Proceedings of the 11th Annual Conference
of Asia Pacific Decision Sciences Institute
Hong Kong, June 14-18, 2006, pp. 535-538.

ADDING VALUE THRUOGH OUTSOURCING: CONTRIBUTION OF 3PL SERVICES TO CUSTOMER PERFORMANCE

Damien Power[1], Moosa Sharafali[1] , Vikram Bhakoo[2]

[1]Department of Management, Faculty of Economics and Commerce,
University of Melbourne, Parkville, VIC 3010. Australia
[2]Department of Management, Faculty of Business and Economics,
Monash University, Caulfield East, VIC 3145, Australia
EMAIL: damien@unimelb.edu.au, moosa@unimelb.edu.au, vikram.bhakoo@buseco.monash.edu.au

ABSTRACT

This paper is based on the research we undertook to understand the state of the 3PL (Third Party Logistics) industry in Australia. To this end, we surveyed both the logistics service providers and their customers in Australia. This study builds on the work of three previous studies conducted within the Australian 3PL industry. This paper is confined to the customer survey. One of our aims in this research was to understand how customers perceive their logistics service providers in terms of achieving the claimed benefits of outsourcing. We identified some of the business outcomes to which logistics outsourcing is expected to contribute. Customers were asked to rate their principal 3PL's contribution to these performance indicators. We used the 3PLs competitive priorities, the services provided by them and technologies used by them as predictors and performed regression analysis for each of these. We present the results on how customers value their service providers as contributing to their performance.

Key words: 3PLs, Value of 3PLs to customers, Australia, Regression Analysis

INTRODUCTION

Companies in various industries have been outsourcing their logistics activities for years and are continuing to do so. Among the logistics activities outsourced, the majority were the point-to-point transportation activities. However, in recent years, there is an increased demand to outsource the other logistics activities such as warehousing, freight payment and consolidation, transportation planning among many others. This increased demand for such services has spurred the growth of many 3PL providers. In fact the 3PL industry is maturing fast. Consequent to the increased demand placed on these service providers and in the variety of services expected of them, the 3PLs also have evolved to operating with different business models [9].

Due to the promise and potential found in this industry, a sizeable portion of logistics literature in recent times focuses on logistics outsourcing. However, the vast majority of work in this logistics outsourcing area focuses on the type of activities outsourced, reasons and benefits of logistics outsourcing in general. It is noteworthy that a few of the researchers have discerned the steady growth of the industry and have closely observed the developmental phases some of these service providers have gone through. Starting with simple transaction based services, some of the service providers have developed into a more matured state of providing management oriented services, in addition to providing the physical infrastructure oriented services like warehousing and transportation. Thus, the industry has undergone a phenomenal growth in terms of size and the service offerings. There is very stiff competition in the industry resulting in customers' pressure for more and highly reliable services at lower costs. While a majority of the authors have reported improved performance for customer companies due to outsourcing there are also reports of unsuccessful relationships. Some of the reasons for such failed relationships have been found to be mismatch of goals and expectations and flaws in contracts [1] [7]. It is quite apparent that in such an environment, the success of 3PLs very much depends on how their customers perceive them to be adding value to their cause. Realising the importance of this issue, several authors have been researching into customer views of their service providers. This paper is one such attempt in that direction, especially related to the Australian 3PL industry and their customers. To this end, we embarked on a survey based research. We surveyed both the service providers and the customers through the Logistics Association of Australia spread out in the five states of Victoria, New South Wales, Queensland, South Australia and West Australia. This paper is confined to the customer survey. Based on a review of the literature, we identified some of the business outcomes to which logistics outsourcing is expected to contribute. Customers were asked to rate their principal 3PL's contribution to these performance indicators. We used the 3PLs competitive priorities, the services provided by them and technologies used by them as predictors and performed regression analysis

for each of these. To our knowledge, this is the first work of this kind in the literature.

In what follows, we first provide a brief review of the related literature. In the next section, we describe the purpose of this research and methodology used. We then provide a discussion on the findings of the survey. The final section summarises the findings together with some concluding remarks.

