How to Select Effective Criteria for the Third-Fourth Party Logistics: Roadmap for Thai Automotive Industry

Vichayanan Rattanawiboonsom*

This study proposes a model framework for the selection of effective third party logistics partners for the specific logistics function of Thai automotive organizations. The empirical research of this study is an exploratory investigation into the factors that play important roles in selecting a third-Fourth party logistics provider. This consist of: 1) An extensive literature review, 2) a large sample survey of the Thai automotive organizations that have third party logistics providers for logistics management, and 3) follow-up interviews in the case studies of organizations. This study developed the model framework of the determinant factors for selecting a third-party logistics provider. This model suggests some factors differ from some traditional factors used for supplier selection. It shows how the new factors can be added to a model for the selection of the logistics provider. All fieldwork was conducted in Thailand and, as such, the findings may not be applicable to organizations outside Thailand. Moreover, the conclusions are within the context of developing countries only. In addition, the generalization of the findings of this study is limited to the automotive industry sector only and does not include all manufacturing industry sectors. This paper is the first kind to provide a model framework to relate these benefits to the determinant factors concerned with selection of a third party logistics, in particular for a developing country such as Thailand. Basically, the results of this research will help management make crucial decisions for the third logistics provider issue.

Keywords: the third-fourth logistics provider, Thai Automotive Industry

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1. Introduction

There is a large of literature review covering the subject area of international selecting for the logistics provider. However, there is only a limited amount of literature that addresses the selecting effective criteria Third party logistics provider, in particular for Thai Automotive industry. Robinovich et al., (1999), and Discount Store News (1999) mentioned that in recently years, companies have increasingly embraced one stop logistics services. By allowing companies to concentrate on their core competencies and performances, the third party logistics providers can improve customer service and reduce costs by outsourcing logistics services (pp353-373. The third party logistics provider can act as a lead logistics provider or a fourth party logistics provider aligned with a host of third party logistics providers. Logistics manager need to consider perceived performance, capability and responsiveness as main factors in effectiveness of selecting logistics providers (Menon et al., 1998). This paper explores the major
consideration in searching critical factors for selecting of a third party logistics provider to expedite the movement of goods and information in particular in Thai automotive industry organizations.

1.1 Defining Third and Fourth party Logistics

Term “Third party Logistics (3PL)” describe to the organizational practice of contracting-out part of all logistics activities that performed in house (Aertsens, 1993; Bowersox, 1990; Lieb, 1992; and Sink et al., 1996). 3PL is always linked with the offering of bundled services rather than only transport or warehousing functions (Leahy et al., 1995).

The Term of “Fourth party Logistics (4PL)” has also explained more advanced contracting arrangements in recent years. Van Hoek and Chong (2001, p 463) define the 4PL as “… service provider that participates rather in supply chain coordination than operation services. It is highly information based and coordinates multiple asset-based players on behalf of its clients”.

2. Literature Review

According to some literature relate to logistics provider models (Sink and Langley, 1997) which relate to strategic decision making in organization industrial buying behavior, transportation, purchasing, supplier selection, and logistics relationships. Strategic alliances allow companies to reduce conflict, reciprocate regarding mutual goal related matters, increase efficiency and stability, and establish market place legitimacy (Cooper and Gardner, 1993). Logistics manager consider perceived performance, perceived capability, and responsiveness as important factors in selecting logistics providers (Menon et at., 1998). In general, it appears that market and firm characteristics influence the choice of logistics providers (DammeandAmstel, 1996), and manager achieve customer service improvement and cost reduction by outsourcing.

2.1 Third party Logistics Functions

Robinovich et al.,(1999) and Sink and Langley (1997) classified the outsourcing functions into four categories as shown in Figure1; which are inventory and logistics (such as management freight consolidation, freight distribution, shipment planning, traffic management, inventory management, carrier selection, order entry/management); customer service (such as freight payments, auditing, order, management, fulfillment, help desk, carrier selection, rate negotiation); warehousing (such as packaging, product making, labeling, and warehousing); and transportation (such as fleet management, cross docking, and product return). Among four categories have a validate the interrelationships between transportation and customer service
There is information flow to integrate into four categories. Also, material flow occurs from an integration of transportation and distribution systems.

**Figure 1: Categorization of logistics functions**

Source: Robinovich et al., (1999) and Sink and Langley (1997)

In conclusion, the material flow and information have been theorized to validate the interrelationships to each other function (Lewis and Talalayevsky, 2000). Additional, 3PL provider function can be derived that revolves around the information flow that affects the 3PL provider function.

