AN ASIAN PERSPECTIVE OF THE LINKAGES BETWEEN FIRMS, THIRD-PARTY LOGISTICS AND FUTURE TRENDS

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ABSTRACT

The purpose of this paper is to report research which seeks to understand the primary determinants of the future use of third party logistics services. These constructs are the extent of use of the third party logistics services, the decision making process for choosing contract logistics services providers, and the impact of the use of contract logistics services on the organization. Empirical research was carried out in four leading Asian economies (China, Vietnam, Thailand, and South Korea) to study the impact of these three factors on the future use of third party logistics services in this region.

Key Words: Outsourcing, Third-Party Logistics, Asia.

INTRODUCTION

The last decade has seen a rapid increase in globalization across the world. The resultant change in business policies, strategies, and decision making, has made the business world a highly dynamic and competitive one. With business barriers broken down and with cross-frontier business agreements, marketing a firm's product to different corners of the world has never been easier. This has increased the external trade activities of leading companies across the world, including the Asia Pacific region. This has led to an increase in third party activities and services in the region. Despite the increasing importance of the 3PL services for Asian economies, there is hardly any systematic study carried out to date to understand the future trends in this industry. The current study takes into consideration companies in four leading Asian economies: China, Vietnam, Thailand, and South Korea. It examines their perspective on third party service companies. The objective of this study is to understand the use and impact of third party service providers on the company's operational efficiency and effectiveness.

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Hence, this study will provide insights into the linkages between firms and third party services providers. To attain the purpose of the study the relevant variables were examined, including the extent of use of third party services providers, the nature of the decision making process for their use, and the impact of the use of third party services on the organization, all of which may affect the future use of third party services by the firms.

LITERATURE REVIEW

Langley et al. (1999) gives the following definition of a third-party service provider: A company that provides multiple logistics services for its customers, whereby the Third-party logistics provider is external to the customer company and is compensated for its services. By nature *Third Party Logistics* (*3PL*) providers are the firms that provide multiple logistics services for use by customers. Preferably, these services are integrated, or "bundled" together by the provider. These firms facilitate the movement of parts and materials from suppliers to manufacturers, and finished products from manufacturers to distributors and retailers. Among the services which they provide are transportation, warehousing, cross-docking, inventory management, packaging, and freight forwarding.

Despite the apparent attractive services, the expected benefits for the customers and overall supply chain have not always been fully realized. Gattorna (1998) suggested that a third party is unable to satisfy a firm's total corporate logistics requirements. It is lacking in providing the full range of necessities that include services such as logistics information, real-time information, data accuracy and collaboration among chain partners. This drawback in service capabilities creates inefficiency for the clients as they are required to spend a disproportionate amount of time managing the web relations and resources required to update the information.

Third Party Logistics and outsourcing involve the use of external companies to perform some or all of the company's activities. The main purpose for companies to employ a third party, or outsourcing, to perform their business is to concentrate more energy on the core activities that are critical for their survival, leaving the rest to specialist firms. If the top manager or CEO of the company decides to use outsourcing, then he or she must put many other things in place. And the top manager may not be able to anticipate whether the new performance will work properly or not. In any case, if the arrangement does not work well, the company will waste a lot of resources, including money, time and people. And the shareholders of the company will want an explanation of failure from the top manager. The other reason for using third party logistic (3PL) services, or outsourcing, is intensified global competition. According to the suggestion of Fuller *et al.* (1993), one important reason for growth of 3PL services is that companies have to provide their products and services to customers even when customers are far from the location of the companies. Such distinct services are provided more efficiently by logistic service providers such as CSL (Caterpillar Logistic Services), the logistic company which has become one of the biggest companies in this field since the 1990s. They have provided differentiated services to customers through investment in dedicated assets, technologies and methods of organization. The range of services provided range from simple ones such as providing transportation to more variable services such as covering substantive activities in the entire supply chain. According to the survey conducted in USA by Sink *et al.* (1996), there are some important candidates for outsourcing, such as transportation, warehousing, inventory management, order processing, information systems and packaging.

Before starting research in this area, we need to ask how the firms decide which activities to outsource. The present research will examine the factors that will influence choices of the consumers to employ a logistics service company and reasons why consumers or firms choose a specific logistics service company. This will be a study of key variables and characteristics that influence customers' decisions to use third party logistics service providers. Several factors have been identified in previous research that impact on the overall usage of third party logistics (3PL) providers (see Lieb, 1992; Ballou, 1993; Lieb *et al.*, 1993a, 1993b). These factors are:

1. The extent of use of the third party logistics services and outsourcing.
2. The decision-making process for choosing contract logistics service providers; and
3. The impact of the use of contract logistic services on the organization.

We can consider the above factors as independent variables, and these factors determine the future usage of contract logistic services and outsourcing.

Extent of Use of 3PL Services

The first factor is the extent of use of the 3PL logistic services. This describes the disposition of the company to use 3PL services and how closely the company is related with the 3PL firms or outsourcing firms. The longer the relationship between manufacturing firms and third party services providers, the more extensive would be the use of the 3PL services, and the higher would be the level of commitment to the relationship on both sides, and the more likely firms would be invest in contract logistics. Lieb et al. (1993b) compared the experience of US and European manufacturers in using 3PL services. The authors tested the following factors in defining the extent of usage:

1. Level of commitment to the use of the third party logistics (extensive to very limited). This means that if a company uses logistic services or outsourcing widely in business then we can say the company has very extensive use of third party providers.
2. Percentage of total logistics budget allocated to third party providers. When a company uses the logistic service very badly or extensively, then the company will allocate a large part of the budget to the use of the third party logistics.
3. Geographical coverage provided by third party firms (domestic versus international). This characteristic of the company's business depends on whether the company is doing the

business domestically, in which case the manager of the firm will use only third party logistic services domestically.

4. Third party service utilized (warehouse management, shipment consolidation, fleet management, order fulfillment, product returns, carrier selection, logistics information systems, rate negotiation, product assembly, order processing, and inventory replenishment). Each firm uses the third party logistics services in different fields because each firm has different needs.
5. Nature and length of the third party contracts. This depends on the condition of the contract periodically made by firms and logistic service providers.

