The Importance of Logistics Service's Perceived Value in Selected Countries

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Abstract

The authors first define the reasons for outsourcing with the emphasis on business logistics. They analyze the specific issues of logistics service's perceived value in outsourcing logistics activities on the basis of the survey carried out in Slovenia, Croatian, Bosnian-Herzegovina and Serbian-Montenegro companies. The purpose of the survey was to measure the customers' perception of different characteristics of logistics provider which can be decisive when manufacturing firms are trying to make a decision whether to outsource and which logistics provider to select. The paper creates a framework for selection of the important and perceived characteristics of logistics provider relevant to customer in the process of the logistics supplier selection.

1. Introduction

The trend of globalization, which has already been successfully reactivating the currents of international markets in the last ten years, recognizes an important role of logistics and transportation activities. The buyers of logistics services demand higher quality, more reliable and more efficient transport of goods; therefore, the service provider must ensure a complete execution of all logistics and related activities. A global perspective is important because global demand enables economies of scale for the seller, which is the key to cost savings and price reductions to buyers.

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Selecting the right list of factors can be difficult. Within any organization, there will be differences of opinion about the key buying factors, their importance, and how well the company performs on each factor. However, organizations need to have a consistent set of weights and performance ratings on which everyone on the business unit team agrees. One of the major challenges of services marketers is the assessment of the quality of service offerings. Because of the general nature of services (i.e. intangibility, inseparability, heterogeneity, and perishability), service quality is usually difficult for customers to evaluate (Hutt and Speh, 1998). The purpose of our study was also to measure the perception of respondents about different characteristics of logistics provider.

One of the hottest trends today is the outsourcing of logistics or third-party logistics (3PL). Without question, 3PL, also referred to as outsourcing or contract logistics, is in the midst of rapid global expansion. A significant reason for such growth is that business dealings are shifting from transactional-based strategies to relationship based alliances such as partnerships. Companies are acknowledging that they can gain a competitive advantage by leveraging the resources and expertise sold by third-party providers. Small firms to multinational companies are benefiting from the economies of scales that 3PL companies achieve by handling large volumes of goods through its warehouse and distribution operations (Logistics Consulting Group, 2004).

Objectives of the paper are:

• Defining the reasons for outsourcing with the emphasis on business logistics
• Presenting the process of outsourcing partner selection
• Analyzing the specific issues of logistics service's perceived value in outsourcing logistics activities.

2. Outsourcing Partner Selection

Boyson, Corsi, Dresner and Rabinovich (1999) examined the reasons why some logistics outsourcing partnerships are successful and how best to manage a 3PL relationship. In particular, their research identified the most effective means and methods for evaluating and selecting 3PL from outsourcing user's perspective, and identified the most effective means for organizing, operating, and monitoring 3PL relationships. Sink and Langley (1997) presented a conceptual model of the 3PL purchasing process, which, according to their analysis, consists of five distinct steps or phases.

Overall, approximately 60 per cent of Fortune 500 firms report having at least one contract with a third party logistics provider (Lambert, Emmelhainz and Gardner, 1999).

A recent study by Persson and Virum (2001), discusses the potential economic advantages of logistics outsourcing. Some of these are: the elimination of infrastructure investments; access to world-class processes, products, services or technology; improved ability to react quickly to changes in business environments; risk sharing; better cash-flow; reducing operating costs; exchanging fixed costs with variable costs; access to resources not available in own organization.

As recently as a decade ago, 3PL was an emerging industry in many parts of the world. However, the rate at which use of these services grew, the rate of growth across functions and the reasons for this growth differed in different parts of the world. In Europe, firms tend to use 3PL both for international transport and for the distribution of products in foreign markets. Nearly two-thirds of the European distribution centers used by American, Japanese, Korean and Taiwanese manufacturers are managed by 3PL providers (Mckinnon, 1999); 3PLs helped firms deal with multinational transportation requirements and inconsistencies.

Several recent studies have addressed the issue of growth in the 3PL market and other freight intermediaries in detail. A study by Murphy and Poist (1998) provides a review and synthesis of research on this topic. A main part of supplier selection research is oriented towards the purchase of products rather than services. It reveals that supplier evaluation and selection is employed routinely in industrial purchasing. Most evaluation methods used by industrial buyers could be classified into three basic types: (1) a categorical approach; (2) a weight-point plan; and (3) a cost-ratio method (Sink and Langley 1997, p. 168).

