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Abstract

Small and medium-sized enterprises (SME) of third-party logistics struggle to stay competitive and facing various pressure to stay competitive. One of the tactics to be competitive is to implement effective competitive measures. The purpose of this research was to explore the influential factors of competitive advantage on third-party logistics in Selangor Malaysia. Data collection included semi-structured questionnaires from 370 managers involved in logistics activities from the small and medium-sized enterprise manufacturing industries located in Selangor. Data analysis was used to identify key influential factors of competitive advantage progression. Correlation and regression analysis were conducted to test the research hypotheses. The results reflect that competitive measures needed extensive attention to stay competitive in the market. Thus, third-party logistics needs to cultivate competitive advantage knowledge and other competitive measures that will drive the third-party logistics service uniqueness. The findings may contribute to social change by helping small and medium-sized third-party logistics to improve their survival rate and to create their firm's sustainable competitive capability and performance and as well provide solutions to challenges facing the third-party logistics.

Keywords: Competitive strategy, network structure, information technology, competitive advantage, customer relationship management.

Introduction

Third-party logistics usually act as liaisons amongst suppliers and customers in the supply chains (Forslund, 2012). SMEs in Malaysia has three size classifications based on a number of employees. Micro companies employ less than 5 people, Small-sized enterprise employs 5 to 75 people and Medium-sized enterprise employ from 75 to 200 employees (SMEcorp, 2018). Selangor is considered as the largest region in term of SMEs in Malaysia with a total of 809,126 establishments which consist 19.8% overall (SME Annual Report 2017). Based on the 11th Malaysia Plan (11MP), the target GDP contribution of SMEs needs to be increased to 41% in the year 2020 and the annual growth of SMEs is around 8.7%. (SMEcorp, 2015). Logistics and supply chains activities are very important to Malaysia's economic growth. Moreover, third-party logistics activities in Selangor are considered as the backbone in the growth of industries economic sustainability and it is a primary sector in the logistics industry to drive trade and market development and business performance. Logistics activities are the main factor to drive

Selangor's trade economic growth through effective logistics strategies, logistics networks and logistics technologies in their business (SMEcorp, 2015). The use of third-party logistics in Selangor has increased due to the growth in global trade activities. The growth is accompanied by an increase in freight transport and an increasing demand for logistics services in general, it means logistics is playing a vital role in global economies today (SME Annual Report 2017).

A total of 31% of logistics users in Malaysia were engaged with international logistics firms while 21% are engaged with local ones (Malaysia Productivity Corporation, 2015). International logistics firms are favoured because of their global recognition, better network coverage, service credibility and most importantly their ability to provide integrated supply chain services to end users. Despite all these, sensing the potential of the third-party logistics sector, many global logistics players are also entering the logistics market through direct investments, acquisitions and alliances to establish their business due to rapid growth in the small and medium-sized enterprises (SMEs) manufacturing industries in Selangor (Malaysia Productivity Corporation, 2015).

Selangor's industrialisation and the rapid growth of its manufacturing industries have increased the logistics and supply chain activities and it is expected to grow, thus, third-party logistics services demand is expected to increase in the future (Karia and Wong, 2012). These demands could face both intended and unintended action from customer's requirements as their nature of the task needs well-planned logistics objectives. Logistics activities in Selangor are in an emerging stage and existing third-party logistics providers are underperforming, lacking in competitive knowledge and too many small and medium-sized logistics providers in Selangor. The emphasis on third-party logistics whether capable to generate a wide understanding of the logistics marketplace and respond effectively to meet customer's expectation and demand with effective competitive capability is questionable. As it has one of the catalysts for the development of various industries economic growth, a competitive advantage progression will have a great impact on the third-party logistics' competitive capabilities and survival.

Despite the growing trend of logistics activities, there are very limited sources of literature on SME third-party logistics. Thus, in-depth research in the area of influencing factors of competitive advantage progression on third-party logistics is still lag. Very few studies have focused on this area and most of the studies are focused on the logistics industry's overall performance and cost, capability and efficiencies, effectiveness and competency, etc. Thus, small and medium-sized enterprises (SME) of the manufacturing industries due to their significant economic weight, flexibility, innovation and fast decision-making represent a frequently-researched area. Unfortunately, the same is not true of the SMEs of SME third-party logistics, about which very few researchers are available in Malaysia. SMEs manufacturing industries in Malaysia are frequently of the opinion that logistics may be treated as something of secondary relevance and transportation, warehousing and materials handling are to be regarded as a necessity. The appearance of the logistics practice of large companies among the small and medium-sized enterprises becoming part of their everyday practice, awakening the SMEs manufacturing industries from their logistics slumber. Furthermore, it is an attempt to show that paying more attention to this area might enhance the third-party logistics competitive capabilities.

Previous researchers in logistics and supply chain have pointed out many studies have been conducted, however, all the studies were predominantly concerned with resources and performance but ignored those of competitive advantage (Karia and Wong, 2012). Logistics providers were too focus on identifying strategic logistics resources acquired and bundle to

achieve competitive advantage (Karia and Wong, 2012). The authors believe that there are still some missing links between resources possession and resource exploitation mainly due to the limitation and more empirical evidence about knowledge, information and relational resources and other approaches to resource bundling. Although several studies commissioned by the Government were not specifically meant for third-party logistics, they help in understanding the conditions that affected its development. There were a number of transportation and logistics industry's related studies however nothing was specific to influential factors of competitive advantage progression on SME third-party logistics providers.

Thus, this study aims to explore the influential factors of competitive advantage progression that could benefit SMEs third-party logistics and entrepreneurs to adopt appropriate strategic management implementation in a highly fragmented logistics market in Selangor. According to Furrer et al. (2008), strategic management is a body of knowledge that would underpin practical advice to managers but evolved into the endeavour to identify a theory with explanatory and predictive power. In order to further up this study, identifying theoretical perspective is needed as it helps to determine the types of competitive measures. This is evidently a research gap from existing literature and competitive advantage progression may lead to producing a strong market position for SME third-party logistics in Selangor in a significant level and become a strong pillar to industries who are relying on their logistics services and solutions.

Literature review

Our focus in the literature is to explore influential factors of competitive advantage of third-party logistics. One of the challenges for third-party logistics is to offer logistics services that create higher value for their customers than the customers may create on their own (Meidute et al. 2012). Supply chain managers continually expect higher levels of logistics services from third-party logistics to succeed in a competitive market (Meidute et al. 2012). Recent studies by Lieb and Lieb (2015, 2012); Soinio et al. (2012); and Zacharia et al. (2011) confirmed this trend and reported that customers are demanding more value-added and integrated services from third-party logistics. This change in the landscape of services of the third-party logistics has also enhanced the potential benefits of logistics outsourcing (NunezCarballosa and Guitart-Tarres, 2011). Although many supply chain managers continue to outsource mainly because of cost savings, third-party logistics can offer much more than just cost efficiency (Nunez-Carballosa and Guitart-Tarres, 2011). A third-party logistics provider can aid in improving the efficiency of the firm's logistics (Sheikh and Rana, 2012) and customer service (Ulku and Bookbinder, 2012), as well as reduce operational budgets and improve IT support (Sheikh and Rana, 2012).

