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The Method of Valuing of Logistic Outsourcing Services

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ABSTRACT

Outsourcing services widespread in developed countries have been used in the economic market of the Republic of Azerbaijan in recent years mainly in the fields of accounting, human resources, marketing, information technology and logistics.

Our previous study on «Logistics in the transport complex of the Republic of Azerbaijan» based on 11 criteria for the development of logistics outsourcing concluded that the lack of mutual trust between companies and their desire to maintain own control in most areas is one of the reasons explaining poor development of logistics outsourcing.

The proposed article proposes for discussion new criteria developed by us, in addition to ones existing and described in the scientific literature, to assess the existing concerns of companies before concluding a mutual agreement in the field of outsourcing and to conduct internal and external evaluations of logistics outsourcing services.

Considering that the criteria described in the research papers do not fully cover the internal evaluation of logistics outsourcing services, an additional criterion of risk assessment was proposed by us. In addition to the criteria already known from the scientific sources, two other criteria were developed by us also for the external evaluation of logistics outsourcing services, those criteria reflect the capacity of logistics providers and tracking of vehicles in use.

The problem of unreliability and mistrust between companies and enterprises will be solved to some extent by making the optimal decisions through the new method discussed in this article.

Keywords: logistics, outsourcing, economics, transport logistics, 3PL, 4PL, evaluation method, logistics management.

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INTRODUCTION

Outsourcing is an area of focus for many researchers around the world. They have studied the effectiveness of outsourcing, application methods and other aspects of implementation of outsourcing in different fields. An example of this is the research conducted by D. McTernan on the application of outsourcing in financial matters. The author interviewed twenty experts and based on their opinions assessed the attitude of entrepreneurs to outsourcing and the prevalence of this service [1]. Another European expert, S. Lüttringhaus, Professor at Darmstadt Technical University, analysed the technical and financial problems in this field by applying the outsourcing service to a single enterprise [2]. Researchers from the University of Alicante in Spain, R. Gonzalez, J. Gasco, J. Llopis analysed in their research the application of outsourcing to information technology [3].

From our part, we also conducted a series of studies on outsourcing in Azerbaijan. Our research using the expert method revealed that logistics outsourcing services are relatively poorly developed in the transport complex of the Republic of Azerbaijan [4]. According to experts, many local companies have their own warehousing network, transport, and «natural» logistics facilities, and they don't have intention of renouncing them although they might reduce direct production or sales costs. Therefore, they don't rely on transferring most logistics services to foreign logistics intermediaries. In addition, experts, pointing out that the market of logistics intermediaries providing high level services at a reasonable price is relatively limited, highlighted that logistics in the country has received great development pursuant to the Decree of the President of the Republic of Azerbaijan dated December 6, 2016, which approved «Strategic Roadmap for Logistics and Trade Development» [5].

What are the reasons for the low prevalence of outsourcing in the Azerbaijani economic market? If we summarise the opinions of experts, we can conclude that companies do not trust logistics providers enough in terms of providing logistics services.

Objective of the research. To overcome this «unreliability», even if they trust each other, companies need to study and evaluate the service potential and quality of service of logistics providers who want to contract with them to provide outsourcing services. At the same time, companies need to identify and evaluate their areas of activity and make optimal decisions by comparing the proposals of logistics providers. Based on this assessment, companies will be able to identify their weaknesses, as well as providers that offer professional services in this area. As the famous saying goes, «Everyone must do what he knows best». One of the biggest mistakes made by many companies is that they focus on secondary activities rather than on core activities that prevent them from achieving high quality results and low costs [6].

Of course, all of this requires a valuation method that companies will use. Turkish researcher Ö. Yilmaz's research on «Outsourcing in businesses and effects on business performance» outlined the criteria for internal and external evaluations (in terms of a company's key areas, costs, risks) [7]. However, we think that these criteria are not sufficient for companies to make an optimal decision on cooperation in the field of logistics outsourcing. To this end, we have developed a new method by adding two more criteria that concern companies: «freight tracking» and «providers' carrying capacity».

METHODOLOGY AND RESEARCH RESULTS

As mentioned above, companies must conduct internal and external assessments before deciding to use outsourcing services.

Internal Assessment

Internal assessment consists of the following steps.

1. Assessment of Key Skills and Experience

The basic competences of the enterprise are the most important area of application of the company's efforts. But can companies do enough? Do they have enough experienced and qualified staff to do this? For the evaluation of experience, the management of the enterprise should prepare a list of experienced staff with consideration of the qualifications, work experience, professional diplomas, and certificates of the employees. The practice criterion of the company is then determined by the following statement:

$$\frac{N_e}{N_w} = P_{com} .$$

Here, N_e denotes the number of experienced employees, N_w is the total number of now working employees, and P_{com} is the criterion for practice of company.