Candidate evaluation begins with the establishment of selection criteria. Quality, cost, capacity, and delivery capability are used to evaluate distribution providers. In selecting an external logistics provider, however, the criteria are typically more rigorous. References provided by current customers, cultural compatibility, financial strength, depth of management expertise, operating and pricing flexibility, and information system capabilities play essential roles (Sink and Langley, 1997, p. 178).

Specialists in logistics prepared a process model of how to choose an external supplier. The process includes five steps:

(1) Defining the need for transferring logistics services onto external suppliers:
- perceiving the problem
- management's agreement
- putting together the negotiating committee
- cooperation with management of business units.

(2) Elaboration of alternative solutions:
- inclusion of internal specialized knowledge and experiences
- inclusion of external specialists.

(3) Evaluation of candidates and deciding for a supplier:
- preparation of criteria for selection of potential suppliers
- collecting all the necessary data
- evaluating the candidates
- selecting the supplier.

(4) Realization of services (transfer onto external supplier):
- making a plan for transition to outsourcing
- education
- transfer of services onto external supplier.

(5) Evaluation of external supplier's work:
- qualitative and quantitative evaluation of services' level
- controlling the realization and improvement of realized services
- improving or changing the external suppliers.

Elaboration of criteria for selecting potential external suppliers in logistics is very important. There exists an extra study about the importance of parameters – features of logistics' quality (Menon, McGinnis and Ackerman, 1998, pp. 122 – 133).

3. Evidence of Outsourcing in Logistics

The functions performed by 3PLs ranges considerably. According to the survey conducted by Lieb and Hickey (2002), 3PLs provide Fortune 500 manufacturers a wide variety of services and they provide the typical user with multiple logistics services. As shown in Table 1, the most frequently outsourced logistics functions in 2002 were: customs brokerage 67 per cent, freight payment 63 per cent, freight forwarding 58 per cent, direct transportation services 56 per cent, carrier selection 52 per cent, shipment consolidation 49 per cent, and rate negotiation 47 per cent. Warehouse management service usage was reported by 42 per cent of users. That was down substantially from the 59 per cent of 3PL users who reported using warehousing services last year. The largest year-to-year percentage gains were registered by customs brokerage and freight forwarding, reflecting the growing international nature of 3PL services.

The examples when logistics activities are outsourced to external suppliers are as follows:
- fast launching of a product on new markets
- larger changes in purchasing and/or distribution logistics
- changes in manufacturing
- required quality of physical supply or physical distribution (e.g. reducing delivery time, changed incoming/outgoing quantity)
- adapting to the fast growth of sale.

Table 1

The Most Frequently Used Services Provided by 3PLs

Logistics Function	Citing Use (per cent)
Direct transportation service	56
Warehouse management	42
Shipment consolidation	49
Freight forwarding	59
Freight payment	63
Tracking/tracing	44
Customs brokerage	67
Design of IT systems	9
Selection of software	9
Operation of IT systems	16
Carrier selection	51
Rate negotiation	47
Product returns	23
Fleet management/operations	23
Relabelling/repackaging	23
Contract manufacturing	12
Order fulfillment	33
Assembly/installation	5
Inventory replenishment	9
Order processing	9
Customer spare parts	9
Consulting services	21
Purchase of materials	7

Source: Lieb and Hickey, 2002, p. 16.

Thus, some manufacturers estimated they would not be able to follow the logistics development. After a thorough analysis they decided to outsource it to the enterprises specializing in logistics.

Heiner (1996) tried to discover which logistics services of a firm should be left to external suppliers and what goals we want to achieve with that.

Table 2

Estimates of Logistics Services Outsourced

Service	Share (per cent)
Transport	85
Warehousing	53
Dispatch	47
Packaging	33
Commissioning	33
Reverse Logistics	32
Labeling	31
Customs Clearance	27
Clearing	12
Assembling	10
Quality Control	10
Financial Services	9
Organizing of Logistics	9

Source: Heiner, 1996, pp. 32 – 33.

Logistics services providers (e.g. specialized logistics firms, especially forwarding agents) are changing their service profile: a shift from the traditional services with emphasis on transportation towards a complex offer of the logistics services is perceived. Though, the traditional services of forwarding agents, as for example quality control and warehousing, are still used.

