

The Indicators of Service Quality Measurement of Logistics Services

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Abstract

In the present paper the relevant object of scientific and empirical researches is analyzed – the quality of logistics services. The object is analyzed within the framework of interdisciplinary approach, i.e. from the prospects of marketing services and logistics. In the present study, the models of service quality measurement that have been created by the scientists of the area of service marketing and logistics and the indicators of service quality measurements of logistics are identified. In accordance with the provision that the criteria of service quality measurement have to be identified from a client's prospect, in the paper, the results of empirical research are presented that allow to create the rating of indicators according to perceived importance while assessing the quality of logistics services.

Keywords: quality of logistics services, indicators of quality measurement

Introduction

Relevance. Traditionally, it has been supposed for a long time that logistics is necessary only for the purpose to join the areas of production and consumption as well as to decrease the gap between them. Mentzer (2004) and Richey (2007) noted that the conception of logistics has started to change since 1990s, when not only the academics but also practitioners (Holmes, 1995; Magretta, 1998; Shin, 2000; Power et al, 2001; Rahman, 2002 et al.) contributed to the researches of logistics substantiated by the marketing principles and started to analyse the abilities of logistics to provide the services of high-quality and to encourage customers' higher satisfaction and loyalty at the same time.

Thus the quality of logistics services has become the relevant object of researches. Romano et al. (2001) proved that the practice of quality management and permanent observation of quality in the area of logistics may improve the abilities of enterprise in order to satisfy the expectations of a customer. The results of many researches have revealed the increase of a customer's satisfaction as the main result of the management of quality service of logistics, (Casielles, 2002; Shet, 2006; Richey, 2007), as well as proved the relationship between the quality of logistics

services and the achieved success of enterprise in the market (Sousa et al., 2002; Nair, 2006). Despite the researches proving that the management of the quality of logistics services determines the ability of the activity results of organisation (Saura, 2008; Taskin, 2010; Shahin, Janatyan, 2011; So et al, 2011) it is noted that the conception of quality (and the measurement of quality) in the system of logistics has not been sufficiently revealed. Ballou (2004) argues that the conception of quality services has substantially changed both the academic studies and the practice of logistics business and that there are different opinions what constitutes the quality of logistics services.

In order to improve the quality, it is necessary to assess it as the evaluation depends on the definition of the quality. This definition determines the nature of actions and procedures that are related to it. In the present paper, no attempt has been made to define the quality of logistics services but only to identify the dimensions and indicators of quality from the prospects of marketing and logistics. The marketing emphasizes the evaluation of quality from a service recipient's position but ignores the necessity to involve the service provider's technical skills as well as the results of services. Thus the integrated approach is necessary that combines the perception of quality of services from the positions of both marketing and the management of logistics.

Despite the abundant theoretical and empirical researches, little research has been restricted to the integrated studies of the quality of logistics services and its evaluation. The logistics services are specific. The aim of logistics is to supplement and help the enterprises in the process of marketing activity. Logistics as a separate area of activity influences the efficiency of marketing in this way creating the provision of services of high-level quality. Thus the quality of logistics services has to be conceptualized and measured from the prospects of logistics and the marketing of services. So the models of the measurement of service quality of logistics have to integrate the approaches of both disciplines.

There is a diversity of approaches and discussions concerning the issue of the model of measurement of logistics services quality and the indicators of measurement of logistics services model.

The perception of services quality reveals the technical aspects of service and customers' perception about the quality of services (So et al, 2011). As noted by Taskin et al. (2010), high level of the quality of services is perceived as the final result of provided services, which manifests itself in a variety of customers' expectations that are related to their perception of the quality of services. Thus in the present paper it is supposed that the model of quality measurement has to be created from both customer's prospects and provider's prospects. However, in the present paper, the attention is paid to a customer's approach, i.e. the indicators of service quality measurement are identified and ranged from a customer's prospect. This is one of the stages while creating the integrated model of quality measurement, i.e. the results of initial research are presented in the present paper.

