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LOGISTICS PERFORMANCE MEASUREMENTS – ISSUES AND REVIEWS

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ABSTRACT

Logistics is a backbone for the global supply chains. In Malaysia, logistics are now recognized as strategic industry that positively contribute to gross domestic product (GDP) and performance of logistics is foremost significant. Whereas most of the logistics performance has focused on investigating operational and trade facilitation contexts. Thus, the purpose of this paper is to examine the issues and reviews by practitioners and found 7 key components that translated it into operations performance objectives. It, thus, provided a base for future research to examine the relationships of this context empirically.

INTRODUCTION

Logistics play a key role in both micro and macro perspective. From a micro perspective, logistics service could fulfil the customer's expectations through excellent logistics service provision and from a macro perspective, it drives the economic development of a country. Logistics plays its role as early as in the beginning of 1900s, in distributing the farm products (Lambert, Stock, & Ellram, 1998) and it continues to evolve until today, in which it is regarded as a strategic industry. Logistics could also improve business performance through its flexibility and advanced technology application, thus leading to organisational success (Tracey, 1998). In a global supply chain context, moving goods across borders has been one of its significant role recently. The remarkable expansion in external trade has brought higher demand for an efficient and effectiveness of logistics services (Ali, Jaafar, & Mohamad, 2008).

In the context of Malaysia, the astounding expansion of the logistics industry has led to the formulation of the Logistics Master Plan to enhance the capability of the logistics industry. The strategic direction had identified the development of logistics infrastructure and review of regulations and laws as the components that need to be given priority as countries are moving towards the implementation of trade and transport facilitation. Due to administrative, technical and legal requirements, moving goods across borders has caused several problems (Ling, Goh, & Desouza, 2008). Thus, the combination of both enhancement of trade facilitation measures and implementation of strategic operational performance would make Malaysia more competitive. As such, based on an ongoing study, this study examines issues and challenges faced by the logistics players.

1. BACKGROUND OF THE STUDY

In 2013, it was reported that the Malaysia logistics industry made great contribution to the gross domestic product (GDP), i.e. 13% (Malaysia Logistics Council, 2013). Despite this remarkable achievement, there is still a need to assess performance of the logistics industry. In order to understand the issues and challenges of the logistics performance in Malaysia, it is useful to review the performance measurement in theoretical perspective and components that have been used in previous studies.

a) Theoretical Definitions

i. Logistics Performance (LP)

Overall coordination should be the main objective in logistics (P. Andersson, Aronsson, & Storhagen, 1989). Porter (1990) highlights that upgrading and innovation would result in nation's competitiveness. Therefore, measuring the LP is currently becoming a high priority (Griffis, Goldsby, & Cooper, 2007), thus bringing a challenge to the organizations (Forsslund, 2007). From the perspective of LP, it has been commonly discussed as early as in 1985 at a seminar in Netherland by The Netherlands Association for Logistics Management (NAVEM). In this seminar, the performance indicators model was produced and the indicators have been applied in several companies (MCB University Press, 1992). LP is defined as 'analysis of both effectiveness and efficiency in accomplishing a given task' (Mentzer & Konrad, 1991). Other scholar refers LP as a metric used to quantify the efficiency and or effectiveness of an action (Neely, Gregory, & Platts, 2005). This topic continues and LP has been seen as multi-dimensional and is defined as the degree of efficiency, effectiveness and differentiation associated with the accomplishment of activities (adapted from Fugate, Mentzer, & Stank, 2010)

Researchers have always find it difficult to define LP because organisations have multiple and frequently conflicting goals (Chow, Heaver, & Henriksson, 1993). In the context of this study, *efficiency* is a measure of how economically the firm's resources are utilized (Mentzer & Konrad, 1991; Neely et al., 2005). Several critical areas in LP *effectiveness* as described by Langley & Holcomb (1992) are product guarantee, availability and fulfilment time. They also extended the definition of effectiveness by adding *differentiation* as the ability to create value for the customer through the uniqueness and distinctiveness of logistics services.