Although most outsourcing services cover one activity by an outside partner, third-party logistics cover several activities such as purchasing, warehousing, and distribution (Tan, Yifei, Zhang, and Hilmola, 2014). Supply chains managers have different motives for outsourcing some of their activities, and one of the motives focused on efficiency seeking outsourcing that concentrates on cost reductions and operational efficiency improvements (Kang, Wu, Hong, and Park, 2012). The second form of outsourcing focused on innovation-seeking outsourcing to gain new capabilities through outsourcing activities (Kang et al. (2012). Supply chains goals should align with outsourcing strategies (Kang et al. 2012). Logistics outsourcing is popular in business as a key strategy to achieve competitive advantage (Gunasekaran and Choy, 2012; Lai, Tian, and Huo, 2012). The role of logistics, particularly managing communication and product flow within a supply chain, is more important when service activities or manufacturing

spread across a large geographical area (Gunasekaran and Choy, 2012). A supply chain can reduce the delivery time for a product to market in a large geographical area (Gunasekaran and Choy, 2012). Third-party logistics sometimes strategically cluster around ports of entry and airport terminals to maximise their efficiency (Rodrigue, 2012). Third-party logistics play an important role in the logistics industry's supply chain (Hosie, Lim, Tan, and Yu, 2012).

The use of third-party logistics outsourcing has been increasing, and the consulting-oriented strategy of third-party logistics appears to be adequate for supply chain managers (Soinio et al. 2012). The original single activities of transportation and warehousing have now expanded into more advanced solutions in the supply chain (Soinio et al. 2012). Niche-oriented third-party logistics offer limited services, but they perform better than the larger third-party logistics providers (Min, DeMond, and Joo, 2013). When the partner that has the best capabilities handles activities, improved efficiency in the supply chain is achieved (Forslund, 2012). The three obstacles to supply chain performance management include (a) lack of understanding and knowledge, (b) poor capabilities for adapting performance metrics definitions, and (c) the lagging IT solutions for performance report making (Forslund, 2012).

Since the early 1990s, third-party logistics, have continuously broadened the range of services they offer from a relatively limited scope of basic services (Zacharia et al. 2011). Services of third-party logistics may include transportation and an array of activities that include more strategic services, such as cross docking and technology management (Zacharia et al. 2011). An increase in the number and complexity of services provided gives rise to an expanded portfolio of services by the third-party logistics provider. According to Shi and Arthanari (2011), the first level of service includes transactional services, which consist of outsourcing basic logistics that do not include any specific or customised requirements. The second level of service incorporates basic services along with additional value-added and customised functions, such as cross-docking. Finally, Shi and Arthanari identified the fully customised third-party logistics services, which require intensified coordination as the third and most complex level of service offered. The services provided by third-party logistics have consistently increased since the 1990s. The service offering growth arises from the pressure on third-party logistics providers to offer integrated solutions to their customers (Lieb and Lieb, 2015).

In general, third-party logistics offer their customers primary services such as transportation and warehousing (Forslund, 2012), as well as freight forwarding, shipping and handling, packaging and storage (Kilibarda, Zecevic, and Vidovic, 2012). The third-party logistics also offer secondary services such as order administration, tracking and tracing orders (Forslund, 2012). As a result of the increased need for connectivity and communication in prominent supply chains, an advanced role for third-party logistics now includes route planning (Sheikh and Rana, 2012). The role of a third-party logistics may also include technology management and cross-docking services (Zacharia et al. 2011) as well as more complex functions, such as purchasing, production, and distribution (NunezCarballosa and Guitart-Tarres, 2011). Third-party logistics can also act as liaisons amongst suppliers and customers in supply chains (Forslund, 2012). The third-party logistics act as orchestrators of supply chains by providing logistics abilities for maintaining a competitive advantage (Zacharia et al. 2011).

Historically, outsourcing to third-party logistics increased the competitive advantage of supply chains (Li-Jun, 2012). Supply chains managers took advantage of three key benefits including cost reduction, quicker delivery time, and increased reliability (Li-Jun, 2012). However, according to Nunez-Carballosa and Guitart-Tarres (2011), the use of third-party logistics is not

always less costly as the optimisation of the supply chain is the main reason for cost reduction rather than outsourcing. The key reasons for outsourcing are to (a) increase flexibility; (b) make resources available to focus on core competencies; and (c) access skills, expertise, and knowledge of logistics service providers (Nunez-Carballosa and Guitart-Tarres, 2011). The knowledge gathered through the review of the literature indicated several key benefits of outsourcing logistics activities. One benefit of outsourcing to a third-party logistics provider underscored the ability of the supply chains to focus on its core competency (Aguazzoul, 2014; Nunez-Carballosa and Guitart-Tarres, 2011). The review of the literature also suggested a positive effect on cost reduction (Aguazzoul, 2014; Meidute et al. 2012) and an overall positive effect on supply chains performance (Aguazzoul, 2014). The information from the literature indicated that outsourcing logistics activities imparted a positive effect on the logistics strategy, network and IT infrastructure of a logistics firm (Sheikh and Rana, 2012). Supply chains managers use logistics outsourcing as a key strategic tool for their businesses (Freytag et al. 2012).

In this study, we argue that a third-party logistics' decision to adopt competitive advantage measures is driven by the firm's competitive measures. Three constructs were developed in the conceptual model which include competitive strategy, network structure and information technology. It captures the understanding of competitive knowledge that provides a basis for competitive measures implementation. The literature supports that firms which are well equipped with logistics competitive knowledge are capable to achieve competitive advantage (Hertz and Alfredsson, 2003).

While the adoption of competitive advantage has emerged as an important tool that could lessen the burden of managers to stay competitive, managers are increasingly seeking for empirical justification. Despite the clear benefits of competitive advantages, these potentials have not always been realised, resulting in increasing calls for more empirical justification. In the theory of competitive advantages, developed in the studies of the famous American Scientist M. Porter (2008), two types of competitive advantage are distinguished: low costs and differentiation of goods. Low costs reflect the firm's ability to develop products at a lower cost than competitors. Differentiation is the ability to provide the buyer with a unique and greater value in the form of high-quality goods, market novelty goods, and high-quality after-sales service. Much of these study uses to quantify the benefits. Competitive advantages must necessarily find a real embodiment in the quality of services, low costs and other performance of the firm and be perceived by the consumer, e.g. they should be measured, estimated by economic indicators: higher profitability, greater market share, greater sales. Unrealised in competitive advantage are not advantages as such, because they did not translate into new results of activities, did not lead to a new state of the company (Porter, 2008).

According to Porter (2008) competitive advantages should be significant - noticeably stand out from the competition; visible - discerning buyers; significant for the consumer - bring him tangible benefits; stable - to maintain its importance in the face of environmental changes, non-reproducible competitors; unique - the benefits cannot be obtained from other producers of the goods; profitable for the company - production volumes, cost structure and market prices for the offered goods allow successfully to work in the chosen field of activity and to receive sufficient profit. Competitive advantage is achieved when an organisation develops or acquires a set of attributes (or executes actions) that allow it to outperform its competitors. The development of theories that help explain competitive advantage has occupied the attention of the organisations for the better part of half a century. Numerous theories were used in the area of competitive advantage by Porter (1990, 1985, and 1980); Porter, Caves and Spence (1980)

where most of the studies identify the causes of competitive advantage and their impact on businesses, however, studies of competitive advantage progression in logistics scope are lag.

