

Effective Criteria for Selecting Third-Party logistics Providers: The Case of Thai Automotive Industry

Vichayan Rattanawiboonsom*

This study proposes a framework for the selection of effective third-party logistics partners for the specific logistics functions within the Thai automotive industry. The empirical research undertaken in this study is an exploratory investigation into the factors that play important roles in selecting a third-party logistics provider. The study draws from: 1) an extensive review of the relevant literature; 2) a large sample survey of the Thai automotive organizations that have third-party logistics providers for logistics management; and 3) follow-up interviews as part of the undertaking case studies of some of these organizations. This study proposes a framework constituting the determinant factors essential for selecting a third-party logistics provider. The study suggests that the key determining factors identified under the proposed model differ from some of factors used for supplier selection traditionally. It shows how the new factors can be added to a model for the selection of the logistics providers. The study concludes that there are a number of critical factors to influence a successful selection of third-party logistics as measured by the benefits obtained. These factors have been sub-divided into three distinct but inter-related groups. These are: Group1).Contextual Factors, Group2).Other Contextual (uncertainty) Factors; and Group3).Implementation Factors which are under the control of the company. Furthermore, the finding also identifies some new factors in Group1, (company ownership, size, and age) and in Group 2, (behavior of people within the third-party logistics provides. It is important to note that these factors were not mentioned playing any role in successful selection of third-party providers in previous studies. All fieldwork was conducted in Thailand and, as such, the findings may not be applicable to automobile industry outside Thailand. In addition, the generalization of the findings of this study is limited to the automotive industry sector only, and may not apply to manufacturing sector as a whole. This paper is the first of its kind to provide a coherent framework to relate benefits of an effective logistics management to the determinant factors pertaining to the selection of third-party logistics providers in a developing country context.

Keywords: Third-party logistics providers, Thai Automotive Industry

1. Introduction

There is an extensive literature covering the subject area of selection of international logistics providers. However, there is only a limited literature that addresses the selection of an effective criteria pertaining to third-party logistics providers, in particular for Thai Automotive industry. Rabinovich, E.; Windle, R.; Dresner, M; and Corsi, T (1999) mentioned that in recent 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

*Assistant. Professor. Dr, Faculty of Business, Economics and Communication, Naresuan University, THAILAND Email: vichayanr@nu.ac.th

Rattanawiboonsom

costs by outsourcing logistics services (p354). A third-party logistics provider can act as a lead logistics provider aligned with a host of third-party logistics providers. Logistics managers need to consider perceived performance, capability and responsiveness as main factors in ensuring the effectiveness of the process of selecting

logistics managers need to consider perceived performance, capability and logistics providers (Menon, M.K., M.A. McGinnis, K.B. Ackerman, 1998). This paper explores the major considerations in searching for critical factors for selecting of a third-party logistics provider to expedite the movement of goods and information in Thai automotive firms. It is important to note that, like any other industry sector, the competitiveness of the Thai automobile industry depends on creating, sustaining, and enhancing its cost advantage, while ensuring it create more value for the end users. Effective logistics management can help automobile manufacturing firms to reduce their costs while at the same time creating more value for the end users by satisfying their demand in a timely manner at affordable prices. With an annual production of around 1.5 million vehicles, the Thailand's automobile industry is the largest in Southeast Asia and among the top 10 globally (Santivimolnat, 2012). However, not enough attention has been devoted to critically analyze the role of effective logistics management in enhancing the competitiveness of the Thai automobile industry. By focusing on the formulation of a coherent and an effective criterion for selecting third-party logistics provides, this study makes a concerted effort to fill the missing gap in the relevant literature pertaining to the Thai automobile industry.

1.1 Defining Third and Fourth party Logistics

The term "Third party Logistics (3PL)" describe to the organizational practice of contracting-out part of all logistics activities that performed in-house (Aertsen, 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 study constitutes six sections. Section one provides an introduction. Section two provides an extensive review of the relevant literature, highlighting various dimensions of the logistics provides models. Sections three highlights and discusses the underlying methodology of this study. Section four provides a framework for the proposed third-party logistics provider model of Thai automotive industry. The conclusions drawn from the study are discussed in Section five. And the last section provides limitations.

