

Leadership and Management Commitment towards Logistics Performance Improvement in Malaysia with the Adoption of Green Logistics as the Moderating Variable

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Abstract

This study is to look into the leadership and management commitment of logistics service firms in Malaysia towards improving their logistics service performance by adopting the green logistics practices. As concern for many environmental issues that arises nowadays, logistics service firms must look more seriously of the logistics associated external costs mainly with the climate change, air pollution, noise pollution, land use, vibration, accidents and wastes. Apart from reducing the logistics costs as their focus, the world is concern about the issue of climate change and the increasing of carbon dioxide (CO₂) emission from the operations of various transportation modes, especially on the road freight. Several researches conducted over a decade found out that human activities are releasing huge amounts of greenhouse gases into the atmosphere which had increase the greenhouse effect and warming the climate. In facing global warming and limited amount of energy resources, initiatives on green saving and low carbon emission of road transport service are among the major policy objectives that need to be implemented in Malaysia. Considering these externalities not only help the logistics service firms to reduce their operational costs but also helps to keep the globe green. The logistics services provided must be able to satisfy customer's demand and most importantly, to come out with better solutions and new ideas to cope with the pace evolution in the manufacturing industry. This study adds to the existing literature by explaining conceptually the linkage between leadership and management commitment towards logistics performance improvement by adopting the green logistics practices.

Keywords: Leadership, Management Commitment, Logistics Performance, Green Logistics.

INTRODUCTION

Many of the logistics service firms in Malaysia do not understand or realize the value of adopting green logistics practices as their main focus is only maximizing their overall profit in

order to expand the business and to compete with other competitors. Majority of the firms have a thinking that adopting green logistics will increase their operational costs, without considering the benefit that can be gained from its implementation. During economic instability, many logistics service firms especially those under the category of small and medium enterprises (SME) need to ensure that their firms can continue surviving. As such, many firms have presumed that adopting green logistics practices created certain percentage of additional costs. Leadership and commitment from the top management also play an important element to determine whether firms willing to implement green logistics practices. Hsu and Hu (2008), in their study shown that the encouragement made by the top management of the firms through giving an appropriate rewards, has contribute to employee’s willingness to learn, provide help and support to each other when facing problems related to green logistics.

Transportation is the most visible aspect in the supply chains, with respect to the environment. Transportation CO2 emissions amount to some 14% of total emissions, both at global and European Union (EU) level (Stern, 2006; EEA, 2011). Transportation is also a main source for nitrogen oxide (NOx), sulphur dioxide (SOx), and PM (particulate matter or fine dust) emissions. Within transportation there is a large stream of papers identifying the shipper’s preferences with respect to the different transportation characteristics, such as cost, quality, and speed. First of all, the bigger the transport unit in the same mode, the fewer the CO2 emissions per g/t/km, under fixed utilization loads. When comparing transport modes, it is observed that water can easily carry heavy loads, hence water transport is CO2 efficient, that rail is more efficient than trucks and a Boeing 747, though being a large plane, is not at all CO2 efficient when compared to the other modes. The modes do not differ much in SOx emissions, except for the Boeing which clearly emits much more. Ships are responsible for high NOx emissions whereas trucks and diesel rail are relatively clean compared to other modes. Finally the figures for particulate matter or fine dust (PM) do not differ much; here it depends very much on the particular engine type and whether soot filters are applied. Table 1.0 below illustrate comparison of emissions between equipment types in several modes.

Table 1.0 Energy use and emissions for typical transport units of different modes

| Energy use/emissions g/t/km | PS-type container vessel (11,000 TEUs) | S-type container vessel (6,600 TEUs) | Rail-electric | Rail-diesel | Heavy Truck | Boeing 747-400 |
|-----------------------------|--|--------------------------------------|---------------|-------------|-------------|----------------|
| kWh/t/km | 0.014 | 0.018 | 0.043 | 0.067 | 0.18 | 2.00 |
| CO2 | 7.48 | 8.36 | 18 | 17 | 50 | 552 |
| SOx | 0.19 | 0.21 | 0.44 | 0.35 | 0.31 | 5.69 |
| NOx | 0.12 | 0.162 | 0.10 | 0.00005 | 0.00006 | 0.17 |
| PM | 0.008 | 0.009 | n/a | 0.008 | 0.005 | n/a |