The research **question** is defined by the following question: what are the indicators of measurement of the quality of logistics services? Which dimensions of services quality are perceived by the customers as the most significant?

The **object** of research – the indicators of measurement of the quality of logistics services.

The **aim** of the paper is after the analysis of the models of measurement of services quality to identify the indicators of measurement of the quality of logistics services as well as to create the ratings according to customers' perception of their importance, while assessing the quality.

The methods of the research – the analysis and systematization of scientific literature and questionnaire.

Literature review

The dimensions of measurement of services quality

Most scientists define the quality of logistics services as one of the most important elements that helps to satisfy completely the customers' needs. The management of the quality of logistics services is still a complicated task. Dlugosz (2010) and Wang (2011) point out that each customer is a unique personality who has his/her wish while being served. It is obvious that there are no two identical customers who would express the same requirement for the quality of provided services. Each customer's needs, in the broadest sense, are different thus the enterprises make a mistake while applying a unified strategy of logistics services. It often occurs that

the standards of customers' logistic service that are strictly defined and classified by the enterprise fail to meet the expectations. It is especially important to know how the clients perceive the service and its quality. When this perception exists in the enterprise, it is possible to create and develop the strategies of management of services quality.

The academics propose various methods of assessment of the quality of logistics services. Minalga (2001) pointed out the most important dimensions of assessment of the quality of logistics services (*delivery time, delivery reliability, delivery flexibility, and delivery quality*) that allow to measure the quality of logistics services, in this case, delivery quality. *Delivery time* covers the period from receipt of order to the delivery of goods to a customer and the curtailment of delivery time increases the attraction of a provider of logistics services. In similar terms, Christopher (2005) claims that time has become a constituent part that is more and more determined in the competitive process. *Delivery reliability* is substantiated by the reliability of delivery time which means that the agreement will be on time and carried out, the delivery time will be kept, and the harmonized capacity of provided services will be delivered punctually. *Delivery flexibility* is an ability to adapt quickly to the requirements of the changes in market, quickly satisfy the customers' wishes and needs. Delivery quality means an exact requirement of purchasing agreement that is related to the types of delivered goods, route, the quality of goods, and the state of goods while receiving them. This method is acceptable, however, after conducting the analysis of other studies, it was noted that this model is not finished, as the customers do not have the possibility to assess the ratio of the prices of provided services and the level of quality, i.e. whether the price of sold services complies with the provided quality.

Another model of the measurement of the quality of logistics services is presented by Franceschini et al. (2000), who suggest to assess the quality of logistics services according to 8 dimensions: *productivity, regularity, damage to the product, the period of take-up of new order, reliability, completeness, flexibility, veracity (i.e. how many mistakes are made while conducting the order)*. In these dimensions of the measurement of logistics services the concept of timeliness is reflected, some indicators determine the time (frequency, reliability), some indicators permit to measure the productivity of enterprise. It is noted that the indicators of prices in these dimensions are not pointed out precisely. Furthermore, it is noted that the majority of the presented indicators is more concentrated on the result of service itself rather than on the means that are used that are necessary to reach the result.

After setting up the standards of customers' service or determining main criteria of the evaluation of the quality of logistics service, the necessity appears to compare them with other indicators, which also have the influence to the provision of services and this means to their quality as well. Shahin et al. (2011), Ahuja et al. (2011), Taskin et al. (2010) propose to evaluate the quality of logistics service according to PZB (Parasuraman-Zeithaml-Berry) model, which is composed of the classical dimension of evaluation of service quality: *reliability*, *reaction*, *empathy*, *assurance*, and *material values*. However, this classical model of the measurement of service quality causes the debate about its relevance to measure the quality of logistics service. Franceschini et al. (2000) present the comparison of these two dimensions of models while ascribing each dimension the types of relationships: strong connection (a strong connection is emphasized between the model of the quality of logistics service and the dimensions of the quality of classical PZB model) as well as weak connection (a strong connection between these dimensions is not defined).

