

QUALITY OF TRANSPORT SERVICES AND CUSTOMER SATISFACTION MEASUREMENT

IWONA HAJDUK¹, MILOŠ POLIAK², JOZEF GAŠPARÍK³

Abstract

The development and functioning of the global economy market is not possible without a network of transport connections – communication infrastructure, as well as a service provider – consumer relationship. Transport is a technological process of moving people, objects or energy. Knowledge of the logistics system and its processes is essential for fully functioning and effective logistic activities in the field of goods turnover. Building an appropriate relationship with the customer, taking care of customer service standards and professional customer service is a long-term and developmental process, which is nothing else than a mutual benefit transaction. Transport sector continues to grow year after year very rapidly and it is highly competitive evidence by the fact that transport companies operate in the EU common market. Companies that invest in relations choose wisely. Customer satisfaction should be constantly tested in terms of satisfaction and loyalty as well as the perception of the standards introduced and services offered. The aim of the article is to review the methods of measuring customer satisfaction from the point of view of quality of transport services.

Keywords: quality; logistics; consumer relationship; customer satisfaction measurement

1. Introduction

Along with the changes taking place in the economy transport solutions, undergo modification all of the time. The development and functioning of the global economy market is not possible without a network of transport connections understood as a communication infrastructure, as well as a service provider – consumer relationship.

¹ Faculty of Operation and Economics of Transport and Communications, Univerzitná 8215/1, 010 26, Žilina, Slovak Republic, e-mail: tomaszewska.iwona@gmail.com, ORCID: 0000-0001-6755-4073

² Faculty of Operation and Economics of Transport and Communications, Univerzitná 8215/1, 010 26, Žilina, Slovak Republic, e-mail: milos.poliak@fpedas.uniza.sk, ORCID: 0000-0002-9149-2439

³ Faculty of Operation and Economics of Transport and Communications, Univerzitná 8215/1, 010 26, Žilina, Slovak Republic, e-mail: jozef.gasparik@fpedas.uniza.sk, ORCID: 0000-0002-6565-0085

Due to the indicated aspects, various definitions of transport are formulated. The classic function of transport, understood as the technological process of any distance transfer, i.e. the movement of people, objects or energy, was formulated in [54].

Transport is closely related to the use of means of transport and infrastructure, as well as the presence of business entities that provide transport services and obtain a financial result as a result of transport activities [27]. According to J. Neider, transport is the provision of services consisting in the movement of cargo or additional services directly related to it. Transport is a set of activities involving the movement of, i. a., material goods in time and space, using appropriate technical means [34]. Transport is similarly defined by M. Madeyski, E. Lissowska and J. Marzec, according to whom transport is technically, organisationally and economically separated from other activities, and it is a deliberate movement of all loads and people [30]. The transport provides a service called shipment.

Activities performed at transport points, along with shipment, constitute the concept of relocation of goods. During relocation, the cargo is handled with technical devices, and the delivery of the goods to the point of destination requires the use of various types of additional services, such as logistics, forwarding, customs, and control services, etc. The indicated elements constitute the concept of transport [34]. A diagram illustrating the issue is shown in Figure 1.

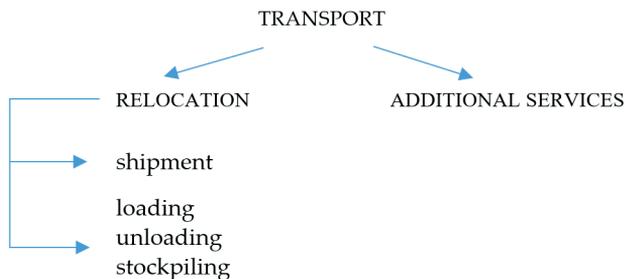


Fig. 1. Elements of transport

The functions of transport in the economy [15]:

- it is an instrument of exchange of goods and services and it conditions the movement of traded goods;
- it is a factor of GDP growth and influences the development of other sectors of the national economy;
- it conditions the development of production locations and regional development;
- implements social goals, such as meeting the communication needs of the population or increasing the availability of economic spheres, e.g. culture, education or sport.

Logistics is a field of knowledge derived from the issues of international transport. According to the definition of the Council of Logistics Management [16], logistics is the process of planning, implementing and controlling the efficient and economically effective flow of raw materials, materials, finished products and relevant information from the point of origin to the point of consumption in order to meet customer requirements.

Transport is one of the most important elements of the logistics system, because in the structure of logistics costs, transport costs amount to 75% of the total costs. Transport is one of the basic elements that influence the competitiveness of the economy as the dominant link in logistic processes. An appropriate infrastructure is essential for the efficient functioning of the logistics system.

