

A PRELIMINARY REVIEW OF THE ROLES OF ICT IN THIRD PARTY LOGISTICS AND SUPPLY CHAIN MANAGEMENT SERVICES

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Abstract

The main focus of this paper is to present a preliminary review on the roles of Information and communication technology for logistics and supply chain management services of third party logistics service provider in Malaysia. In this study, many academics papers are analysed and reviewed and in their findings, most concentrate on the rate and level of ICT adoption by various logistics and supply chain management firms. A case study of third party logistics service providers was made and a major focus of study that stand out as additional contribution to knowledge was the area of adoption and selection of appropriate ICT tools to be used by these third party logistics service providers to grant them a comparative competitive advantages on others in the field. The study made use of both quantitative and qualitative means to collect the datas from third party logistics providers firms in Malaysia and analysed. The research implication is considered to be an accurate representation of the body of research on ICT adoption and selection of appropriate ICT tools for use by Third party logistics service providers.

Keywords- *Information and communication technology, Logistics services, Supply Chain management, Third Party logistics providers.*

Introduction.

Logistics and Supply chain businesses all over the world are organizing strategic worldwide networks that can deliver both efficient and high quality response to customer s' demand from all over world market segment. This they do in other to withstand international competition. The process of effecient and integrated organisation of these series of activities is often refered to as global logistics or preferably supply chain management (SCM), this in the sector has become the core of global competitive power.

The reasons why logistics and supply chain businesses adopt information and communication technologies can be adduced to the facts that some companies experience low and shrinked margins, competition is also fiercer, globalization has consolidate itself rather enduringly and supply chains have become more extended and dispersed. Also, energy and labour costs are on the rising side, environmental impact are growing due to increasing public awareness of issues at stake, customization can be said to be increasing meanwhile the lifecycle keep reducing, there are costly remediation of shipment errors and delays,(Blanchard 2010; Sarac, Absi et al. 2010; Trkman, McCormack et al. 2010).

Benefits of these ICT tools in logistics and supply management services can not be over emphasise, they enables organizations more coordinations or integration, makes it more smarter, leaner, agile, efficient and more productive. Most of these advantages give most

organization the opportunity to achieve satisfactory level of real time visibility of their resources and coordinate their operations, both internally and with net-work partners. The end result industrial paradigms are e-business, e-commerce, on-demand collaboration, event driven decision support system, and agent based control of supply chains, such as third party logistics supply providers,

Logistics on the other hand can be referred to as the last frontier that even at moment, the improvement of logistics has been the primary source of companies profit and to maintain competitive advantage. Although, there are many instances that logistics system has resulted to bottlenecks in company's overall management. The ability to reduce total cost and make a remarkable improvement in the quality of services provided to the customers can be improved through the bottlenecks elimination. Likewise from the social point of view, an efficient logistics system has been considered to offer possibilities to reduce road congestion and environmental pollution, which could result in increased macroscopic economic productivity as affirmed by (Lambert, Stock et al. 1998).

Logistics system has been advanced through the introduction of several innovations. The innovations can be broadly classified into two parts namely innovations to improve individual processes of logistics as well as innovation to improve the logistic system totally or completely. The former can be said to include innovative hardwares which includes new intermodal terminals with efficient transshipment ability and capacity, also innovative software such as truck route planning with ITS (Intelligent Transport System) and GPS (Global Positioning System). And all these piecemeal innovations can be developed to their full potentials if engaged into improving bottlenecks.

Most often, it is unlikely that companies encounter one bottleneck in their daily business activities and processes. They rather have many potential bottlenecks in such that eliminating one bottleneck leads to the emergence of another one. This makes it more important to control the business process as a system and to develop system management innovations. And among these innovations are Supply Chain Management (SCM) and The Third Party Logistics (3PL) as established by (Mentzer, DeWitt et al. 2001; Ellram, Stock et al. 2006; Tuuli 2010; Bowersox 2011).

The imbibing concepts such as service quality and relationship marketing has changed both the academic study and business practices of logistics alike. Basically and traditionally, Logistics has been considered necessary for connecting production and consumption. From this point of view, a company's logistics function was seen only as a generator of costs with no capacity for differentiation (Ballou 2004). However, this began to change in the mid 1990s when logistics research focused on marketing principles began to analyze the capacity of logistics to deliver quality service hence greater customer satisfaction and loyalty, (Mentzer, Myers et al. 2004; Richey, Daugherty et al. 2007; Dornier, Ernst et al. 2008). As at today, the logistics industry is considered as a classical example of service-based industry development (Chapman, Soosay et al. 2003) and it is concluded that more in-depth studies and research work of logistics are needed from the perspective of supply channels relationships, (Foggin, Mentzer et al. 2004; Knemeyer and Murphy 2004; Lambert, Knemeyer et al. 2004).

And to compliment this, the generalized use of Information and communication technology (ICT) has brought about a far reaching transformation to different business areas and logistics activities is no exception in the business sector. Many aspects of logistics which includes stock and other management, warehousing and transport are prominent logistics activities which can benefit from the new opportunities offered by the technologies to organize new forms of supply chain relationships, however, given the recent relative application of ICT to logistics management, studies show that there is yet no clear understanding of how ICT are applied or of their impact (Feng and Yuan 2006).

