SHIPPER AND FREIGHT FORWARDER CRITERIA FOR SELECTING A CARRIER

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Abstract

In Thailand, there are no benchmarks for ocean carrier service selection criteria, as each carrier has its different conditions and characteristics. This research was conducted to test the relationship between ocean carrier selection criteria and customer intention to choose the ABC Company's carrier service. Seven variables were used: Freight Rate, Customer Service, Operation, Reputation, Infrastructure, Schedule, and IT & Communication. The study also compared the perceptions of each variable by shippers and freight forwarders. A Questionnaire survey was used to collect data from 303 ABC shipper and freight forwarder customers, all located in Bangkok. Reputation was found to be the influential factor on customer intention to select a shipper and freight forwarder. However, Customer service and IT & Communication were perceived differently by the two customer groups.

บทคัดย่อ

ในประเทศไทยยังไม่มีเกณฑ์มาตรฐานสำหรับการเลือกใช้บริการสายเดินเรือ เนื่องจากแต่ละสายเดินเรือมีเงื่อนไขและคุณลักษณะที่แตกต่างกันออกไป งานวิจัยนี้จึงจัดทำขึ้นเพื่อทดสอบความสัมพันธ์ของเกณฑ์การเลือกใช้บริการสายเดินเรือและความตั้งใจของลูกค้าในการเลือกใช้บริการสายเดินเรือของบริษัทกรณีศึกษา โดยมี 7 ตัวแปร ได้แก่ ค่าระวางเรือ ฝ่ายลูกค้าและบริการ การปฏิบัติการขนส่งทางเรือ ชื่อเสียงของบริษัท โครงสร้างพื้นฐาน ตารางเรือ และ เทคโนโลยีและการสื่อสาร นอกจากนี้ยังมีการเปรียบเทียบแนวความคิดของผู้ส่งออกและผู้รับจัดการขนส่งสินค้าในแต่ละตัวแปรด้วย การสำรวจด้วยแบบสอบถามถูกใช้ในการรวบรวมข้อมูลจากลูกค้าของบริษัทกรณีศึกษา ทั้งผู้ส่งออกและผู้รับจัดการขนส่งสินค้าจำนวนทั้งหมด 303 บริษัท ซึ่งตั้งอยู่ในเขตกรุงเทพมหานครและปริมณฑล ผลวิจัย

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พบว่าชื่อเสียงของบริษัทเป็นปัจจัยที่ส่งผลกระทบต่อความตั้งใจในการเลือกใช้บริการของผู้ส่งออกและผู้รับจัดการขนส่งสินค้า อย่างไรก็ตาม เทคโนโลยีและการสื่อสารถูกมองแตกต่างกันระหว่างผู้ส่งออกและผู้รับจัดการขนส่งสินค้าด้วยเช่นกัน

INTRODUCTION

In Thailand sea transportation plays an important international role, for both exports and imports. In 2011, it accounted for 68.7% of import value, and 67.3% of export value, compared with air, motor, rail, and postal mode of transportation (Thailand Transport Portal, 2012). More than half of international trade is delivered by sea; even though it takes more time, this is offset by lower logistics cost. The number of vessels and cargoes flowing since 1998 through both Klongtoey port (PAT) and Laem Chabang port (LCB) have continuously increased (Marine Department of Thailand, 2012). The growing demand attracted many newcomers and resulted in intense competition, even though a huge capital investment is needed for vessel construction, port and depot infrastructure, and containers themselves.

Ocean carriers have been the major players. An ocean carrier is a company specializing in sea transportation of containerized cargo, performing the carriage, loading, unloading of cargo from departure port to destination port. Despite customs clearance paperwork, they provide empty containers with port to port delivery services, to exporters and importers. Sellers need to pick up empty containers into which to load their cargoes and then return the laden container to a loading port themselves, while the processes of loading, unloading, cargo delivery, and other related services are the responsibility of the ocean carrier. Ocean carriers have two customer segments: direct shipper/consignee, and freight forwarder.

