Progress in Business Innovation & Technology Management 001 (2011) 034-050

Contents lists available at JAPBITM

Journal of Asia Pacific Business Innovation & Technology Management

APBITMS Homepage: http://apbitm.org

The Current Status of Logistics Performance Drivers in Indonesia: An Emphasis on Potential Contributions of Logistics Service Providers (LSPs)

Yeni Sumantri*[1,2] and Sim Kim Lau

[1]*School of Information Systems and Technology University of Wollongong, Australia*

[2]*Department of Industrial Engineering University of Brawijaya, Indonesia E-mail: ys487@uowmail.edu.au*

School of Information Systems and Technology University of Wollongong, Australia E-mail: sim_lau@uow.edu.au

ABSTRACT

Logistics performance can impact on economic performance of a country. High logistics performance can contribute to increase operational efficiency, improve accessibility to international network and increase trade volume. Six major drivers of logistics performance have been identified in the blue print of logistics in Indonesia. These drivers are human resource management, law and regulation, infrastructure, information and communication technology, key commodities for export and domestic markets, and logistics service providers. This paper reports on mapping of these drivers to the current state of logistics performance in Indonesia. In particular we focus our investigation on logistics service providers as one of the main drivers that contributes to logistics performance in Indonesia. We analyse its role in term of potential contribution to logistics performance as perceived by their customers. These contributions can be classified into eight categories based on ultimate improved areas which include improving operational level, improving customer service, accessing resources, reducing cost, focusing on core business, increasing market share, improving business performance, and developing business network.

Keywords: *Indonesia; logistics performance driver; LSP*

I. Introduction

Logistics has a complex role in managing the flow of goods, services and related information. Currently, the role of logistics expands not only to move products and materials but also to create competitive advantage by providing services which meet customer demand (Chapman et al., 2002). Logistics influences

* *Email:* ys487@uowmail.edu.au

market demand effectively by creating customer satisfaction, sales and market share. Stack et al. (2003) found logistics performance significantly influences customer satisfaction and in return customer satisfaction generates repurchase intention positively and significantly (Anderson et al., 1994). It has been shown that repurchase intention increases volume and variety of purchasing (Reichheld et al., 2000). When logistics effectively integrates upstream operational function and downstream marketing function in the supply chain, the overall business performance also significantly improves which encourages the sustainability of an existing market and the spread of a new market (Sezen, 2005).

At the macro level logistics performance of industries in a country has a major impact on economic performance of the country. The logistics performance of all sectors influences on the economic growth and prosperity of a country (Hannigan & Mangan, 2001). The more efficient the logistics management, the smaller margin logistics costs in the goods or services purchased by consumers. The quality of logistics performance will reduce margins costs in the product or service, improve operational efficiency, improve a country's access to international markets and increase the trade volume. When all sectors within a country have a superior logistics performance, the competitiveness of a country will increase which improves their bargaining power in regional and international levels. In a competitive supply chain world, effectiveness and efficiency of domestic logistics systems and their connectedness to global logistics is a key to the success of a country.

The importance of logistics sector for a country has encouraged Indonesia to identify key drivers of Indonesia logistics performance. In order to support the development of Indonesia logistics performance, this paper aims to map current state of drivers of logistics performance in Indonesia. In particular this paper focuses on logistics service providers (LSP) as one of the main drivers that contributes to logistics performance in Indonesia. We have conducted investigation to analyze its role in term of its potential contribution to customer performance as perceived by their customers. The rest of the paper is organized as follows. Section 2 discusses challenges of Indonesia logistics sector. Section 3 identifies current states of key drivers of Indonesia logistics performance. Section 4 identifies potential contributions and risks of the LSP usage and section 5 concludes the paper.

II. The Challenges of Indonesia Logistics Sector

Indonesia's efforts to achieve an effective and efficient logistics system is influenced by the state of Indonesia which has 17,504 islands, 225 million population and abundant natural resources such as oil, gas, coal and palm oil. The circumstances indicate that Indonesia is a promising market as well as wealth resources. The geographical condition that it only has 22% of the land means the supply and demand distribution has become a crucial issue and requires reliable distribution systems. Logistics sector also faces challenges internationally. Free trade agreement in the ASEAN region leads to more competitive market. Customer expectations of offered goods and services have increased. Similarly customers demand lower costs. To respond to this situation, Indonesia needs an outperformed logistics performance.

To observe how far the performance of Indonesian logistics sector is, a national logistics performance measurement is needed. The performance of a country's logistics sector compared to logistics sector in other countries in the world can be identified using the Logistics Performance Index (LPI). The LPI in 2010 shows

that the Indonesian logistics sector needs to be improved (see Table 1). LPI is the weighted average of the country scores on six key dimensions which consist of efficiency of the clearance process; quality of trade and transport related infrastructure; ease of arranging shipments; competence and quality of logistics services; ability to track and trace consignments; and timeliness of shipments in reaching destination within the scheduled or expected delivery time. The scorecards demonstrate comparative performance using a scale from 1 to 5 in which 1 being the worst performance for the given dimension.