The practice criterion is rated from $0 < 1$. When the result is 1, the number of experienced employees is maximum and when it is 0, their number is the minimum. A score of more than 0,5 is considered effective [7].

2. Expense Estimation

At this stage it is necessary to identify areas that are more labour intensive and costly than the core and

supporting activities of the enterprise. Then, by determining the monthly total expenditure and expenditure on that area, the expense criteria are determined based on the following statement:

$$\frac{E_a}{E_t} = E_{com}.$$

Here, E_a is the expense of the being evaluated area, E_t is the total expense, and E_{com} is the expense criterion of company.

The expense criterion ranges from 0 < 1. The desired result for enterprises is close to 0 [7].

3. Quality Assessment

At this stage, to determine the quality level of service provided by the enterprise, the total number of operations performed during a given period, as well as complaints (negative feedback, troubled relationships) should be determined. The quality criterion is then determined based on the following statement:

$$\frac{N_c}{N_s} = Q_{com}.$$

Here, N_c denotes the number of complaints, N_s is the total number of services provided (in numbers), and Q_{com} is the quality criterion of company.

The quality criterion ranges from 0 < 1. If the result is close to 1, then it is a very negative indicator for the enterprise.

Besides, we also propose risk assessment assuming that the three criteria mentioned in the literature above do not fully cover the internal evaluation of logistics outsourcing services. Of course, safety is one of the most important factors when it comes to transportation. For this reason, it is important to assess safety and risks in transportation.

4. Risk Assessment

At this stage, the number of accidents and errors made during a certain period of operation of the enterprise is determined. The risk criterion is then calculated based on the following statement:

$$\frac{N_a}{N_s} = R_{com}.$$

Here, N_a denotes the number of accidents, errors, N_s represents the total number of logistics services rendered, and R_{com} represents the risk criterion of the company.

The risk criterion is rated from 0 < 1. The result that is close to 1 is considered rather dangerous for the enterprise.

Based on the four-step evaluation in accordance with the above four criteria, enterprises can determine areas where the use of outsourcing will be useful. Of course, these are areas where they are less experienced, more prone to mistakes, more costly, and riskier.

External Evaluation

After these stages been completed, the right choice of service providers, that is, external appraisal, becomes actual. Naturally, every enterprise desires an optimal, reliable, experienced cooperation. But how can you trust the service providers? What are the benefits of cooperation? To answer such questions, enterprises should also conduct an external evaluation. Unlike internal evaluation, the researchers offer a four-stage evaluation for external assessment.

1. Evaluation of service providers

At this stage, a survey method can be used to evaluate the service provider. The factors listed below in the questionnaire are assessed in the range of 0–10 points.

- Company recognition.
- Activity duration of company.
- The number of experienced employees in the field of activity.
- Repeated and new customers of the company (number, name, etc. of the other partner organisations).
- Financial capabilities of the company.
- Equipment and systems that are owned.
- Open communication opportunities (intensity of responding to clients' requests, breadth of communication facilities).

After the questionnaire has been compiled, the service provider's experience criterion is determined based on the following statement:

$$\frac{\sum P_f}{n} = P_{pro}.$$

Here, P_f represents the points given to the factors, n is the number of factors, and P_{pro} denotes the experience criterion of service providers [7].

High criterion of experience is a desirable result in the first stage of provider selection. However, this is not an indicator sufficient to sign an outsourcing contract. For this reason, it is essential that the service providers are financially viable.

2. Expense estimation

At this stage, the expense criterion is determined by the ratio of service provider's services cost to the total costs of the company:

$$\frac{E_{ap}}{E_{tp}} = E_{pro.}$$

Here, E_{ap} is the price for service, E_{tp} is the total expenses, and E_{pro} is the expense criterion of providers.

The expense criterion ranges from 0 < 1, and enterprises are trying to get the result closer to 0. But, in assessing costs it is necessary to consider not only the cost of the service, but also the quantity and quality of the proposed works in return for the funds. For this reason, sometimes companies are interested in partnering with providers even if $E_{ap} > E_{tp}$ [7].

3. Assessment of service quality

At this stage, to determine the quality level of service provided by the service provider, it is necessary to determine the total amount of operations performed during a given period, as well as the number of complaints (negative feedback, troublesome relationships). The quality criterion is then determined based on the following statement:

$$\frac{N_{cp}}{N_{sp}} = Q_{pro} .$$

Here, N_{cp} refers to the number of complaints, N_{sp} – the total number of services provided (in numbers), and Q_{pro} – the quality criteria of providers.

The quality criterion ranges from 0 < 1. The result close to 0, is what enterprises expect from their service providers. As noted in the internal assessment, the risk factor in transport is also important for external evaluation [7].

4. Risk Assessment

At this stage, the number of crashes and errors that have occurred during a certain period of service provider's activity is determined and the risk criterion is determined based on the following statement:

$$\frac{N_{ap}}{N_{sp}} = R_{pro} .$$

Here, N_{ap} refers to the number of accidents, errors, N_{sp} – the total number of services provided, and R_{pro} – the risk criterion of providers. The risk criterion is rated in the range of 0 < 1.