Dapiran *et al.* (1996) have presented an overview of the 3PL usage by large Australian firms. The findings of these authors indicate that the Australian firms are comparable to US firms in their usage of 3PL services, with more than one-fifth of the firms characterizing their commitment to 3PL as extensive, and one quarter of the firms allocating more than 50% of their total logistics budget to contract providers. Fleet management, warehouse management, and shipment consolidation were the most outsourced logistics services. McMullan (1996) found that transportation, maintenance, and warehousing were among the most outsourced functions among clients of the consulting group, KPMG, in the Asia-Pacific region. Bardi and Tracey (1991), in a survey of the transportation practices of US manufacturers, found that freight bill auditing and payment, and transportation reports, were among the most frequently outsourced transportation functions. Further discussion of recent trends in the use of 3PL services in various parts of the world can be found in O'Laughlin (1988), Rinehart (1992) Gilmour *et al.*, (1994), Gentry (1996), Kim (1996), Min (1996), Lieb and Randall (1996), and Cooke (1998).

In summary, it appears that usage of third party services and commitment of resources increases over time as the two parties become more comfortable in their interaction with one another. An objective of this study is to characterize the stage of development of third party logistics relationships for Asian firms.

The Decision Making Process for Choosing Contract Logistics Services

The second factor is the decision making process for choosing contract logistics services. Firms use third party logistics for many reasons. The growth of logistics outsourcing is related to why firms outsource logistics functions. Sheffi (1990) suggested the following reasons for the growth of 3PL relationships for Singapore firms:

- The need to focus on the core business by outsourcing logistics functions. Firms do not need to waste their effort on the logistics functions anymore.
- Third party logistics can offer better transportation solutions than the firms can.
- Third party logistics services offer more developed technological expertise and computerized systems than many companies can.
- Firms need more professional and better-equipped logistics services.

Because of these various reasons, outsourcing is a complex decision. By understanding the decision making process, providers can identify the benefits that firms need and provide more focused services.

Similar reasons were also reported by Bardi and Tracey (1991) in an empirical study of the transportation outsourcing practices of US companies. Watson and Pitt (1989), Zubrod (1990), Cooke (1988) Richardson (1990) and Foster and Muller (1990) have reported a subset of the following reasons as drivers of the decision to outsource logistics functions: ability to focus on the core activities, gaining the use of sophisticated technology, coping with reductions in the resources (i.e. funding), reducing capital investment (e.g. warehouse), using the expertise of a third party, receiving very customized services, reducing inventory, penetrating markets, having a single point of contract, becoming more active in international shipping, and exploiting logistics to gain competitive advantage. The following important factors define the decision making process governing the use of contract logistics services:

- Organizational level at which the outsourcing decision was made.
- Functional areas included in the process.
- Sources of information.
- Reservations within the firm to outsourcing.
- Selection criteria.

It is easier for companies to find and decide upon third party services that provide the "best fit" with their needs and existing operations by developing goals and selection criteria. The most important criterion for choosing third party providers was core competencies, which means that third party firms with experience, focus and expertise will be regarded as more appropriate. The level of service provided, quality of the people, and cost are the three most used evaluation criteria when choosing a qualified logistics contractor. In addition, the range of services offered and relevant past experience are included in the most common factors affecting the final selection of contract companies.

Impact of Usage of Contract Logistics Services on the Organization

Third Party Logistics service provision is a strategic partnership between the firm and the logistics company. Before making the decision to outsource, the impact on the organization should be considered carefully. As observed by Bowersox (1990), a necessary imperative for the relationship to succeed is a match between the cultures of the two organizations.

One issue of particular concern regarding the use of third party logistics providers is the impact on both the organization and its customers (Lieb *et al.*, 1993b). This means that the user firms must consider the response of their customers with regard to the use of third party logistics providers. It is important that the customers play a part in the decision making, especially if the user firm plans to have close contact with its customers. A complete understanding of customer requirements must be developed, as that will determine the needs of the firm, such as type of facilities required by the customers (Gooley, 1992).

Dapiran *et al.* (1996) found that the impact of third party logistics on the internal logistics performance and the logistics costs had been positive among Australian companies. However, because introduction of contract logistics services into a company represented an important shift in the way business was conducted, related training of the internal staff was found to be necessary. The authors found that the company must plan for the implementation of the partnership by educating the logistics service provider about the firm's requirements, developing programmes to place redundant employees, correcting the "us versus them" attitude of internal staff, and integrating the information systems of both the services provider and the user firm (Dapiran et al., 1996).