2. Literature Review

Some literature relate logistics provider models (Sink and Langley, 1997) to strategic decision making in the context of an organization's 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 managers consider perceived performance, perceived capability, and responsiveness as important factors in selecting logistics providers (Menon et al., 1998). In general, it appears that market and firm characteristics influence the

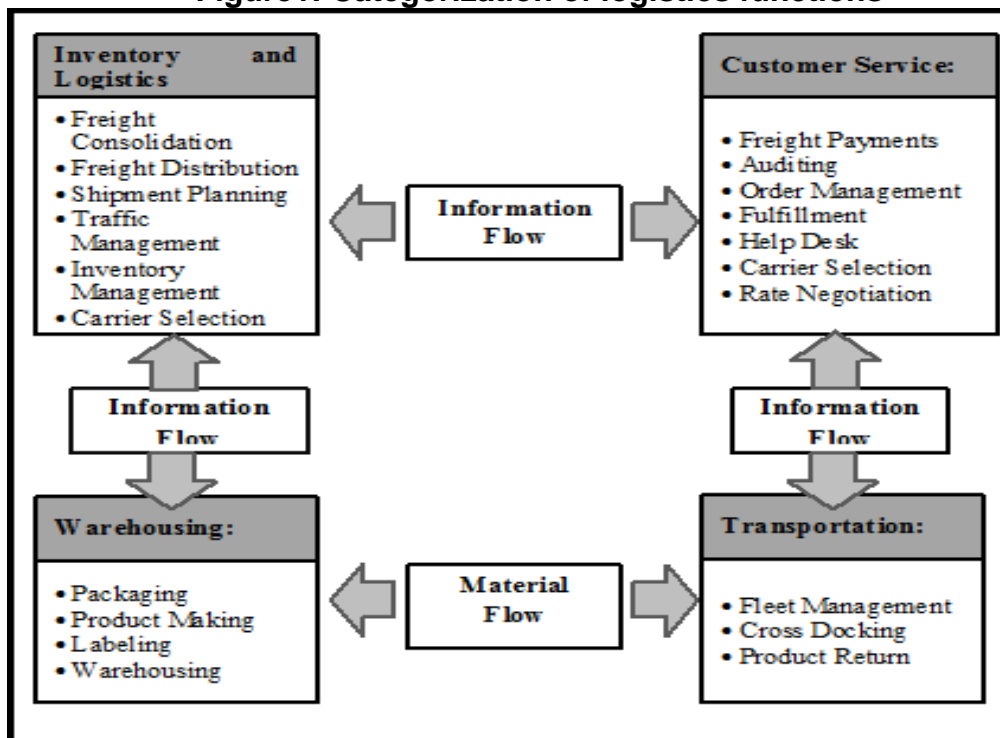
Rattanawiboonsom

choice of logistics providers (Damme and Amstel, 1996), while managers 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. These functions are; a) inventory and logistics (such as freight management consolidation, freight distribution, shipment planning, traffic management, inventory management, carrier selection, order entry/management); b) customer service (such as freight payments, auditing, order, management, fulfillment, help desk, carrier selection, rate negotiation); c) warehousing (such as packaging, product making, labeling, and warehousing); and d) transportation (such as fleet management, cross docking, and product return). The interrelationships exist between transportation and customer service (Robinovich et al., 1999). There is an information flow to integrate into four categories. Also, material flow occurs from integration between transportation and distribution systems.

Figure1: 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 with each other's function (Lewis and Talalayevsky, 2000). Additionally, third-party logistics providers function, that revolves around the information flow and affects the third-party logistics providers function, can be derived.

Rattanawiboonsom

2.2 Factors that Influence Success for Selecting a Third-Party Logistics Provider

There have been numerous studies (Lambert et al., 1999; Leahy et al., 1995; Murphy and Poist, 2000; Sink and Langley, 1997; Tate, 1996; and Van Laarhoven et al., 2000) which investigated the success factors for third-party logistics partnerships. These success factors include:

- 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, the context of 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 third-party logistics relationship issue is important. The problematic relations is a lack of understanding of clients' supply chain needs, lack of inadequate description of services and service levels, lack of logistics cost awareness by the client and a lack of third-party logistics innovation (Ackerman, 1996; Ellram and Cooper, 1990; Wilding and Juriado, 2004). To respond to such problems, there are many studies that have highlighted the issues such as contracts, information exchange and performance measurement (Andersson and Norman, 2002; Boyson et al., 1999; Lambert et al., 1999; and Logan, 2000).

2.3 Effectiveness of Selection Criteria for the Third-Fourth Party Logistics

There are several selection criteria relating to logistics service providers (LSP) that 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

Rattanawiboonsom

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 regards to the difficulties in obtaining improved performance measures, there are several studies that have taken the measurement of success for selection of a third-party logistics provider as benefits obtained 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 a subjective measurement that includes the following three attributes have been identified as playing predominant role subjective measurement (Vaidyanathan, 2003):

- a. 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).
- b. Service: This includes, 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).
- c. Responsiveness to unexpected events.