The research problem arises from the increasing use of third-party logistics due to the heavy reliance on e-commerce in sales nowadays. Such increasing demand by e-commerce was not met by efficient and reliable logistics services, which caused a negative effect on the third-party logistics services delivered to customers in several ways and by that negatively impact the third-party logistics to stay competitive in the market and to achieve competitive advantage. Therefore, it becomes urgent to provide competitive knowledge in several areas to be able to use and stay competitive, minimise areas causing dissatisfaction to customers and improve to gain competitive advantage.

In this study, we have included customer relationship management as the moderating variable after a thorough research on this area. Customer relationship management provides opportunities to use information and know customers better, offer value by customised sales and develop long-term relationships. This vision confirms the holistic idea of relationship marketing, where there is interaction among all parts of the organisation (Payne, 2006). The main authors of customer relationship management agree on the relevance of managing the relationship between organisations and its customers (Payne, 2006 and Ngai, 2005). Development and implement of customer relationship management programs is not an easy task nor a task for the light-hearted. There are challenges and issues associated with the deployment and implementation of customer relationship management programs. In the implementation of customer relationship programs, the organisation has to deal with a multitude of customer interfaces and a company's direct interface with customers, if any, was primarily through salespeople or service agents. (Parvatiyar and Sheth, 1994). In today's business environment, most companies interface with their customers through a variety of channels including sales people, service personnel, call centres, Internet websites, marketing departments, fulfilment houses, market and business development agents, and so forth. For large customers, it also includes cross-functional teams that may include personnel from various functional departments. Although each of these units could operate independently, they still need to share information about individual customers and their interactions with the company on a real-time basis. For example, a customer who just placed an order on the Internet and subsequently calls the call centre for order verification expects the call centre staff to know the details of his or her order history. Similarly, a customer approached by a salesperson unaware of the fact that the customer had recently complained about dissatisfactory customer service is not likely to be treated kindly by the customer. On the other hand, if the salesperson was aware of the problem encountered by the customer, the complaint, and the action already initiated to resolve the complaint, the salesperson would be in a relatively good position to handle the situation well.

According to Newell and Swan (2000), customer relationship management is a useful tool in terms of identifying the right customer groups and for helping to decide which customers to discard. According to Newell and Swan (2000), jettisoning customers is necessary because of the high-maintenance, high cost involved in maintaining such relationships and the subsequent drain on an organisation's profitability. Bulls (2000) estimates there may be a tenfold difference between the most profitable customers and the average. There is a widespread notion in most financial services provides that a firm cannot maintain a profitable relationship with all customers. Therefore these firms are targeting customers with differentiated products and services or segregating markets and concentrating on particular market segments as opposed to the whole market (Bulls, 2003).

One method for identifying customer groups is the idea of categorising between transaction and relationship customers. Transaction customers are highly volatile and have little loyalty, and their major aim is to get the best price. Relationship customers have more potential for loyalty as they are often prepared to pay a premium price for a range of quality and reliable goods or services Newell and Swan (2000). Once relationship customers are identified and recruited they are less likely to switch provided they continue to receive quality service. Relationship customers are also more cost-effective than new customers because they are already familiar with, and require far less persuasion to buy the company's products or services (Bulls, 2003). Peck et al. (1999) argue that for many organisations it would be beneficial to distinguish between the two types of customer and focus on relationship customers. According to Newell and Swan (2000), there are often three distinct types of relationship customers: the top, middle and lower groups. The top group (top 10%) consists of customers with excellent loyalty and of high profitability for the organisation.

Customer relationship management is needed to retain and offer them the best possible services in order to avoid them defecting to hungry competitors. Middle group customers (next 40 to 50 %) are ones delivering good profits and who show good potential for future growth and loyalty. These are the customers who are probably giving some of their business to competitors. The idea is to use customer relationship management to target middle group customers effectively as they are the greatest source of potential growth. Lower group relational (bottom 40 to 50 %) customers are those who are only marginally profitable. Some may have the potential for growth but the expense and effort involved in targeting such numbers hinder the effectiveness of servicing existing relational customers in the top and middle groups. Customer relationship management should be used to identify this group and seriously consider the response required. Transactional customers contribute either nothing or have an adverse effect on profitability. The consensus, therefore, customer relationship management is invaluable for identifying existing transactional customers and helping organisations to abandon them immediately. This has the double benefit of improving the prospects for one organisation's profitability whilst potentially offloading burdens onto competitors.

Motivated by these issues, the research aims to investigate influential factors of competitive advantage on third-party logistics and the impact of such factors on third-party logistics survival. Therefore, this research aims to figure out areas of competitive measures highly recommended by the logistics users in Selangor and provide solutions to challenges facing the third-party logistics. Findings of this study could assist logistics managers and logistics practitioners and entrepreneurs in formulating strategies and capitalise the benefits of adopting competitive measures. Based on these arguments, this study posits that:

H1: There is a significant relationship between competitive strategy and competitive advantage progression.

There are empirical studies justifying the importance of competitive strategy as a long-term plan in order to gain a competitive advantage over its competitors in the industry. It is aimed at creating a defensive position in an industry and generating a superior return on investment (Porter, 1980). Competitive strategy implementation in logistics operations requires firms to be prepared in financial resources since it tenders investments in people and technology. Following this trait, this study postulates that:

H2: There is a significant relationship between network structure and competitive advantage progression.

In this study, we refer network structure construct as the degree to which a firm is affected by competitors in the industry. Competition drives firms to embark on innovative strategies to maintain competitive advantage (Porter, 1980). By adopting network structure to manage their business operations, third-party logistics providers may leverage new ways to outperform their rivals through improved and better coordination of the flow of products along the supply chain (Karkkainens 2003 and Salin, 1998). Therefore, this study posits that:

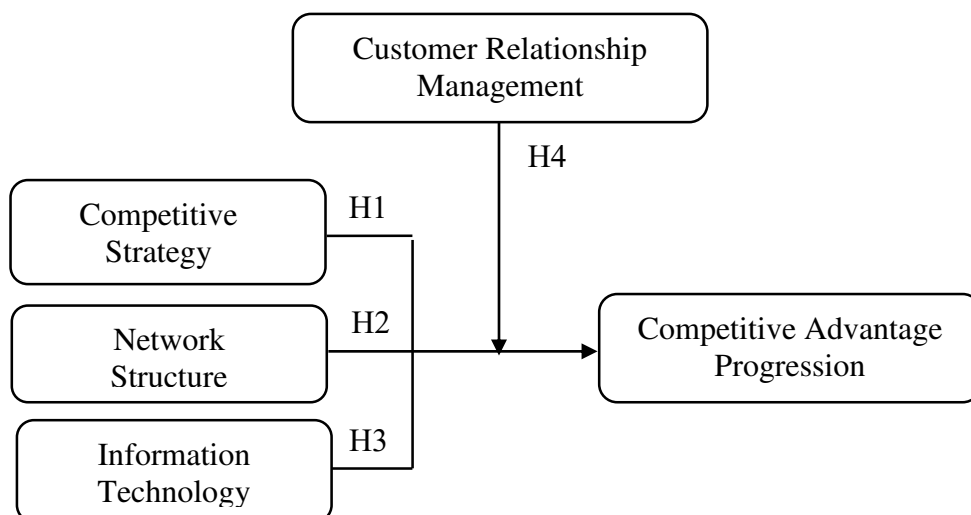
H3: There is a significant relationship between information technology and competitive advantage progression.

