

INVESTIGATING ENABLERS AND BARRIERS TO GREEN LOGISTICS SERVICE QUALITY

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Introduction

Companies have become increasingly interested in logistics service quality and green issues, and these issues may become trade barriers for developing countries competing with global rivals. The characteristics of companies and other factors may either be enablers or barriers in improving logistics service quality with attendant green credentials. Therefore, it is useful for academia and companies to know what the drivers or/and barriers are for green logistics service quality. The purpose of this paper is to systematically review the literature and present a proposed research agenda to explore these issues. Furthermore, this paper will propose a set of enablers and barriers to green logistics service quality in the context of the logistics industry.

Only one main research question of this paper is what are enablers and barrier to be a green logistics. This paper starts at the literature review by addressing the question of how to have the competitive advantages in the logistics industry and why green logistics service quality appears an importance for having the competitive advantages. This is followed by the methodology, where the systematic literature review (SLR) used for this paper is described. A set of enablers and barriers are presented in the conclusions.

Theoretical Background

Competitive advantages in the logistics industry

Christensen (2010) argued that companies produce the products/goods which are differentiated from other products in response to customers' needs. To create a new product for serving such needs, companies need to know to whom they will sell their products and what their products are including the positioning of the company in the market. Getting the right positioning in the market will help companies have a competitive advantage from their rivals. This is in the line with Potter who stated that companies want to have a competitive advantage compared to their competitors and that their products/goods need to be differentiated from others (Chaisurayakarn, 2015; Christensen, 2010; Shamma and Hassan, 2013). Porter identified three generic competitive strategies as: differentiation, cost leadership, and focus based on the issues of competition and barriers to market entry. Customer needs will be derived from customer pressure, for example firms will focus on environmental issues when customers demand it. Huo et al. (2008) pointed out that the external competitive environment is divided into three dimensions: local competition, international competition, and operational challenges. Moreover, they found that competitive environments force companies to select appropriate operational strategies, either low cost or differentiated products, to gain competitive advantage. Local competition and international competition mean competing in local or international markets whereas operational competition refers to operational difficulties the company faces.

Green logistics service quality

Competitive advantage affects all industries and in particular the logistics industry sector. This sector faces new challenges as customers' needs have changed due to a trend of increasing concerns about environmental issues. Regarding this increased awareness of environmental issues, logistics service providers (LSPs) are willing to make their services more environmentally friendly and to react to customer demands. However, the degree of success with which LSPs will meet these new demands depends on their capabilities, attitude and knowledge about how to develop green services (Lin and Ho, 2008). Environmental performance measurement can be a critical aspect in LSPs' environmental offering (Björklund et al., 2012). However, to be considered as having regards for environmental sustainability, companies need to focus on the triple bottom line of social, economic, and environmental factors

(Elkington, 1998). Chaisurayakarn (2015) found there is abundant research studying logistics service quality and the performance of LSPs but that there is a lack of studies focusing on green issues and logistics service quality. Furthermore, she studied green logistics service quality in Thai logistics based on the perceptions of customers and found that while green issues did not directly affect companies' performance, there were the indirect effects in the form of safety and security. This resultant of this research is founded in the similar way to the other studies published later such as the studies of Chileshe et al. (2015); Islam et al. (2017); and Thomas et al. (2016). These papers describe why the green logistics impacts to the competitive advantages and what are enablers and barriers for implementation. To make sure that the green logistics service quality is still one of the important impacts on the business' performance and what are the enablers and barriers, the systematic literature review is used as the methodology to find the connections of these keywords through the number of papers published.

Methodology

A systematic literature review was conducted by following in order to ensure that there were no bias and valid evaluation (Tranfield et al., 2003; Rousseau et al., 2008; Denyer and Tranfield, 2009). A comprehensive review of the existing bodies of literature on service quality, green logistics, barriers, and enablers was conducted beginning with a search of the ProQuest database. Key search terms (and variations thereof) for each of the areas of interest were used to examine peer reviewed journal articles published from 1997 through 2017. All journals and papers may not be accessible through periodical databases so the authors also tracked citations in identified papers to find additional works. A total of 991 papers were collected and assessed following the above process for the barriers and enablers of green logistics service quality as shown in Figure 1. Each paper was reviewed to identify the barriers and enablers of green logistics service quality.