LITERATURE REVIEW

A detailed study of the literature reveals the fact that many of the earlier studies on the growing 3PL industry have been only surveys of customers but they mainly concentrated on the benefits of outsourcing, criteria for selecting the 3PLs, management of relationships etc. These were mostly studies on either providers or customers. To our knowledge the first work comparing the views of both the providers and the customers was by Murphy and Poist [10]. Their important finding was that there was a mismatch between what services were offered and what were required. Also, providers seemed to have a higher satisfaction than the customers. Gibson et al [6] consider the critical success factors for the relationship to succeed. Their study revealed the differences in how the shippers and the providers prioritize the success factors. Most importantly it was alarming to note that both expressed extremely low satisfaction with the other's performance with respect to cost. Both the groups ranked high the attributes of effectiveness and trust. But this important work was focused on only the transportation industry. Stank et al [14] analysed the relationship of service performance, customer satisfaction, customer loyalty and market share for the 3PL industry using a survey on customers. Using Structural Equations Modeling, they established results that supported their earlier findings that relational performance is antecedent to operational and cost performances. Dai et al. [3] conducted a survey of the users of logistics services in China. As China is a booming market, the 3PL industry is just evolving with both local and foreign logistics service providers competing for the share of the market. The study has revealed the positive perception of the users of the service providers in terms of value they offer. Surprisingly, the users have expressed higher satisfaction with the local 3PLs than with the multinational 3PLs.

Other notable studies of customer perceptions of 3PLs are [2], [8], [12] [9]. Bhatnagar et al [2] surveyed the logistics outsourcing scene in Singapore. They found that there was a high level of satisfaction experienced by the customers and consequently they predicted increased use of logistics outsourcing in Singapore in future. Knemeyer et al [8] were concerned with relating logistics outsourcing with relationship marketing. Sohail et al [12] examined the logistics outsourcing by companies in Ghana. Langley et al. [9] have been conducting annual surveys of companies outsourcing logistics services gradually expanding the scope of their study in terms of the research questions and also in terms of the geographical regions. Their 2005 study was global which included the Asia-Pacific and Australia.

Recently, Gattorna et al [5] surveyed the Australian logistics service providers and the customers. This is an important study for us as this paper is also focused on the Australian logistics service provider scenario. With regard to customer perceptions about the 3PLs' performance, Gattorna et al recorded that 90% of the shippers (or customers) are satisfied with 3PL services. However, they also noted the survey exhibited differing priorities and business approaches between customers and the 3PLs. Other important works on Australian 3PL industry are Dapiran et al. [4] and Sohal et al. [13]. Both the works are surveys of customers only unlike the researches mentioned above. Sohal et al [13] used the same survey instrument as [4] and so were able to provide a comparison and the changes that have occurred in the time between the two surveys. The customers expressed concerns with regard to the 3PLs understanding of the users' business requirements and policies.

PURPOSE AND METHODOLOGY

The main purpose of this study was to understand the industry of logistics service providers in Australia with a view to examining the question of how synchronized the service providers are with their customers' expectations and how satisfied the customers are with the service providers. As pointed out above, there have been only a handful of studies on the Australian 3PL scene ([4] [13] [5]). The first two papers are indeed valuable contributions to the literature, especially for Australia, in gaining a better understanding of the users' perceptions of using third party logistics providers but they lack the input from the providers as they were mainly surveys of customers. Gattorna et al study evaluated the shippers as well as the service providers perspectives. Our work is different from Gattorna et al in that we relate the customer perception of value from 3PLs to the 3PLs competitive priorities, services provided and technologies used through a regression model.

Our research propositions in this paper are:

1. As perceived by the customers, 3PLs' objectives have significant contribution to customers' performance.
2. The 3PL service offerings in general significantly impact the customer ratings of 3PLs' contribution to their performance.
3. The technologies used by 3PLs impact on customer performance indicators.

Accordingly, we developed the following research hypotheses:

1. There is significant association between 3PLs' competitive priorities and customer performance.
2. There is significant association between 3PLs' service offerings and customer performance.
3. There is significant association between 3PLs' use of technologies and customer performance.