The concept of transport infrastructure was proposed by A. Piskozub [40], according to whom: transport infrastructure is man-made, permanently located, linear and point objects of public use, constituting the basis of socio-economic life, due to their functions of relocating people and loads (transport), news (communication), electricity (energy technology) and water (water management).

According to E. Gołemska [12], transport infrastructure consists of points and places used by means of transport during traffic and when parked. They include: natural and artificial roads, transport points, such as sea and air ports, equipping roads and points with fixed assets and perishable objects necessary for the functioning of the infrastructure. A characteristic feature of transport infrastructure is the economic and technical indivisibility resulting from capital intensity.

Transport classification may take various forms, depending on the adopted criterion. Transport can be seen both in vertical and horizontal perspective.

In a vertical perspective, the environment in which the movement of the means of transport takes place and the technique of movement are the classification criteria. Due to the environment of the implementation of tasks, transport is divided into: land transport, water transport, and air transport. Each of the modes of transport is characterized by a specific technical, organizational, technological and economic distinctiveness. Taking into account the specificity of the means of transport and the transport route, six basic modes of transport can be distinguished [50]: car, air, sea, rail, inland, and transmission.

Transport classification in the horizontal perspective includes [3]:

- the subject of transport, in which we distinguish: transport of people and cargo;
- geographical criterion, in which we distinguish: domestic transport, e.g. urban, interregional, provincial transport, international transport, e.g. continental and intercontinental transport;
- organizational and functional considerations, in which we can distinguish: regular and irregular transport;

- organization of transport, in which we can distinguish: direct and indirect transport;
- form of ownership, in which we can distinguish: private, state, communal municipal transport;
- user availability, in which we can distinguish: own, public and industry transport.

2. Materials and Methods

This section will describe the importance and reasons for measuring and evaluating quality in goods transportation and measuring customer satisfaction. The knowledge of the logistic system and its processes is essential for fully-functioning and effective logistic activities in the field of goods turnover. The functioning of enterprises operating in contemporary global markets without effective logistics is almost impossible, hence the constant search for tools to improve its processes, which are an added value for the customer, while maintaining the relationship between costs and the quality of services provided [58].

It is necessary to study and assess the level of customer service, analyze failures and mistakes, search for their causes and develop remedial measures. While the issues related to customer service are the domain of marketing, logistics also takes up a certain part in accordance with the competences. From the point of view of marketing, it includes, among others areas such as warranties, professional staff, service and spare parts provision, instructional services and other demand-generating activities [13]. On the other hand, logistic customer service focuses on the physical distribution of products in a way that enables the delivery of products in accordance with the 6W principles, i.e. at the right cost, in the right quantity and in the right condition, allowing the right customer to benefit from the right place and time [58]. The level of customer service, measured even often, does not provide information quickly enough to react to the emerging problem in time and prevent loss of customers. Information regarding the exact level of customer service is essential for the supplier to respond to problems in a timely manner and to ensure that preventive actions are not taken too late. An effective measurement system should: define the needs related to the level of service desired by customers, taking into account their point of view, measure the number of both lost and acquired customers in the context of customer service, measure the current level of customer service, compare self-service with that offered by competitors.

2.1. Quality measurement in the transport of goods

Therefore, the customer always plays a decisive role in determining the quality of services, and the degree of their satisfaction is very important. Hence, the commonly accepted definition of service quality speaks of the degree of meeting buyers' expectations. The service is of adequate quality if its performance meets or exceeds the expectations of buyers [7]. According to the above definition, the expectations of buyers are the most important for assessing the quality of services. Expectations are marked for groups [13]:

- a. ideal service – the best one can imagine and realize;
- b. desired service – services of a standard that consumers want to receive;
- c. well-deserved service – a service that consumers should receive for a certain price;
- d. minimum service – services of a standard that must be ensured.

For this purpose, you should properly recognize the expectations of your potential recipients, and in some cases even help shape them. Typical standards include: order fulfillment cycle time, reliability of deliveries, completeness of the order, correctness of invoices, loss and damage to products [53].

Quality is also treated as a set of product or service features that determine the product's ability to meet the needs of consumers [38]. Continuous improvement of the quality of products and services is nowadays a necessary condition for the company to remain on the market. In addition to the quality of services, consumers perceive and evaluate the quality of contact, service and communication.

The quality in the service provider–recipient relationship requires the assumption that the consumer satisfaction assessment cannot be reduced to the final result, but should take into account the continuous deepening of the dependence in the entire scope of the service [19]. The manifestation of quality in relations is an individual approach to the client, understood as maintaining contact with the client after the purchase or building good relations with the buyer.

The monograph [10] emphasizes the importance of customer expectations. The provision of a service that is constantly adjusted and delivered to buyers meets the expectations of consumers. The statement results from the fact that it is the buyers who dictate the level of quality to which one should strive, which is a manifestation of the expectations they formulate [14].