Table 1

The compliance between the quality of logistics services and classical (PZB) model (A – strong connection; B – weak connection)

QLS	PZB				
	Material values	Reliability	Reaction	Assurance	Empathy
Period of take-up of new order	B		A		
Regularity	B		A		
Reliability	B	A			
Completeness		A		B	
Flexibility			A	B	
Veracity (how many mistakes are made while conducting the order)		A		B	
Damage to the product	B			A	
Productivity	A			B	

Source: Franceschini, F., Rafele, C. (2000). Quality evaluation in logistic services, *International Journal of Agile Management Systems*.

The dimension of the material values of classical model correlates efficiently with productivity, a weaker connection is noticeable in the dimensions of the model of the quality of logistics services of the period of take-up of new order, regularity, veracity, and damage to the product. The analysis of reliability is suggested by the creators of both the classical model of quality services and the model of the quality

of logistics services. This has a significant influence to the dimensions of completeness and veracity of the evaluation of the quality of logistics services. The classical dimension of reaction is expressed alongside with the take-up of new order, regularity, and flexibility. The assurance has a strong connection with the dimension of the model of damage to the product and weaker connection with the completeness, flexibility, veracity, and productivity.

After the analysis of several models permitting to research the quality of logistics services, it has been found out that the key dimensions, while determining the quality, are classical, i.e. *regularity*, *reliability*, *completeness*, *flexibility*; however, they are insufficient to evaluate properly the quality of logistics services. In order to analyze efficiently the quality of logistics services, after the analysis of the classical dimensions of the evaluation of quality, it is important to identify *the dimensions of productivity as well as the frequency of the damage to product, the period of take-up of new order, veracity criteria while carrying out the orders*, the result of which is determined by the material values used by the enterprise while striving to improve the services.

While researching the quality of logistics services, the validity of *empathy* is under discussion. Franceschini et al. (2000) emphasize that the only factor of empathy, i.e. the ability to empathize with customer's emotional state or to understand his/her feelings is not related to any indicator of logistics. The conducted researches by Saura et al. (2008) also prove that empathy is one of constituent parts in order to research the quality of services in the aspect of logistics, however, it is not researched as one of dimensions. It is considered that *empathy* relatively does not have influence to the perception of the quality of logistics services. This proves that the aspects of collaboration related to the empathy of customers' feelings will not be included in the evaluation of the quality of services in the aspect of logistics.

Methodology

The survey of the evaluation of the dimensions of logistics services was conducted. 278 respondents participated in this survey: the actual customers of the enterprises which implement the logistics services. The adapted research instrument is composed of 8 dimensions (*the period of new take-up order, regularity, reliability, completeness, flexibility, veracity, damage to the product, and productivity*) that permit to evaluate the perceived importance of the indicators of the evaluation of the quality of logistics services. The statistical analysis of the survey data was processed by means of SPSS software. The research data were analyzed while applying the methods of

descriptive statistics, the creation of scales, and the verification of statistical hypothesis. On the basis of statistical calculations, the rating of the indicators of evaluation of service quality was created according to their importance perceived by customers.

Results and discussion

After the analysis of research data, the rating of indicators of the measurement of logistics services was created according to their perceived importance to the customer.

Three dimensions of the measurement of the service quality (*the period of take-up of new order, completeness, veracity*) were evaluated by almost the highest indicators and are at the top of rating. *Flexibility*, as a dimension, is the least significant while evaluating the service quality, thus it is ranked at the bottom of the rating.