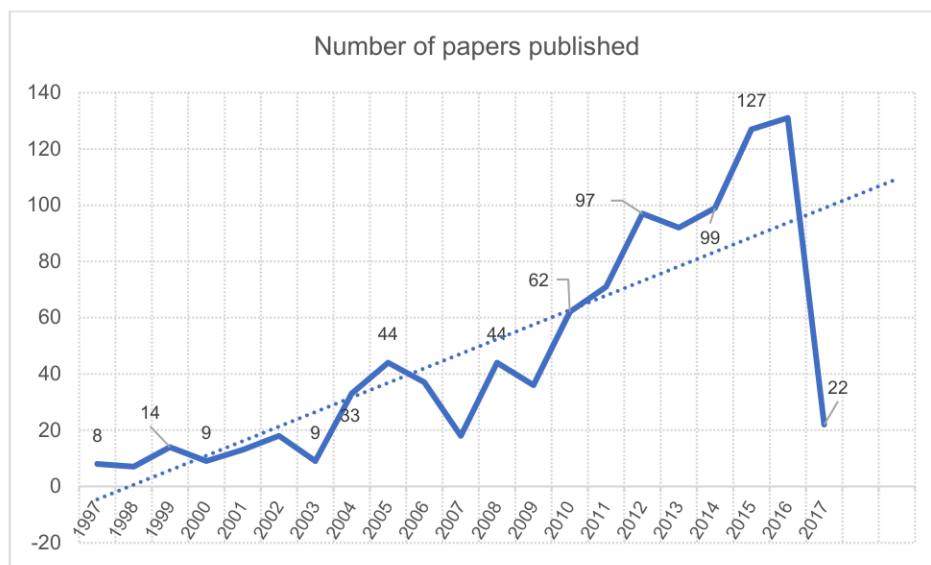


Figure 1: The number of papers with the keywords of research published in 1997-2017

As the number of references accumulated, it was found that some of them were of greater significance than others. From this broad base, a sub-set of papers dealing directly with environmental or green service quality, either from the "supply chain" or "logistics and transportation" perspective were selected. Within this sub-set, a smaller set of articles were identified that focused specifically on environmental or green service quality issues in the field of logistics and transportation activities, and only these were considered for the purposes of the present review.

However, to consider the representative journals which were considered by Melnyk et al. (2012) for assessing the state of research in green logistics service quality. The 15 selected journals were *Supply Chain Management: An International Journal* (61 papers), *International Journal of Operations & Production Management* (42 papers), *International Journal of Physical Distribution & Logistics*

Management (40 papers), *Emerald Management Reviews* (29 papers), *Journal of Economic Literature* (23 papers), *Journal of Supply Chain Management* (19 papers), *International Journal of Logistics Management* (18 papers), *Benchmarking: An International Journal* (17 papers), *Journal of Transport and Supply Chain Management* (10 papers), *Production and Operations Management* (7 papers), *European Business Review* (6 papers), *Asia Pacific Journal of Marketing & Logistics* (5 papers), *International Journal of Retail & Distribution Management* (5 papers), *European Transport Research Review* (3 papers), *International Journal of Productivity and Performance Management* (3 papers). These selected journals had huge impact factor so they were good journals for consideration. Then the papers published in these journal would be considered as one of the SLR criteria.

A total of 288 papers were assessed following the above process for the barriers and enablers of green logistics service quality as shown in Figure 2. It was found that a trend of research studying enablers and/or barriers of green logistics service quality was growing continually, particularly the last five years. This trend could be divided into 3 periods as: Years 1997-2007 (the beginning of the Kyoto Protocol), Years 2008-2012 (effects of the 1st Kyoto Protocol), and Years 2013-2020 (the 2nd Kyoto commitment period). As the first period was the beginning, the concept of green logistics often focused on how to reduce costs and the number of academic papers published was rare. The number of papers continued growing from 2008 though the rate of growth was only slightly increased. Although the number of papers published in 2017 has dropped dramatically, it cannot say that the trend of green logistics will drop due to two reasons. Firstly, there are still 4 months left in 2017 so the numbers of selected papers maybe higher than this figure. Secondly, the main keywords for doing the systematic literature reviews (SLR) are barriers, enablers, green logistics, and service quality so all selected papers from the SLR will be selected from the criteria. It does not mean that green logistics service quality is out of the academic interest. On the other hands, we believe that academic attention is rising regarding barriers and enablers to green logistics because of the increase of global customer needs. Therefore, some researchers are looking for how to succeed in implementing green logistics into businesses. For each area of interest for this study, the number of paper citations was the primary criterion considered in evaluating each manuscript's contribution. After reviewing each manuscript, 22 papers were found to specifically address the topic of barriers and enablers of green logistics service quality.

