, need to know these factors: reputation; location; resources; management; skills; culture; organization; turnover; personnel; systems and procedures (Southwood, 1995).

Giunipero & Monczka (1997) believed that the competitive challenge of international business, firms are turning to a strategy of being “world-class organizations.” In the purchasing area, this “world class” philosophy translates into viewing the world as a source for products and buying at the lowest cost worldwide.

Spina, Campanella & Codeluppi (2000) believed that “Designing and implementing a well-positioned logistics strategy” increasingly represents one important source of competitive advantage. All most important aspects were: cost reduction, logistics strategy often involves qualitative aspects that may help create a differentiation leadership. An approach was for both

improving differentiation and reducing the total costs in logistics pipeline, not necessarily by minimizing the cost of every single stage of the pipeline.

Min & Joo (2009) defined “Benchmarking as a continuous quality improvement process by which an organization can assess its strengths and weaknesses. “Evaluated Comparative Advantages” of leading competitors. “Identify the Best Practices” of functional industry leaders, and incorporate these findings into a “Strategic action plan” geared towards gaining a position of superiority” (Min & Galle, 1996).

Since the idea was to identify key performance measures for the function of a business operation. Measuring tool designed to one’s internal performance levels as well as those of the competitors with the areas of comparative advantages and disadvantages.

Furey (1987) cited in Min & Joo (2009) implement such programs were designed “to close a performance gap between internal operations and the leading competitors.”

2.6 Level of Competitiveness (*Benchmarking and Best Practice Performance*)

A competitive advantage for retailers in visualizing order abilities would be solved by VMI because it results in higher product availability and service level as well as lower inventory monitoring and ordering cost. For vendors, on the other hand, it results in reduced bullwhip effect and better utilization of manufacturing capacity, as well as better synchronization of replenishment planning (Sari, 2007). The standard concept of Best Practice is how the best of leader could perform achieved the highest level performance. Such step, it is required through benchmarking as a ladder of standard to best practice, benefit and entertain the practitioners in logistics fields, the previous studies mentioned, the scale with benchmarking and best practices, adapted into the Thurstone’s 11 scales were illustrated in Table 2.10. A range of weighing from high (usually 11) to low (usually 1) to weigh the selected items (Pisoot, 2015).

2.7 Scaling and Weighing

2.7.1 Formatting the scale

The study aims to build a scale ratio for weighing differentiates between those who gain competitiveness and those who merely meet his break-even point. The summarized objectives interpreted into explanations subjectively. Alike converting a value resulted from Linkert scales revert to its items. Enlisted a panel made with four consultants for validation. The alternatives of choices for developing scales and scoring methods had discussed. Pilot-study had tested and potency in defining the methods.

Refer to alternatives of weighing techniques, Yount (2006) stated for 12 developing scales in his research design and simple statistical analysis. Usually, the mainly used were: The Likert Scale (five degrees), The Thurstone Scale, The Q-Sort Scale, and The Semantic Differential, all these were for scoring recommendation to suit for different purposes. With four consultants, as commentators and advisors for this study, (two academics familiar with the international forwarding industry and lecturers in logistics and supply chain management, one academic statistician specializing in education quality assurance and assessment research and one practitioner.) Such a small focus group was questioned to comment for which type of scales, they want to apply and suit to the choices of using.

Finally, all given comments were concluded that developing method must be scaled equivalently for more than ten levels to divide the capabilities into at least 3-4 categories.

Hence, only the Thurstone scale could meet such requirement. Developing tools for scores rating followed the Linkert scale which consists of statements that are all of the equal weight (Yount, 2006). Table 2.10 illustrated for Thurstone's 11 scales.

Table 2.10 Scale Ranking: Sample of the Thurstone Scale

Indicators	11 scales	Cum.	Mean/Cum	Meaning
Bad	1	0	0	Bankrupt
	2	3	1.5	Worst
	3	5	2.5	Crisis & Heavy loss
	4	7	3.5	Continued loss
	5	9	4.5	Loss & B/E Challenge
(Moderate)	6	11	5.5	Equally B/E & Loss Challenge
(Good)	7	13	6.5	Profit - Competitive (today)
	8	15	7.5	Profitability - Competitiveness (these days)
(Excellent)	9	17	8.5	Profitability Advantage - Competitive Advantage (by week)
	10	19	9.5	Profitability enables longer Compete - Being Sustainable (by month)
	Best Practice	11	21	10.5

Source: Pisoot (2015)

The Thurstone attitude scales have a range of weighing from high (usually 11) to low (usually 1). The scores result from computing the average of the weights on items selected. Thus, this study adopted the Thurstone 11 scales to weigh for scoring. Therefore, previous calculation and pilot-tested were done with the results.

The scores of each scale transformative value to each stage meaning. Such a value interpreted from quantitative input data as a measurable objective into a qualitative explanation subjectively. The moderate level represented a setting break-even point (\bar{x}) by mean of the group studied. When one's revenue is lower than the break-even, such company challenged into facing loss stage. It was not an essential to think further for its competitiveness than how to secure back the business's income. Recovery from a loss to sufficient profit level might consider.

Alternatives to gain back the equivalent cost for break even, higher income would be further related to any other activities besides its sales, marketing, and promotions. For the recapitalization, re-injection from their stakeholders, these are not included in this study.

2.7.2 TQF-Scoring and Measurement

Institution's Quality Assurance with campuses and graduates' attributes. Most previous studies were employed TQF's five domains (Thai Qualifications Framework for Higher Education). TQF: HEd as the same standard (OHEC, 2015). In Asia, education institutions were having measured index of standard quality performance. This is an adaptation from the well known NQF: HEd (National Qualifications Framework for Higher Education). The five keys of TQF attribute were:

- 1) Development of Moral and Morality (Ethics behavioral)
- 2) Knowledge and Ability skill
- 3) Ingenious & intellectual skill
- 4) Interpersonal relation with task responsibility, and
- 5) Analytical decision making and communication (included or excluded: information technology application skill).

With such basic constructed base, some study was modified them into less as three dominants: a) ready to work b) general skills c) specific skills. These referred to the Need of graduates' characteristics which explained in many pieces of research and institution's annual reports in Quality Assurance Standard Measurement.

Office of the Higher Education Commission (2015) determined TQF's five domains of learning described as

- 1) Ethics and Morals
- 2) Knowledge
- 3) Cognitive Skills
- 4) Interpersonal Skills and Responsibility
- 5) Numerical, Communication, and Information Technology Skills.

TQF attributes and numbers of items were investigated by researcher and also the analysis methods that most used by all universities. Total 20 kinds of literature (Table 2.11) reviewed for the measuring scores, reports attributes, the number of items, and statistic method using.

As the outcome, most of them applied only the normal descriptive statistic using means of averages to present the levels of degrees as their final outputs. Most reports from all these universities were shown only scoring of means, with and without standard deviations. The

degrees reported as Very high, high, moderate, low, and very low while some reports offered only three degrees as high, moderate and low only. However, all the reviews on the past works showed most of them employed Linker's five scales for assessment in several works.