The relationship between information technology and competitive advantage progression lies in the firm’s size. In general, larger firms may have more resources which make them more effective users of technology (Delone and McLean, 2003; Alavi and Leidner 2001). Information technology is susceptible to imitation and the first-mover advantage tends to diminish quickly with rapid technological changes (Huang and Liu 2005; Bharadwaj, 2000). Therefore, firms require substantial resources to continuously invest in advanced technologies to gain a competitive advantage. A firm’s strategic orientation on information technology developments cannot be manifested across the firm if the managers do not support and become involved in the planning and management of technology (Reich and Benbasat, 2000). Following this trait, this study, therefore, asserts the following hypotheses:

H4: Customer relationship management significantly moderates the relationship between competitive strategy, network structure, information technology and the firm’s competitive advantage progression; specifically the relationship will be stronger for firm’s who enhance customer relations than non-customer relations firms.

Following the extant literature, a research framework was developed (Figure 1). The framework identifies a set of three factors that determine third-party logistics providers’ initiatives to pursue competitive advantage progression to manage and stay competitive. They comprise competitive strategy, network structure, and information technology. Secondly, the model also postulates that customer relationship management may moderate the relationship between the competitive strategy, network structure, and information technology adoption and competitive advantage progression. Together, these variables form a coherent model for discerning the various factors affecting competitive advantage adoption and its impact on third-party logistics SMEs competitive performance.

Figure. 1: Research framework



Methodology

Data Collection

This study utilised a survey questionnaire to test the model developed. The sample was drawn from the Federation of Malaysian Manufacturers Industry Directory 2017 (FMM, 2017). This final list is represented by SMEs manufacturing industries in Selangor. Questionnaires, including a cover letter self-personal administered to the human resources and logistics managers. Of the 500 questionnaires sent out, 375 were returned, which excludes five incomplete surveys. This resulted in a 74 per cent response rate.

Operationalization of Constructs

Most of the constructs are established measures from previous studies and they have been adapted to the context of this study. All items were measured using a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The questionnaire was developed based on logistics studies in Malaysia and the logistics industry's expert's review. The construct was measured using four competitive components with 40 items. The competitive strategy comprised of sixteen items adapted from Kazan et al. (2006) and Phusavat and Kanchana (2008), network structure comprised of eight items adapted from Snow and Fjeldstad (2015), information technology comprised of eight items adapted from Van Riel et al. (2004), customer relationship management comprised of eight items adapted from Bull (2003), and competitive advantage progression comprised of eight items adapted from Molina et al. (2004) reflecting the degree of competitive measures and the resulting success. All these items measured the extent to which respondents perceived the influential factors of competitive advantage, as well as their level of agreement to stay competitive. Respondents were asked to indicate the proportion of influential factors relating to the four components. We evaluate the competitive advantage of influential model based Braslina et al. (2014). A total of 94.1 per cent from 370 respondents from the context of origin of the company represented by locals, 85.4 per cent represented by managers, in term of work experience 48.9 per cent has 3 to 4 years of work experience, 36.5 per cent has 5 years and above work experience and 14.6 per cent with 1 to 2 years of work experience. Based on the respondent's company's representation, 34.9 per cent represents micro firms, 49.5 per cent represented small-sized enterprise and 15.7 per cent represented medium-sized enterprise. On the contrary, small-sized enterprises were the highest respondent's representation. Thus, there was an excellent mix of representation. Table 1 presents the sample characteristics.

Table 1: Sample Characteristics

Description	Frequency	Percentage
Origin of the company		
Local	348	94.1
International	22	5.9
Total	370	100
Company size		
Micro	129	34.9
Small	183	49.5
Medium	58	15.7

Total	370	100
Level of position		
Director/Board Member/ Owner/Partner	16	4.3
Managing Director	27	7.3
Senior Manager	11	3.0
Manager	316	85.4
Total	370	100
Work Experience		
1-2 Years	54	14.6
3-4 Years	181	48.9
Above 5 Years	135	36.5
Total	370	100

Table 2 presents the area of logistics activity responsibility. 30.3 per cent were responsible for freight forwarders and 15.7 per cent responsible for domestic transportation while 15.1 per cent were responsible for warehousing. The other areas were basically less involvement may be due to the specialisation and managed by third-party logistics providers.

Table 2: Area of logistics activity responsibility

Description	Frequency	Percentage
Domestic Transportation	58	15.7
Reverse Logistics	10	2.7
Freight Forwarders	112	30.3
Order Processing	27	7.3
Value-Added Services	22	5.9
Inventory Management	26	7.0
Warehousing	56	15.1
Logistics IT System	27	7.3
Packaging	32	8.6
Total	370	100

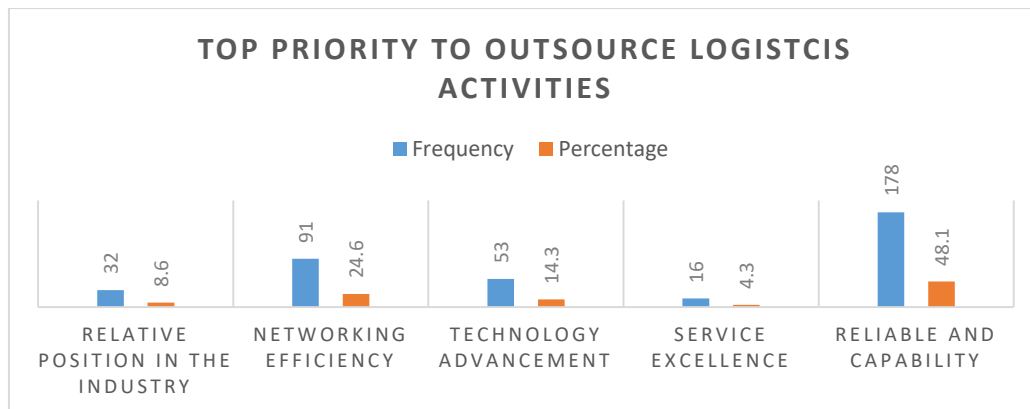
Table 3 illustrates the respondent's represented the types of SME manufacturing industries. The table indicates that the Electrical and Electronics industry's respondents were the highest participants represented 33.2 per cent, 21.6 per cent represented Transport Equipment industry and 9.5 per cent represented Machinery and Equipment industry. The other industries have a lower percentage due to the demographical location of most of the SMEs in Selangor. However, the mix types of industries have given a good impression on the sample reliability.