Table 2

The evaluation of the quality of logistics services (N=278)

Dimensions	The evaluation of the importance of dimensions of the quality of logistics services (\bar{x})
Period of take-up of new order	4,42
Veracity	4,42
Completeness	4,42
Reliability	4,27
Regularity	4,25
Productivity	4,17
Damage to the product	4,02
Flexibility	3,82

The dimension of **the period of take-up of new order** is related to the period during which an enterprise is able to adapt to new order and start functioning. This dimension is very important while evaluating the quality of logistics services as the market is changing quickly and it is necessary to be able to adapt to these changes. Other researches also prove that until a product does not reach a customer on time, it becomes worthless (Clements et al, 2005; Christopher, 2005). Thus the unity of organizations concerning the importance of time, while taking-up new orders, is very important in the management of quality. The least significant criteria perceived by customers is *“the ability of organization employees to comprehend quickly the features of new order”* ($\bar{x} = 4,00$). The customers think that it is not so important that the employees would be of high qualification while taking-up the requirements of new order. This may be explained by the fact that the enterprises

work with regular customers and the orders are not frequently renewed. As the most important criteria of this dimension the customers perceive the following: *“an enterprise allocates the same persons to take new orders”* ($\bar{x} = 4,76$). This proves that in order to avoid the difficulties while collaborating with regular customers the enterprises have to allocate the same persons to take new orders, who know their functions, tasks as well as perform precisely all activities of the transaction. In this way the managers can see more into the transportation and offer to a customer the most rational solutions. Interaction with the same managers gives the mutual trust as well as a quick solution to the problems that occur to new orders.

The important indicator that belongs to the classical model of the measurement of quality is **regularity** (Parasuraman et al, 1988; Franceschini et al. 2000), which is described by the consistency of organization in the process of service. Namely this dimension determines the further collaboration as the organization gains the customers' trust after it introduces its methods of activity and demonstrates its openness. In the field of research, as the most significant element is pointed out the following factor: *“the control of the enterprise's activity, which is performed by the competitive employees of organization”* ($\bar{x} = 4,41$). This proves that it is important for the customers to trust the enterprise and they notice the control implemented by the competent employees of the enterprise. This activity raises the customers' confidence in the enterprise. Slightly less importance is placed by the customers to the element *“the employees of the enterprise take care of the documents which have to accompany the consignment”* ($\bar{x} = 4,15$). This proves that for the customers it is not so important to go deep into the documents processed by the enterprise as this is the activity of services that is taken for granted. In order to ensure a successful transportation of consignment, the enterprise has to take care of necessary documents as well as to complete them correctly as to avoid further trouble.

Reliability is almost the most important factor while selecting the services of logistics (Clements et al, 2005), as only precise delivery time does not provide a customer with significant benefits, if an organization is evaluated as unreliable. The indicator of delivery reliability is defined as the pursuance of delivery time, or in other words, the reliability related to the consistency of time while transporting the goods. This dimension also measures the honesty of enterprise, fair work, so the customers choose only the reliable enterprise. The significance of the reliability indicator of the researched organizations is expressed on average ($\bar{x} = 4,27$). As the most

significant criteria of this dimension the customers perceive “*the strict observation of safety rules by an organization delivering the goods*” ($\bar{x} = 4,50$). This means that the enterprises while striving to function successfully as well as to develop their activities have to work respectively and to observe all safety rules. “*The commitment of organizations to carry out the services in time*” ($\bar{x} = 4,00$) is not perceived as very significant, however, the failure to comply with the terms to deliver the goods may cause the loss for both counterparties, i.e. a customer’s activity may be disconnected or even stopped and the organizations that provide services may incur additional expenses while paying the fines for contract penalties. Thus the perception of the significance of this criteria worth to be researched in more detail. Other indicators permitting to establish the significance of the dimension of reliability are not strongly expressed.

Completeness is one more dimension permitting to measure the quality of services. This indicator is perceived as a versatile enterprise’s care of the implementation of order, starting from the beginning of delivery of logistics services to the end (Franceschini, Rafele, 2000). The customers perceive this dimension as of average importance. In the field of research, the least significance is identified as “*an enterprise provides a customer with a versatile support and help*”. The highest significance of this dimension is given to the argument “*the responsibility of enterprise while processing the documentation of the transportation of goods according to relevant standards*” ($\bar{x} = 4,58$). This proves that the responsibility of organization while processing the documents is important for customers according to the requirements of standards. The orders that are carried out in time, the reports about delays, the documentation that is processed correctly ensure a very favourable evaluation of the quality of logistics services.