Of course, companies require guaranteed service from a service provider in terms of reliability. That's why risk criterion is so important.

It is important to note that, in addition to the above-mentioned criteria, companies want to ensure that the shipments are delivered accurately and on time, and that they are always aware of the position and condition of goods. For this reason, in addition to the external evaluation criteria described in different sources, we offer two more criteria:

a) Criterion for calculating carrying capacity.

b) Criterion for tracing loads.

5. Calculation of carrying capacity

The following expression was prepared by us to describe the carrying capacity.

$$\frac{\sum_1^n L_v}{n} = C .$$

Here, L_v represents the load factor of a vehicle of logistics provider (t/km), n represents the number of flights operated by the vehicle (in numbers), and C represents the average utilisation coefficient of carrying capacity.

C criterion is an indicator of carrying capacity of the company to offer logistical outsourcing services. It will give some sort of answer to the question of whether opposite side can meet demand for transportation. C is rated in the range of 0 < 0,5 < 1. With C < 0,5 criterion is considered effective, this result is a desirable indicator for companies. If C coefficient is rated in the range of 0,5 < 1, logistics provider is considered to be partially overloaded, and it is supposed not able to fully meet the needs of new costumers for transportation.

6. The degree of tracking of freight

It is well known that one of the issues most worrying freight owners is the desire to be aware of where their cargo is, that is to track it. Of course, freight tracking is very important in terms of business planning and pre-load preparation for cargo operations. Therefore, the issue of tracking freight in modern transportation is at the forefront of the list of criteria required by logistics providers. To determine the degree of traceability of freight we offer the following statement:

$$\frac{N_{tv}}{N_t} = T .$$

Here, N_{tv} represents the number of trackable vehicles that can be used by the logistical provider, N_t the total number of vehicles used by the logistics provider, and T is the criterion for the tracking of cargo.

Tracking criterion is rated in the range of 0 < 1. Of course, if the T coefficient is close to 1, then the number of trackable vehicles meets desires of enterprises.

The results obtained after all the evaluation stages allow you to select the right provider. However, it should be noted that before making the decision to cooperate with the providers, the results of internal and external evaluations must be met. To simplify the process, we have compiled an indicator table in Microsoft Excel that has been developed by using a correlation method (Pic. 1). This table is designed with a simple comparison function. Thus, it logically compares the results of internal and external

№	Comparable factors	Internal assessment	External assessment	Indicators of conformity
1	Assessment of key skills and experience	0,50	0,70	✓
2	Cost estimation	0,25	0,30	✗
3	Quality assessment	0,35	0,24	✓
4	Risk assessment	0,27	0,11	✓
5	Calculation of carrying capacity		0,30	✓
6	Calculation of freight tracking rate		1,00	✓

Pic. 1. Table of result comparison [compiled by the authors].

evaluations and shows «appropriate» or «inappropriate» signs in the indicator column.

This table consists of four parts:

- Comparable criteria.
- Internal assessment results.
- Results of external evaluation.
- Indicator of conformity.

Conditional numbers have been added to illustrate the sample. If results are considered, we can see that the conformity indicator has made «eligible» statements regarding criteria 1, 3, 4, 5, and 6, and «inadequate» regarding criterion 2. Indicator variables vary according to internal and external evaluation of factors. Thus, it is easy to compare the results by entering the results in the table of indicators. If most of the results of this comparison are «appropriate», cooperation with logistics outsourcing companies can be considered successful.

As a result, as mentioned in the beginning of the article, the problem of mistrust and distrust between companies and enterprises, which is one of the reasons for the relatively weak development of outsourcing in the Azerbaijani economic market, will be solved by the right method by making the right decisions. With this new method, companies will be able to identify areas where they are inexperienced, that require more cost and are riskier, so that companies will be able to choose the optimal logistics providers.

CONCLUSIONS

The economic reforms in the country and the creation of a transparent business environment for entrepreneurs as a result of the serious struggle against monopoly in the market will affect less developed sectors of the Azerbaijani economy. Successful political and economic reforms, adopted strategic roadmap create favourable conditions for the study of world experience in logistics outsourcing, for promotion of 3PL-logistics service providers and introduction of 4PL-logistics providers to the market. Along with the wide use of the outsourcing services model in modern management, in developed countries of the world, we have also been able recently to witness the transfer in the Azerbaijan economy of business processes management to the third party, establishment of plenty of enterprises. i.e., YOM Logistics Azerbaijan, Baku Logistics Centre, Business Service Centre [8]. The method presented by us will not only provide the necessary resources for enterprises that want to use outsourcing services but will also contribute to the development of logistics outsourcing services in the Azerbaijani economy.

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