Innovative Logistics Practices: Performance Assessment of Third-Party Logistics Services Providers In Malaysia

Abstract

In the contemporary business global sphere, it is so problematic, if not impossible, for an organization to be competitively deprived of working in alliance, closely with external associates. The idea of Supply Chain Management, (SCM), arose in this track and strives to optimally manage the physical goods and/or services. Logistics is the key competitive factor in the manufacturing sector because of the innovative models' variants and options. For instance, in Malaysia, the manufacturing sector is a major contributor to the annual GDP, hence, there is a need for sustainable technology that can project significant business operations and supply chain management impacts. But this is far from being the case in the contemporary. Based on the increasing logistics benefits, the importance of the assessment of logistics efficiency and impact is attracting increased consideration. Green Logistics (GL) involves not only the delivery of green products or services to customers but also the inclusive logistics flow of items from cradle to grave in addition to reverse logistics. Numerous green events and operations have been instigated, such as manufacture scheduling and network construction. This article aimed at investigating the innovative logistics practices relationship with the operations of third-party logistics service providers in Malaysia. To achieve this, the study engages a structured questionnaire survey. 256 questionnaire was retrieved out of 333 questionnaires distributed electronically and 27 questionnaires were rejected based on some parallel errors and 229 questionnaires was eventually analyzed This is 69% of the questionnaire. In the analysis, SPSS version 20 was utilized. The outcome showed that selection of vehicle type and procurement on quality, cost, and environmental impacts as the main feature of innovation in sustainability. Innovative green logistics serve as a moderating factor in the relationship between 3PLs service provider's key performance factors and green logistics in the Manufacturing industry of Malaysia. Hence, it fulfills one of the key economic growth activities or operations under strategic thrust 2 of SPV2030.

Keywords: Third-Party Logistics, Supply chain management, Innovative green logistics.

Introduction

Life quality is disturbed by accidents, the conditions of the work, training, and education that influence a company's communities and employees. The initial stage of a sustainable logistics system is viewed from both outputs and inputs that are necessary for the analysis of sustainability. Hence, the outputs and inputs can be categorized in respect of the resources flow that is established in the traditional logistics system. The logistics flow connects the main elements that unite each logistics activity in the system.

Striking an adequate balance between economic contribution and environmental protection is seen as an immediate step to be taken in the logistics industry as it is an issue of concern for government and environmental stakeholders and institutes globally. To resolve this great challenge of environmental pollution that causes global warming, green logistics have been advanced. In a general view, organizations executives implement green logistics, its successful operation relies heavily on the operation details of the organization and the employees' values of the green logistics policy (Kim & Choi, 2013). Hence, research-based on green logistics awareness and the character tendencies of those in charge of implementing green logistics policies, particularly in Malaysia, are important and germane. The research can offer insight regarding the operation and practices of green logistics, standardize organization green logistics behaviour in Malaysia and as well promote the organization's policymaking. Hence, the importance of this research in Malaysia's third-party logistics service provider context.

Due to the global economic growth and worldwide network of supply chains, the logistics network has become more complex and distantly located. Larger distances covered in the transportation tend to increase emissions, resulting in larger environmental problems. The term "Green logistics" is related to planning, controlling and implementing the flow of logistics by incorporating modern logistics techniques with an aim to minimize the environmental hazards (Chang & Qin, 2008). This flow of logistics should also achieve the satisfaction of the customers as well as the organization goals along with the aim of reducing the effect of these activities on the environment (Rodrigue et al., 2001). In this view, green logistics is the ability of the organization to deliver products and services in an environmentally friendly way along with the economic efficiency.

Innovative green logistics also refers to the ability of an organization to preserve resources, decrease waste, increase working efficiency, and fulfil the societal requirement for

ecological fortification (Lai & Wong, 2012). The domain of innovative green logistics and production can be illustrated as practices that focus mainly on the reduction of the environment related problems such as greenhouse gas emissions during manufacturing operations, issues pertaining to noise, accidents etc. Sbihi & Eglese (2010) defined innovative green logistics as a sustainable approach to produce and distribute goods by taking environmental and social factors in consideration. The concept of green logistics can also be useful in defining sustainability in environmental, economic, and social terms (Lozano, 2012). It is important to have a balance between preservation of the environment, prosperity and the quality of life while implementing triple bottom-line approach. Firms can exploit the advantages of efficiency improvement and several other benefits such as market shares and increased profit by the introduction of green concept in the logistics systems (Rao & Holt, 2005).