Third Party logistics services is referred to a situation whereby a third party rather than the buyer and the seller, i.e. the first and second parties to a transaction, performs logistics activities that could be over formed by either the buyer or the seller. In this sense, the third party provider usually take the possession of the goods but does not take the title and provides its services for a certain price. Third party logistics describe the organizational practice of contracting out part of or all logistics activities that were previously performed in-house, (Bowersox 1990; Aertsen 1993; Sink, Langley Jr et al. 1996). Third party logistics are available in such areas as trucking ,rail ,warehousing and distribution, International and transportation management.

The concepts of 3PL developed from the arising needs to extend transportation services by transportation companies to its numerous customers. Fundamentally, 3PL might be explained as outsourcing of transport and logistics activities to outside companies that are neither consignors nor consignees. Usually, more than one activities are outsourced and it includes storage, warehousing and transportation. It was established by literature that 3PL came into existence during the deregulation of freight transport industry in the 1980s and has progressed in the 1990s along with the development of Information technologies, (Skjoett-Larsen 2000; Lumsden 2007)

Recently, there is an increase in academic interest and publications in the area of third party logistics (3PL). This may be partly due to the growing trend of outsourcing logistics activities in a wide range of industrial sectors (Transport-Intelligence 2004). Consolidation trends within the 3PL industry has also resulted in the emergence of large companies that has the capacities to offers sophisticated logistics solutions on a continental or even global scale.

1.2. Problem Statement

Third Party Logistics Firms that lack agility, are not able to sense and respond to external change as effectively as more agile competitors. And as a result of this inability, market share and profitability decline (Lee, Padmanabhan et al. 1997; Dejonckheere, Disney et al. 2004; Ganguly, Nilchiani et al. 2009) . In contrast, an agile 3PL firms that are able to leverage their capabilities to develop and execute coordinated supply chain responses in a timely and flexible manner through the use of ICT tools, in response to market changes, can achieve a competitive advantage over rivals (Zhang and Sharifi 2000) . The significance of Information and communication in enabling agile competitive moves has increased because of the advantages of ICT tools that are available for managing communication and coordination within the Logistics and supply chain sectors (Moore 2009).

Research Framework and Methodology

This study focus on the assessment of the role of factors militating against the adoption process of ICT tools. Roger's model as adopted by Tan, Razali et al. 2012) will be used and factors considered and focused are relative advantage, compatibility, complexity, image and cost, adoption, selection and integration. All these five factors shall be considered as independent variables to be used to test the agility and strength which determines the competitive advantages of Third party logistics and supply chain providers. The competitive advantage of 3PL shall be considered as the dependent variable.

The first stage of this research study shall be by identifying the companies to be studied, that is the established third party logistics provider in Malaysia. This will be followed by a qualitative study on the various third party logistics service provider's firms and this will be done to provide a first proposal for a questionnaire. Third party logistic service provider firms shall be selected from a benchmark in Malaysia third party logistic industry as potential case

candidates. It shall comprises of all third party logistic providers that are using ICT tools and those that are not using ICT tools in their logistics and supply chain services. High- level managers were to be interview to provide related data experience for the case study.

The questionnaire will be assessed and evaluated by a pre-test which give opportunity for some of the scales used to be scrutinized. Then there will be an adhoc questionnaire which allow some data collection by means of personal interview in field work. The expected sample shall be targeted to be between 195 and 200 companies around Malaysia and they will be contacted through e-mails and telephone calls as the case may arise to arrange a meeting for the personal interview. The targeted group in each company are their Managers and the IT/ICT officers.

There will be characterization of the companies to be examined and it shall be small, medium and large scaled sized companies with an average turnover of Rm5million-30million and between 50 to 200 employees and an average ICT investment of 0.5% of the total turnover, spanning all sectors of various business in Malaysia. This characterization is in perfect agreement with the results reported by (Chuang, Rutherford et al. 2007; Saura, Francés et al. 2008) in which identify company size as a key factor in the adoption of ICT.

The pre- test questionnaire shall be collected and use as a data to be analyzed using PLS software and then case data shall be collected basically through structured face-to-face interviews with managers and the IT /ICT officers of these companies. Aside this, when the need arises, telephone interview with other executive officers of the companies may be conducted to supplement the informations that are gather from the managers and IT/ICT officers during the personal interview to ascertain the autenticity of such informations. Furthermore, for validity and reliability purposes, participants verification of all summaries of various findings of each interview shall be done at the close of each interview session beside the use of structured guidelines that were to be used for all the interviews.

Research Findings, Data analysis and Conclusion

The results of the 5 scale likert questionnaire shall be analyzed with the use of SPSS software while that of the the case studies through interview shall be analyze using QSR Nvivo 9 software analysis. PLS and NVIVO are among the list of computer-assisted quantitative and qualitative data analysis (CAQDAS)which can enhance and facilitate the quality research process, it can quickly process queries and at the same time expand analytical avenues,(Auld, Diker et al. 2007). The findings from this research study is expected to confirm the roles of information and communication tools in the logistics and supply chain management services provided by third party service provider.

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