Future Usage of Contract Logistics Services

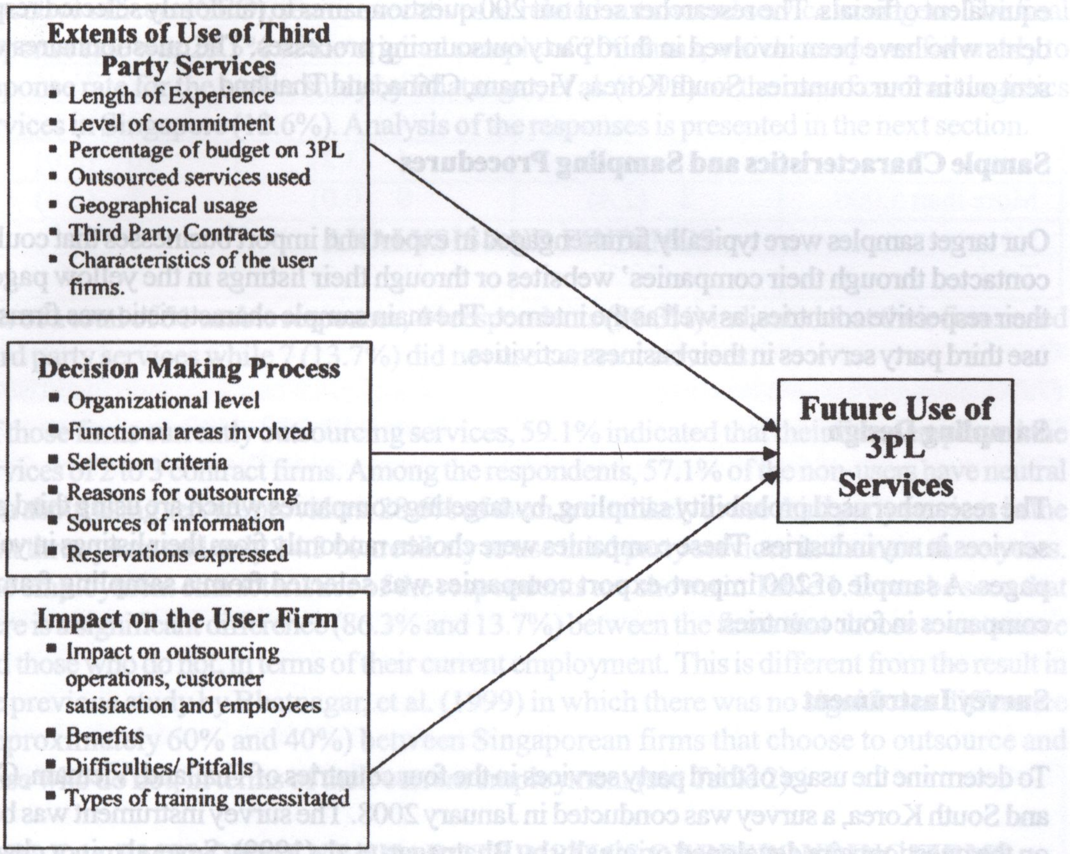
The third factor that impacts the usage of contract logistics services on the organization is the future use of such services. Lieb et al. (1993b) and Dapiran et al. (1996) have observed that an important indication of satisfaction of the firm with the logistics services provider is its plans for future usage of such services. The authors explored such areas as whether the firms are considering changes in the level and the nature of their involvement with the 3PL provider. Firms were asked to report the following information:

- Level of satisfaction with the contract logistics services;
- Whether usage of contract logistics was a positive development;
- Likely changes of usage of third party logistics.

All the above studies indicated generally high levels of satisfaction with third party logistics services. An interesting result was that firms typically tiptoe into outsourcing relationships, testing the waters with a single service before buying a wide variety of services.

In summary, the above studies provide a sound and comprehensive foundation for the research framework for analyzing third party service issues in Thailand, Vietnam, China and South Korea. This research framework is presented in Figure 1. The left hand side of the framework depicts the firm-specific characteristics, such as the extent of use of the third party services, the decision making process and the impact of the usage of third party services on the user firms. The future usage of third party services, shown on the right side of the framework, is influenced by the three sets of firm-specific characteristics.

FIGURE 1: THE RESEARCH FRAMEWORK



(Adapted from: Bhatnagar, et al. (1999))

METHODOLOGY

Research Design

Initially, the researcher used secondary data by referring to previously published business journals and articles related to the third party services field. This was with the intention of identifying the key variables and characteristics that firms take into account when making their decision to select third party services providers for outsourcing. Using this information, a framework was developed, and used to organize a mail survey to collect data. Data was then analyzed to study the impact of these variables on the decision making process of the firms.

Methods

The present research focused primarily on questionnaires filled in by the logistics managers or equivalent officials. The researcher sent out 200 questionnaires to randomly selected respondents who have been involved in third party outsourcing processes. The questionnaires were sent out in four countries: South Korea, Vietnam, China, and Thailand.

Sample Characteristics and Sampling Procedures

Our target samples were typically firms engaged in export and import businesses that could be contacted through their companies' websites or through their listings in the yellow pages in their respective countries, as well as the internet. The main sample characteristic was firms that use third party services in their business activities.

Sampling Design

The researcher used probability sampling, by targeting companies which are using third party services in any industries. These companies were chosen randomly from their listings in yellow pages. A sample of 200 import-export companies was selected from a sampling frame of companies in four countries.

Survey Instrument

To determine the usage of third party services in the four countries of Thailand, Vietnam, China and South Korea, a survey was conducted in January 2008. The survey instrument was based on the questionnaire developed originally by Bhatnagar, et al. (1999). Several minor changes were made to adapt the questionnaire for the Thai, Vietnamese, Chinese and South-Korean environment. Also, the survey instrument was translated into four languages using the back translation method. The survey instrument reflected the framework presented in Figure 1 and focused on the following areas:

- Extent to which firms use the services of contract companies;
- Specific contract services used;
- Factors affecting the decision to outsource;
- Factors affecting the final selection of contract companies;
- Performance measures used to assess effectiveness of logistics performance;
- Benefits for user firms;
- Impact of the use of contract services on costs, customer satisfaction, and employees of the user firm;
- Future plans of current users of contract services.

The sample population for this study included firms in Thailand, Vietnam, China and South Korea. Sample firms were selected randomly and equally in four countries. The companies were then contacted directly or by email or telephone and the questionnaires were sent to chief executive officers (CEO), senior executives or related outsourced service managers. The final response rate was 25.5% of the original sample of 200 firms, which compares favorably to response rate for the earlier study by Bhatnagar, et al. (1999) on the use of contract logistics services in Singapore (12.6%). Analysis of the responses is presented in the next section.

ANALYSIS AND FINDINGS

Out of a total of 51 usable responses, 44 respondents (86.3%) indicated that their firms used third party services while 7 (13.7%) did not use contract services.

Of those firms currently outsourcing services, 59.1% indicated that their firms employed the services of 2 to 3 contract firms. Among the respondents, 57.1% of the non-users have neutral idea about using service providers, 28.6% of them are unlikely to use third party services in the next three years and only 14.3 % are likely to use third party services in the next three years. The employment characteristics of the respondents are shown in Table 1. It can be seen that there is a significant difference (86.3% and 13.7%) between the firms that choose to outsource and those who do not, in terms of their current employment. This is different from the result in the previous study by Bhatnagar, et al. (1999) in which there was no significant difference (approximately 60% and 40%) between Singaporean firms that choose to outsource and those who do not, in terms of their current employment (see Table 2).