Physical mobility of goods in the delivery chain (Huque, 2007; Power, 2005), while supervising the aspects of speed and flexibility, provides the organizations with the possibility to compete. Flexibility as well as speed and reliability are the key priorities of service while ordering the services of transportation. The dimension of **flexibility** permits to measure not only a quick delivery of consignment to a customer but also the ability of organizations to respond quickly to the customers’ needs that are changing very quickly as well as the dealing with dissatisfaction and other unforeseen problems. It is seen that the dimension of flexibility of the quality of logistics services is perceived as the least significant ($\bar{x} = 3,82$). Relatively, only one factor of evaluation of quality has an exception “*the organizations respond*

quickly to the requests of organizations”, whose the meaning of statistical average (\bar{x}) is 4,34. As the least significant the customers perceive the factor “*the possibility to order the services via Internet*” ($\bar{x} = 3,57$) and “*quick processing of complaints*” ($\bar{x} = 3,68$). The organizations are not required to use modern software that are applied in the area of logistics and by means of which it is possible to get an exact information of order and respond effectively to the customers’ needs. However, in order to gain the competitive advantage, the enterprises should pay more attention to the implementation of technologies, that facilitate and improve the service provided to customers. The contracting authorities pay little attention to the operative examination of customers’ complaints, however, in any case, the complaints have to be processed very quickly. This approves once more that the model of indicators of measurement of logistics services has to be created from different perspectives.

In high position of the rating is the dimension of **veracity**, which, according to Franceschini et al. (2000), highly correlates with reliability dimension. The dimension of veracity permits to evaluate the ability of organization to work in a responsible and honest way as well as without mistakes ($\bar{x} = 4,42$). The most important for a customer in the ranking is “*the delivered production, i.e. whether they received it of appropriate quality, such as they expected*” ($\bar{x} = 4,71$). The less important constituent “*the ability of enterprises to collaborate honestly*” ($\bar{x} = 4,23$), however, this is a quite high indicator showing that honesty while evaluating the quality of services is perceived as significant.

Damage to the product (Potocan, 2008; Daughtery, 2009) is related to the assurance as the avoidance of the delivery of goods to the site in time and the risk of the damage to the product. The respondents perceive this dimension as important at an average ($\bar{x} = 4,02$). The customers perceive as the least important “*during the time of transportation, the possibility to observe and control the consignment in order to escape the misunderstandings*” ($\bar{x} = 3,21$). Nevertheless, it is possible to observe that the greatest importance is perceived “*for the perfect quality of delivered goods*” ($\bar{x} = 4,56$). This proves that the majority of goods have to be delivered to the destination safely and not damaged, and the damaged goods have to be changed and the customers are informed about the damages.

The activities of logistics increase the value of goods and service as the logistics creates additional utility and productivity (Winsor et al, 2004; Olayanka, 2010). The dimension of **productivity** is substantiated by the ratio of the price of service and the level of

quality. As it is known, the customers are ready to pay more for the product of higher quality. The customers perceive the dimension of productivity as important at an average ($\bar{x} = 4,17$). The indicators that have the highest significance are “*the right rate of price and quality*” ($\bar{x} = 4,25$) as well as “*perfect processing of orders and implementation*” ($\bar{x} = 4,23$). The organizations have to ensure the flexible policy of prices, i.e. the price of sold goods have to correspond to the quality. The least significant constituents perceived by the customers is “*the employees of organization the offered product deliver at minimum cost*” ($\bar{x} = 4,06$). It should be noted that the enterprises that provide the services of logistics not always provide the customers with opportunity to bargain for the price, however, in respondents’ opinion this is not very important constituent while evaluating the quality of services.

Summarizing the research data, it is possible to state that the customers perceive the majority of the dimensions of service quality as significant. As the results demonstrated, the dimension of flexibility is less significant in the field of research, i.e. to offer the customers to order the services via the Internet,; this would save the customers’ time and the enterprise would quickly react to the customers’ complaints and solve them. One more less significant dimension is the possibility to observe and control the consignment during the time of transportation.