2.3.2 Tangible Benefits

Tangible benefits can be viewed as instrumental for assessing the extent of third-party logistics success and identifying corrective actions in case of service failures (Van Hoek, 2001; Wilding and Juriado, 2004). The tangible benefits can also 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 measurement criteria, 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 two separate but complementary methods which include a questionnaire-based survey and in-depth case studies pertaining to effective criteria utilized by third-party logistics providers within the Thai Automotive industry. The use of case study approach was necessitated by the fact

Rattanawiboonsom

that this method is more suitable to provide an in-depth understanding of the factors that underpin selecting third party logistics providers. Following the development of the framework, feedback and opinions were obtained from participants in the automotive industry. The case studies were conducted through semi-structured recorded interviews with eight participants. The participants had the knowledge and experience on the effective criteria for selecting the third-party logistics providers. The industry experience and knowledge, the interviews, and the feedback by the respondents, provided a deep insight into the criteria for selecting third-party logistics. The approach followed the current study is in line with the multi-method approach that allows data triangulation (Jick, 1979, 1998; Burgess, 1984; Mentzner and Flint, 1997; and Van Maanen, 1979).

4. The Proposed Framework

The proposed framework has three elements or groups as depicted in Figure 2.

Figure2: The proposed framework.

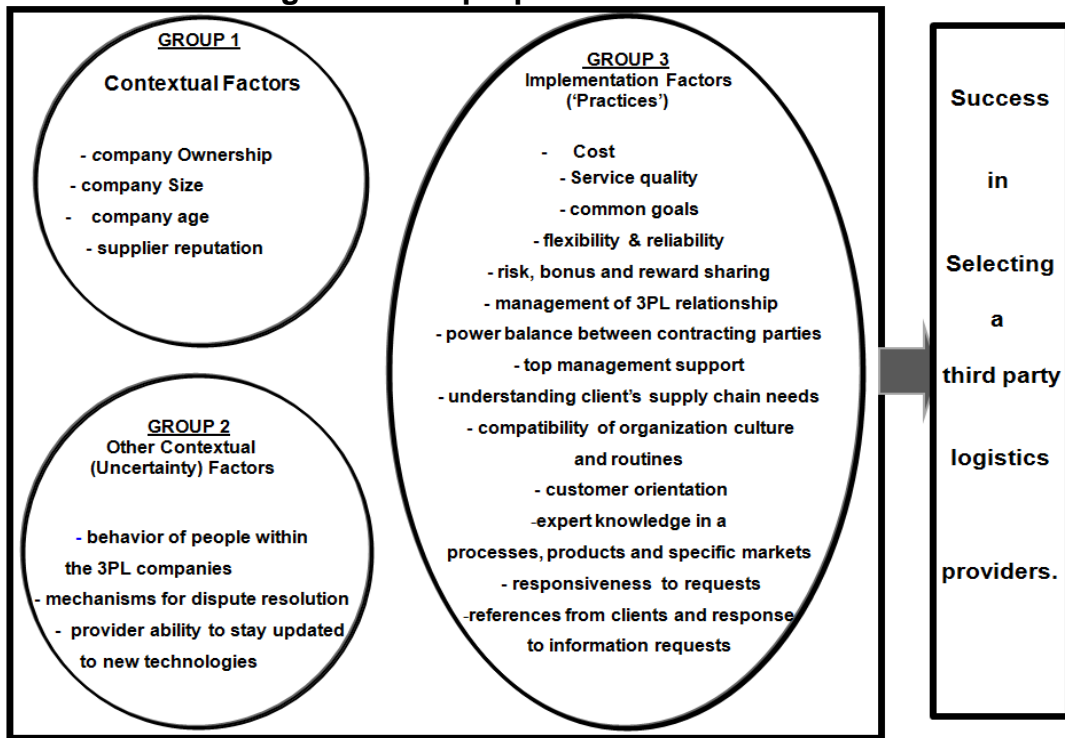


Figure 2 combines the main critical factors of selecting the third-party logistics providers. These factors have been subdivided into three groups as shown by *three blackovals*. These are: 1).Contextual Factors, 2).Other Contextual (uncertainty) Factors; and 3).Implementation Factors which are under 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 provider. The diagram allows the organization to focus on all the elements required to make a successful selection of third-party logistics providers, maximize effectiveness of their efforts, and avoid expensive pitfalls.