The quality of transport services means that carriers meet customer requirements. This is the extent to which all inherent properties of the service meet the customer's requirements [4]. It follows from the definition mentioned that the customer can decide whether and to what extent the service meets the expectations and satisfies their needs.

The reasons that threaten both the safety and the quality of transport services are [61]:

- terrorist acts and theft, often combined with the destruction of property;
- imperfection of technical solutions due to an incorrectly selected means of transport or a reloading device;
- improper packaging or improperly used transport containers, insufficiently protecting the cargo during transport;

- road system overload and poor condition of road infrastructure;
- accidents (road, rail, air, sea);
- strikes;
- inadequate qualifications of the personnel;
- lack of knowledge of regulations and/or non-compliance with them;
- lack of or incorrect control system;
- no verification of the infrastructural, geographical and even cultural conditions of the regions and countries to which the shipment is to be delivered;
- irregularities in the shipping documentation, resulting in extended stops and/or incorrect routing of shipments;
- lack of or inadequate monitoring of the places where goods are located;
- non-compliance with environmental conditions for container transport;
- excessive overloading of means of transport.

Quality is marked in six categories: philosophical, psychological, sociological, technical, economic and marketing. It characterizes the property, species, value of a given object (phenomenon) or a feature or set of essential features, e.g. due to its structure, internal interaction and relations with the environment [60]. The concept of quality allowed to define the relationship of the customer in relation to the product, service, enterprise, due to the subjectively adopted point of view of the recipient [43].

The definition of quality understood as the supplier's ability to produce activities that are initially intangible and require the customer's participation in line with the customer's expectations, at a level at least required by the customer, was formulated in [6]. The statement means that the customer can decide whether and to what extent the service meets their expectations and their needs. It is the recipient who specifies the expectations regarding the desired quality of the transport service, indicating the features of the product. The attributes may include [24]: mass, related to loading capacity, capacity of roads and junction points, speed, understood as the time of passenger and/or cargo transportation, time of auxiliary journeys to the main means of transport and waiting at communication points (e.g. stations, stops) or frequency of transports.

Depending on the nature of the company's activity other features are also marked. They are the distinguishing features of the quality of the transport service, i.e. [2]: flexibility, quick and easy transfers (in the segment of collective services), booking services (electronic tickets, seat reservation, car rental, etc.), service continuity in different countries (continents), finan-

cial stability, the possibility of rebooking, good reputation of the carrier, the policy of the airline's alliance (in the case of air transport).

The quality of transport services is also determined in terms of the manner and type of information transfer. The forms and channels of information expected by the client are [61]: printed information marketing channels, a network of travel information centers (transport services), modern telephone services (e.g. helplines), electronic displays at communication points and in vehicles, carriers' websites, mobile telephony, integrated intermodal systems that enable obtaining information on the functioning of various means of transport, as well as on additional services (hotel, tourist, luggage, parking, etc.).

When assessing the quality of the transport service by the customer, the following assumptions are made [25]: the customer assesses the service from a personal point of view, the end-user receives all elements of the service as one whole, the weak points of the offer have a disproportionate impact on its evaluation, for the recipient, the internal organization of the process flow is irrelevant.

Despite the large variety of phrases related to quality, the basic idea that quality means meeting customer requirements and expectations is always repeated. With regard to the service, quality is nothing more than meeting the customer's requirements by service providers. With regard to the public transport service, quality can be understood as the degree of meeting the transport needs of passengers, measured by a set of reported demands.

With regard to the transport service, the customer's and the carrier's perception of quality is different. It is important for the carrier to gain maximum benefits, including economic benefits, and to strengthen their position on the market. On the other hand, it is crucial that the customer is convinced that the carrier meets their expectations. Due to the considered aspect of the assessment, the distinguishing features of the quality of transport services are indicated. The diagram showing the quality properties of transport services is shown in Figure 2 [51].