Source: The Network for Transport and the Environment (2011)

Road transport is the largest contributor of emissions, although significant emission reductions have been achieved in recent years. The EU has set standards for NOx, SOx and PM emissions for trucks. As a result, trucks meeting the highest standard to date (Euro V) are much

cleaner than most ships and trains. Many goods shipped through intercontinental chains are shipped nowadays in containers. The land part of such a chain occurs by truck, rail or inland barge. The rise of new (inland) container terminals to facilitate inland ship-rail-road combinations can save thousands of truck kilometers in congestion sensitive areas and thus reduce the environmental impact. The downside of intermodal transport is that it requires more coordination than single mode transport.

Modern gasoline is cleaner compared to old gasoline. In the nineties and the first decade of the 21st century, refineries focused on removing lead additives from gasoline, so that the air quality would be better. Biofuels based on corn or on organic waste can easily be mixed with standard gasoline. However, more extensive use requires adapting engines, which is quite expensive. About 31% of all the US produced corn is fermented into ethanol to fuel cars. The total amount of fossil fuels used in the process to produce biofuel is not much less than the total amount of biofuel produced. Electric vehicles are environmentally friendly since their engines have almost no emissions and emissions in electric power stations can be controlled. However, they have a limited range, so for goods transport they require a change in operation with possible intermediate goods transshipment. Most distribution centers operate electric equipment like fork lift trucks because there are no direct emissions involved (McKinnon et al., 2010) and distances are short. Yet in container terminals where distances are long and the equipment has to cope with environmentally difficult conditions (short trips, many starts, etc.) diesel-fueled equipment is mostly used. Internal transport is therefore also an important driver for emissions and it is good for the environment if these can be reduced.

Objective of the study

The overall purpose of the study is to gain insights into leadership and management commitment towards improving the logistics service performance and to reach a better understanding whether the adoption of green logistics as the moderating variables able to improve the logistics service performance in Malaysia.

Significance of the Study

The significant of this study can be divided into three main areas, namely; theoretical, practical and methodological.

(1) Theoretical

This study is to identify the leadership and management commitment towards improvement on the logistics service performance and whether the adoption of green logistics by local logistics service firms able to improve the overall logistics service performance in Malaysia.

(2) Practical

The study intends to determine the extent of green logistics adoption and its impact on the logistics performance improvement. The aim is to enable the government, the academician

and the practitioners to have better understanding on the importance of green logistics concept, strategies and implementation.

(3) Methodological

Many logistics service firms especially under the category of small and medium enterprises are still struggling to be back into the business as of before the economic crisis that spans the globe. So, now is the time to think about how green logistics concept and strategies can work synergistically throughout the supply chain towards enhancing the competitiveness of the logistics firms in the global marketplace.

LITERATURE REVIEW

The Fiedler Contingency Theory

The Fiedler Contingency Theory of leadership was proposed by the Austrian psychologist, Fred Edward Fiedler in 1964 on the article of effective leadership. The theory emphasizes on the importance of both the leader's personality and situation in which the leader operates. It states that when managers make a decision, they must take into account all aspects of the current situation and act on those aspects that are key to the situation at hand (Ouma and Wanyoike, 2015). This approach is a continued effort to identify the best leadership or management style and it conclude that the best style depends on the situation. For example, if one is leading a hospital, university or such like an organization, a more participative and facilitative leadership style is probably best. This is because the top management will be required to involve with all relevant employees to understand the current related issue which needs to be addressed in order to comply with either government legislation or international convention requirements. Currently, organizational processes and activities have adverse effects to environments hence should continue clean in order to reduce the environmental degradation and CO2 emissions. Managers' decisions therefore must be seen to be promoting green logistics management. For this reason, management decisions seem to play a role towards policy implementations in firms. Due to these argument, management support play serious role in the firms on the implementation of green logistics practices. To achieve this, the decisions that the top management makes will have to take into consideration of promoting green logistics implementation and to integrate the employees on the needs and the importance of green logistics practices to the environment.