Table 2.11 Milestones of Related Works on Graduates Attributes in Quality Assurances

No	Authors	Year	Institutions	Titles
1	Pranee et al.	2000	CMU	Demand for Management Faculty Graduates from the Northern Organizations. (in Thai).
2	Dept. Research & Plan	2000	CU	The study on Trends of Demand for Management Faculty Graduates. (in Thai).
3	Somjit & Boonlert	2000	KKU	The study on Trends of Demand for Management Faculty Graduates (Upper Northeast). (in Thai).
4	Siriwan, S.	2004	TSU	Characteristics of TSU Graduates Affecting Job Employment Opportunities. (in Thai).
5	Tipbha et al.	2007	BU	Trends of Demand for Information Science and Editing Graduates. Chon Buri: Faculty of Humanities and Social Sciences, Burapha University. Keywords: Graduates needs, Editors (in Thai).
6	John Barnes	2008	AU	Are Graduates of International MBA Programs in Bangkok Meeting the Management Needs of Employers?
7	Dept. of Monitoring and Evaluation of Graduates	2009	RMU	<u>Questionnaire form</u> : Satisfaction of employer's on graduates in working and characteristics of graduates from Faculty of Humanities and Social Sciences since Thai year 2552 (in Thai).
8	Strategic Affairs, Office of Evaluation and QA	2009	KKU	Report of satisfaction on the quality of Khon Kaen University graduates' working performance Academic Year 2552, Khon Kaen University. (in Thai).
9	Christina & Arkom	2009	SPU	Desired Traits of the English Business Communication Interns as Perceived by Business Organizations. (in Thai).
10	Student Development Division	2011	RMU TT	The satisfaction of the graduates with the efficient performance of graduates. Graduate characters of RMUTT (in Thai).
11	SNRU (Eds.).	2012	SNRU	The satisfaction of the graduate students. Characteristics of the Graduate Education Qualifications Framework (TQF) Sakon Nakhon Rajabhat University. (in Thai).

Table 2.11 (Continued)

No	Authors	Year	Institutions	Titles
12	Kritya, T.	2012	NORT HCM	Preferable Qualifications of the English for Communication Graduates, Faculty of Social Sciences and Liberal Arts, North-Chiang Mai University. (in Thai).
13	Chaiyuth & Achara	2012	LPRU	Survey of Desired Characteristic of Graduates from Requirements of Graduate Users Faculty of Management Science, Lampang Rajabhat University. (in Thai).
14	Pongsai Thawornchak	2012	RPU	The Employers Satisfaction for Graduate Students from Ratchaphruek College in 2011. (in Thai).
15	Office of Educational Quality	2013	CMU	Research Report on the satisfaction of employers, entrepreneurs, graduates users. CMU Academic Year 2555, Chiang Mai University (in Thai).
16	Office of Academic Promotion &Registration	2013	SKRU	Report on Satisfaction of SKRU Graduates' employers Thai Academic Year 2556. (in Thai).
17	Kemprit & Jessadaporn	2012	PCRU	Trends study on Demand for Bachelor graduates in Multimedia Technology Science from employers in Phetchabun Province (Phetchabun Rajabhat University). (in Thai).
18	Faculty of Education	2013	SSKRU	Survey Report from Graduates' Employers demands for graduates in SSKRU Undergraduate Faculty of Education, Academic Year 2556. (in Thai).
19	Faculty of Industrial Technology (n.p.).	(n.d.)	(n.p.)	<u>Questionnaire form</u> : Survey on Desirable need of Graduates' characters according to organizations, Bachelor of Industrial Technology (Agricultural Machinery Technology) and Bachelor of Technology Program in Computer Technology
20	Graduate School	(n.d.)	CU	<u>Questionnaire form</u> : The satisfaction of users on a graduate in working performance. Moreover, characteristics of graduates who have graduated from CU's courses (any fields), Chulalongkorn University.

Source: Pisoot & Heesawat (2016)

2.7.3 Need Assessment on Attribute and Concepts

This decade, one of most favorites on several studies in education field were studying needs of assessment. The ground theory in this development followed to the basic hierarchy of the needs and assessment. Gaber (2000) who worked for Meta-needs assessment as research in Evaluation and Program Planning (as cited in Yurarach, 2011a) utilized his synthesize study on needs assessment works to apply in Human service agencies. Under the comparison among on what as is (existing) with what future is (expectation). The differences between on the current situational appearance and the reliable result would be a found out gap, ranking and picking the most impact item as important key factors.

Rao & Yong (1994) recommended in the internal import-export groups within shipper firms have sought to defend their existence due to the complexity of and the need for control of international shipments. The need to learn this tactic will be successful in the long run and not depends on the other of their factors.

Spencer et al. (1994) studied the need in JIT and evaluated the logistics service on the future services which needs to provide of next three years. Survey participants as 164 logistics providers (154 were warehouse operators as core business; 10 were both warehouse and trucking companies) were asked to identify the logistics services which they currently provide to customers as well as the services which they anticipate offering within the next three years.

However, they produced out with many parameters in total five pages questionnaire forms. Items were: Advertising and promotion, air freight, bar-coding, break bulk, computer application support, hardware, customer billing - collection, consolidation, domestic freight forwarding, EDI, facilities design, freight bill audit - payment, hazardous material handling, inbound transport, international freight forwarding, inventory management, logistics consulting, market research, office space, order processing, order fulfillment and support, outbound transport, packaging, pick and pack, price marketing - ticketing, product assembly - reprocessing, product repair and servicing, purchasing, refrigeration storage, return goods handling, repackaging, sales forecasting, salvage and scrap disposal, same day shipping, and shipment routing.

Their findings resulted out as a tragedy that the lowest value from these warehouse operators found that below and around twenty points which weaken were: Purchasing 20.9, Market Research 18.0, Advertising and promotion 15.4, Sales forecasting 6.1, respectively. Percentage of respondents' was planning to provide service to a customer with next three years: Sales forecasting 12.2, Market Research 9.8, Purchasing 7.5, Advertising and promotion 4.1.

These with no plans to provide as Sales forecasting 81.7, Advertising and promotion 80.5, Market Research 72.2, and Purchasing 71.6 respectively. All were the weakness, but most of the respondents concentrated to provide service, as Same day shipping (96.6). Repackaging (91.8), Inventory Management (91.4), Outbound transport (90.7), Pick and Pack (88.5), Consolidation (86.1), Order processing (85.0), Breakbulk (83.7), Returned goods handling (82.3), Packaging

(81.4). By these results may because of most were core activities based on a warehouse operator. This more worth interesting in studying if can be applied to learn from freight forwarding companies in logistic providers as the respondents.

Cavusgil & Das (1997) found that much of cross-cultural sourcing research studied is somewhat bereft of considerations of functional and conceptual equivalence or at least from the explicit discussion for relevant culture-susceptible variables identified by past studies. Most studies did not consider intra-country differences in selected variables while assessing the significance of general similarities or differences in those variables. Though, need some measure of congruence on the relevance of the theory for that particular cultural context before making a conclusion.

Giunipero & Monczka (1997) claimed that the different parts of the world from which to source; commodity availability in various regions of the world; and the need to understand currency fluctuations. Such approaches address operational issues associated with global sourcing. This operational orientation does not meet the requirements of upper-level executives whose questions concern how they should best manage their international purchasing efforts.