Rattanawiboonsom

As noted above, the key elements of the proposed model are consist of three groups:

Group 1: Contextual Factors: The contextual factors form the basis for successful selecting of third-party logistics providers, which are not under the control of the company, and cannot be changed. The factors identified in this study, but were not previously found in the literature, include: company ownership, company size and company age.

Group 2: Other Contextual (uncertainty) Factors: These are the factors over which the company has at least some operational control and include; behavior of people within the third-party logistics providers, mechanisms for dispute resolution, and providers' ability to stay updated with new technologies.

Group 3: Implementation Factors: These factors are under the control of the company and consist of a number of critical factors that the companies have to deal with in detail carefully and attentively in order to achieve a successful selection of third- party logistics providers. Whereas the success is measured by the benefits emerging from the execution of this selection process. The Group 3 factors include 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, factors from all three groups work in tandom and influence a successul selection of third- party logistics as measured by the benefits obtained.

The quantitative and qualitative results in this study confirmed and validate the major critical factors in all three groups in selecting third-party logistics providers. This implies that organizations must pay special and continual attention to these critical factor areas in each of the three groups as noted above. The interplay of these factors is crucial to ensure success in selecting the third party logistics providers.

4.1 Success Measured by Benefits

As highlighted in Figure 2, factors in all three groups in the proposed model directly determine a successful selection of third-party logistics providers, where success is being measured by both subjective and tangible benefits. These benefits 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, reduction in error rates, better quality and service, improved responsiveness to unexpected events, and improved job performance ability.

In conclusion, the model presented in Figure 2 highlights a number of elements found to be critical in selecting a third-party logistics provider and the resulting benefits obtained, based on buyer's perception in the Thai automotive industry. These factors have been divided into three groups. These are Contextual Factors, Other Contextual (uncertainty)

Rattanawiboonsom

Factors, and the Implementation Factors. The model follows the same line of reasoning as postulated in theory and practice. However, this study adds to the relevant literature by identifying the factors necessary for a successful selection of third-party logistics provider. The proposed model categorized these success factors into three identifiable groups that interact with each other to provide the best solution in terms of the selection of third-party logistics providers. Furthermore, the study also identifies some new factors in the Group1, (company ownership, size, and age) and Group 2 (behavior of people within the third-party logistics providers. It is important to note that these factors were not mentioned playing any role in the successful selection of third-party providers in previous studies. The study emphasises that the contextual factors are the key for the successful selection of third-party logistics providers. Their significance stems from the fact that these factors are not under the control of the company, and cannot be changed, and should be paid attention to throughout the implementation phase.

Finally, while the previous studies have identified 18 critical factors within the three groups, this study contends that there are 21 critical factors across these groups that together impact the successful selection of third-party logistics providers. Furthermore, the study also includes factors that have been ignored in the literature, such as the company ownership, size, and age; and behavior of people within the third-party logistics providers.

5. Summary and Conclusion

This study adds to the current literature by purposing a model that helps to identify key factors in a successful implementation of third-party logistics providers. By providing a direct link between a conceptual and a practical framework and potential benefits of implement this framework, the paper provides a comprehensive approach to successfully selecting third-party logistics providers. Moreover, the proposed model provides a tool to enable managers to develop a truly effective framework for selecting the third party logistics providers for their organizations. Also, this model can help manufacturing companies and suppliers to improve their performance in the form of reduced cost, improved logistics services, and quality inventory management.

6. Limitations

It is important to note that this paper is limited in scope as it based on survey and only eight interviews. Further, the focus of this study is on the automobile industry in Thailand only. A generalization and a wider application of this study, however, would require expanding more interviews and the sample size, and inclusion of other segments of the manufacturing sector in Thailand. Further, a comparative study of other ASEAN countries, which are at the same level of development, would add to the existing body of literature.

References

Ackerman, KB 1996, 'Pitfalls in logistics partnerships', *International Journal of Physical Distribution and Logistics Management*, vol. 26, no.3, pp35-7.