Table 1. The 2010 Logistics Performance Index of Indonesia Compare to World Average Score

	Indonesia		**World**	
			score	**difference**
Overall LPI	score	2.76	2.87	-0.11
	rank	75		
Customs	score	2.43	2.59	-0.16
	rank	72		
Infrastructure	score	2.54	2.64	-0.09
	rank	69		
International shipment	score	2.82	2.85	-0.02
	rank	80		
Logistics competence	score	2.47	2.76	-0.29
	rank	92		
Tracking & tracing	score	2.77	2.92	-0.15
	rank	80		
Timeliness	score	3.46	3.41	0.06
	rank	69		

Source: World Bank

III. The Current Status of Key Drivers of Indonesia Logistics Performance

Support of government for the development of logistics sector has been published in the blueprint of the Indonesian logistics sector which includes a vision and a national logistics strategy. The goal of the Indonesian government is to have a strong network among urban region and industrial area by 2025. Future goals are embodied in the vision headlines of 2025, that is “Locally Integrated, Globally Connected” and the vision statement states that “by year 2025, Indonesia logistics that domestically integrated across archipelago and internationally connected to the major global economies, effectively and efficiently, would improve national competitiveness to succeed in the world era of supply chain competition “ (Kementrian Koordinator Bidang Perekonomian Republik Indonesia, 2008).

To achieve the goal, the government establishes a national logistics strategy that encourages low-cost economy. Indonesian logistics strategy prioritizes strategies for the six major determinants of national logistics which consists of key commodities; laws and regulations; infrastructure; human resources and

management; information and communication technology; and logistics service providers. The Indonesian logistics strategy can be summarized in a statement, that is "Through improvement and enforcement of laws and regulations; optimal investment and utilization of infrastructure; advancement of logistics information and communication technology, the government would provide a platform for professional logistics human resource management and world class logistics service provider to develop the strategic key commodities so that the country's competitiveness can be achieved" (Kementrian Koordinator Bidang Perekonomian Republik Indonesia, 2008). In order to understand the challenge of each driver, an overview of the current states of each driver of Indonesia logistics systems is needed.

A. Laws and Regulations

The development of Indonesia logistics sector requires a strong regulatory protection. Currently, synchronization among regulations and laws is low. Regulations and laws should be prepared in the logistics perspective so that they do not overlap and can provide a clear direction for the future development. In preparing for the regulations and laws, benchmarking with regulations and laws of other countries regulation is necessary. For regulations and laws realization, the enforcement is needed so that laws and regulations can be implemented effectively (Kementrian Koordinator Bidang Perekonomian Republik Indonesia, 2008).

B. Infrastructure

The logistics sector depends on the condition of transportation infrastructure, roads, ports, and airports. Factually, Indonesian logistics system needs a cheaper infrastructure to achieve efficient distribution (Kementrian Koordinator Bidang Perekonomian Republik Indonesia, 2008). The increased of trading volume should be supported by the infrastructure capacity. Investment of infrastructure is very expensive and long term return on investment should be maximized to ensure full utilization of existing facilities. The comparison between the growth of trading volume and the infrastructure capacity can be seen from table 2 to table 12. The data show that increasing of trading volume has not been balanced by the development of infrastructure capacity.

Table 2. The Number of Cargo of Railways Transportation, 2006-2009 (000 Tons)

Year	(000 Tons)
2006	17.275
2007	17.078
2008	19.444
2009	18.924

Source: BPS (recompiled)

Table 3. The Number of Domestic Cargo of Air Transportation at Main Airports in Indonesia, 2006-2009 (Tons)

Year	Polonia (Tons)	Sukarno Hatta (Tons)	Juanda (Tons)	Ngurah Rai (Tons)	Hasanudin (Tons)

2006	10.404	121.196	23.195	4.191	24.575
2007	10.809	133.663	23.441	5.144	27.375
2008	11.385	152.303	22.425	6.362	22.522
2009	12.096	146.134	27.276	6.433	21.815

Source: BPS (recompiled)

Table 4. The Number of International Cargo of Air Transportation at Main Airports in Indonesia, 2006-2009 (Tons)

Year	Polonia (Tons)	Sukarno Hatta (Tons)	Juanda (Tons)	Ngurah Rai (Tons)
2006	2.188	100.748	6.597	24.674
2007	1.888	106.132	7.455	26.784
2008	3.353	118.379	7.790	27.195
2009	2.308	110.467	8.150	28.839