Porter (1985) cited in Giunipero & Monczka (1997) argued that while cost leadership and differentiation are opposite ends of a continuum, a differentiator cannot ignore its cost position and a cost leader cannot ignore differentiation.

Holter et al. (2008) recommended the need for measuring transport performance could relate to a carriage service specification. The literature discussion had structured around four themes:

- (1) general transport purchasing
- (2) the SME aspect of transport purchasing
- (3) differences between purchasing the conventional transport services and 3PL services
- (4) the application of general purchasing tools for the carriage procurement.

However, they suggested that experienced internal barriers need to address the external obstacles, otherwise proved more difficult and less successful.

Lyons (2015) suggested a well known CSE (Core self-evaluation) in HR research on needs analysis assessment. CSE linked to motivation helping one to decide effort to allocate in different activities, the CSE concept as a measurable four traits: first, Self-esteem is an overall appraisal of one's worth. Second, Self-efficacy is an estimate of one's ability to perform and cope effectively with a broad range of situations. Third, Emotional stability is a propensity to feel calm and secure. Locus of control is the belief that desired effects or outcomes result from one's behavior rather than by influential others or fate. Also, they supported that these four traits were highly correlated with one another and had been found to define a specific, single factor.

Yurarach (2011a) synthesized the works on needs assessment can do by Vote counting. His following work summarized to vote for nine papers syntheses for attributes on the quality development of Thai graduates' to ASEAN (Yurarach, 2011b).

Phonapichat, P., Wongwanich, S., & Sujiva, S. (2015) applied the AHM, attribute hierarchy method to do their diagnostic test; this was an alternative to rank the priority of needs for assessment.

The need assessment resulted only for in term of teaching and learning outcomes as output into five standard levels of quality assurance same like degrees of Linkert's. The domain results will give out each output of its dimension as Very High; High; Moderate; Low and Very Low, respectively. Such scaling measured using means of each respond item values.

To understand the critical requirement from overall employers in these logistics fields, to dig into deep, the test employed Pearson Chi-Square to examine for any attributes were significantly affected whether by different size or types of organization.

2.8 Related Research Contents & Methods

Model Input and Out Measures

2.8.1 Supply Chain Performance (Measuring Metrics and Levels)

An illustration from work of Gunasekaran, Patel & McGaughey (2004) in Title: *A framework for supply chain performance measurement*, items, and results produced outputs as levels for results in a level of degrees.

Performance Metrics Results (Gunasekaran et al., 2004) as showed in Appendix-F. Supply Chain Metrics were measured in three facets as:

- *Importance of supplier metrics*
- *Importance of production metrics*
- *Importance of delivery performance measures*

2.8.2 Attributes in SC Performances

A. Facet of Supplier Metrics

Assessment results at highly significant were Supplier delivery performance. Moderately significant were lead-time and pricing against the market with purchase order cycle time. Less important were Efficiency of cash-flow and booking in procedures.

B. Facet of Production Metrics

Assessment results at highly significant were Percent of defects; Cost per hours and Capacity utilization. Moderately popular was Range of products and services. Less important was: Utilization of economic order quantity.

C. Facet of Delivery Performance Measures

Assessment results at highly significant were: Quality of delivered goods, on time and Flexibility to meet customer needs. Moderately important were Effectiveness of enterprise distribution planning schedule, delivery invoice methods, Number of faultless delivery notes (records), the percentage of urgent deliveries, and information richness in carrying out delivery. Less important were a percentage of finished goods in transit and Delivery reliability performance.

2.8.3 Non-parametric Model DEA in Logistics

In the year 2009, Min & Joo (2009) proposed a model named DEA: Data Envelopment Analysis. The model carried primary data as input and used financial measures as the primary output to yield for the benchmark and competitiveness. DEA referred to a linear programming (non-parametric) technique, converted multiple incommensurable inputs and outputs of each decision-making unit (DMU). Several tests had done with similar goals in various studies either in banking, hospitals, nursing homes, purchasing departments, cellular manufacturing, travel demand, information technology investment, customer service performance for LCL truckload motor carriers (LTL), international ports, and 3PLs. DEA in the year 2009 developed two different types with two different sets of inputs to update and covering the recent period (2005-2007) over their previous model in the year 2006 (Min & Joo, 2009).

The DEA was developed from two well-known models: the Charnes, Cooper, and Rhodes (CCR, 2000) and Banker, Charnes, and Cooper (BCC, 1984). The idea of CCR (Cooper et al., 2000) for designed to derive weight without being fixed in advance. Moreover, BCC (Banker et al., 1984) for the model to mitigate the impact of 3PL sizes on financial efficiency.

2.8.4 Supply Chain Metrics and Logistics Metrics Measures

Kawtummachai (2011) confined according to experts for internal measures (in SCM: Supply Chain Management and LM: Logistics Management) are generally collected and analyzed by the firm including:

- Cost (*Rates*)
- Customer Service (*Responsiveness*)
- Productivity measures (*Reliability*)

- Asset measurement, and (*Resources*)
- Quality (*Assurance & Risk*)
- External performance measurement is examined through customer perception measures and "best practice" benchmarking (Competitiveness) and includes customer perception measurement, and Best practice benchmarking (Kawtummachai, 2011).

#Remarks# the variables in parentheses employed by the researcher as the related drivers into the construct of this study (5 independent variables with one dependent variable).

2.8.5 Research Gaps in Conclusion

This part was the conclusions from all previous research studies which related to the new modify model design.

First, from studies of Mohamed & Jones (2014) claimed the gap in their work as single variable loaded in several papers which did not do the right thing rarely than do the thing right, the economic value and rare people to study on it. However, finally, he offered only one more variable as “Assets” to combine in all previous models from accounting and economic sciences which were only cost and revenue.

Second, from syntheses of all LPIs from locally in Thailand (DBD, DEP, DITP, LSIC), up to international standard (UNCTAD, the Word Bank), all LPIs just were produced out the ranking (award the competitive rank) only from throughput of volume.

Most of the KPI based on the volume of containers, port capacities and simply yielded out only for ranking. For a macro view, most of them will be weighted through the GDP% which seems not stable enough when the internal nation’s policies changed on her economics and effects to GDP’s growth rate.

In a micro view, LPI unit assessment most to supply chain of the industrial sector, although the activities of logistics functions were explored usually yielded out with some employees’ ratio, the number of defectives as well as the timing of delivery and the annual profit to be included in the scoring.

Third, the study of Kanchana (2012) for the need of logisticians studies, produced her outcome to drawn as a policy than understand the items rated for the survey objects to derive a shortage of logistics skill and staff’s competency than support logisticians’ attributes.

Fourth, the study both for Non-financial items as ServQual based and brought into the maritime study claimed for PZB model need to be modified. Vinh, V. Thai (2007) suggested bringing Service Quality into sea transport for study as to understand more for in service provider.

While in academic side, well known TQF standard was produced out only Non-financial items with score level as outputs in degree only.

Fifth, Strecker, Frank, Heise & Kattenstroth (2013) designed a system of performance indicators requires a profound understanding of the relations between financial and non-financial metrics. The study led to organizational goals, aspired decision scenarios, and the relevant organizational context.