TABLE 1: EMPLOYMENT CHARCTERISTICS OF RESPONDING FIRMS

Current Employment	Outsourcing # Out of 51 (%)	Not outsourcing # Out of 51 (%)	All respondents # Out of 51 (%)
Under 200	26 (51.0)	7 (13.7)	33 (64.7)
200 - 499	5 (9.8)	0 (0.0)	5 (9.8)
500 - 999	2 (3.9)	0 (0.0)	2 (3.9)
1,000 - 4,999	6 (11.8)	0 (0.0)	6 (11.8)
More than 5,000	5 (9.8)	0 (0.0)	5 (9.8)
Total	44 (86.3)	7 (13.7)	51 (100.0)

TABLE 2: EMPLOYMENT CHARACTERISTICS OF SINGAPOREAN FIRMS

Current Employment	Outsourcing # Out of 126 (%)	Not outsourcing # Out of 126 (%)	All respondents # Out of 126 (%)
Under 200	41 (32.5)	31 (24.6)	72 (57.1)
200 - 499	16 (12.7)	11 (8.7)	27 (21.4)
500 - 999	9 (7.1)	4 (3.2)	13 (10.3)
1,000 - 4,999	6 (4.8)	4 (3.2)	10 (8.0)
More than 5,000	3 (2.4)	0 (0.0)	3 (2.4)
No response	1 (0.8)	0 (0.0)	1 (0.8)
Total	76 (60.3)	50 (39.7)	126 (100.0)

Out of 44 firms that use outsourcing third party services, Vietnam has the highest percentage (70%) among firms with less than 200 employees. 50% of firms using outsourcing in South Korea have 1,000 - 4,999 employees. 33.3% of firms with 200 - 499 employees are in China, and 21.1% of firms with more than 5,000 employees are in Thailand (see Table 3). So it can be seen that Vietnam has the highest rate of using outsourcing third party services, followed by South Korea, China and Thailand.

TABLE 3: EMPLOYMENT CHARACTERISTICS OF USER FIRMS IN FOUR ECONOMIES

Current Employment	Thailand # Out of 44 (% within country)	Vietnam # Out of 44 (% within country)	China # Out of 44 (% within country)	South Korea # Out of 44 (% within country)
Under 200	12 (63.2)	7 (70.0)	6 (66.7)	1 (16.7)
200 - 499	1 (5.3)	1 (10.0)	3 (33.3)	0 (0.0)
500 - 999	0 (0.0)	1 (10.0)	0 (0.0)	1 (16.7)
1,000 - 4,999	2 (10.5)	1 (10.0)	0 (0.0)	3 (50.0)
More than 5,000	4 (21.1)	0 (0.0)	0 (0.0)	1 (16.7)
Total	19 (100.0)	10 (100.0)	9 (100.0)	6 (100.0)

There were five Thai firms (out of 7 firms) that did not use outsourcing services, but only one firm from China and one firm from South Korea and all of them are small firms which have less than 200 employees (see Table 4). This result is similar to the result of the previous study by Henagar, et al. (1999), as most firms that do not use outsourced service firms are small firms with less than 200 employees (see Table 2).

TABLE 4: EMPLOYMENT CHARACTERISTICS OF NON-USER FIRMS IN FOUR ECONOMIES

Current Employment	Thailand	Vietnam	China	Korea	Total out-sourcing
	# Out of 7 (%)	# Out of 7 (%)	# Out of 7 (%)	# Out of 7 (%)	# Out of 7 (%)
Under 200	5 (71.4)	0 (0.0)	1 (14.3)	1 (14.3)	7 (100.0)

1. Extent of Use of Contract Logistics Services

In addressing the issue of third-party relationships, respondents were asked to specify the following aspects: length of experience with contract firms, the level of commitment to the use of third-party services, percentage of the total logistics budget allocated to third-party providers, specific services that were outsourced, geographical coverage provided by the contract companies and the use of contracts including nature of contracts and average duration of those contracts. The responses to these questions are presented in this section.

The results of the survey show that 63.6% of user companies have been using contract services for more than three years (see Table 5). The results obtained by this survey can provide an insight into the long-term impact of using such services in four countries. Comparing with Singapore in the survey of Bhatnagar, et al. (1999), most of Singapore user companies were relatively experienced with the concept of using contract logistics services, with 84% of them having used them for more than three years (higher than in Thailand, Vietnam, China or South Korea).

TABLE 5: LENGTH OF EXPERIENCE WITH CONTRACT LOGISTICS SERVICES

Time Period Using Contract Service Firms	# Of Respondents Out of 44 (%)
Less than 1 year	5 (11.4)
1 - less than 2 years	3 (6.8)
2 - less than 3 years	8 (18.2)
3 - less than 4 years	4 (9.1)
More than 4 years	24 (54.5)

The degree of commitment to the use of the third-party services varied considerably amongst the respondents. 31.8% of the users indicated that their firm's commitment to contract services concept was "moderate", and 29.5% of the users indicated that their firm's commitment to the contract services concept was "extensive", while the remaining users indicated that their firm's commitment was "very extensive", "limited" or "very limited" (see Table 6). In general, 74.9% of users reported having a "moderate" or "extensive commitment". This result is similar to the result of the survey of Bhatnagar, et al. (1999): (76.3%).

TABLE 6: DEGREE OF COMMITMENT TO USING CONTRACT LOGISTICS SERVICES

Degree of Commitment in Using Contract Services	# Out of 44 (%)
Very limited	3 (6.8)
Limited	8 (18.2)
Moderate	14 (31.8)
Extensive	13 (29.5)
Very extensive	6 (13.6)

The varying degree of commitment is also reflected in the percentage of the total budget allocated to the third-party providers. Of the users, 43.2% indicated that less than 20% of their total logistics budget was allocated to third-party service providers, 31.8% of the respondents indicated that 20% to 40% of their total logistics budget was allocated to third-party service providers, and for 11.4% of the respondents the budget allocation to third-party service providers was between 61% and 80% of the total logistics budget. 9.1% of users indicated that 41% to 60% of their firm's budget was allocated to third party service providers and only 4.5% of the respondents indicated that more than 80% of their total logistics budget was allocated to 3PL service providers (see Table 7).