Innovative green logistics highlights various practices followed to reduce the environmental problems of logistics operations, specially related to greenhouse emissions, transportation, packaging, noise pollution and to achieve sustainability among economy, environment and society (Lai & Wong, 2012). Innovative green logistics issues are gaining interest due to its relevance in today's highly competitive environment. Due to the evolving environmental awareness and regulations in the early 1990s, many companies decided to supplement the green element to their supply chain management policies (Wu & Dunn, 1995).

Literature clearly indicates that the social and economic relevance of green logistics was first highlighted in 1990 (Srivastava, 2007). Likewise, Dey et al. (2011), have presented different research on the sustainability and environmental considerations in the firms to decrease risks and to recover the competitive state of the firm. To justify that ecological

performance of venders has an impact on the green performance of a firm, authors such as Ateş, et al. (2012) have studied the ecological investment decisions and the collaboration actions with suppliers in relation with logistics. In an innovative study presented by Palanivelu & Dhawan (2011), several green warehouses with minimum emission were discussed. These warehouses can be made by equipping energy saving equipment, using solar installations.

In term of the economic, social, and environmental benefits of innovative green logistics and supply chain management, there are general belief and all-embracing acknowledgments which reflects that sustainable logistics and supply chain management yields significant benefits, as well as anticipated negative ecological influence (Thiell et al., 2011). One, out of all the logistics procedures that have the emissions of carbon dioxide and similar greenhouse gases are automobiles, vessels for goods transport, and airplanes produce environmental pollution, this is overall known as the main cause of global warming that is usually considered as a threat to the universe. Likewise, associated logistics operations result in acute water and air pollution, fuel consumption, and solid garbage disposal (Lin et al., 2011). To militate against all these challenges, the idea of green or sustainable logistics was born to alleviate the mind and to describe logistic systems that implement technology facilities that are of cutting edge, to minimize ecological harm in the process of increasing assets utilization. Logistics with green features is a unique sustainable growth idea that can alleviate environmental challenges while maintaining the operations and organization economy as well as the country in the process of goods and services exchanges, (Guirong et al., 2012). Hence the need to assess the innovative logistics relative to the performance of 3PLs service provider in Malaysia.

Performance can either be measured in hard measures (called, objectives) and soft measures (perceptual), according to (Chow, Heaver, & Henriksson, 1994). The hard measures perspective consists of raw financial statistics, commissions, cost statistics and services rendered while soft measures perception consist of supervisor appraisal and self-perception. Meanwhile, performance analysis is the measurement and comparison of the real stage of attaining certain and objectives and goals (Yang, 2012).

Likewise, green logistics aid organizations as well as in dealing efficiently with the relationship between environmental protection and logistics growth, as well as make interest economically, social interest and environmental interest, in the bond of unity (Guoyi & Xiaohua, 2011). Significantly, organizations acknowledge that green logistics can result in a sound stream of business benefits conventionally (Piecyk et al., 2012). Hence, this study aims to investigate the influence of Innovative logistics practices on the performance and operations of third-party logistics service providers in Malaysia.

Literature

Third-Party Logistics (3PL) is playing a noteworthy role in today's supply chain management. Business organizations need the service of this company to outsource part or all their supply chain procedures to lessen the load of logistics activities and attain customer satisfaction and general performance. Logistics with green features (GL) is fast attaining growing thoughtfulness among experts in both academic and industry. This is owing to the mounting weakening of the environment. Countless green actions and processes targeting refining GL performance have been functional unnaturally, and a tangible number of their operations can be displayed as combinatory optimization complications. This research goal is to investigate and advancement of coordination, and the performance of a green supply chain involving a monopolistic manufacturer, a third-party logistics (3PL) service provider, and

numerous autonomous retailers. In the face of the difficulty of each retailer's demands that is uncertain but sensitive to retail price as well as the unexpected production disruption that may occur at the source at any time, push more pressure on the 3PLs company.