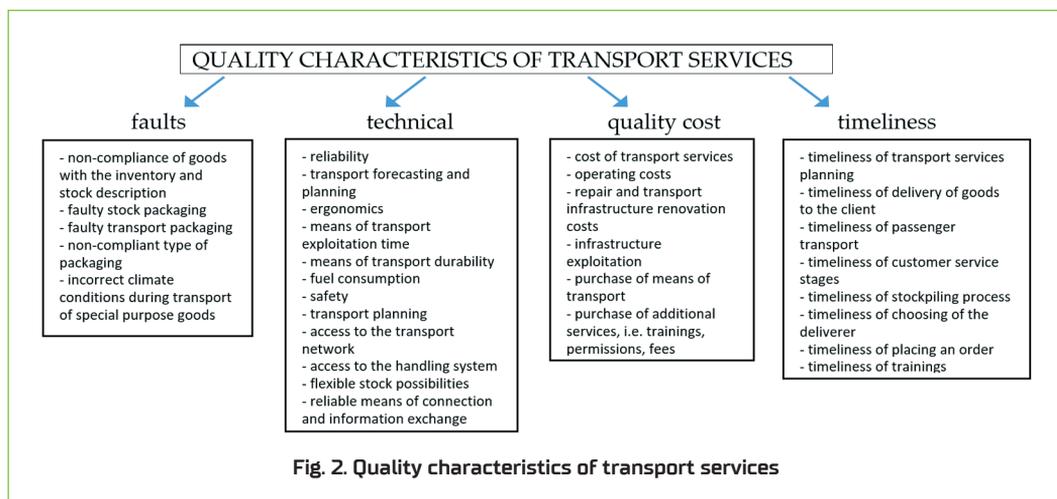


Fig. 2. Quality characteristics of transport services

2.2. Customer satisfaction assessment

Building an appropriate relationship with the customer, taking care of customer service standards and professional customer service is a long-term and developing process that is nothing but a mutual benefit transaction. Customer satisfaction should be constantly tested in terms of satisfaction and loyalty as well as the perception of the standards introduced and the services offered.

The customer satisfaction survey is used to illustrate the perception of the conditions that guide the customer, e.g. how the customer perceives the service provider or the market offer, and to analyze the consumer's expectations. The methods for measuring customer satisfaction are divided into two groups: qualitative and quantitative. Qualitative research is aimed at verifying the perception of the services offered by the company on the market from the customer's point of view and marking critical indicators of activity due to the planned adjustment activities. Quantitative customer satisfaction surveys provide numerical data that illustrate the degree of customer satisfaction and the level of customer satisfaction. The methods are described in detail in point 4 of the paper.

Satisfaction is a subjective concept, it depends on the personality characteristics of the buyer. Each buyer feels and perceives the quality of the product differently and has different requirements. The ISO 9000:2015 standard [41] defines customer satisfaction as “[...] the customer's perception of the degree to which their requirements have been met”.

According to the cited statement, consumer complaints are a consequence of a low level of customer satisfaction, but the lack of them is not synonymous with a high level of customer satisfaction [48].

The perception of customer satisfaction as a factor determining the development of an enterprise was initiated with the introduction of quality systems in companies, which were aimed at defining customer requirements and integrating them into business processes. The next step was to measure customer satisfaction and take actions to streamline and improve internal processes. Then, the relationship with the client was strengthened with the aim of building a bond and identity with the recipient [49].

Two concepts of consumer satisfaction have been indicated: transactional and cumulative. The first takes into account the short-term experience of the customer with the purchased product/service, relating satisfaction to the feelings determining the assessment of the transaction and, consequently, the purchase of the product/service. The second approach emphasizes the cumulative customer experience related to the purchased good.

Satisfaction is a long-term state of contentment. This concept is consistent with the view discussed in economics, where satisfaction is combined with the ability to assess the usefulness of the purchased product/service [48]. Satisfaction with the product/service or lack of it has a direct impact on the customer's future purchase. This translates into long-term results of the enterprise.

Management theories developed in recent years place customer satisfaction as the paramount element of the organization's success. They achieve market effectiveness as a result of putting the customer and customer satisfaction in the foreground in their strategy. Taking customer satisfaction measurement brings the following benefits [36]:

- identifies the features of the product important from the buyer's point of view, which the company uses in promotional campaigns;
- allows for a precise analysis of the market position and the detection of opportunities for improvement in the area of product and service quality, as well as processes;
- motivates employees.

Logistics services are assessed primarily by measuring customer satisfaction. The concept of customer satisfaction is differently defined in the literature [26, 29, 32].

In order to assess customer satisfaction, it is necessary to measure the perceived service, based on the confrontation of the customer's expectations with what is provided to them. Satisfaction measurement provides information on the operation of the organization and the effective satisfaction of customer needs. A review of the literature on the subject of the work [1, 42] showed that the issues in this area are presented in a selective manner. Most of the works [5, 52, 21] focus on the analysis of logistics services in the entire transport-forwarding-logistics (TSL) sector.

The foundations of comprehensive quality management (TQM) were formulated in [20]. In the TQM concept, each factor in the company or its environment has an impact on quality. Therefore, every aspect of the business should be carried out with a pro-quality approach. The essence of TQM is to integrate the company's goals with the goals of its customers. Achieving the goals requires the full commitment of all employees of the enterprise and the leading role of the managerial staff.