Ocean carrier service selection is an important activity related to logistics management. The decision making is normally based on criteria which differ for each particular customer. In Thailand the ocean carrier's selection criteria depends on many factors, both internal and external environment factors, such as a world economic crisis, political situation, or natural disaster. Some are uncontrollable and they regularly affect customer decisions.

Although there are other related factors which have an impact on customer decision making, the ocean carrier selection criteria can assist the company to select an effective and appropriate market strategy which suits Thai customers and can strongly attract them to maintain their support for the company. Therefore, this study explores the question "*What are the ocean carrier selection criteria of Shipper and Freight forwarder*

towards the ABC Company service?"

The first objective of this research is to identify the criteria of ocean carrier selection towards the ABC Company service as well as to identify the most influential criterion. The second objective is to explore the differences in the selection criteria of direct shippers and freight forwarders towards the ABC Company service.

LITERATURE REVIEW

Kannan et al. (2011) studied the ocean carrier selection criteria of Indian shippers, which could be categorized into seven factors; Freight Rate, Customer Service, Operations, Reputation, Infrastructure, Scheduling, and IT & Communication. Using these factors, the shipper could reduce the perception gap between ocean carrier and exporters, choose effective strategies to improve their service quality, and eventually increase its competitive advantage. These seven criteria were chosen to be the selection criteria in this present research into shippers and freight forwarders in Thailand because these factors cover all aspects of the services. The details of each factor are listed next.

Freight Rate

Kannan et al. (2011) confirmed that out of 45 different criteria in carrier selection process, low freight rate and price flexibility are the top two important factors, and other researchers report similar findings. Transport price was the most influential factor for carrier selection, compared with timing, security and control, and service (Pedersen & Gray, 1998). However, it was argued by McGinnis (1993) that there were other variables which were more important for customer selection than freight rate.

Customer service

The survey research of Matear and Gray (1993) supported the view that carrier and timing characteristics of customer service are the most important factors for shippers. The characteristics are composed of: performance of service attribution, ability to monitor shipment with special requirement, fast response to any urgent and problem situation, and short transit time with on-time delivery. Service variables such as speed and reliability were found to be the top transport selection factors, more important than freight rate, loss and damge, external market influences, inventories, and market competitiveness (McGinnis, 1993). Jerman, Anderson, and Constantin (1993) also stated that co-operation between shipper and carrier was the main factor for carrier selection, including quality of service, quickly traceable shipments, and carrier assistance.

Operations

Development of IT at port terminals, in terms of data transmission, could bring many

benefits, such as facilitating discharging and loading containers, improvement of productivity, better management over storage of containers, accuracy and consistency of information (Kia, Shayan, & Ghotb, 2000). Operation is considered to be one of the ocean carrier service selection criteria in this present research. Slijper (1974) also stated that an emphasis on handling operations, which included quick clearance at port of destination, should be considered as an advantage over other carriers because it could reduce the claims cost.

Reputation

Kent and Parker (1999) identified five different areas of the perception between carrier and exporter customer: rate changes, service frequency, financial stability, service changes, and equipment availability. To create both short term and long term business relationships, exporters tended to be more concerned over financial stability to avoid any sudden disruption. As financial stability is related to the reputation of each carrier, the present research tested whether customers considered this criteria before selecting a carrier.

Infrastructure

Meixell and Norbis (2008) stated five transport challenges: capacity shortages, international growth, economies of scale and scope, security concerns, and environmental issues. Equipment availability was one carrier selection criterion and could be a competitive advantage for those carriers if there were no capacity limitation. Infrastructure was also considered to be an important factor as it showed the promptness of each carrier to perform their own services.

Schedule

Stank and Goldsby (2000) confirmed that in transportation decisions, the dock level operation should be taken into consideration. Effective and efficient loading, routing, and schedule, are part of the supporting services provided by each carrier. The consistency in delivery times and transit times, speed and flexibity, and the absence of loss and damage, were stated to be the important purchasing requirements of customers, even over price, as they affected the carrier performance (Morash, 1987). Transit time reliability and consistency were a service factor for ocean carrier selection from the perspectives of both export/import and the ocean carrier itself (Kent & Parker, 1999). Pearson and Semeijn (1999) confirmed that reliability and transit time were the most important variables of logistics services provided by both large and small firms.