Leadership and Management Commitment

Robbins, DeCenzo and Coulter (2015) defined leader is someone who can influence others and who has managerial authority. Leadership is what leaders do. It's a process of leading a group and influencing that group to achieve its goals. More firms are using work groups, therefore, the role of the leader in guiding group members has become increasingly important. The role of group leader is found to be different as compared to the traditional leadership role, as discovered by J. D. Bryant, a supervisor at Texas Instruments' Forest Lane plant in Dallas. Many leaders are not equipped to handle the change to employee groups. The challenge for many managers is learning how to become an effective group leader. They have

to learn skills such as patiently listening and sharing information, being able to trust others and to give up authority and understanding when to intervene. An effective group leader have mastered the difficult balancing act of knowing when to leave their groups alone and when to get involved. New group leaders may try to retain too much control at a time when group members need more autonomy, or they may be abandon their groups at times when the groups need support and help. Daily and Huang (2001) stated that senior managers support can affect the success of green practices by human resource management actions such as compensations, education and improved communication.

Logistics Performance

Dekker, Bloemhof and Mallidis (2012) stated that an important element in the use of optimization for the environment is the use of metrics. Through metrics, the environmental effect is made clear and different alternatives can be compared. The measurement of emissions as one of the most important ways to estimate environmental impact (Aronsson and Hugel-Brodin, 2006). Moreover, metrics can also be used in the transfer of goods and services in a supply chain as they indicate the environmental effect of each supply chain party. An important example of such metric is a CO2 calculator which determines the amount of emissions for all transports a company has made. Hervani, Helms and Sarkis (2005) identifies a selected list of other metrics that range from atmospheric emissions to energy recovery. They examine measures for on and off-site energy recovery, recycling and treatment, spill and leak prevention and pollution prevention. Top management focus on the importance of green supply chain management (GSCM) performance management, as well as the corresponding measurement, assessment and rewards at all levels will reinforce their importance. Hervani et al. (2005) added that in other process implementations, use of suggestion systems, corporate internal communication and championing of green practices are necessary to reinforce the importance. According to Carvalho and Cruz-Machado (2009), among the green tools/practices that could be applied such as efficiency of resources consumption, reduction of redundant and unnecessary materials, waste (energy, water, raw materials and non-product input) minimization, reduction of transportation lead time, reduction of replenishment frequency, integration of the reverse material and information flow in the supply chain, environmental risk sharing. The adoption of green logistics practices will increase firm's value of delivery to customers. Lai and Wong (2012) identified that implementing green logistics management such as internal general environmental management practices can improve manufacturers' operational performance such as product quality and delivery aspects such as lead time. By practicing green logistics, firms can distinguish itself from the competitors, target new groups of customer and open the opportunity to tap into new markets.

Green Logistics

Seuring and Muller (2009) defined green logistics, "is an effort to measure and minimize the environmental impact of logistics activities, these activities including a proactive design for disassembly". Sbihi and Eglese (2010) defined "green logistics is concerned with producing and distributing goods in a sustainable way, taking account of environmental and social factors." In

this modern era, environmental challenge becomes a sensation in the logistics industry. Business society are considered to be the main source of most of the environmental problems. Traditionally, it is observed that sourcing, manufacturing, logistics, operations and marketing were main green practise adopters. According to Gunjal, Nalwade, Dhondge, Ingale and Patel (2015), green Logistics is a logistics activity that aimed to reduce pollution of the environment and consumption of resource, using of advanced logistics technology planning and implementation of transport, storage, packaging, handling, processing and distribution. It is an effective and efficient flow of goods that connecting the main green supply and the main green demand to overcome the obstacles between space and time and green services activities in the process of economic management which also known as environmental logistics. Green logistic emphasize on implementation of green concepts in every single approach of logistics and its allied service sectors. Use of information technology will definitely boost the ease while implementing concept of green logistics. According to Lin and Ho (2011), logistics service firms play a significant role in every aspect of their logistics services offered, including the practice of green logistics to preserve environmental sustainability. The logistics core activities are focusing on transportation and warehousing activities. These lead to the increasing number of logistics service firms converting their operations and strategies to be more effective from a green perspective (Jumadi and Zailani, 2010). According to International Transport Forum (ITF, 18-20 May 2016, Leipzig, Germany) the environmental concerns in the transport and logistics service sector have become more rigorous and dominant due to the demand for goods that has grown dramatically in recent decades activities. The newly developed Sustainable Development Goals (SDG) for the period 2015-2030 focusing on reducing CO₂ emissions in the transportation sector is essential in confronting climate change. If no action is taken, CO₂ emissions from the transportation sector will double by 2050.