To test the hypotheses developed we decided to run a survey of the Australian industry. The instrument for the

survey was designed based on earlier surveys and the survey of the literature. Specifically, we followed closely Gattorna et al. [5], Sum and Teo [15] and Sum et al. [16] in addition to other suveys. The questionnaires were mailed to the various branches of LAA (Logistics Association of Australia). The branches in turn mailed the survey forms to 2140 members of the Logistics Association of Australia covering all the states of Australia. The survey was conducted in the second half of 2005. Two separate survey instruments were designed – one for providers of 3PL services; the second for users of services provided by 3PL's. 53 questionnaires were returned unfilled. This survey yielded 178 responses – 106 being from 3PL service providers and 72 from customers of 3 PL service providers(giving an overall response rate of 8.5%). The results were then analysed using the statistical software analysis package SPSS. This paper is confined to the customer survey.

SURVEY FINDINGS

Respondent Demographics

Respondents to the survey of customers of 3PL service providers came from the Manufacturing, Wholesale and Retail sectors, with a wide range of other industries and sectors represented in the minority. Around 57% of these companies have global operations.

We now describe our findings below.

Customer's Business Performance

We identified some of the business outcomes to which logistics outsourcing is expected to contribute. They are: Customer Satisfaction, Inventory Control, Capacity Management, Productivity, Service Quality, Flexibility, Sales Growth, Net Profit, Cycle Times, Cash Flow, General Cost Management, Backlog Management and Transportation Cost Management. Customers were asked to rate on a 1 (Low contribution) to 5 (High Contribution) Likert scale, their principal 3PL's contribution to these performance indicators. We then embarked on relating the 3PLs' competitive priorities as perceived by the customers, the services offered by them and the technologies they used.

3PL's competitive priorities on Customer Performance

As pointed out above, we identified a range of 10 competitive priorities for the 3PL service providers. They are Lower Cost, Higher Quality, Higher Variety, More Responsive, More Flexible, Highly Secure, More Innovative, Packaged Solutions, Customised Solutions and Total Solutions. Users of 3PL services were asked to provide an assessment of the competitive priorities of their major 3PL service provider. They were asked to rate on a 1 (Not at all) to 5 (To a Great Extent) Likert scale, the extent to which their major 3PL service provider is seen to be following each of these competitive priorities. We then performed a regression analysis on the contribution to performance with the competitive priorities as the regressor. Some of the major findings are:

- As perceived by the customers, 3PLs' objectives have significant contribution to customers' performance.
- For example, customers indicate that 3PLs objectives of providing high quality services, highly secure services, highly innovative services, providing packaged solution and customized solutions contribute significantly to customers' flexibility.
- Similarly, customers felt that if 3PLs provide high variety of services then that would significantly enhance customer satisfaction.
- For the customers' bottom line, the contribution comes through 3PLs high quality, highly responsive, more flexible, highly innovative and customized solutions offerings.

3PL service offerings on Customer Performance

The customers were asked to rate on a 1 (Not at all) to 5 (To a Great Extent) Likert scale, the extent of the various services provided by their major 3PL provider. The services identified were Transportation, Warehousing, Inventory Management, Logistics Coordination, Carrier Selection, Reverse Logistics, Supply Chain Management Services, Freight Forwarding, Rate Negotiation, Electronic Funds Transfer, Product Assembly, Customer Spare Parts, Marketing Services, Security Services, Project Management, Logistics Information and IT solutions. We then regressed the 3PL contribution to customer performance on the extent of these service offerings. Some of the findings are:

- The 3PL service offerings in general significantly impact the customer ratings of 3PLs contribution to performance only in Inventory Control, Flexibility and Net Profit.
- Warehousing services and Marketing services of the 3PLs explain significantly variation in Inventory performance.
- Carrier selection and logistics information services provided by 3PLs explain the variation in the ratings on Flexibility.
- Logistics Coordination and Marketing Services explain the variation in ratings of 3PLs contribution to the bottom line of customers.

Technologies used by 3PL on Customer Outcomes Ratings

The recent decade has witnessed an increased use of Information and Communication Technology in almost all business areas. Especially in the area of logistics there is an increase demand for the use of new technologies like Bar

codes and RFID. So, we wanted to test the contribution of these technologies used by the 3PLs to the customer's outcome ratings. Customers were asked to rate on a 1 (Low) to 5 (High) Likert scale the extent of these technologies used by their major 3PL. Some of the technologies we identified were; Advance Shipment Notification, Automated Storage Retrieval Systems, EDI, XML/EDI, Bar-coding, RFID, Voice Input services, Portal Technologies, The Internet, RF Communications, EAI, Electronic Marketplaces, Extranets, Intranets, Satellite Communication Technology, DSS, WMS etc. We again regressed customer output ratings on the extent of usage of these technologies. We found some surprising results in this section.