Information Technology (IT)

Some ocean carriers apply computer systems in ocean logistics activities, such as cargo tracking, shipment status checking, vessel schedule checking, or space booking. Electronic Data Interchange (EDI) is commonly developed as the carrier linkage software between carrier and client to facilitate the transportation process (Wood, 1990). There-

fore, with the continuous development of technology, IT is another important factor in this industry.

CONCEPTUAL FRAMEWORK AND HYPOTHESES

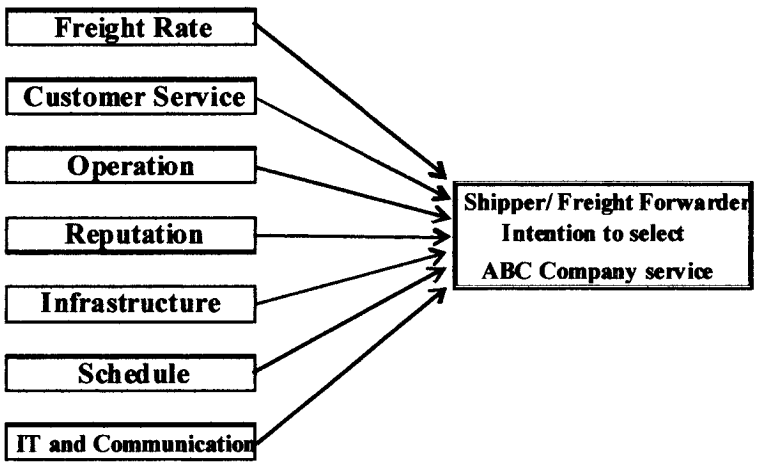

Figure 1: Conceptual Framework

Using these factors, this research tested three main hypotheses:

Hypothess 1: Freight rate (a), Customer service (b), Operation (c), Reputation (d), Infrastructure (e), Schedule (f), and IT and Communication (g) have a relationship with Shippers' intention to select the ABC Company for Ocean Carrier service.

Hypothesis 2: Freight rate (a), Customer service (b), Operation (c), Reputation (d), Infrastructure (e), Schedule (f), and IT and Communication (g) have a relationship with Freight Forwarders' intention to select the ABC Company for Ocean Carrier service.

Hypothesis 3: Perceptions for Freight rate (a), Customer service (b), Operation (c), Reputation (d), Infrastructure (e), Schedule (f), and IT and Communication (g) toward ABC Company Ocean Carrier's service by Shipper and Freight Forwarder are different.

RESEARCH METHODOLOGY

This research was conducted by using quantitative methodology to analyze the ocean selection criteria of ABC Company's customers and explore the differences. A Questionnaire survey was used as the research method. The questionnaire has closed ques-

tions. The questionnaires were distributed directly to each target ABC Company customers at their offices in Bangkok.

The target respondents are ABC Company's customers including both shippers and freight forwarders who regularly have their shipments exported from Thailand under the Cost Insurance and Freight (CIF) Inco term. Accordingly to company records, the total population is 380 companies located in Bangkok, divided into 281 freight forwarders and 99 shippers. To determine the sample size when the population is known, a 95 % confidence level and 5% error are considered. Since the population is divided into two subgroups, stratified sampling was applied according to Yamane Taro (1967). Thus, the sample size of the smaller group is 79 and of the larger is 224. The total sample in this research is 303 respondents.

The questionnaire was conducted in two language versions, English and Thai and divided into three parts. Part A included respondents' demographical data and the ranking of the importance of ocean carrier selection criteria. Part B included five-point Likert scales to rate the customer selection criteria toward an ocean carrier. Part C included five-point Likert scales to rate the customer intention to select an ocean carrier.