As mentioned earlier that LP plays a vital role in achieving the organisational's goals. The evaluation is based on how well goal is met (Mentzer & Konrad, 1991) and to what extent the overall productivity and performance would reflect LP (Stabler, 1992). Consequently, LP helps the fulfillment of the organisation's objectives and strategy (Braz, Scavarda, & Martins, 2011) as well as satisfying the customers (Kayakutlu & Buyukozkan, 2011).

ii. Trade and transport facilitation from the perspective of strategic operations performance

Trade and transport facilitation initiatives have direct implications on the management of international logistics and supply chains process (Batista, 2012). Trade facilitation focuses on the movement of goods through ports and more importantly the customs documentation and trade process across border (Wilson, Mann, & Otsuki, 2005), broader context might include regulatory requirements and harmonisation of standard, as well as reformation and the modernization of ports and customs.

Therefore, the function of strategic operations performance, namely efficiency and effectiveness are required to create value in logistics services. Lowering the costs as much as possible as described in efficiency and fulfilling the customer requirement through the delivery of logistics services as defined by effectiveness would create differentiation that is closely related to trade and transport context. Batista (2012) applies the fundamental strategic performance objectives in the context of trade and transport facilitation (Table 1).

Table 1: The Fundamental Strategic Operations Performance Objectives in Trade and Transport Facilitation Context

Components	Trade and Transport facilitation context
Speed	'Automated processes' or speed up the operations
Dependability	Transparency of border processes
Flexibility	Different entrance times
Quality	Quality of transport infrastructure
Cost	No hidden cost

*Adapted from Batista (2012)

Gupta, Goh, Desouza, & Garg (2011) highlight that the differences in the quality and cost infrastructure, policy, procedure and institution would affect the speed and cost of the logistics services across border. However, from the perspective of trade and transport facilitation, most consistent measures are port infrastructure, custom environment, regulatory environment and e-business environment (Appels & Swielande, 1998; Ling et al., 2008; Otsuki, Honda, & Wilson, 2013; Wilson et al., 2005).

b) Logistics industry in Malaysia

It is expected that the Malaysia logistics industry could achieve positive development following numerous initiatives created by the Malaysian Government. The Malaysia Logistics and Supply Chain Council (MLSC) could be one of the initiatives to monitor and the development of the logistics industry.

Ali et al. (2008) emphasise that the logistics issues in Malaysia could be viewed from four different perspectives. The policy has been regarded as the main components that significantly influence and the competitiveness of the industry. Sgouridis (2003) highlights that some procedures and performance indicators could be implemented in Malaysia namely, service times, operating costs, fleet utilization, practicality of issuance certificates as well as high priority of compliances. On the other hand, Zuraimi, Mohd Rafi, & Dahlan (2012), who focuses on the logistics development in the Eastern Region found that the constraints with logistics infrastructure affect the logistics development in east corridor. Several other researchers demonstrate that, logistics cost has also been one of the significant issues affecting the logistics industry (Ali et al., 2008; Zuraimi et al., 2012). However, no detail justifications explaining the factors contributing to these issues.

MIMA (2008) emphasise that to achieve the cost competitiveness attain the economies of scale, many manufacturers outsource their production function. This outsourcing strategy not only satisfy the customers, but it allows competitive advantage to be attained. Third party logistics (TPL) service providers lay a key role in managing outsourcing logistics activities and production. Thus, manufacturers should be able to focus on their core business and maintain the lowest cost possible of production.

2. RESEARCH METHODOLOGY

A preliminary study is conducted to evaluate the feasibility and comprehensive understanding of the identified core LP components among the manufacturers and logistics service providers (LSP). To support the limited To support the limited information with regard to logistics performance study in Malaysia, ten

(10) preliminary interviews have been conducted. Each interview took less than one hour. The questions deal with the background of the informants, experience in dealing with international logistics activity, the issues they encounter in their daily operations and LP (refer Table 2). The informants were selected using the snowball sampling technique.