In the contemporary business global sphere, it is so problematic, if not impossible, for an organization to be competitively deprived of working in alliance, closely with external associates. The idea of SCM arose in this track and strives to optimally manage the physical goods and/or services. Logistics is the key competitive factor in the manufacturing sector because of the innovative model's variants and options. Based on the increasing logistics benefits, the importance of the assessment of logistics efficiency and impact is attracting increased consideration. LPM, (Logistics performance management), is pivotal to ascertaining and enumerating the present position and the capacities for growth in logistics. To give adequate details of the increased importance of the supply chain, logistics performance management is expected to commence from the supplier and pending the original equipment manufacturers (OEM) get-together line is reached. Likewise, logistics PM must be in tune with the modern-day concepts which are mainly focused on lean logistics.

The performance of GL cannot be dignified merely in an economic way, but also in a sustainable process taking into consideration of environmental and societal factors as well, which is also the objective of GL (Hervani, et. al., 2005). GL can be expressed as the amalgamation of traditional logistics and reverse logistics (RL). Traditional logistics encompasses the drift from the raw materials to finished products, while RL is a relatively new research arena, which includes the notion of reutilizing used products to reduce waste and to increase an industry's performance and ensuing profits. RL is of boundless significance, as it not only balances cohesive logistics research but also develops the

performance of GL significantly relative to all the economic, environmental, and societal objectives Lee & Lam (2012).

The 3PL has been extensively endorsed by the sensation of outsourcing, on which companies progressively rely. Logistics outsourcing evolution is primarily accredited to the benefits it brings, relative to reducing costs, enhancing performance, concentrating on their fundamental business, and building effective enterprises through tactical coalitions. Roughly, 60% of the affluence 500 companies in the US testified having at least one 3PL contract and that the market for logistics providers continues to develop (Lieb & Bentz, 2005). Most 3PL have isolated their services through diversity, with the range of services covering a diversity of choices ranging from limited services to broad undertakings covering the supply chain.

Logistics performance measurement of 3PL service provider

During the last couple of decades, the logistics industry has boomed worldwide, and competition in the third-party logistics (3PLs) market is now very intensive. The logistics performance of 3PLs is crucial in today's competitive business world (Wang, Jie, & Abareshi, 2015). Logistics performance in courier service is critical for customers (Ho, Teik, Tiffany, Kok, & Teh, 2012). It is important for transport logistics service providers in delivering value to members in the supply chain (Lai, Ngai, & Cheng, 2004). Especially, 3PLs and transport service providers play a vital role in a supply chain system to deliver goods and information to link the different business partners in a supply chain. Thus, the effect of 3PLs' performance is significant. Furthermore, logistics performance is a success factor for both logistics service providers and their customers (Richard & Rein, 2004), because not only are 3PLs and transport service providers impacted by logistics performance, but also other business stakeholders and/or customers in the same supply chain network may suffer negative impacts of logistics performance.

Cohen & Roussel (2005) indicated that performance measurement refers to the indicators of the work performed and the results achieved in an activity, process, or organizational unit. Logistics performance was one of the important factors driving the choice of a 3PLs provider (Ho et al., 2012; Thai, 2013). In addition, an oft-repeated axiom is: "If you can't measure it, you can't manage it." Performance measurement is fundamental to achieving organizational success (Fawcett & Cooper, 1998). Therefore, logistics performance measurement plays a vital role in today's business management.

The 3PLs provide various services, which include transportation, warehousing, cross-docking, inventory management, packaging, and freight forwarding (Gudehus & Kotzab, 2012). Between 84% and 90% of companies using 3PL suppliers believe that 3PLs should provide a comprehensive set of offerings (Donlon, 2006). And, the 3PLs could benefit the companies in various aspects; for example, reduction in cost, reduction in capital investment, and enhanced operational flexibility. A courier company is one of the typical 3PL models in the logistics industry (Cowles, 2012). Logistics performance in courier service is critical for customer satisfaction (Ho et al., 2012). Previous studies have found that logistics performance could directly influence customer preferences (Feng et al., 2007; Ho et al., 2012, Thai, 2013).

Performance Measurement in Commercial Supply Chains

Performance measurement is defined as an activity, which is, undertaken to attain predefined company goals (Clemens et al., 2004). It affects the strategic, tactical, and operational planning and control of the firm, and has a critical role in performance evaluation and guidance for the future actions of the whole entity (Gunasekaran et al., 2004).

At the supply chain level, Vahrenkamp & Siepermann (2005) defined performance metrics as a consolidated data set to measure the operations of the supply chain for a holistic view. The design and development of performance metrics is aimed at supporting management decisions and improving chain performance, and needs, therefore, to be aligned with supply chain strategies (Neely et al., 1995; Stadtler & Kilger, 2008).