Table 3: Types of SME manufacturing industries

Description	Frequency	Percentage
Chemical Products	26	7.0
Textile and Apparel Products	21	5.7
Machinery and Equipment	35	9.5
Iron Steel and Metal Products	16	4.3
Transport Equipment	80	21.6
Electrical and Electronics	12.3	33.2
Paper, Printing and Publishing	20	5.4
Rubber Products	33	8.9
Wood Products	16	4.3

Figure 2 illustrates how the respondents reacted to outsource logistics activities to third-party logistics. Outsourcing logistics activities help to reduce logistics cost among manufacturing companies thus improving their core businesses and it requires consistency on customer satisfaction (Qureshi, Kumar, and Kumar, 2007). Five questions were asked to analyse the top priority of the responded satisfaction. These questions were based on a study conducted by Rahmat and Faisal (2014). Figure 2, exhibits 48.1 per cent responded ‘reliable and capability’ as the top priority to outsource, 24.6 per cent responded ‘network efficiency’, 14.3 per cent responded ‘technology advancement’, 8.6 per cent responded ‘relative position in the market’, and 4.3 per cent responded ‘service excellence’. This information was gathered to provide clear awareness to third-party logistics on customer’s preferences and top priorities to outsource logistics activities.

Figure 2: Top priority to outsource logistics activities



Data analysis / Findings

Table 4 illustrates the descriptive statistics of measurement items based on the mean. All items which were used to measure the competitive strategy, network structure and information technology had mean scores of between 3 and 4, indicating that majority of the respondents were agreeable to competitive strategy, network structure and information technology items were essential to competitive advantage progression and demonstrate the relatively high level of competitive measures. In general, third-party logistics faced substantial competitive pressure from the industry, therefore competitive measures need considerable attention in order to stay competitive in the market and there is a need for competitive knowledge, skilled expertise and greater interaction between third-party logistics and supply chains (Karia and Wong 2012).

Table 4: Descriptive Statistics of Measurement Items (Based on Mean)

Items	Descriptions	Mean	Std. Deviation	Rank
Competitive Strategy				
<i>Quality</i>				
CS1	Offers highly reliable services.	3.63	0.896	4
CS2	Offers high-performance services.	3.86	0.844	2
CS3	Focus on conformance to specifications.	3.67	1.064	3
CS4	Often meets the logistics service requirements	3.99	0.702	1
<i>Cost</i>				
CS5	Efficient in decreasing logistics services set-up time.	3.82	1.034	1
CS6	Efficient in logistics cost reduction planning.	3.71	1.050	2
CS7	Efficient in decreasing the operation cost.	3.26	1.097	4
CS8	Efficient in decreasing logistics labour cost.	3.39	0.898	3
<i>Delivery</i>				
CS9	Efficient in taking and delivering orders.	4.02	1.087	3
CS10	Efficient to increase reliability.	4.09	0.812	1
CS11	Efficient to increase the rate of dependability.	3.87	0.877	4
CS12	Efficient in doing fast logistics services.	4.03	0.856	2
<i>Flexibility</i>				
CS13	Produce additional task without major changeover.	3.71	0.972	2
CS14	Provide broad range of logistics services economically.	3.76	0.989	1
CS15	Maintain performance standard during and after urgent services.	3.53	0.905	4
CS16	Increases capacity and capability easily when needed.	3.64	0.897	3
Network Structure				
NS1	Communications: Very frequent interacts and shares quality information.	3.69	0.711	3
NS2	Cooperation: Often plans in advance to offer the best logistics solutions.	3.66	0.814	4
NS3	Dependency: Strong resources and capability to achieve client's business goal.	3.78	0.797	2
NS4	Commitment: Strong desire to maintain a valuable business relationship.	3.95	0.648	1
NS5	Relationship: Service contract are usually long-term.	3.69	0.838	3
NS6	Trust: Reliable and a strategic partner sharing risks and benefits.	3.61	0.643	5
NS7	Analysability: Able to cooperate and guided by standard work procedures, directives, rules, etc.	3.46	1.117	7
NS8	Variety: Shares a variety of logistics ideas in the events that cause the work to complete.	3.56	0.860	6
Information Technology				
IT1	Supports our business strategies.	3.49	0.914	7

IT2	Improve our process management.	3.74	0.863	4
IT3	Improve our product/service offerings.	3.65	0.905	5
IT4	Enable inter-department (cross-function) integration.	3.58	0.982	6
IT5	Increased our operations mobility.	3.82	0.982	3
IT6	Assists our staffs and managers to make more timely decisions.	3.65	1.018	5
IT7	Able to improve quality assurance.	3.90	0.949	1
IT8	Improve our business efficiency.	3.87	1.044	2
Competitive Advantage Progression				
CA1	Market share	3.68	1.028	8
CA2	Profits	4.25	0.623	3
CA3	Returns on investment	4.12	0.618	6
CA4	Technological provision	4.16	0.669	4
CA5	Operations management efficiency	4.29	0.728	1
CA6	Quality of products-services	4.26	0.696	2
CA7	Supplier loyalty and commitment	4.14	0.831	5
CA8	Collaboration and partnership orientated	3.92	0.796	7

Table 4 results shows that the respondent's first ranked items for competitive strategy in the *quality* item was (CS4) 'Often meets the logistics service requirements' is ranked first. The aim of the competitive strategy is to achieve a high degree of implementation of service delivery. Logistics service quality is the result received comparing customer's expectations with customer's perception of service quality. Customer's prior to ordering the service, already have expectations of what the service provider should offer them. Therefore the quality of logistics service perceived by customers is the difference between the perceived service and expectation (Campos and No'brega, 2009). In the *cost* item was (CS5) 'Efficient in decreasing logistics services set-up time' is ranked first. At the present time, in the era of competition, there is a problem of integration of the logistics systems in cooperation. Moreover, there is a necessity to eliminate any time delays which may influence the added value of a product. Treating the supply chain disruptions as unexpected events occur, we can describe them as having uncertainty in supply chain operations. The critical factor which determines the logistic system failures is time. In a situation, when disruption (connected with e.g. improper delivery quality/quantity, improper location) occurs, there is a necessity to find out if we have enough time to correct the problem (Bogataj and Bogataj, 2007). In the *delivery* item was (CS10) 'Efficient to increase reliability' is ranked first. Customers expect on-time deliveries and short delivery times with minimum cost, which in turn require high inventory service levels, flexible production, accurate demand prognoses and short lead and throughput times (Holmbom et al. 2012). In the *flexibility* item was (CS14) 'Provide broad range of logistics services economically' is ranked first. In today's competitive environment, the pursuit of customer satisfaction highly depends on the logistics firm's overall service performance. According to Chee and Noorliza (2010) satisfaction of customer's expectations affects business performance and encourages customer loyalty and it is key to supply chains to meet reduce the demand and needs of their customers.

Network Structure's first ranked item was (NS4) 'Commitment: Strong desire to maintain a valuable business relationship'. The network structure is a number of sources, sinks and intermediate stations which are linked by physical objects. The material flows into the logistics network structure are initiated and controlled by data flows. Some data run together with the material flows, others are conveyed by separate data networks (Gudehus and Kotzab, 2012). Mentzer, Flint, and Hult (2001) and Kilibarda, Zecevic and Vidovic (2012), note that the customer is the most important part of any business of the service sector. Assessing this, it is important to keep in mind that the activity of the service sector-oriented exactly to the customers and its results directly dependent on customer choice.

