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Research Report: MISI-2013-2
Logistics service outsourcing in a multi business firm
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Logistics service outsourcing in a multi business firm

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Summary: Logistics outsourcing is a part of logistic activity belong to the value added activities in the value chain of each company. In a multi-business corporation each business units has this value-added activity and they have to decide about most efficient and effective way of handling this activity. This study aims to investigate decision making about logistics service in a multi-business firm especially for the firm who has its own logistics business unit. This work develop framework from three main theories; transaction cost economic, resourced based view and network theory. Based on a historical and regression analysis of transaction costs data, it was found positive relationship between transaction cost and number of outsourced transaction. Through logistics resource and capability analysis, it might be better for benefit of whole group to maximize the utilization rate of internal logistics capability. Also, it will gain some fresh knowledge and expertise through working with a network of companies.



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KEY INSIGHTS

1. Total transaction cost positively depends on number of outsourced transaction.
2. Internal logistics business unit has a powerful capability because of the huge number of experienced human resource. Among those capabilities, service mind and entrepreneurial spirit are considered as vital characteristics.
3. TPLs could play the best role in network availability while they are not mature enough to satisfy business units as a network contribution.

Introduction

Unlike any multi business firms, multi-business companies that have their own logistics business unit are facing the dilemma in logistics service outsourcing.

Leveraging resource capability in the company and utilizing efficient business processes are both the top business priority. Transaction costs could reflect the redundancy or efficiency in the multi-business company's transaction process.

The logistics service business unit, shared service centers focused on supply chain activities, is a cross-functional as well as cross-business unit. Transaction costs may be higher from double processing when each unit has its own outsourcer and finally reflect in-efficiency in the companies.

Grounding upon three main theoretical foundations, transaction cost economics (TCE), resources-based theory (RBT) and network theory (NT), and literature reviews, this research-aims to develop a conceptual model for logistics service outsourcing in a multi-business firm which has logistics service as one of the businesses and validate the framework through a case study in an industrial conglomerate.

Specifically, it is to investigate how outsourcing decisions are being made in light of economizing transaction costs, exploiting using logistics service provider in the group, or TPL's logistics resources and capabilities and possible network benefits in case of using TPLs for logistics services.

Conceptual framework

Conceptual framework developed from those related literature review and theories could be illustrated as picture below.

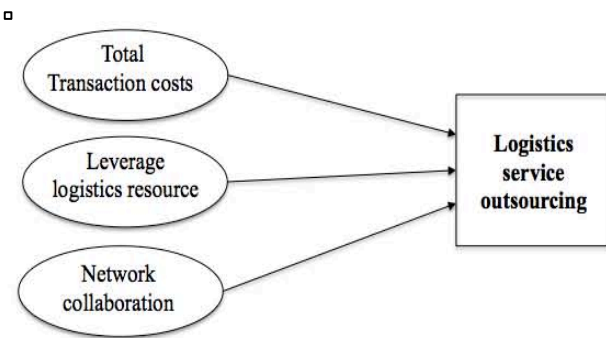


Figure 1: Conceptual Framework

For a multi-business firm, could be done in two ways. The first one is promoting SSC (through existing Logistic business unit) in organization or outsourcing to Third Party Logistics (TPLs). Both ways impact the organizations in terms of efficiency (cost and resource utilization) and competitive advantage. Moreover, the firm will benefit from network collaboration. The decision would describe the logistics outsourcing situation of the firm.

From the view of TCE, RBT and NT, the three theories are complementary to one another and collectively could be utilized in order to make the decision for logistics service. Reduction in costs, access to resources, and relationship exploitation are combining to illustrate a firm complete view of motivation in logistics service outsourcing decisions making.

Research Methodology

Since the aim of this study is to explore the logistics service outsourcing decision in a multi-business firm with an internal logistics service provider, doing a pure archive analysis will not reveal all aspects of relationship, while archive and secondary data are gathered and included as one of the data sources for this study. Also, for researching complex phenomena that involve a number of variables. Lastly, intended phenomenon and respective concepts are not adequately known and established. Accordingly, case study method was selected as the main research method for this research. An industrial multi-business firm was selected to be a single case study.

The main business units in the firm are cement, building material and ceramic. In terms of logistics management, there is not any policy to obligate all business units to use internal logistics service provider for their logistics service needs. Each business unit is able to select the logistics services within the group or outsource it to external party (TPL).

Building transaction cost model

In case study firm, transaction cost is a combination of transaction cost from outsource TPL and transaction cost from internal logistics business unit. The transaction cost elements for outsourcing TPL are searching cost, monitoring cost, contracting cost and reinforcement cost. In the same time, business unit has been also monitor service level with internal logistics business unit that only monitoring cost occurred.