Another two articles most close to this thesis, integration of Finance & Non-Finance performance in Thai context (Aujirapongpan & Chanatup, 2015). Their findings were only reviewed literature for the concept of firm's performance reporting.

Relationship of Non-Financial Performance Measures (TQM) related to Managerial Performance. The outcome led to three facets for TQM under PDCA model to show as only a single conceptual drawing (Kruawan & Sirilak, 2015).

Another work of Wong, Soh & Chong (2010) investigated the drivers for the financial performance of third party logistics: A Preliminary Study of 3PL companies in Malaysia. They started only for the proposal framework to measure financial status of 3PL but using low cost and differentiations through the service performance as mediators and outcome as ended up with financial results. This still a question in mind that how to use the experiences of low price (quantitative and qualitative) measure through a service (qualitative) and outcome back to financial items as quantitative again.

Since the experience of low price can reflect as similar attitudes about cheap of expensive in feeling prices perceives than emit into emolument. However, that just only a conceptual and was pending for continuing into a survey which may be will able to exonerate by quantitative score weighing.

At the final, this thesis study provided the assessment of organization's goal with the design purposed to simulate its exploration on congruent to SCM foundation whether trends of the result are shifting the organizational goal with integration or disintegration objectives. The method's meta-model based specification and corresponding graphical notation provide abstract and concrete syntax and formal semantics of dedicated modeling constructs for the major domain-specific concepts.

2.9 Model Summary

2.9.1 SERVQUAL Model (PZB) Discussion

The delineation of SERVQUAL theories before modified as a useful model was summarized and discussed. This section highlighted in delimitation; delineation and elimination of drivers whether should or should not be applied the driver "Empathy". These were the emancipation and embankment on the model constructions.

Matear & Gray (1993) mentioned the important criteria used for selected suppliers in sea freight must include service efficiency, readiness in quality assurance and risk recognition. These perceive, the attributes emphasis on Assurance and Risk avoidance.

Hokey Min (1994); Whyte (1993) proposed the following variables: transportation time, risk recovery, the flexibility of service charges, the understanding of the problems and the willingness to help as main criteria for supplier selection. In their conclusion, risk perceives replace along with the empathy of service quality.

However, previous discussed was about Empathy in ServQual will be suited only for the old customer who existed and engaged in the service. However, might not the newcomer, since the newcomer is at the position of a potential (being a client). Therefore, the empathy would not exist in any cases, as the main reason to desist the variable of Empathy out of the framework and re-functioned for a lower degree dropped into Responsiveness as an item into “willingness to help” which had been proposed by Whyte (1993).

This congruent to the work of Imrie et al. (2000; 2002). Survey challenged the validity of SERVQUAL, which had not employed “Empathy” included into their studied dimensions, but elaborately replaced by “*politeness and courtesy; sincerity*” which were a perform to response the customers. The noted meaning of their study was its implication (avoid broadly elaborated meanings of Empathy) in the Asian context, cited in Vinh V. Thai (2007).

Hence, the main dimension as Empathy was re-employed by price dimensions adopted from its previous origin PZB model to replace by “Rate” (Monetary perceives either rate, fees, wages, overtimes, and any about cash, benefits, in the form of a monetary variable perceives.

2.9.2 Value Creation: Integrated Model

From the latest previous studies, work of Aujirapongpan & Chanatup (2015) focused on the developing concepts and findings related to the integrated reporting. The article reviews the literature on the concept of integrated reporting which was firms’ performance reporting.

The proposed concept reflected the financial and non-financial performances that are vital to the business and its stakeholders. The model was built up from Business model of Value Creation Process (Source: The International Integrated Reporting Council). The Value Creation Process (VCP) model based on process *Inputs, Business Activities, and Outputs* to the *Outcomes*.

However, the foundation of the studied elements (with several emblazonments) for practical reporting for committee had set the presentation of the eight elements as organizational overview and external environment, governance, business model risks and opportunities, strategy and resource allocation, performance, future outlook, and the basis of presentation.

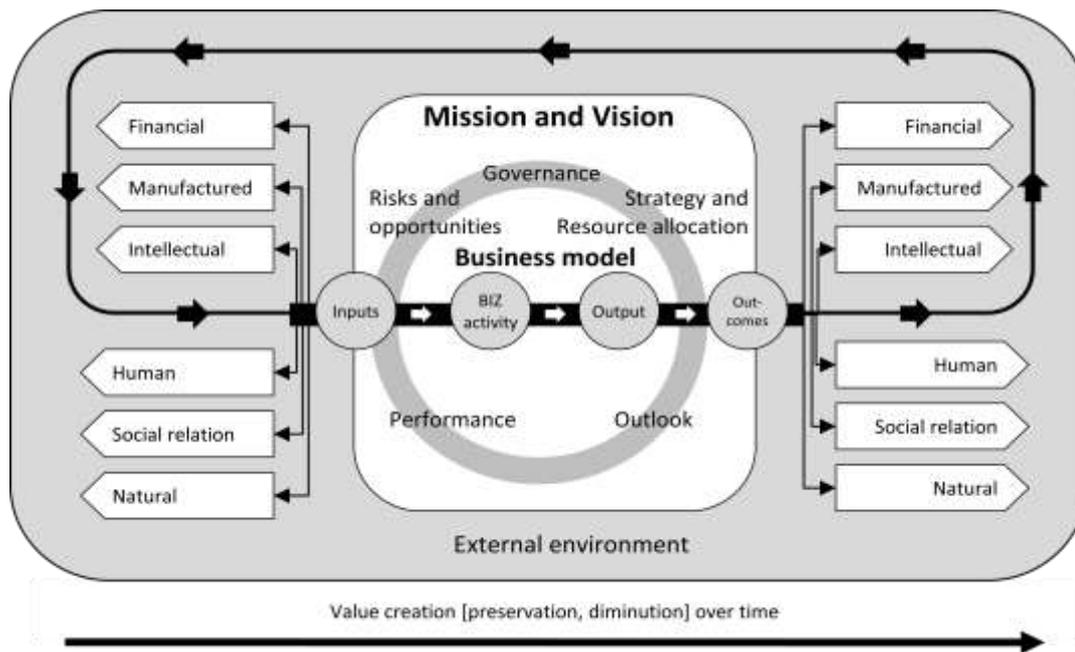


Figure 2.15 Value Creation Process Model (The International Integrated Reporting Council)

Source: Aujirapongpan & Chanatup (2015)

The reviewed outputs showed their syntheses of 89 reports which had published in the IIRC's database (2014) from multi-countries. The most used four elements were: 41.6 percent as an overview of the organization; 37.1 percent related to strategy and resource allocation; 27 percent of business model, risk and business opportunities 20.2 with 19.1 percent as results of operations, respectively. Another four elements as Governance, Performance, Future outlook and Basis of presentation, they claimed that samples did not publish these four elements.

Hence, this studies allocated the systematic thinking theories as process base, or VCP, the value creation process theories were similar in starting the Subjective to an Objective Model.

To avoid all several sub-sequence process drivers and recently studies which most not relate to this thesis. Theoretical concepts and reviews related only in the field of transport and freight service. Freight purchasing with decision making, relationships, and service quality affects competitiveness. (Hunter, 1972; Whyte, 1993; Probert, 1996; Canez, Platts & Probert, 2000; Fill & Visser, 2000; Gunasekaran et al., 2004; Chow, Choy & Lee, 2007; Cooper 2007; Holter, 2008; Mohamed & Jones, 2014). All were retrospectively ideal, variable, drivers and gaps research to draw into a new framework.