The structure of a company guided by the principles of TQM underlies the culture of teamwork, and communication channels and connections go beyond the boundaries of organizational units. The TQM philosophy is based on the principles of: management commitment, focus on external and internal customers, system approach to issues, common participation in the process of building a company, continuous improvement of activities.

The condition for comprehensive quality management is the systemic approach to the enterprise, and the main systems for which managers are responsible are the following systems: social (or company culture) and technical. The parts of the system must support each other to avoid suboptimization [44]. The situation occurs when different parts of the organization do not support other parts of it. In this case, the company does not focus on comprehensive quality management.

The management system determines the efficiency of the processes through which the company manages human and material resources. TQM means that employees pay attention to quality in every phase of the production process, and managers look for the causes of any deviations.

In April 2002 the European Committee for Standardization adopted the name EN 13816:2002 "Transport – Logistics and services – Public passenger transport – Definitions, objectives and measurements for service quality". The standard indicates specific objectives focused on the interests, needs and expectations of passengers by defining procedures that: draw the attention of authorities responsible for public transport management to important issues from the point of view of service quality, influence on effective decision-making introducing elements of service quality, allow passengers and teams to research on a reliable comparison of the quality of services provided by various carriers, and will contribute to the implementation of the process of continuous improvement of the quality of services. The standard can be used for:

- a. shaping the quality of public passenger transport services in the event that a single carrier (service provider) bears full responsibility for all main quality criteria;
- b. shaping the quality of public passenger transport services in the event that two or more partners share responsibility in accordance with the contract signed on this matter;
- c. formulation of quality requirements for services offered in tenders by the public transport manager.

The standard defines the basic concepts of public transport and service quality, defines service quality measures and provides indicators for selecting the appropriate measurement methods.

Service quality is understood as a set of quality criteria and appropriate measures for which the service provider declaring compliance with the standard is responsible. The quality of service is based on the concept of the quality of service loop (Figure 3).

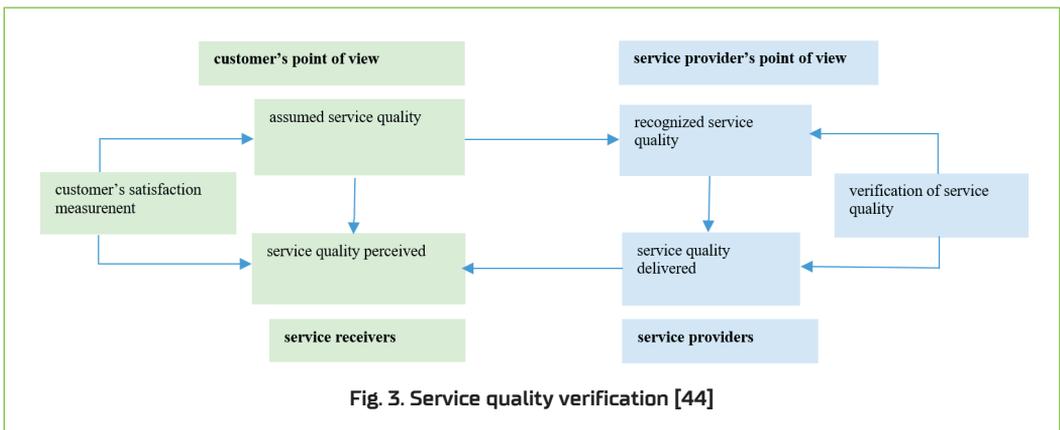


Fig. 3. Service quality verification [44]

The expected quality of service is the level of quality explicitly or implicitly expected by the customer. A quality level can be considered as the weighted sum of a number of quality criteria. The relative importance of these criteria can be assessed through qualitative analyzes.

The target quality of service is the level of service that the supplier aims to achieve. It depends on the level of quality expected by customers, internal and external pressure, budgetary and technical constraints, and competition. When determining the target quality of the provided service, the following factors should be taken into account: specification of the service standard, level of service implementation (performance), unacceptable level of activities.

The quality of service provided is the level of service provided on a daily basis. The delivered quality is measured from the customer's point of view. This is not a mere technical assessment to show that the service has been performed.

The perceived quality of the service is the level of quality felt by the customer. This perception depends on the personal experience of the customer with the service or related services in question, on the information received about the service.

Quality gap – The difference between the expected quality and the target quality expresses the degree to which service providers should direct their efforts to meet customer expectations. The difference between the target quality and the delivered quality is a measure of the service provider's ability to achieve their goals.

3. Results

Authors of this article defined the most important quality criteria and compared them depending on the mode of transport. Quality ceases to distinguish goods on the contemporary market, but becomes an indispensable element of the competition process. Maintaining a competitive position on the market of logistics services requires constant striving to improve the quality of customer service and other processes and elements that make up the value of the service perceived by the customer.