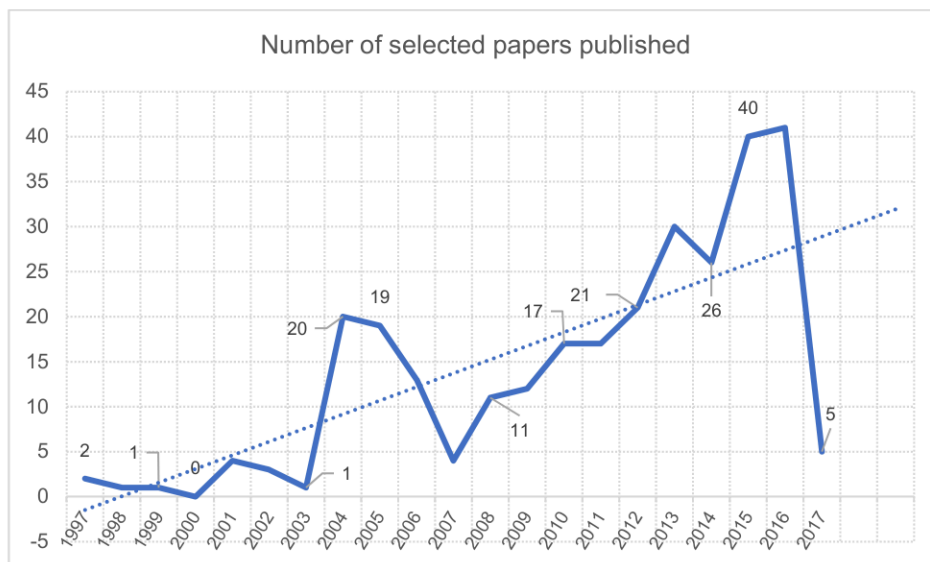


Figure 2: The number of selected papers with the keywords of research published in 1997-2017

Findings

Barriers

A set of barriers of green logistics service quality have been investigated through the reviews as shown in Table 1 below.

Barriers	Authors
Organisational culture	Chileshe et al. (2015), Gorane and Kant (2016)
Lack of companies' awareness	Chileshe et al. (2015), Gorane and Kant (2016), Mejías et al. (2016)
high upfront costs implementation	Chileshe et al. (2015), Gorane and Kant (2016), Thomas et al. (2016)
Environmental standardisation	Chileshe et al. (2015), Mejías et al. (2016), Mollenkopf et al. (2010), Rauer and Kaufmann (2015)

Table 1: Barriers to green logistics service providers

Trend of globalisation on the green issue drives most of multi-nationality companies (MNCs) to concern about the green issue. This includes to all operational functions. Logistics activities as a part of the outbound functions are affected by the green issues particularly in the green service quality. MNCs seem to follow the mission, vision and strategies from the head quarter of the companies, with regarding to the green or sustainability concern which is driven from the end of customers, one of their strategies is to be a green supply chain. To achieve this target strategy, the requirements or needs which MNCs ask LSPs to deliver their goods or products are to reduce CO₂ emission or increase the efficiency of transportation activity. The organisation culture comes from the nationality of companies (Chileshe et al., 2015; Gorane and Kant, 2016). There are differences of the companies' policies between Eastern companies and Western companies. It is seen from a company's awareness on environmental issues as well. It is often seen that the Eastern logistics firms are concerning to green issues less than the Western logistics companies. These different policies and awareness can be a barrier to green logistics service quality (Chileshe et al., 2015; Gorane and Kant, 2016; Mejías et al., 2016).