There are many studies on supply chain performance measurement, using various approaches and targeting different objectives (Garcia et al., 2012). The balanced scorecard (BSC), as proposed by Kaplan & Norton (1992), is one of the most popular tools in measuring supply chain performance (Gopal & Thakkar, 2012). It affords users the flexibility of integrating multiple attributes and allows managers to assess the overall competitiveness of the supply chain easily (Lambert & Pohlen, 2001). For a detailed view on supply chain performance, reference process models are valuable tools (Verdouw et al., 2010). A reference process model measures a specific ordering of activities across time and place, with clearly defined inputs and outputs (Davenport, 1993). The most widely used reference process model for supply chain processes is SCOR, developed in 1997 by the Supply Chain Council to evaluate the overall effectiveness of a supply chain (SCC, 2010). It provides a framework that links processes and metrics into an integrated structure (Huan et al., 2004). There are four levels of supply chain processes under SCOR. Level 1 is the strategic level for a firm to establish the competitive objectives. Level 2 is at the tactical level, including 26 core process categories that are generic components of a typical supply chain. Level 3 dives into the operational level with more granularity on the Level 2 processes, and Level 4 is industry-specific for a firm to customize the metrics for operational improvement. Under SCOR, at each level of the supply chain process, there are five generic performance attributes:

reliability, responsiveness, agility, cost, and asset management. Hence, studying the performance of 3PLs service provider relative to innovative sustainable logistics is germane.

Methodology

Study Population and Sampling

The target population for this study is all managers and senior staff in the selected Malaysian manufacturing and logistics industry. The overall number of certified organizations with MS ISO 14001 in Malaysia as of now is 522 organizations, hence, only organizations with ISO 14001 certificates have been selected for this study. The reason for this decision is because they are set organizations with the mandate to adopt green initiatives in their operations (Eltayeb & Zailani, 2009).

Sample Size

The sample size for this study was adopted from the earlier study, by Adebare, Mustakim, & Richard, (2021).

Results and discussion

The respondent's profile results are shown in Table 1.

Table 1 Respondents Profile result

Demographic Info.	Details	Frequency	Percentage (%)
Gender	Male	123	53.7
	Female	106	46.3
Age	18 – 25 years	63	27.5
	26 – 35years	92	40.2
	36 – 45 years	53	23.1
	46 – 55 years	21	9.2
Qualifications	Diploma and Below	59	25.8
	Degree	101	44.1
	Masters	46	20.1
	PhD	23	10.0
Position	Senior Manager/Manager	52	22.7
	Executives	74	32.3
	Supervisor	18	7.9
	Planners	4	1.7
	Others	81	35.4
Services Types	Freight Forwarding	7	3.1
	Transportation	40	17.5

	Warehousing and inventory	18	7.9
	Manufacturing	19	8.3
	Logistics	145	63.3
Ownership Types	Public Liability Company	56	24.5
	Private Liability Company	93	40.6
	Sole Proprietorship	26	11.4
	Partnership	51	22.3
	Limited Liability Partnership	3	1.3
Full-time Employees	Below 50 employees	109	47.6
	50 – 99 employees	39	17.0
	100 – 149 employees	15	6.6
	150 – 199 employees	4	1.7
	200 employees and above	62	27.1
Years of Operation	0 – 5 years	62	27.1
	6 – 10 years	83	36.2
	11 – 15 years	4	1.7
	16 – 20 years	11	4.8
	21 years and above	69	30.1
Annual Revenue	Below USD 500k	99	43.2
	USD 500k – 1m	36	15.7
	USD 1.1m – 10m	36	15.7
	USD 10.1m – 50m	14	6.1
	USD 50m and above	44	19.2

The results of the respondent's profiles revealed that there are more males than females. 53.7% of the respondents are male, while the female is 46.3%. This may be because most of the staff in Logistics companies are more male counterparts. Another perspective is the age range, the respondents are more in the age range of 26-35 years. This category is considered youthful and working-age because of their ability and strength but probably young years of experience. But on-the-job training and in-house training would have been their advantages probably. The other age range among the respondents is age 18-25 years, the age range has 27.5% next to the highest range. This is the entry point and age range probably and very young in the business.