Quality is, next to price, the second basic instrument shaping the structure of supply on the market. Therefore, it is a key factor that allows you to improve the competitiveness of products through continuous improvement of its level. Quality as an interdisciplinary category is considered by many scientific disciplines, therefore it is defined in various ways. The concept of quality is used not only in science, but also in everyday life. In economic terms, quality is considered as one of the economic categories and is analyzed along with other categories such as value in use and utility. These are the starting categories for defining the concept of quality, expressing the degree of satisfying needs by a specific material product or service in an objective or subjective manner. In terms of marketing, quality should be understood as a set of qualities, functional and emotional attributes that determine the extent to which the product meets the needs of recipients. In logistics, quality is an integral component of the

pro-cess of creating a logistics product, which determines the satisfaction of customer expectations and needs. Quality is not only a set of features that characterize a product and distinguish it from other products, but also the ability of the product to meet the expectations and meet specific customer needs. Skillful quality management guarantees that the offered product will find buyers and meet their needs.

The qualifiers of the quality of logistics services include [9]: material infrastructure of services, equipment, reliability of the service provider, credibility and accuracy of information, timeliness of the services offered, repeatability of service features, sensitivity of service providers, readiness to provide services and speed of service provision.

In terms of quality features, the transport product is identical to the production process. Analyzing the issue, it is possible to indicate an active service characterized by technical and operational parameters of the transport infrastructure object that provides passive services. The listed qualitative characteristics of the transport product are usually enhanced by the marketing activities of the carrier or the manager of the transport infrastructure network [8].

In the conditions of the competitive market of transport services, products characterized by a high ability to generate added value, perceived as the difference between the market valuation of their quality (usefulness) and the exchange value held, are links in the value chain built by the logistics supply operator. The process of shaping service quality characteristics is built until the product is in the maturity phase of the shaping cycle. Then, the level of service quality is leveled in a given market segment and its added value generated due to the quality advantage over other products with similar characteristics is equal to its exchange value, correctly valued at that time by the market mechanism [14].

Efficiency is a key issue in modern logistics. It is considered at the operational, tactical and strategic level. The assessment of the effectiveness of logistics processes is subject to separate studies.

The basic assumption of enterprises, regardless of the type of activity, should be to increase efficiency, and then to maintain it at the agreed, acceptable level. The efficiency of logistics processes is influenced by factors that need to be analyzed in order to get a picture of the current effectiveness of the analyzed logistics process.

There are several ways to increase the efficiency of logistics processes. One of them is making decisions based on effective analyzes, e.g. comparative indicators and measures used to evaluate logistics processes. The transport processes provided by the company will be tested in order to meet the needs of customers, as well as to obtain a positive financial result of the company. The transport process in the surveyed company begins when the goods are loaded on a truck and ends when they are delivered to the customer.

The efficiency of logistics processes can be assessed from various perspectives. When selecting measurement indicators, attention should be paid to reflecting the actual changes that occur

in processes and result from the flow of materials, raw materials and information. It is important to properly select parameters that allow you to modify and supervise the process.

To test the effectiveness of processes, quantitative and qualitative indicator methods can be used, which are based on the use of measures and indicators that enable the measurement and evaluation of economic and non-economic effects [28].

4. Methods of measurement and evaluation

The authors present below methods of measurement and evaluation of transport services and satisfaction in the transport of goods. The company's development and profitability directly depend on the level of customer satisfaction. It is assumed that the degree of satisfaction determines forecasts in the development of a transport enterprise. The case stage and the adjusted scope of research provide information necessary for the development and planning of the company's operations, among others in terms of customer perception of the services provided. Customer satisfaction surveys help to evaluate and adjust customer expectations and purchasing preferences. Customer satisfaction surveys provide the basis for:

- elimination of undesirable cases. The company focuses on verifying cases of dissatisfaction and tries to change customer opinions about the company and its services, e.g. through replacement, repair, compensation, price reduction, re-imbusement, consulting services, gifts, vouchers, etc.;
- analyzing practices and procedures to adapt products to customer and market expectations. An enterprise limiting itself to verification of individual cases does not change the quality of the services provided. Actions must be systemic and long-term. The indicated approach enables multi-threaded assessment and deepening of knowledge, in particular from negative experiences. The solution minimizes the risk of lowering and/or losing customer satisfaction and reduces the impact of consequences in the event of their occurrence.

Customer satisfaction translates into measurable economic benefits in the enterprise. Consequently, it allows employees to participate in the company's success. The approach uses a system of incentives dependent on customer satisfaction. Among the methods for collecting information to measure customer satisfaction, there are direct and indirect methods.