TABLE 7: PERCENTAGE OF TOTAL BUDGET ALLOCACTED TO 3PL SERVICES

Percentage of Total Budget Allocated to 3PL Services	# Out of 44 (%)
Less than 20%	19 (43.2)
20 - 40%	14 (31.8)
41 - 60%	4 (9.1)
61 - 80%	5 (11.4)
More than 80%	2 (4.5)

Among the four countries, 60% of Vietnamese firms allocated less than 20% of their budget to outsource third party service providers, 47.4% of Thai firms allocated 20% to 40% of their budget, and 33.3% of Korean firms have more than 61% of their budget allocated to outsource third party service providers (see Table 8).

TABLE 8: PERCENTAGE OF TOTAL BUDGET ALLOCATED TO 3PL SERVICES IN 4 COUNTRIES

Percentage of total budget allocated to 3PL Services	Thailand # Out of 44 (% within country)	Vietnam # Out of 44 (% within country)	China # Out of 44 (% within country)	Korea # Out of 44 (% within country)	Total Out-sourcing # Out of 44 (%)
Less than 20%	7 (36.8)	6 (60.0)	4 (44.4)	2 (33.3)	19 (43.2)
20 - 40%	9 (47.4)	2 (20.0)	3 (33.3)	0 (0.0)	14 (31.8)
41 - 60%	2 (10.5)	1 (10.0)	1 (11.1)	0 (0.0)	4 (9.1)
61 - 80%	1 (5.3)	1 (10.0)	1 11.1)	2 (33.3)	5 (11.4)
More than 80%	0 (0.0)	0 (0.0)	0 (0.0)	2 (33.3)	2 (4.5)
Total	19 (100.0)	10 (100.0)	9 (100.0)	6 (100.0)	44 (100.0)

TABLE 9: PERCENTAGE OF TOTAL BUDGET ALLOCATED TO 3PL SERVICES IN 4 COUNTRIES

Percentage of Total Budget Allocated to 3PL services	%
Less than 30%	50
30 - 70%	30
More than 70%	20

It is difficult to make a comparison between the firms from Thailand, Vietnam, China and South Korea with the Singaporean firms in the survey by Bhatnagar, et al. (1999) because they have a different scale of measurement (see Table 9). However, if we look at the smallest, medium and largest amount of budget allocated to third party services, we can see that most Thai, Vietnamese, Chinese and South Korean firms have the smallest percentages of total budget allocated to third party services (similar to Singaporean firms).

Looking back to Table 3 (Employment characteristics of user firms in 4 countries), it can be seen that Vietnam is the country that has the highest percentage of small firms (number of employees less than 200) using third party services. Comparing this with the results from Table 8, this result is reasonable as Vietnam is also the country that has the highest percentage of firms with less than 20% of their total budget allocated to third party services. Similarly, Korean firms with current employment from 1,000 to 4,999 had the highest percentage of total budget allocated to third party services.

The most frequently used contract services are shown in Table 10. 40.9% of the firms outsourced shipment consolidation. 31.8 % of the firms outsourced freight payment, while 27.3%, 25.0% and 22.7% of them outsourced order fulfillment, logistics information systems and rate negotiation, respectively. The functions that are least outsourced include carrier selection, inventory replenishment, product assembly/installation, customer spare parts and product returns. This result is similar to the result of the previous study by Bhatnagar, et al. (1999) which also had shipment consolidation, order fulfillment, freight payment and rate negotiation as the most frequently used contract services (see Table 11).

TABLE 10: MOST FREQUENTLY USED CONTRACT SERVICES

Outsourced Activities	Number of Firms (%)
Shipment consolidation	18 (40.9)
Freight payment	14 (31.8)
Order fulfillment	12 (27.3)
Logistics information systems	11 (25.0)
Rate negotiation	10 (22.7)
Sanitary Services	9 (20.5)
Security	8 (18.2)
Accounting	7 (15.9)
Others	7 (15.9)
Fleet management/operations	6 (13.6)
Order processing	6 (13.6)
Carrier selection	5 (11.4)
Inventory replenishment	5 (11.4)
Product assembly/installation	5 (11.4)
Customer spare parts	3 (6.8)
Product returns	2 (4.5)

From the results in Table 10, although the survey did not focus on outsourcing 3PL services, the five most frequently outsourced functions were all logistics functions, which show that demand for outsourcing logistics functions is very high in Thailand, Vietnam, China and South Korea.

TABLE 11: MOST FREQUENTLY USED CONTRACT SERVICES IN SINGAPORE

Outsourced Activities	Number of Firms (%)
Shipment consolidation	42 (55.3)
Order fulfillment	31 (40.8)
Carrier selection	31 (40.8)
Freight payment	30 (39.5)
Rate negotiation	20 (26.3)
Fleet management/operations	17 (22.4)
Product returns	15 (19.7)
Logistics information systems	11 (14.5)
Customer spare parts	9 (11.8)
Inventory replenishment	8 (10.5)
Order processing	7 (9.2)
Product assembly/installation	5 (6.6)

The use of contract services in Thailand, Vietnam, China and South Korea primarily focused on both the domestic and international operations, with 52.3% of the firms employing contract providers for both domestic and international operations. Another 29.5% used such services for domestic operations only, and 18.2% used them for international operations only. This result is similar to the result from the previous study by Bhatnagar, et al. (1999).

In terms of formal contracts, 45.5% of the user firms had signed contracts with their service providers for less than one year, 29.5% and 11.4% of them had been signed from 1 to less than 2 years and from 2 to less than 3 years, respectively. The remaining 4.5% and 9.1% of user firms had signed contracts from 3 to less than 4 years and more than 4 years, respectively. This result is different from the result from the previous study by Bhatnagar, et al. (1999) in which most of Singapore user firms signed the contracts for more than one year.