Source: BPS (recompiled)

Table 5. Total of Loading Domestic Cargo at Main Ports in Indonesia, 2006-2009 (Tons)

Year	Belawan (Tons)	Tanjung Priok (Tons)	Tanjung Perak (Tons)	Balikpapan (Tons)	Makassar (Tons)
2006	538.602	5.948.414	10.486.872	10.123.854	2.552.865
2007	974.286	6.824.602	13.610.296	13.394.413	2.707.219
2008	1.186.819	7.351.121	9.463.008	11.642.516	3.294.072
2009	1.216.190	8.341.275	8.829.194	8.218.005	3.711.557

Source: BPS (recompiled)

Table 6. Total of Unloading Domestic Cargo at 5 Main Ports in Indonesia, 2006-2009 (Tons)

Year	Belawan (Tons)	Tanjung Priok (Tons)	Tanjung Perak (Tons)	Balikpapan (Tons)	Makassar (Tons)
2006	6.959.975	14.020.612	10.658.357	8.593.227	3.183.440
2007	7.242.572	15.808.737	11.803.339	8.783.094	3.461.109
2008	8.269.358	16.860.782	8.446.983	8.557.097	4.992.781
2009	7.527.212	15.152.551	7.765.622	7.601.787	6.673.336

Source: BPS (recompiled)

Table 7. International Cargo Loading and Unloading Indonesia, 2005-2008 (Tons)

Year	Loading (000 Tons)	Unloading (000 Tons)
2005	160.743	50.385
2006	145.891	45.173

2007	240.767	55.357
2008	145.120	44.925

Source: BPS (recompliled)

Table 8. The Condition of Road Assets, 2009 (%)

Condition	National Road	Province Road	Regional Road
Major damage	3.44	32.9	21.87
Minor damage	13.34	28.21	31.14
Fair	33.56	34.88	24.53
Good	49.67	5.85	22.46

Source: "Perhubungan Darat dalam Angka 2009", Ministry of Transportation Republic of Indonesia, Directorate General of Land Transportation http: www.hubdat.web.id

Tabel 9. The growth of Road in Indonesia, 2005-2008 (km)

	2005	2006	2007	2008
National Road	34.318	34.318	36.318	36.318
Province Road	46.771	46.771	50.044	50.044
Regional Road	229.208	229.208	245.253	245.253
Urban Road	21.934	21.934	23.469	23.469
Tol Road	772	772	772	772

Source: "Profil Data Perhubungan Darat Tahun 2009", Ministry of Transportation Republic of Indonesia, Directorate General of Land Transportation http: www.hubdat.web.id

Tabel 10. The Number of Construction and Rehabilitation of Railway, 2004-2007 (km)

Tahun	2004	2005	2006	2007	Total	Average growth (%)
Construction and Rehabilitation	124.67	158.78	181.89	324.60	789.94	
Growth (%)	-	27.36	114.55	78.46		40.12

Source: "Informasi Transportasi", Ministry of Transportation Republic of Indonesia, Secretariate General of Data and Information, 2007

Tabel 11. The Development of Airport Facility, 2003 - 2007

Year	Rehabilitation of Airport (m2)	Construction of Airport (m2)	Rehabilitation and Construction (m2)	Growth (%)
2003	4.450	6.634	11.084	-

2004	1.726	1.811	3.537	-68.09
2005	4.014	37.450	41.491	1073.06
2006	1.755	58.062	59.817	1591.18
2007	7.473	2.253	9.726	-83.74
Total	19.418	106.210	125.628	

Source: "Informasi Transportasi", Ministry of Transportation Republic of Indonesia, Secretariate General of Data and Information, 2007

Table 12. The Development of Port Facility, 2004-2007

Year	Construction (m)	Growth (%)
2004	1.703	-
2005	2.602	52.79
2006	1.748	-32.82
2007	1.550	-11.33

Source: "Informasi Transportasi", Ministry of Transportation Republic of Indonesia, Secretariate General of Data and Information, 2007

C. Human Resource Management

Efficient and integrated logistics systems need the availability of human resources. In fact, the growth of Indonesia logistics business is not supported by the growth of professional human resources. There is a gap between the availability of education and training with demands in the logistics sector and the level of competency and human resource development have not been well planned. In general, only 6.5% of labor has tertiary education (Table 13). The main challenge of the national logistics sector is the need to improve the quality and quantity of human resources in this sector (Kementrian Koordinator Bidang Perekonomian Republik Indonesia, 2008).