4. Empirical Research

4.1. Research Sample

Our empirical research is based upon two different samples. One sample includes 400 companies from three different countries: Croatian, Bosnian-Herzegovina and Serbian-Montenegro companies. The second sample includes 850 Slovenian companies. In the both samples we were using a stratified sample of Slovenian, Croatian, Bosnian and Serbian companies – Intereuropa's customers. We have selected customers of Intereuropa Group because it is the leading logistics provider and the largest logistics Group in Slovenia, Croatia, and Bosnia and Herzegovina. We choose the strata based on the annual net sales revenues. Even through these companies only account for around of the 8 per cent of total Intereuropa's customers, they produce more than 80 per cent of total Intereuropa's annual net sales revenues. At the time Slovenia joined the European Union, Intereuropa had already been organised in a Group consisting of the parent company Intereuropa Ltd. Co. and its 15 associated companies in Bosnia and Herzegovina, Croatia, Macedonia, the Community of States of Serbia and Montenegro, Russia, Austria, Germany, France, Ukraine and the Czech Republic.

The research was carried out in Slovenia in November 2003, the mailing in Croatia, Bosnia and Herzegovina and Serbia and Monte Negro was conducted in October 2004. The mailing package included the cover letter, signed by the author stating the purpose of the survey, a seven pages long questionnaire, and a self-addressed return envelope. The questionnaire was translated from the Slovene into Croatian, Bosnian and Serbian language. The covering letters with questionnaires were sent to the corporate directors of Intereuropa's top customers. The survey mailing resulted in responses from directors and logistical professionals in companies, executives who purchase logistical services.

In the first sample we were using the first sample of 400 companies. During the four-week period following the mailing, a total of 84 responses were received. Including the 21 undeliverable surveys (e.g., wrong address, the respondent not existing) and 4 incomplete surveys, a response rate of 21.0 per cent was achieved (84/400). Thus, the 59 respondents in the sample may be somewhat

unique in their characteristics. In this research, the response rate is defined as the per centage of total questionnaires returned by respondents.

The second sample included 850 Slovene companies, logistical directors and other executives who purchase logistical services. Incorporating the 16 undeliverable surveys (e.g., wrong address) and 12 incomplete surveys, a response rate of 37.1 per cent was achieved (315/850). The results presented in this paper are from these 287 respondents. The collected empirical data were processed with SPSS 10, where the emphasis was given to descriptive statistical analysis and hypothesis testing (Završnik and Jerman, 2003, p. 634).

Some of the possible limitations of the survey results should be noted. First, the low response rate might be considered a concern, but in fact, it is expected in organizational research as opposed to consumer research (Hansen, Swan, and Powers, 1996, p. 85). Second, the time-lag between the two mailing should be considered.

4.2. Analysis and Results

Company Profile

In the first part of the questionnaire, the respondents were asked some basic facts about the company, its line of business, number of employees, its largest sales markets, and the respondent's position in the company. The following five Tables show certain characteristics of the sample companies.

T a b l e 3
Respondents Country of Origin

Country	Frequency	Per cent
Croatia	33	9.54
Bosnia and Herzegovina	10	2.89
Serbia and Montenegro	16	4.62
Slovenia	287	82.95
Total	346	100.00

Source: Own computation from survey results.

The returns were dominated by companies of production-oriented business, followed by commercial-oriented business and service-oriented business.

T a b l e 4
Main Activity of Companies

Main activity	Frequency	Per cent
Production-oriented business	172	49.71
Service-oriented business	47	13.58
Commercial business	108	31.21
Other	19	5.49
Total	346	100.00

Source: Own computation from survey results.

The position of respondents in the companies shows the following structure. Forty-one per cent of the respondents were top executives, thirty-two per cent of the respondents belong to middle management, and twenty-five per cent of respondents belong to first line management. The remaining three per cent of the respondents had different positions in the companies.

T a b l e 5

Respondents' Position in the Company

Position	Frequency	Per cent
Top management	140	40.46
Middle management	111	32.08
First line management	85	24.57
Other	10	2.89
Total	346	100.00

Source: Own computation from survey results.

The surveyed companies were next asked about their largest sales market. The respondents had the possibility to choose among four different answers. The majority of the questionnaire respondents sold products into the industrial market segment, where business customers are classified into tree types; 94.2 per cent of respondents sold to commercial enterprises, 16.8 per cent sold to governmental organizations and 17.9 per cent sold to institutions. This is followed by the consumer market where 49.4 per cent of surveyed companies sold products to retail/end consumer.