Table 2: The Background of the Informants

No	Position	Industry	Type of companies	Length of experience in the industry
1	Logistics officer	Automotive	Manufacturer	3 years
2	Manager	Logistics	Forwarding Agent	More than 15 years
3	Manager	Tube mill machinery	Manufacturer	More than 10 years
4	Logistics officer	Agriculture – Fertilizer	Supplier	More than 5 years
5	Regional Manager	Logistics	Forwarding Agent	More than 10 years
6	Logistics officer	Logistics	Forwarding Agent	3 years
7	Network Executive	Logistics	Forwarding Agent	3 years
8	Logistics officer	Semiconductor	Manufacturer	3 years
9	Manager	Logistics	Integrated logistics services	More than 10 years
10	Logistics officer	Insulation materials	Manufacturer	3 years

3. FINDINGS AND ANALYSIS

Based on the findings from the interviews, it was found that despite the positive growth of the logistics industry in Malaysia, there is still a lack of research evaluating the performance of the Malaysia logistics industry (Ali et al., 2008; Sohail & Sohal, 2003). The interview data shows that the issues emerged from from both internal and external factors, which could be classified into of two different categories, the strategic operational issues and trade facilitation issues. It is important to view the the objectives of strategic operational logistics performance in the context of trade and transport facilitation. before further research is conducted.

3.1 Cost

Cost has always been the main indispensable dimension in assessing the logistics performance (Andersson et al., 1989; Banomyong & Supatn, 2011). A few studies only focus on other dimensions such as lead time, quality and flexibility (Andersson et al, 1989). The basic logistics cost consists of transportation and carrying inventory costs (Forslund, 2007; Kunadhamraks & Hanaoka, 2008). Across industry, Logistics cost differs widely among companies (Wallenburg & Weber, 2005), However, numerous issues raised and discussions have been lacking in rectifying various issues on costs. The level of efficiency is influenced

by several variables such as cost, time used to deliver the services and levels of risk (M. Andersson & Banomyong, 2010).

3.2 Speed

To boost trade and allow goods to reach their destinations needs efficient infrastructure as well as streamlined customs procedure (Hummels, 2012). Electronics customs process could improve efficiency through the of time spent and cost. In fact, it can also reduce corruption through transparency and harmonization rules (Raus, Flügge, & Boutellier, 2009). Despite the introduction of paperless procedures that improve customs efficiency, the provision of excellent service is still lacking. One of the respondents, who is also a logistics officer claimed that:

'Some of the customs declaration depends on the area and time of declaration . For example, if the customs branch located in major ports, the declaration can be done in less than an hour processing time, as compared to other branch the process could take the whole day and some might take two days '

Two of the managers also highlighted that:

'The level of efficiency of the Malaysia customs are still moderate.'Not much changes or improvement throughout my seven years' of experience.'

3.3 Quality

Logistics infrastructure is important in attracting domestic and international investors in setting up and expand their business activities (Zuraimi et al., 2012). The efficiency of infrastructure enables country to achieve large economies of scales, reducing the average time shipments spent at sea and in ports (Brooks & Stone, 2010). In the context of Malaysia, the logistics infrastructures have improved gradually. With exception to Sgouridis (2003), studies focusing the logistics infrastructure in Malaysia is lacking. Sgouridis (2003) found some delays in the delivery of goods to and from the port. The delay was due to congestion as 95% of the freight transported to and from Port Klang is carried by truck and the railway performance was not adequate. Recently, Zuraimi, Mohd Rafi, & Dahlan (2013), who examine the current logistics infrastructure in East Coast Region of Peninsular Malaysia found that most firms, who have been in the business for more than 10 years rated neutral on the quality of infrastructure.

3.4 Dependability

Customs department is one of the direct authorities involved in border crossing processes. Therefore issues such as delays, complicated form-filling, rules and border clearance checked are highly considered. Logistics players were highly depend on the information technology (IT) and electronic data interchange (Ali et al., 2008). Raus et al (2009) highlight that the usage of IT and EDI, could prevent criminal activities, informal payments and improve cost efficiency. Nevertheless, the transition process is required for a smooth transition from traditional to e-customs process (Raus et al., 2009). Even though it can be seen

as sophisticated, it may create some complexity throughout the process. However, not all regulations could be changed electronically, due to problems with the declaration letter, repeated inspections that could affect the users indirectly.

3.5 Flexibility

Different entrance times has been viewed as one of the flexible performance criteria (Batista, 2012) which could enhance the capability of the major ports in Malaysia to cater import and export containers traffic as well as bulk cargo. Multiple dedicated lanes for import and export as well as other additional multipurpose lane is congested. As indicated by the one of the logistics officers: *'We need to ensure that our containers arrive at the port, according to all relevant data, we entered an e-system provided by port management for smooth traffic flow'*. Ability to meet customers' request on entrance times could increase port performance.