Direct methods

Direct methods are aimed at measuring customer perception and indicate to what extent the company provides the solutions desired on the market with the help of the products/services offered. They allow you to obtain information on the direct reaction of customers. The use of direct methods requires direct, greater involvement of the enterprise than in the case of indirect methods. Nevertheless, the solutions make it possible to get to know in detail the feelings of customers and the effects of the actions taken in relation to the market.

Direct methods include:

- a) System of customer complaints and suggestions – respecting consumer complaints is associated with costs incurred by companies. By evading or ignoring remarks, there is a potential risk to the health of your business. The key is to quickly deal with a specific claim or complaint so that the customer is satisfied. The company should also benefit from customer complaints and suggestions. The formulation of the strategic goal, which is a complaint or remark, is a factor determining the adjustment of the company's market offer.
- b) Critical incident technique (CIT) – critical events are a term that describes the attitudes of customers as a result of experiences that have left persistent positive or negative feelings. This technique is mainly used in service-providing companies and provides information on the most important quality attributes of a comprehensive customer service [45]. CIT is a technique based on the observation and analysis of human attitudes and their classification in such a way that they constitute the basis for identifying practical problems occurring in the functioning of a given enterprise [17]. As a consequence, it leads to identifying situations that the client will subjectively assess as positive and negative, as well as determining the frequency of their occurrence [46].
- c) Survey studies – the most frequently used form of research into measuring customer satisfaction is questionnaire research. The surveys are usually periodic in nature, thanks to which it is possible to capture trends in changes in customer satisfaction. The survey method allows you to obtain both qualitative and quantitative data. Through surveys, entities have the opportunity to obtain customer opinions on various aspects of their own activities and their competitors.
- d) Service Quality (SERVQUAL) – SERVQUAL method is based on the use of methods from the attribute group. The method enables the preparation of a detailed quality analysis based on the marked characteristics, dimensions and attributes. The dimensions of the quality of service include [39]: the appearance of the tangible elements necessary for the provision of the service, the provider's ability to carry out the service carefully and accurately, assisting service users and providing them with prompt service, knowledge and courtesy of the staff and their ability to build trust, care and personalized service provided by the service provider should provide to their customers.
- e) Focus groups and user groups – methods for collecting qualitative information. They involve bringing together a small number of people (usually 5–12) representing a selected group of customers to discuss product experiences under the guidance of a moderator-researcher. The aim of focus groups and user groups is to focus discussions on a specific problem and the possibility of achieving a synergy effect when participants' comments stimulate discussions and contribute to the emergence of new ideas.
- f) Personal interviews – can be conducted in the company or at the distributor's office when concluding contracts or during the execution of transactions, in private homes,

during visits to key or randomly selected customers, as well as on the street. Thanks to the interviews, it is possible to deepen the customer perception and obtain less superficial quality data about the product than is the case with other methods.

- g) Telephone interviews – used in customer satisfaction surveys, they usually take the form of: responses to a customer complaint or periodic satisfaction surveys of randomly selected customers.
- h) Analysis of the causes of customer loss – a rarely used method as it is problematic to collect information and assess the causes of a group of lost customers.
- i) Examination of the level of employees' competences – the method assumes: periodic assessment of the quality of service provided by the company's staff with the participation of clients, monitoring of absenteeism and employee retention rates.
- j) Importance – performance method – is used in the study and evaluation of the quality of services provided by transport companies.

The results obtained in this way are summarized in the form of a matrix called the significance-implementation matrix, the matrix of importance/degree of achievement of the criterion or the importance-performance map [39]. As a consequence, a two-dimensional so-called model importance/performance analysis was created. They provide information on how a given factor is correlated with customer needs [22].

- k) Customer satisfaction index (CAI) method – one of the most popular indicators for assessing the quality of transport services is the CSI (Customer Satisfaction Index), classified as a quantitative method. The CSI method is also used in measuring and assessing customer satisfaction with the provided transport, forwarding and logistics services [59]. A group of customers is selected, which is given to the survey using a questionnaire containing questions about individual factors determining customer satisfaction. The CSI is a weighted average of customer satisfaction ratings for product attributes – a rating multiplied by the weight assigned to each factor [47].

Indirect methods

In indirect methods, the determinants of customer satisfaction are market reactions to activities undertaken by the company in the broadly understood product environment. When using indirect methods, it is assumed that customers actually behave in a manner consistent with the level of their satisfaction, and the determinant is strongly correlated with it.