Conclusions

The evaluation of the quality of logistics services is explained by the models of the measurement of classical service quality and logistics service quality, on the basis of which the key dimensions permitting to measure the quality of logistics services have been established: *productivity, regularity, damage to the product, the period of take-up of new order, reliability, completeness, flexibility, and veracity*.

The empirical research allows to state that in all dimensions of measurement of logistics services the meaning of timeliness is reflected. The majority of dimensions of the measurement of the quality of logistics services is perceived by the customers as significant: (note: the dimensions are presented in descending order of perceived importance) *the period of take-up of new order, veracity, completeness, reliability, regularity, productivity, damage to the product, flexibility*.

The following indicators of measurement are the most significant for the customers to evaluate the quality of logistics services: *service for organizations while taking-up new order, completeness, and veracity*. This proves that the enterprise has to respond quickly after the taking up of new order as well as

to allocate the same person to take up the order, who mentors the customer’s order. The research results demonstrated that for the customers is important that the enterprise would work without failure, however, the honesty of collaboration is not perceived as an especially significant constituent. The least significant dimensions for the customers are *flexibility* and *the decrease of damage to the product*. It is not important for the customers whether they have the possibility to observe and control their consignments during the time of transportation, however, the organizations in order to gain competitive advantage should integrate the most modern technologies that would permit to work more qualitatively. The research results revealed that in the rating of the indicators of measurement of the quality of logistics services the dimensions taking the highest positions *the period of take-up of new order* and *veracity* belong to the model of measurement of the quality of logistics services and one dimension – *completeness* belongs to the classical model of service quality.

While creating the integrated model of the indicators of the measurement of the quality of logistics services, from the customer’s perspective, it is necessary to integrate not only logistics but also common indicators of measurement of the quality of logistics services. While evaluating the quality of logistics services, the dimension of flexibility is under discussion which is perceived by the respondents as the least significant.

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Logistikos paslaugų kokybės matavimo indikatoriai kliento požiūriu

Santrauka

Straipsnyje analizuojamas aktualus mokslinių ir praktinių tyrimų objektas – logistikos paslaugų kokybė. Logistikos paslaugų kokybė jau seniai tapo aktualiu tyrimų objektu. Nepaisant atliktų teorinių ir empirinių tyrimų gausos, stokojama integruotą požiūrį į logistikos paslaugų kokybę ir jos vertinimą atskleidžiančių studijų. Egzistuoja požiūrių įvairovė ir nesibaigiančios diskusijos, kokių disciplinų požiūriu paslaugų kokybė turi būti tiriama, koks turėtų būti logistikos paslaugų kokybės matavimo modelis, kuriame būtų atskleisti logistikos paslaugų kokybės matavimo indikatoriai.

Šiame straipsnyje objektas analizuojamas tarpdisciplininio požiūriu, t. y. iš paslaugų marketingo ir logistikos perspektyvų. Laikomasi nuostatos, kad reikalingas integruotas požiūris, sujungiantis paslaugų kokybės suvokimą iš dviejų – marketingo ir logistikos vadybos – pozicijų, ir kad kokybės matavimo modelį reikia kurti tiek iš kliento, tiek iš paslaugų teikėjo perspektyvos. Tačiau straipsnyje dėmesys sutelkiamas į kliento požiūrį, t. y. paslaugų kokybės matavimo indikatoriai identifikuojami ir ranguojami iš kliento perspektyvos. Tai vienas etapų, kuriant integruotą kokybės matavimo modelį. Straipsnyje pristatomi pirminio tyrimo rezultatai.

Straipsnio **problema** apibrėžta šiais klausimais: kokie yra logistikos paslaugų kokybės matavimo indikatoriai? Kurios paslaugų kokybės dimensijos klientų yra suvokiamos kaip svarbiausios?