T a b l e 6

Respondents' Sales Market

Sales market	Frequency	Per cent
Commercial enterprises	269	94.20
Governmental organizations	58	16.80
Institutions	62	17.90
Retail/ end consumer	171	49.40

Source: Own computation from survey results.

A wide range of companies, classified according to their number of employees, are represented in this study. The size of the companies was determined regarding to the Slovenian Law of Business Companies. A company with no more than 100 employees was considered a small company, a company with 101 to 250 employees was middle sized company, and a company with more than 251 employees was considered a large company. The returns were dominated by small companies. In our sample we had 61.3 per cent of small companies, 20.8 per cent large companies, and the remaining 17.9 per cent were middle-sized companies.

Table 7

Size of the Respondents Companies

Company's size	Frequency	Per cent
Small companies	212	61.27
Middle-size companies	62	17.92
Large companies	72	20.81
Total	346	100.00

Source: Own computation from survey results.

Perceived Value of Logistical Services

The respondents were asked to indicate on a 5-point Likert scale, the importance (5 = „extremely important" to 1 = „of little importance") of characteristics of logistics provider. Results show that the on-time delivery of logistics services was by respondents the most important characteristic of logistics provider (mean = 4.89). From the results we can see that there are small differences between the mean scores in importance of different characteristics of logistics provider. The research suggest that respondents have given more importance to following characteristics of logistics companies: on-time delivery, speed of delivery and reliability of logistical services offered.

Table 8

Importance of Characteristics of Logistics Provider (in per cent)

IMPORTANCE of characteristics of logistics provider	Slovenia Mean	Croatia Mean	Bosnia and Herzegovina Mean	Serbia and Monte negro Mean	Overall mean	Overall std. deviation
On-time delivery	4.90	4.85	5.00	4.75	4.89	0.38
Qualified personnel	4.67	4.52	4.20	4.63	4.64	0.57
Price	4.52	4.39	5.00	4.19	4.50	0.65
Adequate vehicles and equipment	4.15	3.94	4.00	4.56	4.15	1.33
Simple ordering of logistics services	4.28	4.30	4.70	4.44	4.30	0.77
Reliability	4.89	4.82	4.90	4.81	4.88	0.38
Possibility of transportation of goods multiple times a week	3.99	3.85	4.10	3.69	3.94	1.06
Payments under agreement	4.29	4.06	4.80	4.00	4.27	0.83
Complete range of logistics services	3.86	3.61	4.40	3.75	3.85	1.04
Door-to-door service	3.70	3.52	3.70	3.63	3.68	1.09
Accessibility	4.02	3.91	4.70	4.25	4.04	0.92
Speed of delivery	4.70	4.27	4.90	4.50	4.66	0.59
Good reputation and tradition	3.29	3.91	4.00	4.31	3.43	1.32

Source: Own computation from survey results.

To understand the differences in the respondents' view of the relevance of different characteristics of logistics provider across the countries, we would like to find if there are some statistical differences between Slovenian, Croatian, Bosnian

and Serbian companies. Assumptions to be met for ANOVA are that the population should be normally distributed, the groups should be independent of each other and the groups should be of equal variance (Taylor, 2001, p. 133). We checked the distribution by carrying out a Kolmogorov-Smirnov test of normality and the results had been significant ($p = 0,000$) for all characteristics of logistics provider. The four groups are also independent from each other and this was satisfied by the random selection of the samples.

The null hypothesis in one-way ANOVA assumes that all means are equivalent, while the alternative hypothesis states the variability or differences in the means being compared is greater than expected from a sampling error, that is, at least one of the means is significantly different from the others tested (Davis, 1997, p. 378). Accordingly, we make the hypothesis as follows:

Null hypothesis, H_0, is that all the group means are equal.
Alternative hypothesis, H_1, is that at least two of the means are different.

To understand the differences in the respondents' view of the importance of different characteristics of logistics provider across the countries, we tried to find out if there are some statistical differences between Slovenian, Croatian, Bosnian--Herzegovina and Serbian-Montenegro companies. We compared these four groups with respect to their importance of different characteristics to see whether this would yield different results. Using one-way analysis of variance (ANOVA), we found the statistical difference among these segments regarding price of logistics services (F ratio = 3.658; $p = 0.013$), qualified personnel (F ratio = 2.784; $p = 0.041$), payments under agreement (F ratio = 2.739; $p = 0.043$), speed of delivery (F ratio = 6.442; $p = 0.000$) and good reputation and tradition (F ratio = 5.721; $p = 0.001$). So, we reject the null hypothesis and conclude that there is a significant difference among different countries regarding importance of different characteristics of logistics provider mentioned above.