### 2.2 Factors that Influence success in selecting a third party logistics provider

There have been many studies investigated success factors for third party logistics partnerships (Lambert et al., 1999; Leahy et al., 1995; Murphy and Poist, 2000; Sink and Langley, 1997; Tate, 1996; and Van Laarhoven et al., 2000) as followed:

- cost
- service quality
• responsiveness to requests
• flexibility and reliability
• financial stability
• supplier reputation,
• references from clients and response to information requests
• top management support
• understanding client’s supply chain needs
• common goals
• compatibility of organization culture and routines
• customer orientation
• expert knowledge in a processes, products and specific markets
• management of 3PL relationship
• power balance between contracting parties
• mechanisms for dispute resolution
• provider ability to stay updated to new technologies
• risk, bonus and reward sharing

Furthermore, in the view of the client’s industry, its regulations and products type are perceived as important selection factors by buyers (Aghazadeh, 2003; Sink et al., 1996; Van Damme and Ploss V Amstel, 1996).

In particular, management of 3PL relationship issue is important. The problematic relations is lack of understanding of client’s supply chain needs, lack of in adequate description of services and service levels, lack of logistics cost awareness by the client and lack of 3PL innovation (Ackerman, 1996; Ellram and Cooper, 1990; Wilding and Juriado, 2004). To response the such problems, there are many literature review focuses on issues such as contracts, information exchange and performance measurement (Andersson and Norman, 2002; Boyson et al., 1999; Lambert et al., 1999; and Logan, 2000).

2.3Effectiveness of selection criteria for the Third-fourth Party logistics

There are several criteria logistics service providers (LSP) have been discussed in the literature. These include subjective and tangible benefits such as reputation, service quality and reliability, flexibility, responsiveness to requests, and tangible as cost and financial measurement. Some criteria are developed with specific client needs in mind (Bagchi and Virum, 1996). This study has measured benefits by both subjective benefits and tangible benefits.
2.3.1 Subjective Benefits

With regard to the difficulties in obtaining improved performance measures, there are several studies have decided to measure MRP benefits using buyer’s internal view (Aghazadeh, 2003; Sink et al., 1996; Vaidyanathan, 2003; and Van Damme and Ploss V Amstel, 1996). A set of criteria for subjective measurement includes “quality” (such as compliance requirements for warehousing requirements, ISO procedures for units handling, storing, and preservation, ISO procedures for pick, pack, and ship facilities and quality requirements, ISO procedures for delivery, six sigma and commitment to continuous improvement, facilities and personnel to identify, correct, collect, index, access, file, store, maintain and dispose quality records in accordance with ISO, and training procedures); “service” (such as physical warehousing services, security and scalability services in warehousing, monitoring/Tracking efforts in warehousing, historical delivery and reverse logistics metrics, historical order management metrics, historical transportation Management metrics, customer support services, historical average time to settle warranty claim summarized reports available on monthly basis), and “responsiveness to unexpected events” play predominant role is identified (Vaidyanathan, 2003).

2.3.2 Tangible Benefits

Tangible benefits can be measured as instrumental for assessing the extent of 3PL success and identifying corrective action in case of service failures (Van Hoek, 2001; Wilding and Juriado, 2004). The tangible benefits also can be measured by improvement in tangible measures of selection criteria of 3PL logistics performance. These are delivery timeliness and accuracy, order fill rates, inventory turnover (Wilding and Jurrado, 2004). Furthermore, Vaidyanathan (2003) identified a tangible criteria measurement which includes cost (such as cost of warehousing, cost of transportation, cost of logistic, supply chain and inventory management), shipment and delivery times, and error rates.

3. Methodology

The development of the framework was devised based on both survey and in-depth case studies of effective criteria third-fourth party logistics provider within Thai Automotive industry. In particular, case studies methods were felt that it would be more suitable to provide the in-depth understanding of the success factors in selecting a third
party logistics provider, and benefit measurement. Following the development of framework, the researcher obtained feedbacks and opinions from participants in the automotive industry. The study process was conducted through semi-structured interview with eight participants. They all have knowledge and experience on the effective criteria for selecting the third party logistics. The interviews were recorded and duration of the interviews between 30 minutes and one hour. The researcher obtained the feedbacks and opinions of the industrialists based on their personal knowledge and experience. In general, this multi-method approach allowed for data triangulation (Jick, 1979, 1998; Burgess, 1984; Mentzner and Flint, 1997; and Van Maanen, 1979)

In conclusion, in this study, the mix of survey and follow up case study methods was adopted. The study includes two separate but complementary methods: a questionnaire survey, followed up by semi-structured interviews within case study. In detail, four cases each of important criteria of selection the Third-Fourth party logistics providers have been analyzed. The case comprised of third party logistics function, success factors for third party logistics partnerships, and benefit measurement.