Information Technology's first ranked item was (IT7) 'Able to improve quality assurance'. Everyone agrees that effective supply-chain management can provide a major source of competitive advantage. The goal of a supply chain manager must, therefore, be to link the end customers, the channels of distribution, the production processes and the procurement activity in such a way that customers' service expectations are exceeded and yet at a lower total cost than the competition. One of the enabling factors for the achievement of this goal is the effective use of information technology (Hammant, 1995). The quality of information systems is becoming the concern of the users in different terms according to the type and importance of the information system. The concept of total quality assurance developed and widely used in manufacturing environments (Kendall and Kendall, 1988). The most important objective is to design a system which satisfies the user requirements and performs the required tasks. In addition, the system must possess some features such as efficiency, accuracy, compatibility, flexibility, portability and acceptability (Water, 1972).

Competitive Advantage Progression element's first ranked item was (CA5) 'Operations management efficiency'. According to the Experience Economy Pine and Gilmore (1998) framework, today's customers want more than just high-quality goods and services. They want value from positive, engaging, memorable experiences along with high-quality goods and services. Value refers to the benefits the customer perceives he/she gets not only from the goods and service but also from interactions with people and places, which help shape the experience. Competitive advantage is a system possessing some exclusive value, giving it superiority over competitors in the economic, technical and organisational spheres of activity, the ability to more effectively dispose of available resources. Competitive advantages make the company recognisable in the market, protect from the effects of competitive forces. Competitiveness is the result, fixing the presence of competitive advantages, without which it is impossible (Wang and Pettit, 2016). Atkinson (2013) gives the following definition of competitive advantage. These are the characteristics, properties of the product or brand, which create for the firm a certain superiority over its direct competitors. These characteristics (attributes) can be very different and refer both to the product itself (the basic service) and to the additional services that accompany the basic, to the forms of production, sales or sales specific to the firm or product. This superiority is relative, determined in comparison with the competitor occupying the best position in the market or in the market segment.

Further, we conducted the reliability test as an assurance that the competitive measures used were accurate. Table 5 illustrates the reliability test results for Pilot Test and Actual Test. The Cronbach alpha was used to identify the consistency of the "Goodness of data" and it is also called as "Inter-item" consistency reliability. The main objective of conducting a Pilot Test was to ensure the consistency and accuracy of each item in a research instrument. The Cronbach Alpha method was used to determine the reliability of the research with a sample size of 100 sets of questionnaires. The Cronbach alpha reliability coefficients for the Pilot Test constructs ranged from 0.701 to 0.850. According to Klassen et al. (2012), a value of 0.6 and above is an

acceptable level for determining the scale consistency, and Sekaran (2010) stated that the closer the alpha value to 1 the higher the internal consistency reliability.

The Cronbach alpha appears to be widely utilised as a reliability test (Anderson and Gerbing, 1988). Furthermore, this method assumes items have equal reliabilities and free from errors (Bagozzi and Yi 1988). The Cronbach alpha was used to identify the consistency of the “Goodness of data” and it is also called as “Inter-item” consistency reliability. The main objective of conducting this test is to ensure the consistency and accuracy of each item in a research instrument. The table shows the comparison of the test and the Cronbach’s alpha value. The reliability test indicates lowest 0.7 and highest 0.9. According to Nunnaly (1967), a Cronbach’s alpha of 0.6 and above is sufficiently fair to moderate reliability for a research. Besides, if Cronbach alpha value of 0.5 indicates a fair reliability and 0.8 indicates a very high reliability. Therefore, all the scales were considered to exhibit sufficient internal reliability and consistency.

Table 5: Reliability test

Variables	Cronbach’s Alpha Pilot Test	Cronbach’s Alpha Actual Test	No of Item
Competitive Strategy	0.703	0.897	16
Network Structure	0.850	0.775	8
Information Technology	0.701	0.903	8
Competitive Advantage Progression	0.711	0.816	8

In addition to the reliability tests, this study also examined the construct validity through component analysis using Kaiser Meyer-Oklin and Bartlett’s Test of Sphericity. Table 6 illustrates the Kaiser Meyer-Oklin and Bartlett’s Test of Sphericity value 0.624 where it is higher than the minimum value of 0.6. The Kaiser Meyer-Oklin and Bartlett’s Test of Sphericity will indicate the significant value below 0.05 if there is a correlation exist between the variables (Kaiser, 1974). All the scales had substantially higher values compared to their correlation with other constructs, providing evidence of discriminant validity. Based on the Table 6 results, the significance value or p-value is 0.00 (less than 0.05) where it could be summarised that this study has a supporting element of this correlation matrix study (Barlett, 1954 cited in Noor, Naziruddin, Ilham, 2016). The results indicated that all items tested were significant ($p < 0.00$), providing evidence of good convergent validity.

Table 6: The Kaiser Meyer-Oklin and Bartlett’s Test of Sphericity

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.624
Bartlett's Test of Sphericity	Approx. Chi-Square	170.381
	df	3
	Sig.	.000

A correlation analysis was conducted to test and identify the strength of the variables. Correlation analysis provides information about the variable’s direction and significance towards a relationship with another variable (Sekaran and Bougie, 2010). Table 7 illustrate competitive strategy ($p = 0.693$) shows above 0.05 where it has no significant relationship with competitive advantage progression, however, network structure ($p = 0.026$) and information technology ($p = 0.045$) shows below 0.05 where it has a significant relationship with competitive advantage progression. Consequently, most of the supply chains managers perform team-based

logistics strategic planning and therefore decision making, responsibility and commitments are apparently high for both enterprises, only specific people are involved in the strategic planning stage, this could be one of the causes for competitive strategy significant value (p-value) is above 0.05. According to Lo, Ramayah, Wang (2015), manufacturing industries in Malaysia tend to portray some seriousness in their business environment. Therefore, these industries are committed to logistics activities and do not tolerate failures and inefficiencies in the logistics activities. Besides, Malaysia is a high powered distance management nation (Lo, Ramayah, Wang, 2015). Managers respect their suppliers and avoid creating a problem or conflicts. This can be one of the causes of network structure and information technology significant value (p-value) is below 0.05. However, correlation analysis test is used to support the hypothesis 1, 2, and 3 as it is a bivariate analysis. Table 8 presents the aggregate effect on R-square.

Table 7: Correlation analysis

Correlations		Competitive Advantage Progression	Competitive Strategy	Network Structure	Information Technology
Competitive Advantage Progression	Pearson Correlation	1	.021	.116*	.104*
	Sig. (2-tailed)		.693	.026	.045
	N	370	370	370	370
Competitive Strategy	Pearson Correlation	.021	1	.445**	.286**
	Sig. (2-tailed)	.693		.000	.000
	N	370	370	370	370
Network Structure	Pearson Correlation	.116*	.445**	1	.456**
	Sig. (2-tailed)	.026	.000		.000
	N	370	370	370	370
Information Technology	Pearson Correlation	.104*	.286**	.456**	1
	Sig. (2-tailed)	.045	.000	.000	
	N	370	370	370	370

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Table 8 illustrates the aggregate effect on R-square. The R-square value 0.18 per cent of the variance associated with competitive advantage progression can be explained by all the variables. R-square is a measure of how well the regression is being determined and R-square value should be more the zero (Shneider, Hommel, and Blettner, 2010). A high R-square is not necessary a good analysis and low R-square doesn't negate a significant predictor or change the coefficient. The R-square value 0.18 per cent can be considered as an acceptable value. Table 9 presents the aggregate effect on competitive advantage on F-Test.