2.9.3 Model Measurement by Lisrel

Another work on Quality Management Practices in Purchasing, QMPP framework showed Information Systems Practice: IS with Purchasing Performance: PP offered by Hemsworth, Rodriguez & Bidgood (2006) constructed their interested study in information system and purchasing practice and analyzed by LISREL (Figure 2.16)

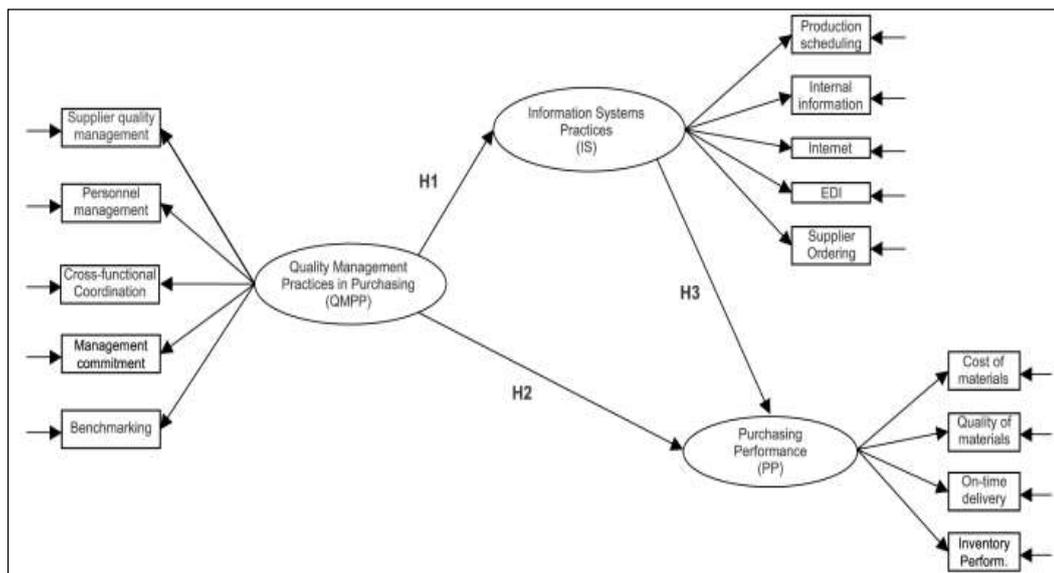


Figure 2.16 Theoretical Model of QMPP (Quality Management Practices)

Source: Hemsworth et al. (2006)

Their data analyzed by LISREL and showed that the correlation of Management commitment with Cross-functional 0.47, Personal Management 0.54, Supplier Quality 0.38. The Cross-functional Coordination with Personal management was the highest at 0.50 Personal management related with Supplier quality management at 0.64.

The Full model constructs as Quality management practice related to Information Systems 0.60 and purchasing performance at 0.47

For the Constrained model, the degree of freedom: df value results showed the highest were Personnel management with Supplier Quality at 90.52 and Full model as Purchasing performance at 71.67, Information Systems 63.47 respectively were the highest three degrees of freedom. They also claim that the benchmarking as one of the variables in quality management had no any significance to management commitment and unable to be computed because such construct each had only three measurement variables.

However, researcher considered the above reasons differently. In fact, such construct structure of benchmarking should be an individually dependent variable than a mixed variable as an independent variable. It could not confirm for benchmarking constructs for the same management commitment. Their study was heading to concentrate on measuring Information Systems Practices that affected the Purchasing Performance. This causes a mistake in framework design process. Their analyzed outcome showed that personnel management which this thesis regarded as resources, and their information system would be measured only as track and trace. Therefore, both will be included in this research as a part of measuring items.

Transport purchasing is not unique, but it presents unique challenges. Transport spans several business functions and can have a vast business impact (Holter et al. 2008). Many examples were where the dispatchers perform transport purchasing, the finance department, the inventory manager or the operation workers. Whyte (1993); Holter et al. (2008) emphasized the need for the increased professionalism of transport purchasers since there were many providers and the market be competitive. There are differences in service quality but essentially the outcome of the service.

Nevertheless, synchronized of syntheses all previous works also with Rao and Yong (1994) at the final proposed their drivers in the key factors interaction model. The same conceptual of drivers constructed in similar interpreted meaning with SPU 5'Rs model: Centrality/criticality (Resources); Risk liability and control (Risks avoidance); Cost/service issues (Rates); Information services (Responsiveness); Market relationship (Reliability).

2.10 Theoretical and Design Research Framework

“Serviceability” the non-financial items: known as “Subjective” strategies were divided into four domains of the study. Under systematic thinking, this research emphasized more at the beginning of the input process.

First domain as upstream on the sourcing techniques (source of material & its suppliers), the design was aimed to explore the service providers in purchasing behaviors with procurement as fundamental. Sources of purchasing divided into three sources of Make or Buy: MBO strategies: Make (in-sourcing), Buy (outsourcing), and both Multi-methods (M&B).

The second domain, a highlight was the relationships investigation during purchasing decisions with dominant decisions. The company’s sources of suppliers secluded since the beginning of servicing (Upstream supply chain).

The domain focused on types of the dominant power in relationships building with selected sources (supplier relationship motivation at the final decision). A question on the decision before making a purchase was the establishment of a relationship types and sources of influence. The key factor in a relationship with partners whether had influenced by a personal

decision maker or organizational policy. This domain investigated on the most powerful dominant factor in types and sources of relationships affected to the maker of selected supplier decision.

The Study with three stratified group of nations (Thailand, Vietnam, and China) on service operators could benefit to understand their local practice and strategic trends. The interpersonal skills in further relationship development may affect to gain lower cost. For an instance, organizational relationship compared with friendship (a better personal relationship). Chinese supplier may give lowest price offer. As a metaphorical predicts (before going to a proven test) and outcome resulted may be true, if such a buyer was on price focus and building a personal relationship than organizational relations.

The third construct as the middle stream. The study framework designed and discussed based on same direction congruent with the first and second domains as a mediator latent. The five dimensions of service performance, a five scale aspects (likely as Total Quality Assurance: TQF) of service quality were examined.

The model adopted from previous articles as Service Performance Units: SPU (Pisoot2013a). The concept drew from Parasuraman et al.'s five dimensions of ServQual model named "RATER" (Reliability, Assurance, Tangibility, Empathy, and Responsiveness). The new modified model into the 5Rs with elimination the driver "Empathy" off, and employed "Rate" for monetary perspective into the model studied replacement. Since several arguments were discussed on the definition and meaning of Empathy. Most were shown for the understanding of the customers' needs and regarded as sympathetic understanding. Therefore, if a new client as a newcomer, e.g. a first time purchasing or a tourist as a new walk-in customer. Then this was unable to learn what his /her standard of requirements are for the company could learn such needs from the past experiences only with their existing customers.

The cost perception in a way of a price focus (which cost perceives had withdrawn from the previous version of ServQual) was brought back as "Rate" in quality price perception (whether cheap, reasonable or expensive).