Then, the respondents were asked to assess the perceived quality of characteristics in the case of the logistics company Intereuropa. Thus, it is also important to examine whether logistics services company targeting business customers is communicating right quality of service characteristics previously identified by business customers as being important. The difference between the lowest value (mean = 3.39) and the highest value (mean = 4.24) is small. The following characteristics of logistics provider Intereuropa were given the highest value: good reputation and tradition, payments under agreement and complete range of logistical services offered.

We also applied the ANOVA to compare the mean score of the perceived value of different characteristics of logistics provider among four countries. Accordingly, we make the hypothesis as follows:

Table 9
Perception of Characteristics of Logistics Provider (in per cent)

IMPORTANCE of characteristics of logistics provider	Slovenia Mean	Croatia Mean	Bosnia and Herzegovina Mean	Serbia and Monte negro Mean	Overall mean	Overall std. deviation
On-time delivery	3.87	4.44	4.20	4.50	3.96	0.98
Qualified personnel	3.95	4.34	4.50	4.86	4.05	1.06
Price	3.31	3.81	3.40	4.00	3.39	1.01
Adequate vehicles and equipment	3.97	4.16	3.90	4.79	4.02	1.01
Simple ordering of logistics services	3.95	4.22	4.50	4.43	4.01	1.02
Reliability	4.01	4.44	3.90	4.79	4.08	1.06
Possibility of transportation of goods multiple times a week	3.89	3.72	2.70	4.14	3.85	1.11
Payments under agreement	4.18	4.00	3.80	4.57	4.17	1.14
Complete range of logistics services	4.13	3.97	4.30	4.36	4.13	0.98
Door-to-door service	3.92	4.03	3.90	4.00	3.93	1.03
Accessibility	3.99	4.13	4.50	4.64	4.05	1.09
Speed of delivery	3.77	4.13	3.80	4.43	3.83	1.08
Good reputation and tradition	4.18	4.44	4.20	4.50	4.24	1.06

Source: Own computation from survey results.

Null hypothesis, H_0, is that all the group means are equal.
Alternative hypothesis, H_2, is that at least two of the means are different.

The ANOVA results indicate that the perceived value of characteristics of logistics provider for six specific characteristics were statistically significant for countries, i.e. the on-time delivery (F ratio = 5.044; p = 0.002), qualified personnel (F ratio = 5.115; p = 0.002), price of logistics services (F ratio = 4.273; p = 0.006), adequate vehicles and equipment (F ratio = 3.202; p = 0.024), reliability of logistical services offered (F ratio = 3.798; p = 0.011) and the possibility of transportation of goods multiple times a week (F ratio = 4.280; p = 0.006). The test statistic exceeds the critical values at some perceived characteristics of logistics provider, so we reject the null hypothesis and conclude that there is a significant difference regarding between countries.

We also compare the importance and the perceived value of characteristics of logistics provider and we conclude that the biggest differences between perceived and importance values were found on following characteristics: price of logistical services, the on-time delivery and speed of delivery.

Conclusion

The third party logistics industry has become relatively stable in the USA and in Europe. Successful logistics outsourcing can provide significant benefits to firms and to third party logistics providers. However, there are some hidden risks

in logistics outsourcing. Identifying hidden risks and preventive measures can help build successful logistics outsourcing partnerships.

Purchasing industrial services, especially logistics services is a time-consuming, complex, and expensive activity. Purchasing plays a key role as it seeks out reputable sources on different basis. Customers may well purchase on a regular basis, but only because there is an absence of current alternatives. One source for identifying the logistics provider is the perceived value of logistics services offered. The attention is focused towards identifying the buyers' perception factors of logistics services to select the right logistics provider.

This paper created a framework of important and perceived characteristics of logistics provider relevant to customer in the logistics supplier selection process. The research suggests that respondents from Slovenian, Croatia, Bosnia and Herzegovina, and Serbia and Montenegro are attributing more importance to following characteristics of logistics companies: the on-time delivery, speed of delivery and reliability of logistical services offered. Because these characteristics of logistics services, particularly the on-time delivery has been considered important to business customers, they should be incorporated in communications messages. These factors are important to customers in the logistics provider selection process.

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