Most of the respondents are graduates as the degree holders recorded 44.1% and followed closely by Diploma holders who recorded 25.8%. This is an indication that most of the respondents are graduates, hence, they are aware of what it takes to work in a logistics

company and they all have what it takes to be a professional in the field. Respondents with Masters's and Ph.D. degrees recorded 20.1% and 10.0% respectively. This shows that a larger percentage of the respondents are qualified and professional. This makes the data more viable and reliable. In terms of position, most of the respondents are executives' officers in various organizations.

Likewise, about 22.7% of them are Senior Managers/Managers in various organizations. In terms of services rendered by respondents, it is on record that those respondents in the Logistics section are 63.3% while those in transportation are 17.5%, and those in manufacturing are 8.3%. This indicates that most respondents are quite familiar with the logistics and transportation sector which is the main focus of the study. Most of the respondent's companies are full-time employees that are below 50 employees. And a company with 200 employees and above.

The result of innovation in green logistics of third party Logistics service providers and performance is as shown;

Mean and Standard Deviation of Innovation in Green Logistics

The descriptive statistics of the items ES1 – 6, SM1 – 6, GTO1 – 8, and GPT1 – 4 of environmental sustainability, strategic management, green transport operation, and green transport procurement respectively as presented in Table 2 revealed the degree of innovation in green logistics thought among the respondents, these items have mean scores above 3. All the twenty-three (23) items were recorded with a high level of mean score. Specifically, "Consideration for procurement and selection of vehicle types based on cost, quality, and environmental impacts" recorded the highest mean score of (M= 3.97; SD = 1.122), while "Focusing attention on strategic aspects of business" recorded the moderate mean score of (M= 3.72; SD = 1.189). In essence, the result indicates that "Consideration for procurement and selection of vehicle types based on cost, quality, and environmental impacts" is the main

feature representing the innovation in green management as shown in Table 3. This shows that a special performance through innovative means in the 3PLs provision for procurement and vehicle procurement relative to environmental impacts is germane and effective. Perhaps this is one of the innovative means of making the performance sustainable.

Table 2
Mean and Standard Deviation of the Innovation in Green Logistics

Constructs	**Mean**	**SD**
Level of environmental compliance	3.77	1.160
The purchased products are friendly to the environment and environmentally harmful products are avoided	3.75	1.125
The purchased raw material can be reused or recycled	3.76	1.081
The purchased raw material is produced from excess and environmental friendly	3.76	1.148
The computer network is used instead of papers in marketing between vendors and factory	3.80	1.125
Environmental Sustainability		
Learning existing work practices	3.78	1.122
Strategic planning (formulation)	3.80	1.145
Strategy implementation/execution	3.80	1.207
Focusing attention on strategic aspects of business	3.72	1.189
strategic decision making	3.79	1.163
Strategic capabilities	3.97	1.059
Strategic Management		
Managing strategic change	3.89	1.101
The concern on environmental management of provider	3.91	1.082
The concern of carbon dioxide released by the provider	3.89	1.090
The distance between vendor and factory is minimized to reduce pollution and cost	3.87	1.088
The factory is concerned about the fuel consumption in distribution including measuring the carbon dioxide emission	3.93	1.090
The delivery vehicles are well checked and maintenance plans are available.	3.94	1.091
The full truckload system is applied to increase the effectiveness of product delivering	3.91	1.074
The delivery routes are determined to save fuel and reduce the pollution	3.92	1.105
Green Transport Operation		
Consideration for procurement and selection of vehicle types based on cost, quality, and environmental impacts	3.97	1.122
Strategic planning for the preventive maintenance of all vehicles	3.90	1.088

The pollution-reducing system is paramount in transport procurement	3.86	1.173
The clean energy technologies are applied	3.83	1.175
Green Transport Procurement		

Mean and Standard Deviation of Services Performance

The descriptive statistics of the items SPS1 – 8 and SPA1 – 5 of services and appropriation performance respectively as presented in Table 3 revealed the degree of service performance thought among the respondents, these items have mean scores above 3. All thirteen (13) items were recorded with a high level of the mean score. Specifically, "The imports shipments are cleared and delivered as scheduled" recorded the highest mean score of (M= 4.10; SD = .831), while "Focusing attention on strategic aspects of business" recorded the moderate mean score of (M= 3.72; SD = 1.189). In essence, the result indicates that "Expedited customs clearance for traders with high compliance levels" is the main feature representing the service performance as shown in Table 3 below.