4. The Proposed Framework

The proposed framework has three groups..... Figure2: demonstrated the proposed framework

Figure2: The proposed framework.
The figure 2 combines the main critical factors of selecting the third party logistics which have been subdivided into three groups of factors as shown within *three black ovals*. These are: 1). Contextual Factors, 2). Other Contextual (uncertainty) Factors, and 3). Implementation Factors which are under the control of the company.

In its current shape, the model is a map for any organization thinking about, or already selecting a third party logistics. The diagram allows the organization to focus on all the elements required to make a success selection of third party logistics and maximize effectiveness, and helps avoid expensive pitfalls.

Key elements of the proposed model based on this study, this consists of three groups: group 1: Contextual Factors, group 2: Other Contextual (uncertainty) Factors over which the company has at least some operation control, and group 3: Implementation Factors which are under the control of the company). *Group 1:* the contextual factors’ are the basics for the successful selecting of third party logistics which are not under the control of the company, and cannot be changed. There is factors which are found in this study, and no found in the previous study before; company ownership, company size and company age. *Group 2:* Other Contextual (uncertainty) Factors; behavior of people within the third party logistics companies, mechanisms for dispute resolution, provider ability to stay updated to new technologies, and *Group 3:* ‘Implementation Factors’ which consist of a number of critical factors that the company have to deal with in detail, carefully and attentively in order to achieve a successful selecting third party logistics as measured by the benefits which will be discussed in further detail. These factors are cost, service quality, common goals, flexibility and reliability, risk/bonus and reward sharing, management of third party logistics relationships, power balance between contracting parties, top management support, understanding clients supply chain needs, compatibility of organization culture and routines, customer orientation, expert knowledge in a processes, products and specific markets, responsiveness to requests, and references from clients and response to information requests.

To sum up, the ‘all three groups of factors effect together with successful MRP project implementation as measured by benefits obtained.'
The quantitative and qualitative results in this study confirmed and validated the major critical factors in all three groups in selecting third party logistics. This means that organizations must pay special and continual attention to these critical factor areas, especially the first group, which is contextual factors, group of other contextual factors over which the company has at least some operation control, and implementation factors which are under control of the company in order to ensure success in selecting the third party logistics.

4.1 Success measured by Benefits

From figure 2, all three groups of main factors in the model will directly determine a successful selecting third party logistics, which are measured by both subjective and tangible benefits. There are a variety of both tangible and subjective benefits. These might be delivery timeliness and accuracy, improved order fill rates, inventory turnover reduced cost of warehousing, reduced cost of transportation, reduced cost of logistic, shipment and delivery times, error rates, better quality and service, improved responsiveness to unexpected events, improved job performance ability; whether benefits are obtained during selecting third party logistics through all these three groups of factors.

In conclusion, the model presented in figure 2 has highlighted a number of elements found to be critical to select a third party logistics and all benefits obtained, based on the perception of buyer in the Thai automotive industry organizations. These factors have been divided into three groups of factors. These are Contextual Factors, Other contextual (uncertainty) factors over which the company has at least some operation control, and Implementation Factors which are under control of the company. It is structured in the similar way as the theory and practice discussed in the literature. However, the results from this study regarding the key elements factors of selecting third party logistics were derived. There are differences from the study in the literature review; the proposed model shows that the framework has been categorized into three groups of factors, 1) Contextual Factors, 2) the Other Contextual (uncertainty) Factors
over which the company has at least some operational control, and 3) Implementation Factors. Furthermore, the study found the new factors in the group which are company ownership, size, and age; and Group 2 which are behavior of people within the 3PL companies. These factors have not found in the previous study. The contextual factors are the basics for the successful selecting of third party logistics which are not under the control of the company, and cannot be changed, and should be ongoing throughout all implementation levels (groups). They should be clearly visible and monitored at all stages of selecting the third party logistics.

Finally, as previously mentioned, there are about 18 critical factors within 3 group factors in the literature finding which were regarded as critical factors, but there are 21 critical factors of all 3 factors groups in this study result was regarded as critical factors. Furthermore, there are some factors which this study found, but they had not been discussed in the literature finding before, for instance the company ownership, size, and age; and behavior of people within the third party logistics companies.

5. Summary and Conclusion

The criteria factors of selecting the third-fourth logistics providers framework presented in this paper. The determinant factors of benefit’s framework model are hypothesised to deliver a comprehensive approach to successful selecting third party logistics. Moreover, it is the researcher’s hope that this proposed model will enable managers to develop a truly effective selecting the third party for their organization. Also, this model can help manufacturing companies and supplier to improve their performance such as reduced cost, improved logistics services, inventory management and etc. Using this framework and the factors essential to select third party logistics provider, this must be carefully considered to ensure success of selecting third party logistics. However, this model can be applied to automotive industry companies, in particular Thailand as the empirical study is based on Thailand’s automotive industry.
References


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