Table 13. The 2007 Indonesia Education: at a Glance

Indicator	**Percentage**
Primary Gross Enrolment Ratio (%) (6 years)	117
Lower Secondary (%) (3 years)	91
Upper Secondary (%) (3 years)	57
Vocational and Technical (% of secondary enrolment)	12.8
Tertiary Gross Enrolment Ratio (%)	17.5
Labor Force with Secondary Education (% of labor force)	20.6
Labor Force with Tertiary Education (% of labor force)	6.5

Source: World Bank

D. Information and Communication Technology

Information and communication technology (ICT) supports delivery of information and improves logistics pipeline visibility. For instance, Transportation Management System (TMS) can provide information about location, direction of travel and speed of transportation in real time whilst Warehouse Management System (WMS) can manage information about goods in the warehouse. Condition of ICT in Indonesia greatly influences the performance of logistics sector. In general, the development of Indonesia ICT has shown a good progress (Table 14).

Table 14. The ICT Indonesia: at a Glance

ICT Performance	**Indonesia**		**East Asia & Pacific Region**
	2000	2008	2008
Access			
Telephone lines (per 100 people)	3.2	13.4	21.7
Mobile cellular subscriptions (per 100 people)	1.8	61.8	52.9
Fixed internet subscribers (per 100 people)	0.2	1.4	9.0
Personal computers (per 100 people)	1.0	2.0	5.6
Households with a television set (%)	62	65	-
Quality			
Population covered by mobile cellular network (%)	89	90	93
Fixed broadband subscribers (% of total internet subscribers)	1.0	9.4	41.9
Fixed internet bandwidth (bits/second/person)	1	120	470
Affordability			
Residential fixed line tariff (US$/month)	-	4.5	4.5
Mobile cellular prepaid tariff (US$/month)	-	5.3	5.0
Fixed broadband internet access tariff (US$/month)	-	21.7	21.7

Source: World Bank

E. Key Commodities

The development of logistics sector should take into consideration the main commodities for international and domestics market. Each commodity has different production, marketing and material handling requirements. For the export market, Indonesia has priority commodities consisting of fuel, gas, crude palm oil (CPO), coal, agricultural product, forest products and containerized commodities such as textiles, pharmaceuticals, electronics, furniture, handicraft, processes food and office equipment. For domestics market, the main commodities involve fuel and gas, agricultural products, cement, fertilizer and

liquid commodities such as cooking oil and milk (Kementrian Koordinator Bidang Perekonomian Republik Indonesia, 2008). Through understanding these priority commodities, national logistics systems can focus on the need of the commodities. The production and marketing areas of the commodities should be mapped into the logistic strategy in order to understand the priority development area.

F. Logistics Service Provider (LSP)

Time-based competition has become increasingly important for companies. New manufacturing methods such as just in time and flexible manufacturing system encourage companies to improve their logistics performance. Time-based competitiveness needs the flow of information, manufacturing and delivery of product on time to respond to the change of customer demand. Logistics has emerged as a key frontier of competition in the future (Sohail et al., 2006). Companies compete to offer excellent service performance through optimizing logistics supply chain inventory, lead times and economies of scale. In pursuing these efforts, companies have encountered several problems, such as lack of knowledge about customer, tax regulation and infrastructure of destination countries. These conditions prompt the company to use LSP to plan, implement and control forward and reverse flow and storage of goods, services and related information.

In the blueprint of Indonesian logistics sector, the government has supported the development of the Indonesian LSP industry. The role of the LSP is to improve customer service of the companies. High competitive market in the era of globalization has forced companies to develop a logistics strategy which not only maintains the existing market but also expands the market at a global level. Generally, the Indonesian LSPs have provided some form of basic services. Large scale and comprehensive services from upstream to downstream are mostly dominated by multinational LSPs. The LSPs in Indonesia are associated within different associations depending on the service type provided and are fostered within different departments or ministry. For instance, LSPs which provide transportation service are fostered within Department or Ministry of Transportation whilst LSPs which provide warehouse service are fostered within Department or Ministry of Trade. In this condition, developing LSPs industry need the coordination inter department or ministry.

The main goal of Indonesia LSPs is to provide excellent service at low cost with a competitive spirit, commercial culture and capital access. Competitive spirit focuses on customer service, reliable management and information technology investment to monitor and regulate the operation whilst commercial culture focuses on providing attractive incentives for management (Kementrian Koordinator Bidang Perekonomian Republik Indonesia, 2008).

The Indonesia domestic and ASEAN regional environment influence on the growth of LSP in Indonesia. The improved infrastructure, the growing of plantation, oil, gas, mining, telecommunication and retail industry have encouraged the development of Indonesia LSP industry. The LSP growth is also influenced by the growth of trading among ASEAN countries. In a roadmap for the integration of the ASEAN logistics sector, ASEAN member countries are recommended to support the ASEAN logistics service providers through providing common standard services (The Nathan Associates Inc., 2007). The dynamic environment in the Asia Pacific region, such as the increasing of companies' demand on LSP, the development of

transport services and improvement of ICT service have enhanced the LSP industry development (Lieb, 2008). The logistics service sector has become a promising business sector in Indonesia and ASEAN region.