Cronbach's Alpha Measurement for Reliability Assessment

To ensure that the questionnaire is reliable for conducting this research, Cronbach's alpha was used for consistency analysis. Fifty questionnaires were tested and the scores showed that all seven variables are reliable and acceptable, with scores higher than 0.7 (George & Mallery, 2003).

Data Analysis Strategy

The SPSS computer program was used for data analysis. Descriptive analysis showed the number of respondents defined as shippers and freight forwarders, the frequency of export shipment, and the job position. Multiple regression was used to analyze the relationship between seven independent variables which are selection criteria, and the dependent variable which is the intention to select the ABC Company service. Lastly, an independent sample T-Test was applied to understand the differences in perception of each of the seven selection criteria between shippers and freight forwarders.

Data Analysis

The questionnaires were collected from the 303 respondents, who are ABC Company customers with authority to select an ocean carrier service.

Table 1: Respondents' Characteristics

Characteristics	Shipper		Freight Forwarder	
	Number	Percentage	Number	Percentage
Respondents	79	26.07%	224	74.29%
Shipment Volume per month (Containers)				
Less than 15	27	34.18%	22	9.82%
16-30	17	21.52%	67	29.91%
31-50	21	26.58%	87	38.84%
More than 50	14	17.72%	48	21.43%
Job Position				
Management Level	11	13.92%	20	8.93%
Supervisor Level	22	27.85%	82	36.61%
Officer	45	56.96%	118	52.68%
Others	1	1.27%	4	1.79%

In Table 1, respondents are divided into two different groups: shippers 26.07 percent and freight forwarders 74.29 percent. Around 34.18 percent of shipper respondents had their monthly export shipment volume loaded of less than 15 containers; 26.58 percent had 16-30 containers; 21.52 percent had 31-50 containers; and 17.72 percent had more than 50 containers. For freight forwarder respondents, 38.84 percent had export shipments of 31-50 containers per month; 29.91 percent had between 16-30 containers; 21.43 percent had more than 50 containers; and 9.82 percent had less than 15.

It can be concluded that ABC Company's customer who are shippers, range from small to large companies. But freight forwarder customers mainly are medium size companies. Shipper respondents were officer level (56.96 percent), supervisor level (27.85 percent), management level (13.92 percent) and others (1.27 percent). For freight forwarder respondents, 52.68 percent were officer level, 36.61 percent were supervisor level, 8.93 percent were management level and the remaining 1.45 were other job positions.

It can be concluded that the authority to select ocean carrier service for both shipper and freight forwarder is currently transferred from management or supervisor level to operational level. Each of them can make a decision to select an ocean carrier service without needing approval from top management.

Hypotheses Testing

There are three hypotheses to support the research objectives (as defined above).

Table 2: Test Relationship between Independent Factors and Shipper Intention to Select ABC Company

Independent factors	Unstandardized Coefficients (B)	Standardized Coefficients (Beta)	t	P-Value
(Constant)	.279		.755	.453
Freight Rate	.028	.034	.372	.711
Customer Service	.129	.137	1.454	.150
Operation	-.030	-.025	-.253	.801
Reputation	**.374**	**.395**	**3.241**	**.002**
Infrastructure	-.024	-.024	-.195	.846
Schedule	.400	.327	2.541	.013
IT and Communication	.073	.082	.834	.407

a. Dependent variable: Intention to select ABC Company service
b. $F = 17.518$; $p < 0.0001$
c. Adjusted $R2 = 0.597$

In Table 2, the F-score was 17.518 and P-value was 0.000 (which was less than 0.01). Thus, Freight rate, Customer service, Operation, Reputation, Infrastructure, Schedule, and IT and Communication had a relationship with shipper intention to select ABC Company for Ocean Carrier service. The value of adjusted R square at 0.597 means that there was 59.7 percent of variance in customers' intention to select ABC Company, as contained in the seven factors. The remaining 40.3 percent can be affected by other factors.