2. **Decision Making Process**

The following factors were measured as components of the decision making process: organizational level where the decision to outsource originated, other functional areas involved in the decision making process, sources of information regarding contract providers, factors affecting the outsourcing decision, criteria on which contract providers were evaluated, and reservations expressed regarding the decision. The responses to these are discussed in this section.

61.4% (27 respondents) indicated that the decision originated from corporate level. 20.5% (9 respondents) indicated that the decision originated from divisional level, and the rest responded that it started at the local level. This result is different from the previous study by Bhatnagar, et al. (1999) in which most of the decision of Singapore firms started from the local level.

Of the 44 respondents who outsourced third party services, 38.6% indicated that managers from other functional areas were actively involved in the decision to use contract companies, such as sales, logistics, information systems, purchasing and operations. The second and the third highest involvement (36.4% and 31.8%) were from production managers and marketing managers. Similar to the previous study by Bhatnagar, et al. (1999), managers from the human resource function were the least involved in the decision making process.

Respondents were also asked to indicate how they became aware of the contract service providers they currently employ. Of the users, 29.5% indicated that they found information about contract service providers by their own research and 27.3% were directly contacted by the contract logistics representative. 25.0% indicated they obtained information about the provider from other service professionals. Direct mail advertising and sales contacts at logistics conferences were mentioned by 13.6% and 4.5% of the users respectively.

To determine why companies decided to outsource other functions, respondents were asked to indicate the importance of a number of factors affecting the decision to outsource. The responses to this question are presented in Table 12.

TABLE 12: FACTORS AFFECTING THE OUTSOURCING DECISIONS

Factors	Not Important # (%)	Moderately Important # (%	Important # (%)	Substantially Important # (%)	Very Important # (%)
1. Cost saving 3 (6.8)	5 (11.4)	13 (29.5)	3 (6.8)	20 (45.5)	
2. Flexibility (customization)	0 (0.0)	5 (11.4)	15 (34.1)	11 (25.0)	13 (29.5)
3. Focus on core business	0 (0.0)	0 (0.0)	9 (20.5)	16 (36.4)	19 (43.2)
4. Customer satisfaction	1 (2.3)	4 (9.1)	12 (27.3)	10 (22.7)	17 (38.6)
5. Employee morale	4 (9.1)	9 (20.5)	19(43.2)	6 (13.6)	6 (13.6)
6. Productivity improvement	2 (4.5)	2 (4.5)	17 (38.6)	9 (20.5)	14 (31.8)
7. Access to up to date techniques and expertise	2 (4.9)	6 (14.6)	9 (22.0)	19 (46.3)	5 (12.2)

More than 80 % of users (81.8%, 88.6% and 80.5%) indicated that cost saving, flexibility, customer satisfaction and accessing up to date techniques and expertise were important, substantially important or very important. Focusing on the core business was universally mentioned as being important, substantially important or very important. 90.9% of users indicated productivity improvement was important, substantially important or very important.

In making the decision to outsource, several criteria were used to select contract companies. The importance attached to each of these criteria by the respondents is presented in Table 13.

TABLE 13: CRITERIA FOR EVALUATION OF CONTRACT PROVIDERS

Factors	Not Important # (%)	Moderately Important # (%	Important # (%)	Substantially Important # (%)	Very Important # (%)
1. Cost saving 3 (6.8)	1 (2.3)	12 (27.3)	8 (18.2)	20 (45.5)	
2. Service quality	1 (2.3)	2 (4.7)	15 (34.9)	14 (32.6)	11 (25.6)
3. Company reputation	0 (0.0)	2 (4.5)	21 (47.7)	15 (34.1)	6 (13.6)
4. Range of service provided	1 (2.3)	2 (4.7)	15 (34.9)	14 (32.6)	11 (25.6)
5. Past experience	0 (0.0)	5 (11.6)	10 (23.3)	17 (39.5)	11 (25.0)
6. Word of mouth	4 (9.3)	8 (18.6)	12 (27.9)	10 (23.3)	9 (20.9)

More than 90% of users (91%, 93.1%, 95.4% and 91.3%) indicated that the price, quality of the service provided, company reputation and range of service provided, respectively, are the most important criteria. 87.8% and 72.1% of the users indicated past experience and word of mouth are important, substantially important or very important.

The respondents were asked to identify any concerns that they had regarding outsourcing of their related functions. More than 80% of users responded that they were enthusiastic, substantially enthusiastic or very enthusiastic about the cost of outsourcing, uncertainties about the capability and reliability of the contract firms and potential loss of direct control of activities which are outsourced, and 77.2% of users indicated they were substantially enthusiastic and very enthusiastic about level of service quality. These results can help third party services providers understand what factors firms consider and how firms decide to use their services in order to improve or help them in marketing their services.

3. Impact of Outsourcing on User Firms

The impact of outsourcing on user firms was assessed in terms of organizational impact, training, benefits and difficulties/pitfalls. The responses relating to these issues are discussed in this section.

Users of contract logistics services were asked to categorize the impact of those services on their companies in terms of logistics costs, customer satisfaction, and internal related system performance and employee morale. The responses are summarized in Table 14.

TABLE 14: ORGANIZATIONAL IMPACT OF OUTSOURCING SERVICES

Factors	Very Negative %	Negative %	Neutral %	Positive %	Very Positive %
1. Costs	0	18.2	22.7	38.6	20.5
2. Customer satisfaction	0	11.4	13.6	52.3	22.7
3. Internal system performance	0	15.9	22.7	43.2	18.2
4. Employee morale	0	11.4	43.2	43.2	2.3

Clearly, the use of contract logistics services has had a strong positive impact on costs, customer satisfaction and system performance. 75.0% of the respondents noted the impact as positive or very positive on customer satisfaction. More than 50% indicated costs and system performance has a positive or very positive impact and 45.5% of users noted the impact of the use of contract service providers was positive or very positive on employee morale. However, 11.4% of the respondents indicated that outsourcing third party services had a negative impact on customer satisfaction and employee morale. These results are similar to those of the previous study by Bhatnagar, et al. (1999). It shows that people issues are always a critical factor to be considered in outsourcing decisions.