However, the free trade agreement in regional and international areas does not only create new market opportunity but also triggers competitive businesses among LSPs. In a competitive market, customers require a high service level with efficient cost. In this state the price is more competitive which results in shrinking profit margin. The other problems are hiring of qualified staff, retraining them and minimizing turnover; lacking regulatory issues information about local market and running of transport operations. In order to optimize potential contribution of LSPs to their customer, information on potential contribution and risk of the LSP usage is needed.

IV. Potential Contributions and Risks of the LSP Usage

Increasing competition, changing customer service expectation, lack of deregulations information in destination countries and increasing new technology implementation contribute to the growth of LSP industry (Sheffi, 1990; Razzaque & Sheng, 1998). Benefits from the LSP usage have also accelerated their growth. Organizations decide to use LSPs when they can acquire a lot of benefits from the usage of LSPs (Maltz & Ellram, 1997). By using LSPs, companies expect to improve their service level (Fernie, 1999; Lau & Zhang, 2006; Razzaque & Sheng, 1998; Selviaridis & Spring, 2007), such as delivery and reliability level (Elmuti, 2003). Through increasing service level, LSPs fulfil expectation of customers of companies (Qureshi et al., 2008) and enhance satisfaction of customers (Embleton & Wright, 1998; Selviaridis & Spring, 2007; Qureshi et al., 2008). LSPs efficiently manage demand of customers (Razzaque & Sheng, 1998), increase repeat purchase of customer and ultimately increase market share and revenue of companies (Elmuti, 2003). In summary, the long-term goal of using LSPs is to create excellent business performance of the companies which use their service.

In order to enhance customer service level, companies should respond to the needs of customers quickly (Harland et al., 2005) as well as offer minimum cost (Selviaridis & Spring, 2007; Cho et al., 2008; Bolumole et al., 2007). To be responsive, companies should improve their system operations (e.g. improving delivery time) (Elmuti, 2003) and recovers availability of resources (e.g. raw material) (Persson & Virum, 2001; Schniederjans & Zuckweiler, 2004). Companies also need to upgrade customers data (Razzaque & Sheng, 1998), advanced equipments, information and communication systems (Razzaque & Sheng, 1998; Cho et al., 2008), and adopt latest technology (Kremic et al., 2006; Schniederjans & Zuckweiler, 2004). Furthermore, companies need to enhance expertise, skill (Bolumole, 2001; Kakabadse & Kakabadse, 2005), and innovative knowledge (Fill & Visser, 2000). By using LSPs, the companies can improve their responsiveness without incurring significant cost and they can focus on their core business (Sheehan, 1989). By concentrating on core business, companies can deliver competitive advantage to their customers (Qureshi et al., 2008) through creating superior and unique qualities of products or services.

LSPs also contribute to minimizing the cost of the companies through improving service on operational level, such as improving flexibility in delivery (Daugherty et al., 1996; Selviaridis & Spring, 2007; Maloni & Carter, 2006), improving operational efficiency (Aghazadeh, 2003; Bolumole, 2001), and the supply chain process (Razzaque & Sheng, 1998; Aghazadeh, 2003). Additionally, LSPs supports in developing supply

chain partners, accessing international distribution network, and sharing risk. Finally, the long-term outcome of the cooperation between LSP and the companies can be seen on financial performance of the companies. To sum up, the expectation of companies in using LSP can be classified into improving operational level, improving customer service, accessing resources, reducing cost, focusing on core business, increasing market share, improving business performance, and developing business network (Table 15 & 16).

Table 15. The Potential Contributions of the LSP Usage

Potential Contribution	Item of Potential Contribution	Code of Item of Potential Contribution
Improving operational level	Improving productivity	1
	Improving flexibility of operation	2
	Improving speedy of operation	3
	Improving efficiency of operation	4
	Improving quality of operation	5
	Improving reliability of operation	6
Improving customer service	Improving customer service	7
	Improving customer relationship	8
	Increasing responsiveness to market	9
Accessing resources	Accesing latest technology	10
	Accesing expertise, skill, and knowledge	11
	Accessing material resources	12
	Accessing data	13
Reducing Cost	Reducing cost	14
	Reducing asset	15
	Reducing inventory level	16
Focusing on core business	Focusing on core business	17
Increasing market share	Increasing customer demand	18
	Spreading market	19
Improving business performance	Improving outcome of contract	20
	Increasing financial strength	21
	Decreasing business risk	22
	Increasing competitive advantage	23
Developing business network	Developing business network	24

Besides benefits, the LSP usage has several disadvantages. These are increasing inventory risk, lacking market information, leaking of secured information (Svensson, 2001; Hong *et al.*, 2004). In some cases, the LSP usage also increase cost and time effort, crave on provider expertise (Vissak, 2008), lose capability,

disrupt inbound flows, and loss of customer feedback (Selviaridis & Spring, 2007). In addition, the LSP usage can lead to attitudes of lacking great effort to fight, dealing with complex relationship, losing control in operation (Dwyer *et al.*, 1987), losing professional knowledge (Sink *et al.*, 1996), and sometimes increasing customer complaints (Sink & Langley, 1997).