Rattanawiboonsom

- Aertsen, F 1993, 'Contracting-out the physical distribution function: a trade-off between asset specificity and performance measurement', *International Journal of Physical Distribution and Logistics Management*, vol. 23, no.1, pp23-9.
- Aghazadeh, SM 2003, 'How to choose an effective third party logistics provider', *Management research News*, vol.26, no.7, pp 50-8.
- Andersson, D and Norman, A 2002, 'Procurement of logistics services: a minute's work or a multi-year project?', *European journal of Purchasing & Supply Management*, vol.8, pp3-14.
- Bagchi, PK and Virum, H 1996, 'European logistics alliances: a management model', *Journal of Logistics Management*, vol19, no.1, pp 93-108.
- Bowersox 1990, *Logistical Management: The Integrated Supply Chain Process*, McGraw Hill, New York.
- Boyson, S, Corsi, T, Dresner, ME, and Rabinovich, E 1999, 'Managing effective 3PL relationships; what does it take?', *Journal of Business Logistics* vol.21, no.1, pp 73-100.
- Burgess, R 1984, *In the Field: An Introduction to Field Research*, George Allen and Unwin Ltd., London, UK.
- Cooper, MC and Gardener, JT 1993, 'Building good business relationships: More than partnering or strategic alliances?', *International Journal of Physical Distribution and Logistics Management* vol.23, no.6, pp14-26.
- Discount Store News 1999, 'Outsourcing reverse logistics push into high gear', *Discount Store News*, March 22, vol.38, no.6, p8.
- Ellram, LM and Cooper, MC 1990, 'Supply chain management partnership and the shipper- third party relationship'. *International Journal of Logistics Management*, vol.1, no.2, pp1-10.
- Jick 1979, 'Mixing qualitative and quantitative methods: Triangulation in action', *Administrative Science Quarterly*, vol.24, pp.602-622, December.
- Lambert, DM, Emmelhainz, MA and gardner, JT 1999, 'Building successful logistics partnerships', *Journal of Business Logistics*, vol. 20, no.1, pp 165-81.
- Leahy, SE, Murphy, PR and Poist, RF 1995, 'Determinants of successful logistical relationships: a third party provider perspective', *Transportation Journal*, vol.35, no.2, pp5-13.
- Lewis, I and Talalayevsky, A 2000, 'A third party logistics leveraging information Technology', *Journal of Business Logistics*, vol.21, pp 173-185.
- Logan, MS 2000, 'Using agency theory to design successful outsourcing relationships', *International Journal of Logistics Management*, vol. 11, no.2, pp.21-32.
- Menon, MK, McGinnis, MA and Ackerman, KB 1998, 'Selection criteria for providers of third-party logistics service: An exploratory study', *Journal of Business Logistics*, vol. 19, no.1, pp 121-137.
- Mentzner, JT and Flint, DJ 1997, 'Validity in logistics research', *Journal of Business Logistics*, vol.18, no.1, pp 199-216.
- Murphy, PR and Poist, RF 2000, 'Third party logistics: some user versus provider Perspectives', *Journal of Business Logistics*, vol. 20, no.1, pp121-33.
- Rabinovich, E, Windle, R, Dresner, M and Corsi, T 1999, 'Outsourcing of integrated logistics functions: An examination of industry practices', *International Journal of Physical Distribution & Logistics Management*, vol. 29, no. 6, pp.353 – 374.

Rattanawiboonsom

- Santivimolnat, Santan (18 August 2012), '2-million milestone edges nearer', *Bangkok Post* (The Post Publishing).
- Sink, HL and Langley, CJ 1997, 'A managerial framework for the acquisition of third-party logistics services', *Journal of Business Logistics*, vol. 19, no.1, pp 121-136.
- Sink, HL, Langley, CJ and Gibson, BJ 1996, 'Buyer observation of the US third party logistics market', *International Journal of Physical Distribution & Logistics Management*, vol. 26, no. 3, pp 38-46.
- Tate, K 1996, 'The elements of successful logistics partnerships', *International Journal of Physical Distribution & Logistics Management*, vol. 26, no. 3, pp 7-13.
- Vaidyanathan, G 2003, 'Evaluating third-party logistics', *Communication of the ACM*, vol. 48, no. 1, pp 89-94.
- Van Damme, DA and Ploss, V Amstel 1996, 'Outsourcing logistics management Activities', *International Journal of Business Logistics*, vol. 19, no. 1, pp 85-94.
- Van Hoek, RL and Chong, I 2001, 'Epilogue: UPS logistics- practical approaches to the e-supply chain', *International Journal of Physical Distribution & Logistics Management*, vol. 31, no. 6, pp 463-8.
- Van Laarhoven, P, Berglund, M and Peters, M 2000, 'Third party logistics in Europe-five years later', *International Journal of Physical Distribution & Logistics Management*, vol. 30, no. 5, pp 425-42.
- Van Maanen 1979, 'Reclaiming Qualitative Methods for Organisational Research: A Preface', *Administrative Science Quarterly*, vol24, no.4, pp. 520-526.
- Wilding, R and Juriado, R 2004, 'Customer perceptions on logistics outsourcing in the European customer goods industry', *International Journal of Physical Distribution & Logistics Management*, vol. 34, no.8, pp 628-44.