As is the case with any change programme that an organization undertakes, the provision of appropriate training for employees is an important first step. 61.4% of respondents indicated the need for retraining, and training efforts had typically focused on employees' ability to adjust in another environment and new roles. This included higher skills / knowledge development (37%), adjustments in the operating process (22.2%), store management and systems support (14.8%) and use of computerized systems (11.1%). 38.6% of the users of contract services indicated that retraining of related operational personnel was not necessary. This is different from the result of the previous study by Bhatnagar, et al. (1999) in which 76.3% of users indicated that retraining was not necessary.

In terms of the benefits achieved from 3PL, users reported obtaining multiple benefits. Cost reduction, opportunity for the user firm to focus on its core business, improved service quality levels and increased productivity of the user firm were mentioned as the most frequently obtained benefits. Better space utilization, access to up-to-date technology, techniques and special expertise from the contract logistics firms were not really important benefits for several other users (see Table 15).

TABLE 15: BENEFITS ACHIEVED FROM 3PL SERVICE PROVIDERS

Benefits	Percentage
1. Costs reduction	77.3
2. Opportunity to focus on core business	50
3. Improved service quality levels	50
4. Increased productivity of your firm	40.9
5. Better space utilization	20.5
6. Access to up-to-date technology	18.2
7. Techniques and special expertise from contract firms	29.5

In terms of implementing the decision to outsource logistics, 68.2% of users mentioned they did not experience any difficulties/obstacles in bringing contract firms on-line, while 31.8% of the users indicated that they experienced significant difficulties/obstacles in bringing contract logistics firms on-line. The most often mentioned difficulties included coordination and integration between the company and the contract logistics firm (57.1%), price negotiations and billing problems (42.9%) and incompatibility of information systems (35.7%). The contract firm's inadequate understanding of the company's operations was also mentioned by 28.6% of those who experienced difficulties/obstacles in bring contract firms on-line.

The use of 3PL service providers did not lead to the elimination of full-time related positions in the company (81.8 % of users who responded). Only 18.2% of users indicated that there was an elimination of full-time related positions in their company. Table 16 shows that 50% of the firms eliminated up to 20% of their full-time staff and 25% of firms indicated they had eliminated from 20% to 60% of their full-time staff. The result shows that outsourcing third party services is not a factor in the elimination of employees from the company and this result is different from the result of the study by Bhatnagar, et al. (1999) in which the use of 3PL services led to the elimination of several full time logistics related positions in the company (see Table 17).

TABLE 16: ELIMINATION OF FULL-TIME POSITIONS

Percentage of position eliminated	Percentage of respondents
Less than 20%.	50
20% - 40%	25
41% - 60%	25
61% - 80%	0
More than 80%	0

TABLE 17: ELIMINATION OF FULL-TIME POSITIONS IN SINGAPOREAN FIRMS

Percentage of position eliminated	Percentage of respondents
Less than 20%.	15.8
20% - 40%	25.0
41% - 60%	10.5
61% - 80%	7.9
More than 80%	5.3

4. **Future Use of 3PL Services Providers**

This section focuses on the companies' future plans and concerns regarding the utilization of third party logistics services, and whether firms were considering changes in the level and nature of their involvement with third party providers.

One-half of the firms using contract logistics services were at least satisfied with the performance of those companies. 4.5% of user firms indicated that they were very satisfied with the performance of their contract services providers. 54.5% indicated they were satisfied. 13.6% indicated that they were dissatisfied and the remaining 27.3% had a neutral opinion. 63.6% of the user firms indicated that the use of contract services providers had had a positive or very positive effect on their companies.

Respondents were also asked how likely their companies were to increase their use of contract services during the next three years. 51% of respondents indicated that they were very likely or likely to increase their use of contract logistics services, while 25.5% indicated that they are unlikely or very unlikely to increase their use during the next three years. Nearly one-quarters (23.5%) had no opinion about this.

Among four countries, 58.4% of Thai respondents, 60% of Vietnamese respondents, 10% of Chinese respondents, and 71.4% of South Korean respondents indicated they were very likely or likely to outsource third party services in the next three years (see Table 18).

TABLE 18: FUTURE USE OF 3PL SERVICES

Future Use of 3PL Services	Thailand (%)	Vietnam (%)	China (%)	South Korea (%)
Very unlikely	0	10	1	0
Unlikely	8.3	10	70	14.3
Neutral	33.3	20	10	14.3
Likely	41.7	40	0	71.4
Very likely	16.7	20	10	0

Respondents were asked how they would modify their use of contract services if they were given complete corporate responsibility to make that decision, and this data is provided in Table 19. 47% of respondents indicated that they would moderately increase or substantially increase the use of outsourced third party services. 43.1% had a neutral opinion and only 9.8% of respondents indicated they would moderately decrease the use of outsourced third party services. In the earlier study by Bhatnagar, et al. (1999), 82.9% respondents indicated that if they were given complete corporate responsibility to make that decision, they would moderately or substantially increase the of contract services, and only 13.1% indicated they would moderately decrease or eliminate the use of contract services in their firm (see Table 20).

TABLE 19: HOW RESPONDENTS WOULD MODIFY THEIR COMPANIES' USE OF CONTRACT SERVICES IF THEY WERE GIVEN COMPLETE RESPONSIBILITY FOR THE DECISION

Nature of Modification	Percentage of Respondents Indicating that Modification
Moderate decrease use	9.8
Neutral	43.1
Moderate increase use	43.1
Substantial increase use	3.9

TABLE 20: HOW SINGAPOREAN RESPONDENTS WOULD MODIFY THEIR COMPANIES' USE OF CONTRACT SERVICES IF THEY WERE GIVEN COMPLETE RESPONSIBILITY FOR THE DECISION

Nature of Modification	Percentage of Respondents Indicating that Modification
Moderate decrease or eliminate use	13.1
Moderate or substantial increase use	82.9

CONCLUSION

The importance of the study lies in the notion that it takes into consideration the latest trend of globalization in today's highly competitive and dynamic business environment. It further highlights the importance of the use of third party service providers and how, if effectively used, companies can derive benefits from it. Furthermore, the study also underlines the importance of such services to international trade and operations and indicates how it can positively impact the operational effectiveness and productivity of the company.