In reference to this result, it can be observed that the process of enhancing the clearance by custom for any organization that have higher compliances with government sets goals on sustainable measures will influence the performance.

Table 3
Mean and Standard Deviation of the Service Performance

Constructs	**Mean**	**SD**
The imports shipments are cleared and delivered as scheduled	3.89	1.035
Logistics organization provides adequate services	3.90	1.054
The exports shipments are cleared and delivered appropriately	3.98	1.061
Timely and adequate information is received when any regulations and government policy changes	3.97	1.084
Demonstrating high levels of compliances by expedited clearance	3.92	1.085
Standard inspection of all services	3.90	1.068
Less damaged and Lost freight	3.93	1.118
Evaluating performance	3.96	1.038
Services		
All consignment reaches the consignee at the appropriate time and promptly	3.93	1.120
All order placement, as well as the receipt, are within the	3.90	1.120

stipulated time		
All clearance and delivery of exports and imports are to schedule	3.94	1.110
Adequate and timely information on regulatory changes	3.96	1.127
Expedited customs clearance for traders with high compliance levels	4.10	.831
Appropriation		

Mean and Standard Deviation of Operational Performance

The descriptive statistics of the items OPS1 – 3 and OPT1 – 3 of shipment and tracking and tracing of goods respectively as presented in Table 4 revealed the degree of operational performance thought among the respondents, these items have mean scores above 3. All six (6) items were recorded with a high level of mean score. Specifically, "Competitive trucking charges" recorded the highest mean score of (M= 4.23; SD = .961), while the "Low operating cost and maintenance cost" recorded the moderate mean score of (M= 3.98; SD = .898). In essence, the result indicates that "Competitive trucking charges" are the main feature representing the operational performance as shown in Table 5. This means that the type of vehicle and trucks use in operations by 3PLS service providers must comply with sustainable goals that improve the environment.

In essence, it can be observed that charges on trucking that is competitive is another factor of 3PLs providers performances will contribute to meet the sustainability goals. So, as the cost of the organization on the trucking operations is competitive, this enhances their suitability features and also serve as an innovative.

Table 4
Mean and Standard Deviation of the Operational Performance

Constructs	**Mean**	**SD**
Competitive trucking charges	4.23	.961
Competitive trans-loading facility charges	4.12	.929
Low operating cost and maintenance cost	3.98	.878
Shipment		
Consignments are easily traced and tracked	4.10	.917
Short time for the customer to respond	4.16	.942

Detailed information and timing about the location of the consignment	4.20	.899
Tracking and Tracing of Goods		

Conclusion

Summarily, it can be established that the procurement and selection of type of vehicles based on quality, cost and environmental impacts as the main feature of innovation in sustainability. Likewise, the performance of 3PLs service provider is tied to expedite action on customs clearance for organization with high compliance levels and standards. This is a motivation for all organization such as supply chain and logistics to comply with sustainable goal of the government of the country and the globe at large.

Also, observation on the process of imports shipments which includes cleared and delivered as scheduled, the expedite customs clearance for all organizations with high compliance level with sustainable and focusing attention on strategic aspects of logistics business shows that expedite customs clearance for traders with high compliance levels is the main feature indicating 3PLs service providers.

In addition to this, it can be concluded that competitive trucking charges are the major features indicating the operational performance. This focus on the type and cost of the trucking will go along way to enhance the performance of 3PL service in meeting the sustainable goals. It can be observed that charges on trucking is competitive factor for 3PLs service providers in their performances and it will contribute to meeting sustainability goals. So, as the cost of the organization on the trucking operations is competitive, thus enhance their suitability features and serve as an innovative.

Thus, type of vehicle, procurement and selection, expedite customs clearance for traders with high compliance levels, competitive trucking charges, are essential in creating an

innovative logistics, and positive impact on third-party logistics service performance, which consists of service, operation, and financial performance. In an increasingly competitive business environment, the role of innovation in green logistics as a moderating effect is important in creating alignment between those independent variables and third-party logistics service performance to ensure logistic and supply chain procurement function stays in tag with purchasers and objectives. The findings can offer support for the value of the relationship of innovative green logistics within third-party logistics industry practices. This research study may also reveal that innovation in green logistics around environmental sustainability and strategic management plays a major role in 3PL performance in Malaysia.

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