LEADERSHIP AND MANAGEMENT COMMITMENT

Leadership and management commitment is one of the important element to be examined towards improving firm's logistics performance via the adoption of green logistics. According to Zhu and Sarkis (2007), the success of any plan always depends on the support and commitment given by the top management. If none or low support is given by the leader and top management, firms will be in difficult situation to implement the green logistics practices and obviously, impossible to gain the success. According to Bennis (1989) the primary difference between leaders and managers is that leaders are concern with doing the right thing, while managers are concerned with doing things right. Leaders focus on vision, mission, goals and objectives, while managers focus on productivity and efficiency. Managers see themselves as preservers of the status quo, while leaders see themselves as promoter of change and challengers of the status quo, in that they encourage creativity and risk taking. Another difference is that leaders take a long term view while managers have a relatively short term perspective. Leaders are more concerned with expanding people's choice and options, while managers are concerned with control and limiting the choice of others (Zaleznik, 1983). Managers also solve problems so that others can do their work, while leaders inspire and motivate others to find their own solutions. Finally, managers are also concerned with means,

how to get things done, while leaders are more concerned with ends, what gets done. The differences between leaders and managers could be summarized as Table 2.0 below;

Table 2.0: Differences between leaders and managers

| Leaders | Managers |
|--------------------------|-----------------|
| Do the right things | Do things right |
| Change | Status quo |
| Long term | Short term |
| Ends | Means |
| Architects | Builders |
| Inspiring and motivating | Problem solving |

Source: Bennis, W (1989)

(1) Leadership Role

Although there are many differences between leaders and managers, however, the firms need both of them. Leaders are critical to inspire the employees and to set the future direction of the firms and managers are critical to ensure that the day-to-day operations of the firms are running smoothly and efficiently. The role of leadership as mentioned by Olson (2008) with regards to green strategy can be classified into four areas as below;

- (i) *Aware* - senior executives create priorities, guiding principles and governance for the managers to apply and make operational decisions that aligned with the green strategy and it should be everyone's responsibility.
- (ii) *Developing* - sponsor pilots for significant, visible investments with a key green component.
- (iii) *Practicing* - sponsor a broad range of initiatives that integrate green principles with traditional business value.
- (iv) *Optimizing and leading* - support and institutionalize continuous improvement.

(2) Leadership Traits

Trait theory is a way to describe who leaders are. Traits are relatively stable characteristics such as abilities, psychological motives or consistent patterns of behavior. For example, trait theory holds that leaders are taller and more confident and have greater physical stamina i.e. higher energy levels than non-leaders (Williams, 2011). According to Kirkpatrick and Locke (1991) and Judge, Bono, Ilies and Gerhardt (2002), traits that associated with leadership can be grouped into 7 areas;

- (i) *Drive* - leaders exhibit a high effort level. They have a relatively high desire for achievement, they are ambitious, they have a lot of energy, they are tirelessly persistent in their activities and they show initiative.
- (ii) *Desire to lead* - leaders have a strong desire to influence and lead others. They demonstrate the willingness to take responsibility.
- (iii) *Honesty and integrity* - leaders build trusting relationships with followers by being truthful or non-deceitful and by showing high consistency between word and deed.
- (iv) *Self-confidence* - followers look to leader who don't self-doubt. Leaders therefore, need to show self confidence in order to convince followers of the rightness of their goals and decisions.

(v) *Intelligence* - leaders need to be intelligent enough to gather, synthesize and interpret large amounts of information and they need to be able to create visions, solve problems and make correct decisions.

(vi) *Job relevant knowledge* - effective leaders have a high degree of knowledge about the company, industry and technical matters. In depth knowledge allows leaders to make well-informed decisions and to understand the implications of those decisions.

(vii) *Extraversion* - leaders are energetic and lively people. They are sociable, assertive and rarely silent or withdrawn.

(3) Leadership Behaviors

House and Mitchell (1974) identified four different types of leadership behaviors that could be explained as below:

(i) *Directive leader* - leadership leads to greater satisfaction when tasks are ambiguous or stressful than when they are highly structured and well laid out. The followers aren't sure what to do, so the leader needs to give them some direction.

(ii) *Supportive leader* - leadership results in high employee performance and satisfaction when subordinates are performing structured tasks. In this situation, the leader only needs to support followers, not tell them what to do.