In term of the barriers to green logistics service quality, it cannot deny that the upfront costs is always pointed at one of the early barriers though it will be cost effectiveness in the long-term. Huo et al. (2008) identified that companies should form an appropriate operational strategic response, either through low cost or differentiation emphasis, to gain competitive advantage and complete to their rivals. Cost and service selection determinants such as transit time, reliability, capability, and security are initially cited as key considerations when choosing LSPs. Although costs is one of important barriers to block the implement of the environmental logistics service quality in LSPs' operations, it seems much less important to decisions when customers require a high environmental service quality (Bardi et al., 1989; Kent and Parker, 1999; Voss et al., 2006; Meixell and Norbis, 2008). The studies of Chileshe et al. (2015), Gorane and Kant (2016) addressed that high upfront costs to implement the green service quality in logistics industry was one of main barriers as same as a study of Thomas et al. (2016).

Last but not least, the environmental standardisation plays the key barriers to green logistics service quality though the standardisation will help company to complete with other rivals. Mollenkopf et al. (2010) found that one of the key common global metrics for environmental initiatives is the International Organisation for Standardisation (ISO) 14000 series. Most of global companies will require the procedures to identify all environmental aspects of the operations, safe handling and disposal procedures for hazardous materials including the compliance with environmental legislation. In the line with a study of Thomas et al. (2016), it was found that service providers who operate in more environmentally services are more likely to be selected and trusted by the partners. Environmental standardisation seems to be a barrier when company does not apply it as well as an enable whether company have an ISO 14000 certification (Chileshe et al., 2015; Mejías et al., 2016; Mollenkopf et al., 2010; Rauer and Kaufmann, 2015).

Enablers

A set of enable initiatives to green logistics service quality was also built from the 22 relevant selected papers. All similarly enable items are grouped and set as one initiative as seen in Table 2 below.

Enablers	Authors
Company's nationality & size	Islam et al. (2017), Mejías et al. (2016), Punyapon and Natsapan (2016)
Technology	Islam et al. (2017), Gorane and Kant (2016), Mejías et al. (2016), Punyapon and Natsapan (2016)
Product differentiate or customers' awareness	Chileshe et al. (2015), Chin-Chun et al. (2013), Martinsen and Björklund (2012), Mollenkopf et al. (2010), Rauer and Kaufmann (2015), Thomas et al. (2016)
Government regulations	Chileshe et al. (2015), Gorane and Kant (2016), Mejías et al. (2016)
Cost effectiveness in long-term period	Chileshe et al. (2015), Rauer and Kaufmann (2015)
Competitive pressures	Chin-Chun et al. (2013)

Table 2: Enablers to green logistics service providers

Although it is seen that the organisation culture is one of key barriers for companies to green logistics service quality, the company's nationality and its size seem to play an important role in the implementation of green logistics service quality. To implementing the green service quality, logistics service providers need to have a huge investment capital. This point seems an obstacle of a small and medium companies as they have a lot of improvement projects to do and it may not the first priority to do (Islam et al., 2017; Mejías et al., 2016; Punyapon and Natsapan, 2016). For instance, most SMEs choose to improve their operational processes rather than investing a huge money to do the green services (Chaisurayakarn, 2015).

As noted in the previous section, most Western logistics companies have paid more attention to environmental issues than Eastern logistics companies. This may stem from the trend of globalisation on green issues where most Western customers are concerned about green issues. Some researchers address that service providers have a responsibility to satisfy customer demand, and that providers need to integrate customers' requirements and expectations in the services offering. Lin and Ho (2008) stated that the product and service offering indicated the importance of early customer involvement in the development to understand the customers' demand to help them create a value-added product/service. It is seen that LSPs have begun taking action by offering the different kinds of green services, for example DHL have the promotions of "Go green" and the calculations of environmental impact (Lin and Ho, 2008). In the line with the studies of Mollenkopf et al. (2010) and Rauer and Kaufmann (2015), stakeholders put the pressure to organisation to be more environmentally and to integrate environmental management into the processes and corporate strategies.