Although companies are aware of these disadvantages of the LSP usage, LSPs have continually to grow. This is motivated by the benefits arise from the LSP usage compared to disadvantages which result in the trend of its usage (Aktas & Ulengin, 2005). The increasing demand of service of LSP has undoubtedly expanded the growth of logistics service provider industry (Bolumole, 2001). Through understanding the potential contributions and risks of using LSPs, improvement of customer logistics performance can be investigated.

Table 16a. The Papers Supporting Item of Potential Contributions

Code of Item of Potential Contribution												Papers
1	2	3	4	5	6	7	8	9	10	11	12	
	√											(Daugherty *et al.*, 1996)
	√					√			√	√		(Sink *et al.*, 1996)
	√					√			√	√		(Sink & Langley, 1997)
√	√		√	√		√			√	√		(Embleton & Wright, 1998)
√	√	√	√	√	√	√	√		√	√	√	(Razzaque & Sheng, 1998)
						√						(Boyson *et al.*, 1999)
	√					√				√		(Fernie, 1999)
√			√			√			√	√		(Lankford & Parsa, 1999)
	√								√	√		(Fill & Visser, 2000)
	√		√			√				√		(Bolumole, 2001)
	√	√	√			√		√	√	√	√	(Ehie, 2001)
				√					√	√	√	(Persson & Virum, 2001)
	√		√			√				√		(Aghazadeh, 2003)
√	√	√	√	√	√	√		√	√	√		(Elmuti, 2003)
												(Beaumont & Sohal, 2004)
					√	√	√					(Hong *et al.*, 2004)
	√			√		√			√	√	√	(Schniederjans & Zuckweiler, 2004)
	√					√				√		(Wilding & Juriado, 2004)
	√			√	√	√	√					(Clegg *et al.*, 2005)
	√							√	√	√	√	(Harland *et al.*, 2005)
						√			√	√		(Kakabadse & Kakabadse, 2005)
	√	√		√					√	√		(Kremic *et al.*, 2006)
	√					√			√			(Lau & Zhang, 2006)
	√											(Maloni & Carter, 2006)

√	√					√			√			(Sahay & Mohan, 2006)
√	√					√			√			(Sohail *et al.*, 2006)
									√	√	√	(Bolumole *et al.*, 2007)
	√	√				√						(Selviaridis & Spring, 2007)
√	√			√		√			√	√	√	(Ghodeswar & Vaidyanathan, 2008)
	√								√	√		(Cho *et al.*, 2008)
		√	√			√						(Qureshi *et al.*, 2008)
	√					√						(Fabbe-Costes *et al.*, 2009)

Table 16b. The Papers Supporting Item of Potential Contributions (Continued)

Code of Item of Potential Contribution												Papers
13	14	15	16	17	18	19	20	21	22	23	24	
	√											(Daugherty *et al.*, 1996)
	√	√		√		√						(Sink *et al.*, 1996)
	√			√								(Sink & Langley, 1997)
	√			√				√				(Embleton & Wright, 1998)
√	√	√	√	√	√	√	√	√		√	√	(Razzaque & Sheng, 1998)
	√							√		√		(Boyson *et al.*, 1999)
	√			√		√		√			√	(Fernie, 1999)
	√			√			√			√		(Lankford & Parsa, 1999)
	√	√		√				√				(Fill & Visser, 2000)
	√								√	√		(Bolumole, 2001)
	√	√		√		√		√	√			(Ehie, 2001)
	√	√		√				√	√			(Persson & Virum, 2001)
√	√			√		√						(Aghazadeh, 2003)
	√			√		√	√	√	√	√		(Elmuti, 2003)
	√			√								(Beaumont & Sohal, 2004)
												(Hong *et al.*, 2004)
	√	√		√					√			(Schniederjans & Zuckweiler, 2004)
	√	√		√		√						(Wilding & Juriado, 2004)
	√			√		√						(Clegg *et al.*, 2005)
	√			√								(Harland *et al.*, 2005)
	√			√								(Kakabadse & Kakabadse, 2005)
	√	√		√								(Kremic *et al.*, 2006)
	√	√		√						√		(Lau & Zhang, 2006)
	√			√								(Maloni & Carter, 2006)
	√	√		√		√					√	(Sahay & Mohan, 2006)
	√			√		√						(Sohail *et al.*, 2006)