- Only certain technologies impact on specific customer performance indicators. It is surprising to note that none of the technologies is perceived to be contributing to bottom line, possibly due to the high costs associated with them.
- But there is a view that technologies like Advance Shipment Notification, Voice Input Interfaces, Intranets, ERP and Satellite Communication Technology help General Cost Management.

RESEARCH LIMITATIONS/IMPLICATION

The main limitation of this paper is that it is confined to Australia. So, any extensions of the findings to other regions of the world should be done with caution. We also highlight that we have limited ourselves in this paper to simply report our findings. A comprehensive and more detailed study and analysis would be published elsewhere.

CONCLUSION

In this research, we have studied the customer view of the value provided by their logistics service providers. We have identified what the customers feel about the 3PLs competitive priorities, services offered and technologies they use that impact on customer performance. The study will help the 3PL providers especially in Australia, to know what customers expect them to do in terms of the service offerings and also the technologies required. Customers expect 3PLs to align their objectives with those of their customers.

REFERENCES

[1] Ackerman, K. B. "Pitfalls in logistics partnerships," *International Journal of Physical Distribution and Logistics Management*, 1996, 26(3), 35-37.
[2] Bhatnagar, R., Sohal, A.S. and Millen, R. "Third party logistics services: a Singapore perspective," *International Journal of Physical Distribution & Logistics Management*, 1999, 29(9), 569-587.
[3] Dai, J., Wang, Y, Wong, N., Wang, D., Liu, X and Li, R. 2003. "China Logistics User Survey," *Research Report*, The Logistics Institute – Asia Pacific, National University of Singapore, 2003.
[4] Dapiran, P., Lieb, R. Millen, R. and Sohal, A. "Third party logistics services usage by large Australian firms," *International Journal of Physical Distribution & Logistics Management*, 1996, 26(10), 36-45.
[5] Gattorna, J., Selen, W. and Ogulin, R. Characteristics, Strategies and Trends for 3PL/4PL in Australia, *Research Report*, Alpha Research Consortium, 2004.
[6] Gibson, B. J., Rutner, S. M. and Keller, S. B., "Shipper-carrier partnership issues, rankings and satisfaction," *International Journal of Physical Distribution & Logistics Management*, 2002, 32(8), 669-681.
[7] Greco, J. "Outsourcing: the new partnership," *Journal of Business Strategy*, 1997, 18(4), 48-55.
[8] Knemeyer, M., Corsi, T. and Murphy, P. R. "Logistics Outsourcing Relationships: Customer Perspectives." *Journal of Business Logistics*, 2003, 24(1), 77-109.
[9] Langley, C. J., G. R. Allen, Colombo, M. J. and Dale, T. A.. "Third-Party Logistics Study: Results and Findings of the 2004 Ninth Annual Study," Georgia Institute of Technology, 2005.
[10] Murphy, P. R. and Poist , R. F. "Third-party logistics usage: An assessment of propositions based on previous research," *Transportation Journal*, 1998. 37(4), 26-35.
[11] Murphy, P.R. and Poist, R.F. "Third-party logistics: Some user versus provider perspectives," *Journal of Business Logistics*, 2000. 21(1), 121-133.
[12] Sohail, M. S., Austin, N. K. and Rushdi, M. "The use of Third-Party Logistics Services: Evidence from sub-Sahara African Nation," *International Journal of Logistics: Research and Applications*, 2004, 7(1), 45-57.
[13] Sohal, A., Millen, R., and Moss, S. A comparison of the use of third-party logistics services by Australian firms between 1995 and 1999, *International Journal of Physical Distribution and Logistics Management*, 2002 32(1), 59-68.
[14] Stank, T. P., Goldsby, T. J. and Vickery, S. K."Logistics service performance: Estimating its influence on market share." *Journal of Business Logistics*, 2003, 24(1), 27-46.
[15] Sum, C.-C. and C.-B. Teo, "Strategic posture of logistics service providers in Singapore," *International Journal of Physical Distribution & Logistics Management*, 1999. 29(9).
[16] Sum, C.-C., Teo, C. B. and Ng, K. K. "Strategic Logistics Management in Singapore," *International Journal of Operations and Production Management*, 2001. 21(9).