(iii) *Participative leader* - leaders will consult with group members and uses their suggestions before making a decision.

(iv) *Achievement Oriented leader* - leadership sets challenging goals and expects followers to perform at their highest level.

(4) Leadership Actions

Research shows that the path to achieving faster, more effective execution is not the complicated one most people might think of. It's not primarily a matter of installing more efficient (expensive) technology systems, nor is it a matter of dragging the firm through lengthy (expensive) process re-engineering efforts. Rather, it's a matter of ensuring that every leader in the firm has the skills and the mindset necessary for mobilizing people in service of the initiative. Davis (2011) found seven leadership actions that predict faster, more effective execution of strategic initiatives and projects. Successful leaders take these actions both when they launch an initiative and repeatedly throughout its life:

(a) Increase clarity

(i) Describe the what, why, who, how, when, and where of the initiative.

(ii) Craft relevant messages about the initiative that communicate its importance and value.

(b) Foster unity

(iii) Communicate about the initiative in a compelling way.

(iv) Create opportunities for others to engage in dialogue about the initiative.

(v) Involve people in shaping the execution plan.

(c) Promote agility

(vi) Build into the execution plan opportunities to assess progress, identify obstacles, and correct course as necessary.

(vii) Take steps to reduce the impact of unanticipated events on execution.

Leadership's role, traits, behaviors and actions are equally important that could help the leaders and top management of the firms to act and make wise decisions pertaining to green logistics practices.

LOGISTICS PERFORMANCE IMPROVEMENT

The focus of green paradigm is more on sustainable development and the reduction of ecological impact of industrial and commercial activities through the elimination of resource waste and pollution (Dues, Tan and Lim, 2013). Replenishment frequency need to be reduced in order to reduce the fuel consumption and CO₂ emissions. The benefits gained from the adoption of green logistics practices is the logistics performance improvement which could be assessed below;

(1) Waste Reduction

Waste reduction as targeted by green logistics practices is more focusing on environmental wastes in the form of inefficient resources use or production of scrap (Carvalho and Cruz-Machado, 2009; Mollenkopf et al., 2010). Inventory, transportation and the production of by-products or non-product output, for example, are wastes according to the green logistics practices. Holding excessive inventory means additional risk to the firms which could expose to pilferage, damage or shrinkage. Additionally, inventory requires storage space that needs to be lighted and heated or chilled, which is considered waste from an environmental point of view (Franchetti et al., 2009). According to Srisorn (2015) warehouse management process such as recycled packaging, moving goods in to warehouse, tramp transporting goods, and should be had inside transmission plan not only to reduce forklift but also to reduce double handling as a result to reduce energy and fuel energy. The logistics service firms need to come out with new ideas when designing and constructing their new warehouses that should consider of minimizing the source and usage of electric power. For example, the use of solar panel to provide source of power for running the warehouses could be an option. The use of forklift that operated by battery as the source of power instead of using fuel could also help to reduce the requirement for fuel and subsequently reduce the wastage.

(2) Carbon Emission Reduction

The aim of green logistics practices is to reduce transportation CO₂ output and also lead times in order to create shorter supply chains that are more responsive and reduce the overall need for transportation (Simons and Mason, 2003). According to the Inter-governmental Panel on Climate Change (IPCC, 2007), the logistics industry is a major source of CO₂ emissions, accounting for around 13.1% of global greenhouse gas emissions. Although the figure includes both, passenger and cargo transportation, road freight occupied 60% of total emissions, with over 1,500 megatons of CO₂ equivalent emissions. Assessed in emissions per ton kilometer, air freight even equipped with sophisticated engine that designed to consume 20% less fossil fuel,

still is the most carbon-intensive transportation mode. In the case of Malaysia, for example, Century Logistics Holding Bhd. (CLHB), one of the Malaysian logistics service provider disclose their initiatives in green logistics adoption in providing freight services to their clients. CLHB renew their fleet of trucks by fitting them with at least Euro 4 engines which emission of Carbon Monoxide of 0.50 g/km, Hydrocarbon + Oxide of Nitrogen 0.30 g/km and Particulate Matter of 0.025 g/km in reducing the environmental impact (Century Logistics Holdings Bhd., Annual Report 2015). McKinnon (2003), stated that logistics activities can lead to reductions in transport emissions through changes in either the mode of transport, transport demand or vehicle utilization. Remko (1999) study supported that transport consolidation use less fuel, thus lowering trucking miles and lowering emissions.