Transaction cost element	Service Provider	
	TPL	Internal LSP
Search cost	✓	
Mornitoring cost	✓	✓
Contracting cost	✓	
Reinforcement cost	✓	

Table 1: Transaction cost element of case study

Through an analysis of simple linear regression, the three equations of each business unit are as follows:

Business Unit	Intercept (a)	Slope (b)
Cement	3,121.8870	2,415.9760
Building material	10,038.9996	1,413.3110
Ceramic	12,942.2380	2,233.3014

Table 2: Simple linear regressing result

Cement business unit;
 Transaction cost = $3,121.88 + 2,415.97x_1$
 x_1 is number of outsourced transaction of cement business unit

Building material business unit;
 Transaction cost = $10,038.99 + 1,413.31x_2$
 x_2 is number of outsourced transaction of building material business unit

Ceramic business unit;

$$\text{Transaction cost} = 12,942.23 + 2,233.30x_3$$

x_3 is number of outsourced transaction of ceramic business unit

Business Unit	Intercept (a)	Slope (b)	correlation coefficient (r)	determining of coefficient (r ²)
Cement	3,121.8870	2,415.9760	0.8089902	65.45%
Building material	10,038.9996	1,413.3110	0.7499724	56.25%
Ceramic	12,942.2380	2,233.3014	0.8716554	75.98%

Table 3: Correlation coefficient (r) and determining of coefficient (r²)

total transaction cost positively depends on number of outsourced transaction. These regression lines can be used for predicting the transaction costs by inserting certain number of transaction that a business unit intends to outsource. However, since the range of determination coefficient for all business units is between 56-75%, there are other factors in the regression line but they are not very significant.

Logistics resource comparison

The comparison will be divided into domestic logistics (inbound – outbound) and international (import-export) logistics.

List of internal resource	Indicators*
Tangible resource	
<i>Inbound and outbound (Domestic)</i>	
· Warehouses	No. of warehouses
· Transportation fleet	No. of trucks
· Special transport fleet	No. of special trucks
· Loading-unloading facilities	No. of equipments
<i>Import and export</i>	
· Warehouses	No. of ware houses
· Transportation fleet	No. of trucks
· Special transport fleet	No. of special trucks
· Loading-unloading facilities	No. of equipments
Intangible resources	
<i>Inbound and outbound (Domestic)</i>	
· Warehouse Management System	No. of systems
· Transportation Management System	No. of systems
· Loading-unloading System	No. of systems
· Skilled employee (experienced, relevant education)	No. of experience employees
· Logistics processes and procedures	ISO** exist? Yes/no
· Specialized process and procedure	yes/no
<i>Import and export</i>	
· Warehouse Management System	No. of systems
· Transportation Management System	No. of systems
· Loading-unloading System	No. of systems
· Custom clearance procedure	No. of experience employees
· Skilled employee (experienced, relevant education)	ISO exist? Yes/no
· Paperless system and control	yes/no
· Logistics processes and procedures	ISO exist? Yes/no
· Specialized process and procedure	yes/no

*by top management view

** ISO International Organization Standard certified

Table 4: Logistics resources comparison

For tangible resources of both international and domestics, internal logistics business unit is more powerful in warehouse, normal transportation fleet and loading-unloading facility while the specialized fleet is the strength of TPLs.

For intangible resources of domestic logistics, Loading-unloading System strengthen internal logistics business unit capability. In contrast, the main TPL of business unit utilized only warehouse and loading-unloading system by 50 people.

For intangible resources of international logistics, TPL, capability in through logistics and specialized process are considered at the same level.

Network Collaboration

All business unit can access TPLs resources and especially for long term relationship TPLs, the more cooperation is better than shorter one. More than resources could be accessed, knowledge and information sharing is realized as the advantage of the network.

Conclusion

- Using regression analysis, total transaction cost positively depends on the number of outsourced transactions. However, there would be some variables impacted transaction cost since determining of coefficient of all business units is around 56-75%.
- In terms of logistics resources, outsourced TPL's strength was in specialized fleet while all business units considered internal logistics business unit as its powerful capability because of the huge number of experienced human resource.
- Although, the service availability of TPLs is recognized, TPLs should improve maturity of their services to meet satisfaction of business units.
- In multi-business firm who has logistics business unit on its own, Based on what was found from investigation, two of the following propositions are proposed:

- P1: The firm able to improve its efficiency by minimizing number of outsourced transaction to TPL.
- P2: If the logistics resources and capability of internal logistics business unit is higher than TPL's, it would be better to use internal in logistics business unit since the firm able to maximize utilization rate of internal resource.