Table 8: Aggregate effect on R-square

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.136 ^a	0.018	0.01	1.023

a. Predictors: (Constant), Information Technology, Competitive Strategy, Network Structure

b. Dependent Variable: Competitive Advantage Progression

Table 9 illustrates the aggregate effect on competitive advantage on F-Test. The test is also significant where (F=2.297 and p<0.05), the results show that all the variables have

collectively made a significant contribution to the fitness of the regression. To further the study, multivariate linear regression analysis was conducted to analyse the hypothesis are significantly related and support the competitive advantage progression. Table 8 presents the multiple linear regression analysis.

Table 9: Aggregate effect on competitive advantage on F-Test

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	7.207	3	2.402	2.297	.077 ^b
1 Residual	382.795	366	1.046		
Total	390.003	369			

a. Dependent Variable: Competitive Advantage Progression

b. Predictors: (Constant), Information Technology, Competitive Strategy, Network Structure

Table 10 illustrates the competitive strategy, network structure and information technology have a significant p-value below 0.05. Therefore, hypothesis 1, 2, and 3 is supported by the significant variables of competitive strategy, network structure and information technology. The Tolerance is close to 1 where the range is between (0.685-0.793), where it shows low multicollinearity. The VIF (Variance Inflation Factor) for all the predictors are below 10, as the rule of thumb, any VIF above 10 should be reinvestigated. From this multiple linear regression analysis, a linear regression of competitive advantage was formed and the formula is stated as below. The linear Regression equation for this study: $Y=3.042-0.053X^1+ 0.151X^2 + 0.079X^3$ (where X^1 is competitive strategy, X^2 is network structure, and X^3 is information technology). The model was found to fit the data well. Competitive strategy ($B=-0.046$; $t=-0.79$; $p<0.43$), network structure ($B=0.104$; $t=1.669$; $p=0.096$), information technology ($B=0.07$; $t=1.197$; $p<0.232$) were positively significant with competitive advantage progression. Thus, H1, H2 and H3 were supported. The moderating effect of customer relationship management was analysed using PROCESS modelling analysis. The results generated for competitive strategy ($t=1.0251$; $p<=0.3060$) indicates the significance of the relationship, for network structure ($t=4.6317$; $p<=0.000$) indicates the significance of the relationship and for information technology ($t=7.9639$; $p<= 0.0000$) indicates the significance of the relationship. Thus, H4 was supported. In contrast, this study found that competitive advantage progression was significantly related to H1, H2, H3, and H4.

Table 10: Multiple linear regression analysis

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig	Unstandardized Coefficients	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	3.042	0.31		9.823	0		
Competitive Strategy	-0.053	0.067	-0.046	-0.79	0.43	0.793	1.26
Network Structure	0.151	0.09	0.104	1.669	0.096	0.685	1.46
Information Technology	0.079	0.066	0.07	1.197	0.232	0.784	1.276

a. Dependent Variable: Competitive Advantage Progression

Moderating effect

For this study, customer relationship management is hypothesised as the moderating effect between competitive strategy, network structure, information technology and competitive advantage progression. We used Hayes (2013) PROCESS modelling for examining moderating interactive effects in regression. According to Hayes (2013), PROCESS modelling helps to generate the interaction when a moderation variable is specified with the X's effect and Y's effect. This study, X's effect are (competitive strategy, network structure, information technology) and Y's effect is (competitive advantage progression). Therefore, this study used the PROCESS modelling to analyse the interaction between the Moderator (customer relationship management) with X's and Y's effect. Hayes (2013) added that PROCESS modelling saves the trouble of calculating the effect as the system will automatically generate a new variable and labelled as 'int_1', this label is the moderating interaction effect between the variables.

Table 11 illustrates the moderator (M) has moderating interaction effect between X (competitive strategy) and Y (competitive advantage progression), thus, the t-value 1.0251 is considered high and indicates there is a moderating effect while the p-value 0.3060 is below 0.05 indicates the significance of the relationship. The moderator (M) has moderating interaction effect between X (network structure) and Y (competitive advantage progression), the t-value 4.6317 is considered high and indicates there is a moderating effect while the p-value 0.000 is below 0.05 indicates the significance of the relationship. The moderator (M) has moderating interaction effect between X (information technology) and Y (competitive advantage progression), the t-value 7.9639 can be considered high and indicates there is a moderating interaction effect while the p-value 0.0000 which is below 0.05 indicates the significance of the relationship.

Table 11: Moderating interaction effect

	coeff	se	t	p
constant	3.9919	.0431	92.6771	.0000
M	.1825	.0671	2.7206	.0068
Competitive Strategy	-.0170	.0552	-.3083	.7581
'int_1'	.0620	.0605	1.0251	.3060
constant	3.8591	.0445	86.6273	.0000
M	.1175	.0708	1.6588	.0980
Network Structure	.2594	.0950	2.7304	.0066
'int_1'	.3954	.0854	4.6317	.0000
constant	3.8314	.0456	83.9783	.0000
M	.1752	.0647	2.7089	.0071
Information Technology	.3070	.0440	6.9728	.0000
'int_1'	.5493	.0690	7.9639	.0000

**0.01,*0.05

Table 12 illustrates the interaction condition of low and high between the X's (competitive strategy, network structure and information technology), Y's (competitive advantage progression) and the moderator (customer relationship management) where both the low and high interaction condition will also affect the customer relationship management. In summary, customer relationship management has a moderating interaction effect between the variables. Competitive strategy is a top management issue and sometimes due to high expectation, the customer relationship management function may affect the relationship between the supply

chain and third-party logistics. The network structure is a supply chain and third-party logistics cooperation issue and sometimes due to high anticipation, the customer relationship management function may affect the network performance. Third-party logistics can execute network activities efficiently and at the same time being alerted with the low customer relationship management. Information technology is a management issue and sometimes due to high dependency, the customer relationship management function may affect due to system interruptions, server down, delay in disseminating information. Third-party logistics can perform with technology equipment and system and at the same time being alerted with the low customer relationship management.

Table 12: Moderating interaction effect

Interaction	M	effect	se	t	p	LLCI	ULCI
Competitive Strategy							
Low	-0.7734	-0.065	0.092	-0.7063	0.4805	-0.2459	0.1159
High	0.7734	0.0309	0.0449	0.6897	0.4908	-0.0573	0.1191
Network Structure							
Low	-0.7734	-0.0464	0.1473	-0.3151	0.7529	-0.336	0.2432
High	0.7734	0.5652	0.0713	7.9287	.0000	0.425	0.7054
Information Technology							
Low	-0.7734	-0.1179	0.0703	-1.6774	0.0943	-0.2561	0.0203
High	0.7734	0.7318	0.068	10.7559	.0000	0.598	0.8656

Conditional effect of X on Y at values of the moderator

Discussion and Conclusion

Despite the enormous advantages, however compare to firms in developed economies, the third-party logistics providers in Selangor is characterised by small to medium level of enterprises, and can't afford huge investment, maintenance and technology upgrade costs as well lack of awareness of logistics market development, skilled manpower, employees training etc., may prevent them from pursuing competitive measures to gain competitive advantage and as such they focus on specialised logistics services to survive. Third-party logistics can execute competitive measures at the same time being alerted with low customer relationship management practices by having a regular integration with supply chains, business partners, and relevant logistics associations and agencies.