Tyrimo objektas – logistikos paslaugų kokybės matavimo indikatoriai. Straipsnio **tikslas** – išanalizavus paslaugų kokybės matavimo modelius, identifikuoti logistikos paslaugų kokybės matavimo indikatorius ir sudaryti jų reitingą pagal klientų suvoktą jų svarbą vertinant kokybę. **Tyrimo metodai**: mokslinės literatūros analizė ir sistemimas, anketinė apklausa. Straipsnyje analizuojami paslaugų kokybės matavimo modeliai sukurti paslaugų marketingo ir logistikos srities mokslininkų ir identifikuojami hipotetiniai logistikos aptarnavimo kokybės matavimo indikatoriai.

Akademikai siūlo įvairias logistikos paslaugų kokybės vertinimo metodikas. Straipsnyje aptariami Franceschini ir Rafele (2000), Minalga (2001), Sauraa (2008), Taskin ir Durmaz (2010), Shahin ir Janatyan (2011), Ahuja ir kt. (2011) tyrimai ir išvalgos, analizuojami ir siūlomi kokybės matavimo modeliai. Daroma išvada, kad pagrindinės dimensijos, nustatant kokybę, yra klasikinės: *regularumas*, *patikimumas*, *užbaigtumas*, *lankstumas*, tačiau jų nepakanka tinkamai įvertinti logistikos paslaugų kokybę. Norint išsamiai išanalizuoti klientų aptarnavimą logistikos aspektu, svarbu identifikuoti naujo užsakymo įsisavinimo periodo, teisingumo kriterijų, vykdančių užsakymus, produkto pažeidimų dažnį bei produktyvumo dimensijas, kurių rezultatai lemia įmonės naudojamos materialinės vertybės siekiant gerinti klientų aptarnavimą.

Metodologija. Vykdyta anketinė logistikos paslaugų kokybės dimensijų vertinimo apklausa. Apklausoje

dalyvavo 278 respondentai. Tai įmonių, vykdančių logistikos paslaugas, realūs klientai. Adaptuotą tyrimo instrumentą sudaro 8 dimensijos (*naujo užsakymo įsisavinimo periodas*, *regularumas*, *patikimumas*, *užbaigtumas*, *lankstumas*, *teisingumas*, *krovinių pažeidimai*, *produktyvumas*), leidžiančios įvertinti suvoktą logistikos paslaugų kokybės vertinimo indikatorių svarbą. Apklausos duomenų statistinė analizė atlikta naudojant SPSS 16.0 programinę įrangą. Tyrimo duomenys buvo analizuojami taikant aprašomosios statistikos, skalių sudarymo, statistinių hipotezių tikrinimo metodus. Remiantis statistiniais skaičiavimais, buvo sudarytas paslaugų kokybės vertinimo indikatorių reitingas pagal klientų suvoktą jų svarbą.

Rezultatų analizė. Išanalizavus tyrimo duomenis, buvo sudarytas logistikos paslaugų kokybės matavimo indikatorių reitingas pagal jų suvoktą svarbą paslaugos klientui. Trys logistikos paslaugų kokybės matavimo dimensijos (*naujo užsakymo įsisavinimo periodo*, *užbaigtumo*, *teisingumo*) yra reitingo viršuje. *Lankstumas*, kaip dimensija, yra mažiausia reikšminga vertinant logistikos paslaugų kokybę, todėl yra reitingo apačioje.

