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

Abstract

In the contemporary business global sphere, it is so problematic, if not impossible, for a organization to be competitive 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. Based on the increasing logistics benefits, the important of the assessment of logistics efficiency and impact is attracting increase 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, and this is 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 structured questionnaire survey. 256 questionnaire was retrieved out of 333 questionnaires distributed electronically and 27 questionnaire was rejected based on some parallel errors and 229 questionnaire was eventually analysed. This is 69% of the questionnaire. In the analysis, SPSS version 20 was utilized. The outcome showed that 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 fulfils 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 with accidents, the conditions of the work, training and education that influence a company's communities and employees. The Initial stage of sustainable logistics system is basically views 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 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 an issue of concern for government and environmental stakeholders and institute globally. To resolve this great challenge of environmental pollution that causes global warming, green logistics has 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, a research based green logistics awareness and the character tendencies of those in charge of implementing the 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 behavior in Malaysia and as well promote the organization policy making. Hence the important of this research in Malaysia third party logistics service provider context.

The current trend of logistics sector in Malaysia is concentrating on the logistics operation out-sourcing as well as growth of Third-Party logistics (3PLs) according to (Mustaffa & Potter, 2009). Nevertheless, the issue related to cost seems most significant influence on the development and 3PL growth with higher aids for both minimization of lead delivery time and cost (Mustaffa & Potter, 2009). This cogent view was corroborated by Sohail et al. (2006) where the authors established that 67.7% Malaysian organization engaged the contract logistics services with principal focus on the local operation meanwhile, Singapore 3PL sector focused on international level.

In term of economic, social and environmental benefits of green logistics and supply chain management, there are general believe and all-embracing acknowledgements which reflects that sustainable logistics and supply chain management yields the 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 good transport, and airplanes produces environmental pollution, this is overall known as the main cause of global warming that is usually consider as a threat to the universe. Likewise, associated logistics operations result to acute water and air pollution, fuel consumption and solid garbage disposal (Lin et al., 2011). In order to militate against all these challenges, the idea of green or sustainable logistics was born to alleviate it and also to describe logistic system that implement technology facilities that are of cutting edge, so as 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 country in the process of goods and services exchanges, (Guirong et al., 2012). Likewise, green logistics aid organizations as well in dealing efficiently with the relationship between environmental protection and logistics growth, as well as make interest economically, social interest and environmental interest, in bond of unity (Guoyi & Xiaohua, 2011). It is highly significant that organizations acknowledge that green logistics can result into a sound stream of business benefits conventionally (Piecyk et al., 2012). Hence, the aim of this study to investigate the influence of Innovative logistics practices on the performance and operations of third party logistics service providers in Malaysia.

Literature Review

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 of 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 at refining GL performance that have been functional unnaturally, and tangible number of their operations can be displayed as combinatory optimization complications. This research goal is to investigate and advance, by mean of coordination, the performance of a green supply chain involving of 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 which 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 a organization to be competitive 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 models variants and options. Based on the increasing logistics benefits, the important of the assessment of logistics efficiency and impact is attracting increase consideration. LPM, (Logistics performance management), is a pivotal to ascertain and enumerating the present position and the capacities for growth in logistics. In order to give adequate details of the increase importance of 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's concepts which is 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 in itself 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 so as 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 relatively 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 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.

Methodology

Study Population and Sampling

The target population for this study is all managers and senior staffs in the selected Malaysian's manufacturing and logistics industry. The overall number of certified organization with MS ISO 14001 in Malaysia as at now is 522 organization, hence, only organizations with ISO 14001 certificates have been selected for this study. The reason for this decision is because they are set of organization 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, Adebare, Mustakim, & Richard, (2021).

Results and discussion

The respondents profile results is as 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 profile revealed that there are more male than the females. 53.7% of the respondents are male, while female is 46.3%. This may be because most of the staffs in Logistics companies are more of male counterpart. Another perspective is the age range, the respondents are more of the age range 26-35 years. This category are consider as youthful and working age because of their ability and strength but probably young years of experience. But on the job training and inhouse 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 are entrance point and age range probably and very young in the business.

Most of the respondents are graduate as the degree holders recorded 44.1% and followed closely by Diploma holders which 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 the logistics company and they all have what it takes to be a professionals in the field.. Respondents with Masters and PhD degree recorded 20.1% and 10.0% respectively. This shows that larger percentage of the respondents are qualified and professional. This makes the data more viable and reliable. In term of position, most of the respondents are executives' officers in various organisations. Likewise, about 22.7% of them are Senior Manager/Manager in the various organization. In terms of services rendered by respondents, it is on record that those respondents in Logistics section are 63.3% while those in transportation are 17.5%, those in manufacturing are 8.3%. This indicate that most respondents are quite familiar with logistics and transportation sector which is the main focus of the study. Most of the respondent's company are full time employees that are below 50 employees. And, company with 200 employee and above.

The result of innovation in green logistics of third party Logistics service providers 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 high level of mean score. Specifically, "Consideration for procurement and selection of vehicle types based on cost, quality, and environmental impacts" recorded highest mean score of (M= 3.97; SD = 1.122), while the "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 below.

Table 3
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 environment and environmental 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 are produced from excess and environmental friendly	3.76	1.148
The computer network is used instead of papers in marketing between vendor 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 releasing of provider	3.89	1.090
The distance between vendor and factory is minimized in order to reduce pollution and cost	3.87	1.088
The factory is concerned about the fuel consumption in distribution includes measuring the carbon dioxide emission	3.93	1.090
The delivering vehicles are well checked and maintenance plan are available.	3.94	1.091
The full truck load system is applied to increase the effectiveness of product delivering	3.91	1.074
The delivering routes are determined to safe the 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 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 4 revealed the degree of service performance thought among the respondents, these items have mean scores above 3. All the thirteen (13) items were recorded high level of mean score. Specifically, "The imports shipments are cleared and delivered as scheduled" recorded highest mean score of (M= 4.10; SD = .831), while the "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 4 below.

Table 4
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 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 of 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 stipulated time	3.90	1.120
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 5 revealed the degree of operational performance thought among the respondents, these items have mean scores above 3. All the six (6) items were recorded high level of mean score. Specifically, "Competitive trucking charges" recorded 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" is the main feature representing the operational performance as shown in Table 5.

Table 5
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 trace and tracked	4.10	.917
Short time for customer to respond	4.16	.942
Detailed information and timing about the location of the	4.20	.899

Conclusion

Thus, the influence of the four independent variables (transportation, warehousing, packaging and inventory management) are essential in creating positive impact on third party logistics service performance, which consists of service, operation and financial performance. In an increasing 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 in order to ensure logistic and supply chain procurement function stays in tag with purchasers and objective. This research study indicates that there is a connection between several relationship of innovative green logistics service dimensions and the level of performance for the relationship. The findings able to offer support for the value of relationship of innovative green logistics within third party logistics industry practices. This research study may also reveal that innovation in green logistics in the area of environmental sustainability and strategic management play major role in 3PL performance in Malaysia. The framework of this study was designed based on the existing literature reviewed hence, the constructs such as: transportation, warehousing, packaging and inventory management and innovation in green management influence were proved.

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