3.6 Other issues

Respondents also highlighted that better communication and environment friendly element and practice should promoted in the logistics industry so that better business relationships could be developed in encouraging better partners and long term contracts.

Pazirandeh & Jafari (2013) state that greening transportation procurement have a significant impact on logistics efficiency and effectiveness. According to one of the logistics managers:

'Some transport provider companies have taken some effort to implement eco-driving with sophisticated technology and this has had a positive impact on lower transportation costs and shorter lead time as well'. Most of the respondents indicated that the activities in greening the logistics systems in Malaysia's industry is expanding. However, the practitioners claimed their priority is to deliver goods on time at the lowest cost possible.

3.7 Conceptual Framework

Based on the preliminary interviews and the literature review, the components that has affected the logistics performance has been identified. By categorising the logistics performance into logistics effectiveness and efficiency, the conceptual framework is proposed in Figure 1:

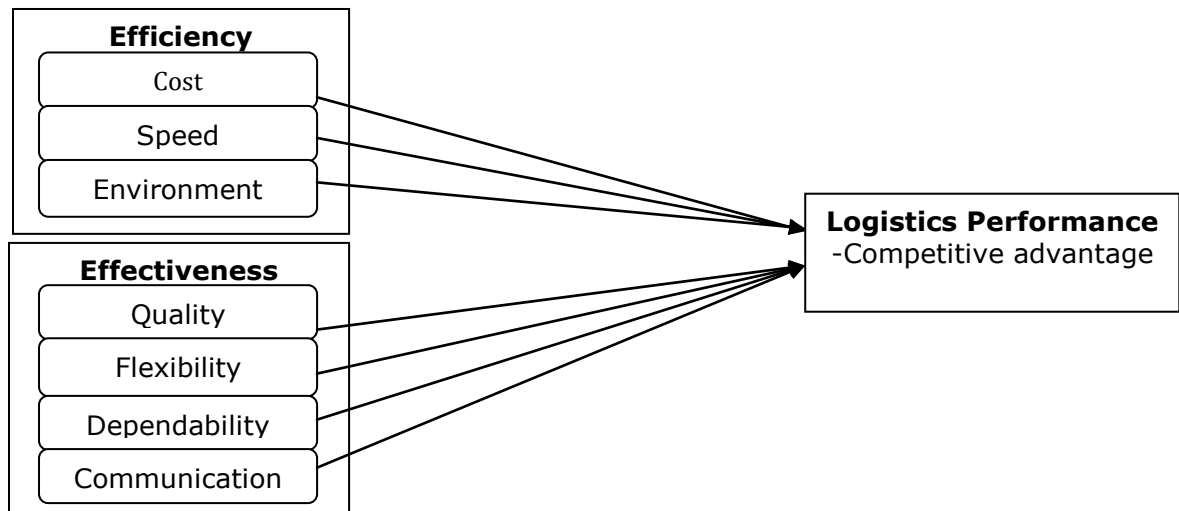


Figure 1 : The structure of logistics performance in Malaysia

4. DISCUSSION AND CONCLUDING REMARKS

The competitive environment and global supply chain provide several insights that affect the overall logistics performance. Even though some issues highlighted did not have empirical evidence, however, it exposes further studies on the analysis of the relations between operational strategies and the trade and transport facilitation.

First, from a theoretical perspective, this paper bringing some relevant information and interesting knowledge of logistics performance in Malaysia. However, its poor awareness among leaders about logistics performance, especially on the components, measurements and World Bank report of Logistics Performance Index (LPI). Cost and customs efficiency among the most crucial components that informants discussed. The structured perspective of the framework facilitates understanding of complex issues concerning about logistics performance in Malaysia.

Secondly, our logistics industry needs to focus on infrastructure and border management for the growing development, demand for inbound and outbound activities. Customs department requires the difficult task of an effective border management system towards implementing advanced information technology, paperless as well as regulation related to logistics and minimizing of informal payments.

The integration between the strategic operational objectives for trade and transport facilitation (Batista, 2012), potentially relevant to the examination of interdisciplinary review of logistics performance in Malaysia's context.

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