"Assurance" constructed in PZB model as warranty. According to the Risk management theory, most transporters have their transport insurance coverage during its transportation. Also, the exporters/ importers were purchased the cargo insurance. Responsibility for delivered goods depends on the trading term agreement (Incoterms). Then, perceives on freedom from risk, risk avoidance was implied in risk factors. The protection of goods during delivery on its journey with insurance as risk management covered/ while assurance was meaning "Risk Avoidance" this included the warranty or certificate to ensure the qualities of products or services.

"Tangibility" was another issue made researchers and practitioners be confused about which were the scope of definitions either own properties and proportion of assets should include or seclude. Complications in identifying the "Tangible" to limit the scope, broadly definitions were in a mess with disorder and confusions.

For example, most customers may not mind on selected supplier whether the operated office building was own property or rent from others. Workers were the staff of the company or under temporary-hired than performance excellence in delivery.

Hence, this thesis scoped Tangibility named as "Resources" which included all means of assets and own operating system: asset, properties, staff, fleets, warehouse, tools and equipment, as well as the operating system and I.T. network that related directly to the operating firm for service performing.

Fourth domain, construct as service-level perceptions from many studies included Cooper, Lambert & Pagh (1997); Lambert & Pohlen (2001). All of them always indicated the service performance in logistics and transport often including about costing and time variances with rapidity speeds or reliability in transport in building up firm's performance and competitiveness. The service level yielded into three dimensions as performance. This study applied cost, time and flexibility in measured matrix.

2.10.1 Research Framework and Hypotheses

Finally, the framework of this study was drawn for 7 Hypotheses as showed in figure 2.17

Research Framework

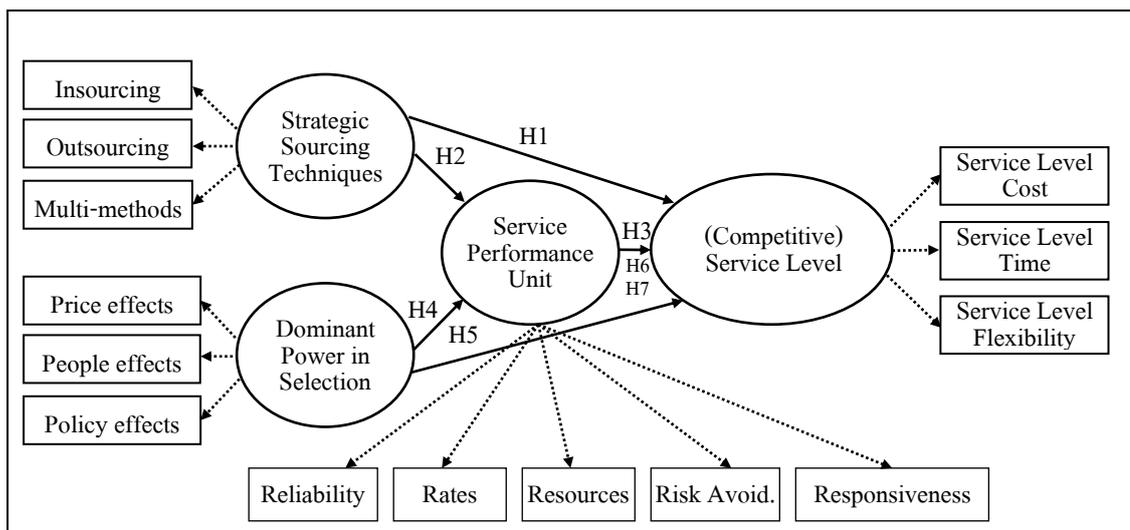


Figure 2.17 Research Framework (Pisoot 2013a, 2015)

The research survey will be investigated in three Nations (Thailand, Vietnam, and China) with 7 hypotheses.

Research Hypotheses:

- 2.1 Hypothesis 1: Strategic Sourcing Technique has a direct relationship to Service Performance Units.
- 2.2 Hypothesis 2: Strategic Sourcing Technique has a direct relationship to Competitive Service Level.
- 2.3 Hypothesis 3: Strategic Sourcing Technique has an indirect relationship to Competitive Service Level via Service Performance Units.
- 2.4 Hypothesis 4: Dominant Power on selection has a direct relationship to Service Performance Units.
- 2.5 Hypothesis 5: Dominant Power on selection has a direct relationship to Competitive Service Level.
- 2.6 Hypothesis 6: Dominant Power on selection has an indirect relationship to Competitive Service Level via Service Performance Units.
- 2.7 Hypothesis 7: Service Performance Units has a direct relationship to Competitive Service Level.

2.10.2 Final Research Attribute

Make or Buy: Make (insourcing) as own make; Buy (outsourcing) from other people to do.

The both Multi-methods would be considered similar TCO (Total Cost of Ownership) when all costs and charges were totally perceived. (Ellram & Cooper, 1990; Ellram & Maltz, 1995)

Suggested by Dugdale (1985) the aims of decision MOB for manage expenditures; the amount of any unrecovered fixed manufacturing overhead must recognize in cost comparisons made for assessing the benefits (or otherwise) of subcontracting. (Canez, Platts & Probert, 2000)

Decision-making: the decision in selection to purchase; sourcing selection power; habitations in relationship types whether: by cost pressure (money); by personal relation (man); by policy or regulation (by management or system). (Green et al. 1994; Hemsworth et al., 2006; Moses & Pär Åhlström, 2008; Aujirapongpan & Chanatup, 2015)

Desire Factors: Affects by factor influencing the popular decision in sourcing. (Price leads; people leads or policy leading). (Rao & Yong, 1994)

Relationship: Supplier relationship management, the source of relation, interpersonal relations, organizational relationship under agreed contracts enforcement. (Rao & Yong, 1994)

Price effects (Monetary perception): A focus price customer who focuses low price or low price.

People effects (Man): A client who focus on human's interaction in response, either staff people or its staff quality in service, or impersonal to cost than personal relations. Related to trust, respects and confident in servicing experiences.

Policy effects (Management): A focus in purchasing by firm's policy. The system was well setup (by machines a system management such as stock algorithm trading by a programming robot). In the policy of trading terms as Incoterms explained whether for a buyer and forwarder has power in selection. However, upon a free hand shipment, the executive management or freight agent can affect to instruct to select an own carrier. The purchasing department follows the boss's instruction in selection.

Reliability: relies on organization's reputation, appearance, confident in name or advertisement (Brand & Promoting). Service reputation, reliable on delivery time accuracy (punctual), reliable on shipment details accuracy (correct cargo size measurement), related to ensuring skill and also confidence by word of mouth on competence and ability (friend's recommendation). Trust experience with expected service than ensuring the service (as a first-time buyer). Information in trust building: such as web page, service skill, and background, well-known organization. Stability in servicing, frequencies of schedule always produced, ability to accomplish the promising to secure the service confident. Continuity of promoting service through the advertisement or media, or own web page for details, professional skills, and scope of servicing availabilities explanations.

Rates: the factor related to all cost and monetary variables: freight charges, local charges, other value-added service fees, as well as perception about price, perceives whether cheap, reasonable or expensive, the same rate to the market standard, attractive or competitive pricing.