	√			√							√	(Bolumole *et al.*, 2007)
	√	√	√	√							√	(Selviaridis & Spring, 2007)
	√	√		√	√	√						(Ghodeswar & Vaidyanathan, 2008)
	√	√										(Cho *et al.*, 2008)
												(Qureshi *et al.*, 2008)
	√										√	(Fabbe-Costes *et al.*, 2009)

V. Conclusion

Focusing on six key drivers of Indonesia logistics performance is an appropriate first step to improve Indonesia logistics performance. The mapping result of the six key drivers of Indonesia logistics performance show that each driver needs to be improved continuously. There are four ways to improve the six key drivers, these are improvement of policy (for laws and regulations); optimization and utilization of investment (for infrastructure and information and communication technology); development, training and business opportunity (for human resource management and LSP) and development of production and marketing (for key commodities). In regards to the role of LSP as one of the key drivers in Indonesia logistics performance, their role has demonstrated a significant contribution to customer logistics performance. Information about customer perceived risks and contributions is important to contribute to improvement of Indonesia logistics performance.

Acknowledgment

This study was funded by The Ministry of National Education of the Republic of Indonesia.

References

Aghazadeh, S.-M. (2003) How to choose an effective third party logistics provider. Management Research News 26(7), 50.

Aktas, E. & Ulengin, F. (2005) Outsourcing logistics activities in Turkey. Journal of Enterprise Information Management 18(3), 316

Anderson, E.W., Fornell, C. & Lehmann, D.R. (1994) Customer satisfaction, market share, and profitability: Findings from Sweden. Journal of Marketing 58(3), 53.

Beaumont, N. & Sohal, A. (2004) Outsourcing in Australia. International Journal of Operations & Production Management 24(7), 688 - 700.

Bolumole, Y.A. (2001) The supply chain role of third-party logistics providers. International Journal of Logistics Management 12(2), 87.

Bolumole, Y.A., Frankel, R. & Naslund, D. (2007) Developing a Theoretical Framework for Logistics Outsourcing. Transportation Journal 46(2), 35.

Boyson, S., Corsi, T., Dresner, M. & Rabinovich, E. (1999) Managing effective third party logistics relationships: What does it take? Journal of Business Logistics 20(1), 73.

Chapman, R.L., Soosay, C. & Kandampully, J. (2002) Innovation in logistic services and the new business model: A conceptual framework. Managing Service Quality 12(6), 358.

Cho, J.J.-K., Ozment, J. & Sink, H. (2008) Logistics capability, logistics outsourcing and firm performance in an e-commerce market. International Journal of Physical Distribution & Logistics Management 38(5), 336 - 359.

Clegg, S.R., Burdon, S. & Nikolova, N. (2005) The Outsourcing Debate: Theories and Findings. Journal of the Australian and New Zealand Academy of Management 11(2), 37.

Daugherty, P.J., Stank, T.P. & Rogers, D.S. (1996) Third-party logistics service providers: Purchasers' perceptions. International Journal of Purchasing and Materials Management 32(2), 23.

Dwyer, F.R., Schurr, P.H. & Oh, S. (1987) Developing Buyer-Seller Relationships. Journal of Marketing 51(2), 11.

Ehie, I.C. (2001) Determinants of success in manufacturing outsourcing decisions: A survey study. Production and Inventory Management Journal 42(1), 31.

Elmuti, D. (2003) The perceived impact of outsourcing on organizational performance. Mid - American Journal of Business 18(2), 33.

Embleton, P.R. & Wright, P.C. (1998) A practical guide to successful outsourcing. Empowerment in Organizations 6(3), 94.

Fabbe-Costes, N., Jahre, M. & Roussat, C. (2009) Supply chain integration: the role of logistics service providers. International Journal of Productivity and Performance Management 58(1), 71 - 91.

Fernie, J. (1999) Outsourcing distribution in U.K. retailing. Journal of Business Logistics 20(2), 83.

Fill, C. & Visser, E. (2000) The outsourcing dilemma: a composite approach to the make or buy decision. Management Decision 38(1), 43 - 50.

Ghodeswar, B. & Vaidyanathan, J. (2008) Business process outsourcing: an approach to gain access to world-class capabilities. Business Process Management Journal 14(1), 23 - 38.

Hannigan, K. & Mangan, J. (2001) The role of logistics and supply chain management in determining the competitiveness of a peripheral economy. Irish Marketing Review 14(1), 35.