Naujo užsakymo įsisavinimo periodo dimensija susijusi su laikotarpiu, per kurį įmonė geba prisitaikyti prie naujo užsakymo ir pradėti veikti. Ši dimensija yra labai svarbi vertinant logistikos paslaugų kokybę, nes rinka greitai keičiasi ir būtina gebėti prisitaikyti prie šių pokyčių. Kaip svarbiausią šios dimensijos kriterijų klientai suvokia „*naujų užsakymų priėmimui įmonė paskiria tuos pačius asmenis*“. Svarbus klasikiniam kokybės matavimo modeliui priklausantis indikatorius yra *regularumas* (Parasuraman et al., 1988; Franceschini, Rafele, 2000), kuris apibūdinamas organizacijos nuoseklumu paslaugų teikimo procese. Tyrimo lauke, kaip reikšmingiausias elementas, įvardytas „*įmonės veiklos kontrolė, kurią atlieka kompetentingi organizacijos darbuotojai*“. *Patikimumas* yra bemaž svarbiausias veiksnys pasirenkant logistikos paslaugas (Clements et al., 2005), nes vien tikslus pristatymo laikas nesuteikia užsakovui didelės naudos, jeigu organizacija vertinama kaip nepatikima. Šio kriterijaus svarba išreikšta vidutiniškai. Reikšmingiausiu šios dimensijos kriterijumi klientai suvokia „*organizacijos laikymąsi privalomų saugumo taisyklių pristatant prekes*“. *Užbaigtumas* – tai dar viena dimensija, leidžianti pamatuoti paslaugų kokybę. Klientai šią dimensiją suvokia kaip vidutinės svarbos. Didžiausia šios dimensijos reikšmė skiriama šiam teiginiui: „*įmonės atsakomybė tvarkant prekių gabenimo dokumentaciją pagal atitinkamus standartus*“. Kaip mažiausiai reikšminga suvokiama logistikos paslaugų kokybės *lankstumo* dimensija. Sąlyginai išimtį čia turi tik vienas kokybės vertinimo veiksnys – tai „*organizacijos greitai reaguoja į organizacijų užklausas*“. Aukštos reitingo pozicijose yra *teisingumo* dimensija, kuri, pasak Franceschini (2000), stipriai koreliuoja su patikimumo dimensija. Svarbiausia reitinge klientui „*pristatoma produkcija, t. y. ar jie ją gavo kokybiškai, tokią, kokios ir tikėjosi*“. Mažiau reikšmingas elementas –

„įmonių gebėjimas bendrauti sąžiningai“, tačiau tai gana aukštas rodiklis, rodantis, kad sąžiningumas, vertinant paslaugų kokybę, yra suvoktas kaip svarbus. *Krovinio pažeidimai* (Potocan, 2008; Daugherty, 2009) susiję su užtikrinimu, kaip gabenamo krovinio pristatymo į vietą laiku ir krovinio pažeidimų rizikos išvengimas. Respondentai šią dimensiją suvokia kaip vidutiniškai svarbią. Didžiausia svarba yra „puiki pristatomų prekių kokybė“. *Produktyvumo* dimensiją klientai suvokia kaip vidutiniškai svarbią. Didžiausią svarbą turintys indikatoriai yra „teisingas kainos ir kokybės santykis“ bei „puikus užsakymų apdorojimas bei įvykdymas“.

Empirinis tyrimas leidžia teigti, kad visose logistikos paslaugų matavimo dimensijose atsispindi operatyvumo reikšmė. Dauguma logistikos paslaugų kokybės matavimo dimensijų klientų suvokiamos kaip reikšmingos (jos pateiktos mažėjančios suvoktos svarbos tvarka): *naujo už-*

sakymo įsisavinimo periodas, teisingumas, užbaigtumas, patikimumas, reguliarumas, produktyvumas, produkto pažeidimai, lankstumas).

Klientams, vertinant logistikos paslaugų kokybę, nustatyti šie svarbiausi matavimo indikatoriai: *organizacijų aptarnavimas įsisavinant naują užsakymą, užbaigtumas ir teisingumas*. Mažiausiai klientams svarbios dimensijos yra *lankstumas ir produkto pažeidimų mažinimas*. Sudarant integruotą logistikos paslaugų kokybės matavimo indikatorijų modelį iš kliento perspektyvos, būtina integruoti ne tik logistinius, bet ir bendrus paslaugų kokybės matavimo indikatorius. Diskutuotina, vertinant logistinį aptarnavimą, lankstumo dimensija, kuri respondentų suvokta kaip mažiausiai reikšminga.

Pagrindiniai žodžiai: logistikos paslaugų kokybė, kokybės matavimo indikatoriai.

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