Regarding to the previous section on the barriers to green logistics service quality, the upfront costs for the implementation is one of the barriers when companies need to invest or implement the green service. However, it seems much more important for making a long-term decisions when customers require a high environmental service quality (Bardi et al., 1989; Kent and Parker, 1999; Voss et al., 2006; Meixell and Norbis, 2008). Companies' environmental supply chain practices positively affect their competitive advantage and lead to improved market-based, operational based, and accounting-based forms of their performance (Golicic and Smith, 2013). When looking at organisations implementing environmentally sustainable logistics services may be able to achieve long-term competitive advantage, they can gain the competitive advantage from cost effectiveness (Mejías et al., 2016).

In globalisation, companies have to make a decision depending on economic factors as same as other factors such as government regulation, environmental and social impacts or community perceptions (Mejías et al., 2016). However, the upfront costs for the implementation is always the beginning of the barriers to green logistics services for companies. Some companies can start with the environmental services and complete with other international firms because of the government supports and government

regulations. It is seen from the past the national policies almost lead the direction of industry in particular the developing countries such as Thailand. To reduce the obstacle of huge upfront costs investment, the government and policymakers should be facilitating incentives to companies in term of building the green logistics (Chileshe et al., 2015; Gorane and Kant, 2016; Mejías et al., 2016). The low environmental standard of small logistics service companies may affect the performance and image of large firms in the same supply chain. Moreover, the increasing pressure, new environmental legislation, and influence of the dominant actors in the value chain, has led to a growing environmental awareness among consumers in many countries (Kim and Choi, 2013). The studies of Rauer and Kaufmann (2015); Lee (2011); and Yang and Rivers (2009) stated that multiple and different environmental rules and government regulations generally create difficulties for developing countries to impose high environmental logistics standards on their processes. However, the demand from customers and the competitive pressures in the market may lead firms to build up their green logistics service quality to complete with the rivals and find a way to survive in the market (Chin-Chun et al., 2013).

Conclusions

The review presented in this paper involved 22 research contributions on the enablers and barriers of environmental or green service quality in logistics and transportation published between 1997 and 2017. The papers were analysed in terms of their main characteristics (e.g. year of publication, journal title, regions addressed, and research method(s) adopted) and content. This review has shown that a number of important areas are under-represented. It was found that there were a small attention research in the drivers and barriers of green service quality in logistics sector. After reviewing each manuscript, a set of drivers and barriers of green logistics service quality has been suggested. A set of enablers composes of company's citizen and size; technology; product differentiate or customers' awareness; government regulations; cost effectiveness in long-term; and competitive pressures whereas a set of barriers comprises of organisational culture; lack of company's awareness; high upfront costs implementation; and environmental standardisation.

The paper investigates the enablers and barriers to green logistics service quality and the resultant proposed research agenda combined with a green logistics service quality framework should help practitioners understand what are the important drivers and obstacles to achieving better performance in these areas. Regarding to Table 1 and 2, it can say that there are 2 types of factors as internal factors and external factors to be either enablers or barriers to green logistics service quality. Internal factors are the factors which companies can manage, change and control by itself such as organisational culture, lack of companies' awareness, cost of implementation, processes effectiveness whereas external factors will be affected by the external aspects and companies cannot control them such as customers' awareness, government regulations, and competitive pressures. These internal factors presents which barriers or enablers that companies should focus whether they want to be green logistics service quality. On another hands, the external factors will show companies on how importance of these factors they have to pay attentions to complete their competitors.

Moreover, we cannot deny that government regulations always play an important role for businesses to implement green logistics or not in particular the developing countries, government can help businesses to implement green logistics by supporting knowledge on how to be a green or give an intensive for businesses which implement a green logistics on their businesses. From the SLR, we present a set of internal factors (barriers and enablers) for businesses what they have to do whether they want to be green logistics. While a set of external factors (barriers and enablers) will present which external pressures will affect to businesses for implementing the green logistics. It cannot deny that customers' awareness and competitive pressures are key aspects to push businesses to implement green logistics. This paper only discusses a systematic literature review and provides a research agenda, and thus does not feature any empirical research. Therefore, to confirm a set of enablers and barriers of green service quality in logistics industry, the empirical research is suggested into the future research.

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