Harland, C., Knight, L., Lamming, R. & Walker, H. (2005) Outsourcing: assessing the risks and benefits for organisations, sectors and nations. International Journal of Operations & Production Management 25(9), 831 - 850.

Hong, J., Chin, A.T.H. & Liu, B. (2004) Logistics Outsourcing by Manufacturers in China: A Survey of the Industry. Transportation Journal 43(1), 17.

Kakabadse, A. & Kakabadse, N. (2005) Outsourcing: Current and future trends. Thunderbird International Business Review 47(2), 183.

Kementrian Koordinator Bidang Perekonomian Republik Indonesia (2008) Penataan dan Pengembangan Sektor Logistik Indonesia.

Kremic, T., Tukel, O.I. & Rom, W.O. (2006) Outsourcing decision support: a survey of benefits, risks, and decision factors. Supply Chain Management: An International Journal 11(6), 467 - 482.

Lankford, W.M. & Parsa, F. (1999) Outsourcing: a primer. Management Decision 37(4), 310.

Lau, K.H. & Zhang, J. (2006) Drivers and obstacles of outsourcing practices in China. International Journal of Physical Distribution & Logistics Management 36(10), 776 - 792.

Lieb, R. (2008) The year 2007 survey. International Journal of Physical Distribution & Logistics

Management 38(6), 495.

Maloni, M.J. & Carter, C.R. (2006) Opportunities for Research in Third-Party Logistics. Transportation Journal 45(2), 23.

Maltz, A.B. & Ellram, L.M. (1997) Total cost of relationship: An analytical framework for the logistics outsourcing decision. Journal of Business Logistics 18(1), 45.

Persson, G. & Virum, H. (2001) Growth strategies for logistics service providers: A case study. International Journal of Logistics Management 12(1), 53.

Qureshi, M.N., Kumar, D. & Kumar, P. (2008) An integrated model to identify and classify the key criteria and their role in the assessment of 3PL services providers. Asia Pacific Journal of Marketing and Logistics 20(2), 227 - 249.

Razzaque, M.A. & Sheng, C.C. (1998) Outsourcing of logistics functions: a literature survey. International Journal of Physical Distribution & Logistics Management 28(2), 89.

Reichheld, F.F., Markey, R.G., Jr. & Hopton, C. (2000) The loyalty effect - the relationship between loyalty and profits. European Business Journal 12(3), 134.

Sahay, B.S. & Mohan, R. (2006) 3PL practices: an Indian perspective. International Journal of Physical Distribution & Logistics Management 36(9), 666.

Schniederjans, M.J. & Zuckweiler, K.M. (2004) A quantitative approach to the outsourcing-insourcing decision in an international context. Management Decision 42(8), 974 - 986.

Selviaridis, K. & Spring, M. (2007) Third party logistics: a literature review and research agenda. The International Journal of Logistics Management 18(1), 125 - 150.

Sezen, B. (2005) The role of logistics in linking operations and marketing and influences on business performance. Journal of Enterprise Information Management 18(3), 350.

Sheehan, W.G. (1989) Contract Warehousing: The Evolution Of An Industry. Journal of Business Logistics 10(1), 31.

Sheffi, Y. (1990) Third Party Logistics: Present and Future Prospects. Journal of Business Logistics 11(2), 27.

Sink, H.L. & Langley, C.J., Jr. (1997) A managerial framework for the acquisition of third-party logistics services. Journal of Business Logistics 18(2), 163.

Sink, H.L., Langley Jr, C.J. & Gibson, B.J. (1996) Buyer observations of the US third-party logistics market. International Journal of Physical Distribution & Logistics Management 26(3), 38.

Sohail, M.S., Bhatnagar, R. & Sohal, A.S. (2006) A comparative study on the use of third party logistics services by Singaporean and Malaysian firms. International Journal of Physical Distribution & Logistics Management 36(9), 690 - 701.

Stank, T.P., Goldsby, T.J., Vickery, S.K. & Savitskie, K. (2003) Logistics service performance: Estimating its influence on market share. Journal of Business Logistics 24(1), 27.

Svensson, G. (2001) The impact of outsourcing on inbound logistics flows. International Journal of Logistics Management 12(1), 21.

The Nathan Associates Inc. (2007) Toward a Roadmap for Integration of the ASEAN Logistics Sector: Rapid Assessment & Concept Paper

Vissak, T. (2008) Achieving Success in Logistics Services Outsourcing: Some Recommendations. Organizacijo Vadyba: Sisteminiai Tyrimai (46), 149.

Wilding, R. & Juriado, R. (2004) Customer perceptions on logistics outsourcing in the European consumer goods industry. International Journal of Physical Distribution & Logistics Management 34(8), 628 - 644.