Moreover, Reputation had a P-value less than 0.01, while the other six variables had a P-value higher than 0.01. Thus, there is a significant relationship between Reputation and shipper intention to select ABC Company service (β=0.395, $p<0.01$). However, Freight rate (β=0.034, $p>0.01$), Customer service (β=0.137, $p>0.01$), Operation (β=-0.025, $p>0.01$), Infrastructure (β=-0.024, $p>0.01$), Schedule (β=0.327, $p<0.01$) and IT & Communication (β=0.104, $p>0.01$) were not influential factors. Hence, Hypotheses 1 was partially supported by the data. The Reputation variable does have influence on shipper intention to select ABC Company service, while Freight rate, Customer service, Operation, Infrastructure, Schedule, and IT and Communication do not.

Table 3: Test Relationship between Independent Factors and Freight Forwarder Intention to Select ABC Company

Independent Factors	Unstandardized Coefficients (B)	Standardized Coefficients (Beta)	t	P-value
(Constant)	.662		2.931	.004
Freight Rate	.095	.090	1.481	.140
Customer Service	.074	.086	1.220	.224
Operation	.146	.160	2.259	.025
Reputation	**.188**	**.187**	**2.633**	**.009**
Infrastructure	.110	.117	1.758	.080
Schedule	.185	.188	2.480	.014
IT and Communication	.060	.065	.973	.331

a. Dependent variable: Intention to select ABC Company service
b. $F = 29.664$; $p < 0.0001$
c. Adjusted $R2 = 0.474$

In Table 3, the F score was 29.664 and P-value was 0.000 which was less than 0.01. Thus, Freight rate, Customer service, Operation, Reputation, Infrastructure, Schedule, and IT and Communication had relationship with freight forwarder intention to select ABC Company for Ocean Carrier's service. The value of adjusted R square at 0.474 means that there was 47.4 percent of variance in customers' intention to select ABC Company service is explained by seven factors. The remaining 52.6 percent can be affected by other factors.

Moreover, Reputation had P-value less than 0.01 while other six variables; Freight rate, Customer service, Operation, Infrastructure, Schedule, and IT and Communication had P-value higher than 0.01. Thus, reputation had significantly influenced customer intention to select ABC Company service ($\beta=0.187$, $p<0.01$). However, Freight rate ($\beta=0.90$, $p>0.01$), Customer service ($\beta=0.086$, $p>0.01$), Operation ($\beta=0.160$, $p<0.01$), Infrastructure ($\beta=0.117$, $p>0.01$), Schedule ($\beta\beta=0.188$, $p<0.01$) and IT and Communication ($\beta=0.065$, $p>0.01$) were not influence factors. Hence, Hypotheses 2 was partially supported by the data. Reputation variable has influence on freight forwarder intention to select ABC Company service while Freight rate, Customer service, Operation, Infrastructure, Schedule, and IT and Communication have not.

Table 4: Comparison Test between Shipper and Freight Forwarder in Perception of Independent Variables

	Mean		t-test for Equality of Means	
	Shipper	**Freight Forwarder**	**t**	**P-value (2-tailed)**
Freight Rate	3.2057	3.3694	-2.072	0.041
Customer Service	3.8481	4.1105	-3.923	0.000
Operation	3.5697	3.6530	-1.378	0.169
Reputation	**3.6668**	**3.7176**	**0.834**	**0.405**
Infrastructure	3.5485	3.5269	0.347	0.728
Schedule	3.5949	3.7080	-1.993	0.047
IT and Communication	**3.3675**	**3.8158**	**-6.022**	**0.000**

In Table 4, there was no difference in perception of five independent variables toward ABC Company service between shippers and freight forwarders. All of them had P-values higher than 0.01, (p=0.041), (p=0.169), (p=0.405), (p=0.728), and (p=0.047) respectively. On the other hand, the remaining variables; Customer Service and IT & Communication had P-values less than 0.01 (p=0.000). It meant that shippers and freight forwarders had different perceptions of Customer Service and IT & Communication provided by the ABC Company service. These two variables were perceived as higher by freight forwarders than direct shippers. Thus, Hypotheses 3 was partially supported by the data.