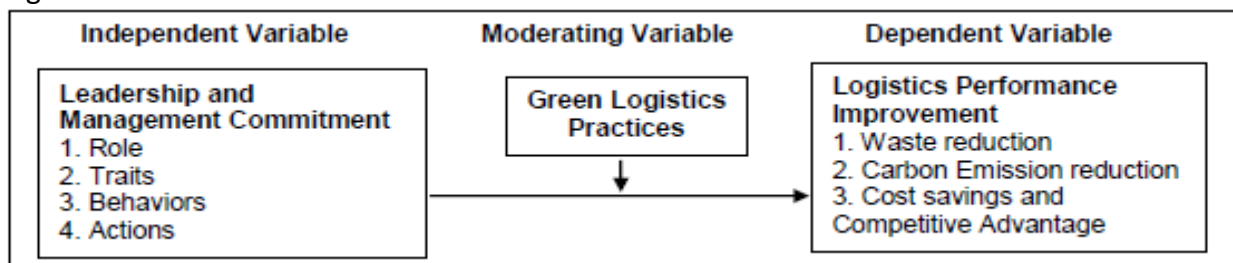
(3) Cost Savings and Competitive Advantage

Green logistics management can be a source of cost savings and competitive advantage for firms. By improving environmental performance and product differentiation, cost leadership as well as differentiation can be operationalized in environmental practice (Lee, 2009). Christmann (2000) pointed out the potential benefits of specific green management practices in achieving low cost and differentiation advantages. Hart (2005) shown his framework where a firm’s level of innovation in proprietary pollution prevention technologies affects the advantage it gains from green management practices.

CONCEPTUAL FRAMEWORK

Figure 1.0 illustrated below is the proposed conceptual framework of the leadership and management commitment towards logistics performance improvement with the adoption of green logistics as the moderating variable.

Figure 1.0



Source: Developed for this study.

FINDING AND DISCUSSION

This conceptual paper has identified four major elements under the leadership and management commitment that include role, traits, behaviors and actions. The role of leaders is to provide direction for the firms both, short and long run. Role of leaders can be explained under four main areas, namely; aware, developing, practicing and optimizing and leading. Trait theory which also known as the “great person” theory because the earlier version of the theory mentioned that leaders are born and not made. For some time, it was thought that trait theory

was wrong and that there are no consistent trait differences between leaders and non-leaders. However, more recent evidence shows that successful leaders are not like other people and that successful leaders are indeed different from others. It can be summarized that leaders are different from non-leaders in the following traits: drive, the desire to lead, honesty and integrity, self-confidence, intelligence, job relevant knowledge and extraversion. Hundreds of studies were also conducted in examining the leader's behaviors which can be categorized into four major group namely; directive, participative, supportive and achievement oriented. Besides, successful leaders take seven actions, both when they launch an initiative and repeatedly throughout its life which can be classified into three major areas namely; increase clarity, foster unity and promote agility. Strong combination of role, traits and behaviors with good actions taken by the leaders and top management could help firms become more successful when adopting green logistics practices towards improving their overall firm's logistics performance. Among the logistics performance improvement that could be obtained from the adoption of green logistics practices are waste reduction, carbon emission reduction and cost savings and competitive advantage.

CONCLUSIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH

Transforming logistics service firms into "greener" entities demands high leadership and management commitment. Green practices are no longer optional for the logistics service firms and cannot be ignored. To achieve the logistics performance improvement in terms of waste reduction, carbon emission reduction and cost savings and competitive advantage, it is critical for both, the leader and top management team and employees to establish strong working relationship and to realize the importance of green logistics management. Sustainability issues and challenges will become critically important factors for firms to consider for their competitiveness and survival. The competitive advantages gained from turning firms towards green sustainability possible and should be realized. Visible logistics performance improvement related to environmental will not happen without strong support and commitment from the leaders and management. This paper has contributed to identify the leadership and management commitment towards green logistics adoption and practices at the Malaysian logistics service firm's contexts. It is hoped that further research can be conducted to identify specific guiding tools and methods that could be carried out to measure the extent of green logistics adoption and management by the logistics service firms.

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