Resources: derives from Tangibility as Assets meant. The key was heading concentration on several resources to the direct operating business's assets and investments. These can be company's properties, office equipment or warehouse's lifting tools, liner's equipped containers as well as its systems and partner's networks. Availabilities in some staff sufficient to each function of logistics service, the investment in both people and I.T. systems building up to secure its operation. Human resources development and structure invested plan and funds; one key in this role to recheck either SME with a higher class. The company provided more staff as a special administrator or overseas department staff. Manage all any other non-core activities direct to the delivery response instead of only a normal customer service department. In shipping lines business, they were known as a pricing center that controls the overall economy scale of cost and pricings towards analytical economic forecasting. The size of business in staff numbers to analyze as an ordinal class.

Risk Avoidance: interpret from only assurance and warranty, extended to the wider body in risk management. Freedom from risks, the planning against risk and compensations in cargo loss or damaged from delivery, claim avoidance, the proper in track records proofing, traceability on historical shipment information, Avoidance from service failures and mistakes same to the zero defectives concept.

Responsiveness: the ability to response customer within a reasonable timeframe. Ability to quick response to customer's needs (questions and inquiries). Fast in speed to support either problem solving or after sales service, solution and given suggestions, availability for carrier's space booking, match timing of lead-time requirement, multidisciplinary support, no delay in delivery as well as enthusiasm in service support with a professional standard, willingness to help the customer. Adding by Gunasekaran (2005) cited in Chow, Choy & Lee (2007). They suggested in a built to order in the supply chain (BOSC) can be defined as the configuration of firms and capabilities in the SC, which creates the greatest degree of flexibility and responsiveness to changing market/customer requirements in a cost effective manner. The responsiveness is also another key driver for flexibility for both service level and benefit on effective manner.

Service Level: All related studies were related to cost variance, time variance as well as the reliability of delivery. All these three main factors (Cooper, 2007) would produce a higher service level. However, this study had tested the reliability and responsiveness in the quality of the service. The third factor will load agility as firm's servicing flexibility which might impacts both competitiveness (regarding readiness to adopt the adjustment) as well as the external factor changing.

2.10.3 Related Research Studies (Strategy & Theory)

The model summary concluded all relevant attributes related to proposed hypotheses to stipulate measuring items for the design and congruent to the research study (Table 2.12)

Table 2.12 Related Research Studies

Authors (Year)	Strategy / Theory	Research Studies: Make or Buy decisions
Dugdale (1985)	MOB decisions	Level of capacity utilization, and outside supplier's efforts
Probert (1996)	MOB techniques	Six different business environments.
Fallen (2000)	MOB decisions	The trust relationship, cost transaction, an asset purchased has predictive power.
Perrons, Richards & Platts (2005)	Outsourcing decisions for firms' overall strategic plans	Long-term suppliers do not play in innovations development. Industry clock speed has no significant on success or failure of outsourcing for new technologies.
Holter et al. (2008)	Purchasing Transport service by SME	the relationship power balance among LSPs
Rao & Young (1994)	Outsourcing and trade-off relationship cost & service	sourcing alternatives in the far-off place, options about volumes, specific commodities, and origins and destinations
Razzaque & Sheng (1998)	Outsourcing effects to service quality (Traditional services / Contract services)	Service considerations and outsourcing Quality of a logistics system have often equated with service quality
Sankaran, Mun & Charman (2002)	Outsourcing, Effectiveness	drivers, facilitate, management components
Aktas & Ulengin (2005)	Outsourcing logistics activities	Quality of truck drivers
Bottani & Rizzi (2006)	add value and effective logistics and integrated supply chain management	The best class service at the lowest total cost.
Pisoot & Heesawat (2015)	Model test with 5Rs intention in logistics careers	Sources and five dimensions examined selected intention
Ramsay & Wilson (1990)	Sourcing & Long term contract: Strategy Selection	the combination of single sourcing with long-term contracts and combine other strategies (logistics functions)
Rao & Young (1994)	Outsourcing Logistics Functions	Focus factors capable of bundled services Int'l freight

Table 2.12 (Continued)

Authors (Year)	Strategy / Theory	Research Studies: Supplier Selection
Ellram & Maltz (1995)	The use of TCO concepts to model the outsourcing decision.	Perform certain activities internally (purchase services) from third parties by TCO analysis as an excellent approach (not real cost reduction)
Cavusgil & Das (1997)	cross-cultural sourcing	across national and cultural boundaries must be solved by cross-functional
Razzaque & Sheng (1998)	Contract logistics: a single vendor on a contractual basis	at least two services that are bundled and combined or may be “narrow in scope” and limited to one type of the service (e.g., warehouse, freight, only)
Sankaran et al. (2002)	Contract logistics which is a "process."	Shipper and the third parties enter into “an agreement for specific services at specific costs over some identifiable time horizon."
Green, Zimmerer & Steadman (1994)	Buying Technique as a typical effects Making Decision	Select the most appropriate vendor issued to the lowest-priced with more complex required procedure.
Rao & Young (1994)	The nature of the relationship between shippers and service providers is critical to single sourcing or outsourcing decision.	Interpersonal networks can also be a valuable asset, entering new international markets, operating in areas with cultural, financial or political barriers
Giunipero & Monczka (1997)	“world class” philosophy with outsourcing competitiveness	world class organizations for products and buying at the lowest cost worldwide
Razzaque & Sheng (1998)	Service considerations and outsourcing Quality of a logistics system have often equated with service quality	High-quality service, cost constraints or low cost despite the company’s logistics can be differentiated to produce its target service level.
De Boer, Gaytan & Arroyo (2006)	Outsourcing into practical decision-making action	outsourcing of logistics activities. Purchasing of comprehensive logistics services was more complex
Hemsworth et al. (2006)	Impact on firms and business overall performance.	Cost reduction and quality-related purchasing decisions
Mallen & Pernotte (1972)	Decision-making on transport service	attitudes of Canadian freight transportation buyers Rail / Water / Road

Table 2.12 (Continued)

Authors (Year)	Strategy / Theory	Research Studies: Supplier Selection
Dale & Cunningham (1983)	cross-functional decision processes	a small amount of research has conducted as regards functional involvement
Southwood (1995)	The concept as ‘contracting out’ (‘facilities management’)	the provision of a service by an outside service provider
Spina, Campanella & Codeluppi (2000)	TCO of strategic partnerships	Decision, carrier selection at minimizing total logistic costs
Wilding & Juriado (2004)	Three main drivers on customer perceptions in outsourcing the partnership	(1) why to outsource; (2) what to outsource (need); (3) how to manage satisfaction within 3PL partnerships
Lau & Zhang (2006)	Drivers and obstacles of outsourcing practices in China	Outsourcing, Supply chain management, China
Spencer, Rogers & Daugherty (1994)	JIT purchasing: establishing and managing supplier-partners	A small % of JIT firms view LP as supplier-partners (Reliability of transport)
McIvor & Humphreys (2000)	The competitive implications of the decision	Sourcing decisions can impact upon flexibility, customer service, and the core competencies
Kumar & Arbi (2008)	Process Planning, Supply chain management	Decision making outsources strategies in textile industry for apparel manufacture
Moses & Pär Åhlström (2008)	designing their decision process calculate cost (profit by means)	variable cost & profitability; P/V (marginal); variable cost ratio
Moses & Pär Åhlström (2009)	cross-functional team and the single functional focus	a long-term basis, personnel development, and infrastructure investments matched the best suppliers.
De Boer, Gaytan & Arroyo (2006)	evolution of outsourcing	transaction cost economics, evolutionary economics, and specific functional or technical areas
Chow, Choy & Lee (2007)	intangible “strategic resource” in the SC	knowledge-based and flow is critical to the success of SC
Giunipero & Monczka (2007)	Global sourcing for Lowest Cost	The lowest cost from worldwide suppliers or competitiveness