This study extends our knowledge on the issues relating to competitive advantage progression of third-party logistics of an emerging economy. The research improves our understanding, by uncovering the existence of differences in the adoption patterns in different economic settings and levels of SMEs manufacturing sector's dependence on third-party logistics services. Consistent with prior empirical works, this study lends credence to competitive strategy, network structure, information technology adoption in the SME third-party logistics sector. While competitive measures appeared as a significant factor in determining the influential factors of competitive advantage on third-party logistics, most of the respondents have responded with positive feedbacks. Table 4 has described each item ranked, all items ranked third and above may deter from re-engineering the competitive advantage progression. Therefore, it is important to plan and consider the competitive items ranked in table 4 and improve the elements stated in Figure 1 on top priority to outsourcing logistics activities in order to meet customer's preferences, satisfaction, product and service improvement and greater competitive capabilities and effectiveness.

This finding confirms that majority of the respondents agreed that competitive strategy does influence competitive advantage progression. Competitive strategy is normally high task demands by the user's management such information, collaboration, ad-hoc changes in scheduling, urgent deliveries, meeting datelines, availability of resources and sudden strategic changes. The competitive strategy is seen as a long-term objective of a particular firm in order to gain a competitive advantage over its competitors in the industry. It is aimed at creating a defensive position in an industry and generating a superior return on investment and it can result in a competitive advantage in the marketplace (Porter, 1980). Based on this study's analysis, there is a significant relationship between competitive strategy and competitive advantage.

In the network structure, the majority of the respondents agreed that it is an influential factor of competitive advantage progression. The result that came out from analysis shows that communications, cooperation, dependency, commitment, relationship, trust, analyzability, and shares a variety of logistics ideas are important in the network structure. Third-party logistics services are more attractive when they meet the customer's expectation to achieve economies of scale. Furthermore, third-party logistics can even out demand variations between the different customers and thereby achieve high resource utilisation. Therefore, to determine the attractiveness of a third-party logistics in this respect for the SME manufacturing industries, one must decide whether the company can achieve sufficient economies of scale through an efficient network structure between both enterprises. Besides, considering efficient network structure, the users of logistics services would probably benefit from outsourcing their logistics activities.

In the information technology, the majority of the respondents agreed that information technology does influence competitive advantage progression. A number of studies have demonstrated various logistics benefits of having information shared with supply chain partners concerning logistics activities. This is because information resources are required to integrate suppliers, manufacturers, wholesalers, retailers, transportation carriers, logistics service providers, and final customers together. Information resources become costly to imitate when they are supported by proprietary technologies and require specific technical skills, and, in some instances, access to capital. Therefore, there is a significant relationship between information technology and competitive advantage progression. The use of technology is very common in today's business environment, especially in the logistics operations. Employees are required to update the operation schedule including the supplier's information and all other relevant details. In this point of view, a delay in delivery can cause bad results in competitive performance. Third-Party Logistics would find themselves in a situation where they have to meet their customer's request and demands, and the use of information technology is central to the logistics activities. If the use of information technology is insufficient or less then the employees of the Third-Party Logistics may find it difficult to monitor and control logistics goods movement and this may create errors and delays and frustration in the logistics operations.

This study recommends that third-party logistics should implement customer relationship management in their business practices and get the facts right the first time. Customer relationship management has been proven by researchers that the attraction of new customers is much more costly than the retention of customers, therefore, firms must have in place adequate measures and activities that are meant to enhance customer satisfaction and retain them while at the same time attracting others primarily through the use of word of mouth advertising. Indeed, all these activities can only be undertaken under an effective and adequate customer relationship practices. Further, this study recommends that third-party logistics must

undertake continuous research to understand the expectations and needs of their customers and develop products and services that satisfy these needs. Finally, this study recommends that third-party logistics firms must enhance communication to enhance effective customer relationship management strategies in addition to the use of customer loyalty programs.

This study offers pertinent theoretical implications to the logistics competitive advantage literature. Our research extends the knowledge on the issues relating to competitive measures adoption in third-party logistics sector of an emerging economy. Despite the existence of much literature to establish the significant benefits of competitive advantage in managing the logistics activities, it is worth noting that third-party logistics providers from emerging economies tend to be laggards in terms of technology acceptance (Razzaque and Sirat, 2001 and Ali et al. 2008). This study also offers different theoretical perspective by uncovering the different impacts of competitive measures in the distinct economic setting. Originating from a developing nation, Malaysia is still in its early growth stage. While most of the previous studies in this area only investigate the antecedents and consequences of performance and capabilities in the isolated framework (e.g. Karia and Wong 2012), this study provides a broader picture by coherently integrated elements in a single model. In response to some scholars (Maloni and Carter 2006; Selviaridis and Spring 2007), who called for supplier-side research, this study supplements the body of knowledge by providing quantitative evidence focusing on logistics users in Selangor, rather than third-party logistics providers.

The present study also has several important managerial implications. Despite the various potential benefits offered by technology, achieving such capabilities is not an easy task. Logistics managers in the local industry have to consider implementing competitive measures from a broader perspective to enhance their competitive capabilities and survival. Since the implementation of performance can easily be duplicated by competitors, the implementation of mature competitive measures in the local industry will eventually lead to insignificant competitive capabilities, hence suggesting a need for firms to contemplate on cutting-edge technologies, which have not yet diffused widely in the third-party logistics sector in Malaysia. This is pertinent since technology capability emerged as one of the important criteria for logistics users in making outsourcing decisions (Lai et al. 2008), causing this strategic move pivotal for the local third-party logistics sector to move forward.

While resources such as information technology are a key input into a firm's business processes, rare and imperfectly imitable assets are needed to achieve a competitive advantage. While increased breadth, depth and scope of competitive knowledge could enhance the third-party logistics growth, successful implementation of strategies, networks and technologies warrants support and commitment from both the enterprises since this strategy involves considerable resource allocation and investments over a long-term horizon. Furthermore, third-party logistics need to attend training programs by industry practitioners and related government agencies to ensure effective use of such technologies. Such steps are vital since the competitive measures and would affect their business processes, inter-organisational relationships and balance of power (Lambert et al. 1998).

This study has several limitations, which must be taken into account in interpreting the results and their implications. Firstly, since this study was conducted in Selangor Malaysia, there may be particular characteristics relating to the SME manufacturing industries that might not apply to other regions, which may limit the generalizability of this study. A second possible criticism is a reliance on cross-sectional data. As such, the present study can only test associations between constructs. Since this type of research design measures the predictors and outcome at one point in a time, causality inferences are difficult to establish (Pinsonneault and Kraemer

1993). The study presented provides avenues for future research. The dimension of competitive measures should be examined in greater depth by extending the survey to a larger sample size from different sources of databases. Future studies should also incorporate perspectives from other developing countries to gain a wider understanding of this issue and to increase the generalisation of the findings. Upcoming research would also benefit from a longitudinal approach to data collection, as this method would enable a more fine-grained exploration of how the predictors and impact of competitive measures change over time. The study could be extended to other regions and comparisons made on their opinions to see whether they significantly differed from Selangor. More variables to be included in the study to give a stronger perception of competitive advantage progression.

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