CONCLUSION AND IMPLICATION

The result was separately presented in two groups: shipper and freight forwarder respondents. For both respondent groups, the results indicated the positive influences of the Reputation variable in the intention to select ABC Company's ocean carrier service. Therefore, Hypotheses 1 and 2 are partially supported. The Reputation variable supports Hypotheses 1, but Freight Rate, Customer Service, Operation, Infrastructure, Schedule, and IT & Communication do not. On the other hand, the Reputation variable supports Hypotheses 2, but Freight rate, Customer Service, Operation, Infrastructure, Schedule and IT & Communication do not.

Furthermore, each respondent group perceives each independent variable differently. Shippers and freight forwarders differently perceive Customer Service and IT & Communication variables by the ABC Company. Thus, it could be concluded that Customer Service and IT & Communication partially support Hypotheses 3, but Freight Rate, Operation Reputation, Infrastructure, and Schedule do not.

The results of the relationship between these seven ocean selection criteria and a customer's intention to select the ABC Company's service are similar in both shipper and freight forwarder respondents. Both respondents select ABC Company service by focusing on reputation which may be explained as ABC Company having a good reputation in service quality, employee competency, and longer operating hours.

It is also found that ocean carrier selection criteria have changed, to emphasize reputation. Low cost is not the major consideration when selecting an ocean carrier service, but rather the ocean carrier's image which includes company performance, financial stability, and the perception of customers toward ocean carriers in the market. Also, service quality composed of operation and documentation process is considered to be another important factor as a customer concern. The characteristics of ocean carrier services need support from ocean carriers in regular operating hours. With longer operating hours, a carrier can create its competitive advantage. Furthermore, high employee competency of customer services and sales support create trust and reliability. Therefore, the criteria have not been limited to one factor but rather the overall performance of the carrier.

The perception of carrier selection criteria by shipper and freight forwarder are different. Freight forwarders believe that Customer Service and IT & Communication of the ABC Company are better in terms of personal attention, fast responsiveness, reliability, and good relationship, in addition to new service announcements via website, a track and trace system, and document accuracy; but shippers' perception of these was lower.

Normally shippers get more support from ocean carriers in terms of service rather than freight forwarder as they are direct exporters not middlemen. Since each company treats each customer type similarly, it creates differences in customer perception between each group. Moreover, when considering IT & Communication, most Thai shippers preferred to work in the old way, rather than with high technology which although it is more sophisticated also adds complexity. Therefore, shippers perceived this aspect of the ABC Company lower than freight forwarders.

Customers expect to get good services from an ocean carrier. But instead of considering only one factor, such as competitive freight rate or short transit time, they pay more attention to the overall ocean carrier performance as reflected in the Reputation criterion.

Since the finding of this research show that Reputation does influence shippers and freight forwarders choice of the ABC Company, then the management team should focus on this factor. They should encourage their staff to pay more attention to company image, including improving service quality, increasing employee competency and providing longer operating hours to improve business performance, increase competitive advantages and

sustain their long term relationships with customers.

This research could help the ABC Company to recognize and understand its competitive advantages which lead to an effective marketing strategy. The proposal to each customer should focus on the company's good image as reflected in overall performance. To expand and secure business, good reputation should be recognised as the strength of the ABC Company. However, overall performance comes from the cooperation of all departments, therefore, cross functional cooperation should be promoted simultaneously with improving company performance.

LIMITATION AND FUTURE RESEARCH

This research was designed to study the influence of ocean carrier selection criteria on customer intention to select FCL service under Cost and Freight payment terms only. The context was marine transportation, with shipper and freight forwarder respondents. Thus, this framework may not fully fit other related businesses under different environments, business operations, and periods of time.

In the future, sea transportation will tend to grow and expand continuously with globalisation. The ABC Company should adapt itself to operate and survive in a profitable way as well as increase its competitive advantages. For future research, other measurements of service quality could generate more understanding of customer requirements. The design framework could be applied in the same industry but to specific commodities, as this could create more understanding of each specific market and enhance the business performance of logistics service providers.

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