Table 2.12 (Continued)

Authors (Year)	Strategy / Theory	Research Studies: Competitive Supply Chain
Power, Sharafali & Bhakoo (2007)	Adding value through outsourcing: Contribution of 3PL services to customer performance	Service delivery, outsourcing analysis 3PL in Australia
Qureshi, Kumar D. & Kumar, P. (2007)	Distribution, 3PL with Supplier Relations, Supply chain management, Trust	Modeling logistics relationship to enhance shippers' productivity and competitiveness in LSCM
Canez, Platts & Probert (2000)	transactional cost theory, organizational theory	The transaction cost theory traced back to revival this concept introduction into organizational theory
Hemsworth, Sa ´nchez-Rodri ´guez & Bidgood (2006)	overall business performance impacted by purchasing decisions quality	Personal Management, Cross-functional coordination and Supplier quality management, Quality management, Information systems Purchasing performance
Logistic Corner (2009)	forwarder business in long-term connection and wide network	Locally or international partners are necessary to support cash flow, customers' requirements, satisfaction.
Ordoobadi (2009)	Reverse logistics and remanufacturing functions	A conceptual, strategic model: Outsourcing, Strategic Evaluation, Modeling, Returns
Hunter (1972)	cost-based or process-based leading	expenditures would be some anticipated ownership costs, then seek the right partners
Barrar & Davies (1985)	forward integration	specialist knowledge/expertise affects lower costs of transacting for services
Leenders, Fearon, Flynn & Johnson (2002)	small shipments deliver and operate large fleets	Supplier selection for quality delivery
Spina et al. (2000)	Decision on Alliance's TCO & Service Level	Strategic alliances and partnerships between vertical integration hire and reward.
Fill & Visser (2000)	CODF (A Composite Outsourcing Decision Framework)	Outsourcing, Strategy, Transactional costs, Organizational structure
Magill (2000) cited in Aktas & Ulengin (2005)	managing and optimizing supply chain network	the integrated logistics providers provided the shipper as part of a partnership

Table 2.12 (Continued)

Authors (Year)	Strategy / Theory	Research Studies: Competitive Supply Chain
Stank, Keller & Daugherty (2001)	SC collaboration and logistical service performance	relationships between internal & external SC collaboration & logistical service performance
Gray & Davies (2007)	Decision-Making in International Physical Distribution (Organisational relationships)	Better paid shipping manager was working within a significantly different role to drive more Service Level
Handfield & Bechtel (2002)	Contracts, Trust, Responsiveness, Site Assets, Human Assets	How structure relationships with suppliers to achieve the desired outcome (SC responsiveness)
Cigolini, Cozzi & Perona (2004)	Squeeze low price & Long-lasting relations	the scope of SC integration (providers & customers), extended boundaries to create networks based on long-lasting partnerships.
Vanichchinchai (2010)	Outsourcing on SCM view	Primary / Supportive Activities: Cost leadership / Differentiation / Value Chain
Jayaram, Tan & Nachiappan (2010)	Coordination Theory (3 coordination mechanisms)	Price, non-price and flow-based (response) coordination mechanisms in SC.
Wong, Soh & Chong (2010)	Cost Performance & Service Performance; Low cost & Differentiation	Internal Environment (Functional), External (5 outsiders)
Green et al. (1994)	Three main drivers for competitiveness through sourcing the best vendor	Low price & maintaining profit; vendor & product ability, service confidence & delivery
Panayides & So (2005)	Relationships and performance	logistics relation and improvement in supply chain and cost performance
Passas & Jones (2007)	Customized volume with NVOCC	offering more competitive and attractive pricing than vessel-operating carriers

Table 2.12 (Continued)

Authors (Year)	Strategy / Theory	Research Studies: Competitive Supply Chain
Hwang & Min (2015)	ERP adoption and implementation decision	the mediating role of an internal/ external environment still indirectly influences the ERP adapter ' s organizational capability and supplier capability
Pisoot (2015)	Relationship on Sourcing Technique and Profitability for Competitiveness	Three drivers of Cost, Revenue, Margin from Vendor selection for most competitiveness
Bauer, Tanner & Neely (2004)	The British Quality Foundation (BQF) in partnership for benchmarking program	Consortium benchmarking study on performance measurement (Quality of functions & partners)
Panayides & So (2005)	Key for Competitive Logistic Model: RO: LSQ: LSP (Relationship leads Competitiveness)	RO: Relationship orientation; LSQ: Logistics Service Quality; PERF: LSP Performance
Holter, Grant, Ritchie & Shaw (2008)	Competitiveness by the relationship power balance by the trade-off between cost and quality	Four areas transport performance depends on purchased service (Procedures; Agreement SVL; Events; Communication)
Office of National Economic and Social Development (2011)	The Global Competitive Report (WEF)	Indicators & Management Weakness by World Economic Forum
Vanichchinchai & Igel (2011)	Relationship between SCM and TQM toward Firm's Performance	QM is critical success factor for SCM; TQM is a vital role in improving SCM to Enhance Competitiveness
Pisoot & Pasawat (2015)	Best practice for Collaboration	The source of vendors with service level achievement thought quality of delivery frequencies with zero defects
Ramsay & Wilson (1990)	Matrix of contracting strategy	Sourcing for a long-term with a combination of strategies.

Table 2.12 (Continued)

Authors (Year)	Strategy / Theory	Research Studies: Competitive Supply Chain
Baily et al. (2005)	the competitive advantages available from purchasing strategies	buyer focus on a mix of resources; creative management in resource utilization competition
Lysons & Farrington (2006)	Boston Consulting Group (BCG) matrix.	The strategies to adopt at all three strategic organizational levels: corporate, business and functional/operational.
Huo, Liu, Kang & Zhao (2015)	Relationship commitment and service quality	Relationship in 3PL users and providers in China
Parasuraman, Zeithaml & Berry (1988)	PZB Model, ServQual, Service performance (RATER)	Reliability, Assurance, Tangibility, Empathy, and Responsiveness
Green et al. (1994)	Vendor (Price; Quality; Intangibles)	price, quality, delivery (service confidence; reputation and goodwill)
Gunasekaran et al. (2004)	Supplies, Products, Delivery	SC Process 3 Performance (Cost Cash-flow, Quality, Time)
Lysons & Farrington (2006)	Competitive advantage	A sought via lower cost or inventories.
Cooper (2007)	Competitiveness by Service Level in delivery	Cost, Time, Reliability
Pisoot (2013a)	Service Performance Unit 5Rs	Reliability, Rate, Resources, Risk avoidance, Responsiveness

Source: Researcher