IMPLICATIONS

Based on the research methodology, with strong dependence on questionnaires as the main medium to collect data and conduct the research, the following key findings were highlighted. Primarily, the research covered areas such as the extent of use of contract companies, types of contract services used, the factors affecting the decision to outsource, the selection criteria, the overall performance of the contracted companies, the impact of the use of the contracted companies, and the future trends.

Employment Characteristics

The first result indicated that 86.3% of respondents used contract services, while only 7 companies (13.7%) out of 51 companies did not use them. Our research indicated that out of the respondents that used contract services, 59.1% hired two or three companies. As in the case of non users of contract services, 57.1% had neutral feelings and orientation towards such services. As for the prospect of future usage of contract services by current non users, 28.6% indicated they had no intention of using the services within the next three years while only 14.3% showed any kind of interest in using the services in the near future.

Furthermore, an analysis of the current employment pattern of contract services by companies, both users and non users, indicated that in cases where the company had less than 200 employees, 7 companies in Vietnam outsourced, which was 70% of the companies surveyed in Vietnam. Thus we can note that companies with fewer employees were more likely to outsource. Similar findings were made in Thailand, China and South Korea, with larger companies showintg a decreased tendency to outsource.

In Thailand one important exception was found, namely that those companies having more than 5,000 employees had a significant outsourcing rate. Out of the 7 companies that did not use outsourced services, 71.4% were in Thailand.

Extent of Use of Contractual Services

The findings indicate that out of the 44 companies using outsourced services, 24 companies or 54.5%, have been using them for over four years. This shows that the long term impact has an effect on the use of such services. Thus it can be said that a majority of companies have been using the services for a long time.

The level of commitment was also studied. It is significant to note that 31.8% of the companies were moderately committed to the contract service providers, while 29.5% were extensively committed. Thus we can conclude that the commitment level was high. In the financial aspects, and the allocation of budget to contract services, 19 companies or 43.2% allocated less than

20% of their total budget, while 14 companies or 31.8% allocated between 20%and 40% of the total budget. Thus we can conclude that the majority of the companies allocated only a small share of their total budget to the use of contract services.

However, an examination of the behaviour over 4 countries shows that in South Korea, 66.66% of the companies dedicated between 60% and 80% of their budget to contract services. This is in contrast to the 3 other countries where the pattern was more concentrated on lower budget allocation.

When taking into account the most frequently outsourced services, it was found that shipment consolidation had the highest frequency of 40.9%, followed by freight payment at 31.8%. The lowest frequency recorded was for product returns at 4.5% and customer spare parts services at 6.8%. This was a pattern that was repeated over the 4 countries. In terms of formal contracts, 45.5% of companies had signed contracts for less than 1 year, 29.5% for 1 to 2 years, and 11.4% for 2 to 3 years. The remainder signed contracts for over 3 years.

Decision Making Process

The findings indicate that 61.4% of decisions originated from the corporate level. 20.5% indicated that it stemmed from the divisional level. Out of 44 companies that use contract services, 38.6% responded that a cross-functional team was involved in the decision making process. 36.4% responded that production managers had the most influence on the decision making, while 31.8% said that marketing managers had a hand in the decision making. With regards to the source of information about the contract service providers, 29.5% highlighted the fact that it was from their own research. 27.3% were contacted by representatives of the service providers.

With regards to the main reason why companies outsource, 29.5% identified cost saving as important, while 45.5% said it was very important. Flexibility of service was also crucial since over 88.6% of respondents rated it as important or very important. Customer satisfaction, focus on core business and productivity improvement also had similar patterns of ratings. It can be concluded that cost savings carried maximum weight when decisions to outsource were made, while service quality, range of service and past experience came close behind. Company reputation had a high importance but not as high as the other factors.

Impact of the Service

Most respondents noted that outsourcing had had a positive or very positive impact on their company. Areas covered included cost savings, customer satisfaction, employee morale and internal related performance. Regarding the main benefits derived from the use of contract services, 77.3% responded that it helped reduce costs. 50% said it helped create an opportunity to focus on core business, and 50% responded that it helped boost service quality. The least commonly identified benefit was access to up to date technology at 18.2%.

FUTURE TRENDS

In relation to future trends, the key findings were that most companies across the 4 countries were likely to use contract services in the future. However, in China 70% were unlikely to use them. This is the only exception in the 4 countries with regards to future use.

In conclusion, although there were some limitations in the timing and collection of questionnaires in the survey, the results identify similarities and differences between the firms in Thailand, Vietnam, China, South Korea, and also the firms in Singapore studied by Bhatnagar, et al. (1999). Among the differences, such as the length of time using contract service firms, level in the company initiating the decision to outsource third party services, retraining efforts, and elimination of full-time employees in the company were highlighted. At the same time, there were similarities in current employment in firms that are outsourcing third party services, degree of commitment to the use of the third party services, percentage of budget allocated to third party services, most frequently used contract services, and impact of outsourcing on user firms. Moreover, the most important finding in this survey is that although there was no initial focus on the use of third party logistics services, the results show that most of the outsourced activities involve using third party logistics services, and a high level of demand for these services in Thailand, Vietnam, China and South Korea. It can be seen that nowadays the demand for outsourcing third party services is increasing in Thailand, China and South Korea and especially in Vietnam. This is similar to the findings of the study by Bhatnagar, et al. (1999) where, almost ten years ago, the demand for using third party logistics services in Singapore was very high and increasing. This represents a trend of using third party logistics services which is not only increasing but strongly increasing over recent years, as society is developing rapidly.

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