Indirect methods are less effective because they do not reflect the type and intensity of emotions felt by the buyer. Indirect methods include the following techniques: mystery shopper, customer retention index, benchmarking, analysis of sales trends, market share

trends and return on investment trends, reports of first contact employees with service customers, reports of industry associations and consumer organizations. The study describes the methods cited, i.e.:

- a) Mystery shopper – an indirect method of measuring satisfaction, because the re-searcher plays the role of the client to find out how they are served and what problems they encounter. It involves the researcher arranging real sales situations in a given company. The researcher plays the role of a client and behaves like a client, starting from obtaining information, ending with the purchase of a product of service, and even consumption (e.g. blood analysis in medicine) [37].
- b) Customer retention rate – a variable indicating the percentage of first-time customers who returned to the company for another purchase within a strictly defined time period. The time interval is related to the specificity of the company and the cycle of making repeated purchases. In general, the indicator expresses the percentage of the number of the company's customers at the end of the year to the number of its customers at the beginning of the year.
- c) Benchmarking is the process of systematically measuring and comparing the company's activities with a comparable process in the company that performs it best on the market. The research aims to obtain information helpful in identifying the most effective way of its improvement [4].

Functional benchmarking is a comparison and analysis of the workflow, processes, task implementation, etc. of non-competitors (companies from outside the industry).

- d) Sales trends, market share trends – are determinants of customer satisfaction. They reflect the preferences and behaviours of customers on the market. The results of the changes herald changes in customer satisfaction. If an enterprise systematically increases its sales and increases its share in the serviced market, it is also information that the offer delivered to the market satisfies the customers. Changes in market trends may also result naturally from the product's place on the life cycle curve.
- e) Reports of first contact and service employees – first contact employees and service employees have the best knowledge of the needs and expectations of buyers. They are also best able to identify the weak points of the company's products, especially on the basis of submitted complaints. Therefore, a request has been introduced to submit periodic reports by customer service and service departments on interactions with customers.
- f) Reports of industry associations and consumer organizations – assessments of the market situation, including in particular the development of general customer satisfaction, carried out by industry associations and consumer organizations indirectly reflect the earnings performance of each enterprise.

g) National consumer satisfaction indicators – comparisons with competition are supported by national satisfaction indicators, which express the general level of consumer satisfaction in relation to particular branches of the economy, sectors and industries. National satisfaction indicators measure the competitiveness of enterprises, industries and the economy. Thanks to them, enterprises can evaluate their results in the field of meeting customer expectations against the results achieved by their competitors.

The European Consumer Satisfaction Index covers perceived quality, price, complaints and loyalty. National consumer satisfaction indicators are national indicators of the extent to which companies and industries as a whole satisfy their consumers. They allow for the assessment and improvement of the results of companies, industries, sectors of the economy, and even entire national economies. Indicators of this type are increasingly seen as valuable supplements to quantitative measures of economic performance [55]. The effectiveness of logistics processes is influenced by a number of factors that should be analyzed in order to have an overview of the current effectiveness of the analyzed logistics process.

On the basis of [56], the problems related to the analysis of the efficiency of the transport process were discussed. The transport processes provided by the company were subjected to the research in order to meet the needs of customers and to obtain a positive financial result of the company. The transport process in the surveyed company started when the goods were loaded on a truck and ended when they were delivered to the customer. The process included: getting to the place of loading, loading the goods with a specialist device, making a decision about the place of unloading due to the size and weight of the goods, driving to an intermediate point and reloading at the reloading yard, driving to the destination and unloading at the customer.

To evaluate the effectiveness of the processes, quantitative and qualitative index methods were used. They were based on the use of measures and indicators that enable the measurement and evaluation of economic and non-economic effects [28]. For this purpose, model indicators were used to assess the efficiency of the transport process of a transport company. In order to verify the ratio analysis of the efficiency of the transport process, the obtained indicator results are compared in Table 1 with the model indicators.

The green fields mean that the requirements are met, and the red ones – that the basic criteria for the assessment of the effectiveness of the transport process have been exceeded. In the discussed case, it was a decision of the company's management board in terms of nominal efficiency ratios. The condition that must be met for the transport process to be effective is meeting the requirements set out in at least 50% of the proposed indicators.

Tab. 1. Indicators used for effectiveness assessment of the transport process [56]

No	Indicator	2012 Achieved	2012 Model	2013 Achieved	2013 Model	2014 Achieved	2014 Model	Unit
1	Transport reliability	76.90	min. 80.00	77.00	min. 83.00	79.67	min. 85.00	%
2	Number of damages during transport	0.00	max. 0.0005	0.00	max. 0.0005	0.00	max. 0.0005	%
3	Transport flexibility	83.34	min. 85.00	77.78	min. 85.00	100.00	min. 85.00	%
4	Transport costs per km	1.68	max. 1.65	1.70	max. 1.63	1.58	max. 1.60	PLN/km
5	Transport costs per shipping	486.49	max. 485.00	487.32	485.00	481.93	max. 485.00	PLN/pcs
6	Means of transport degree of use	80.56	min. 85.00	83.74	min. 87.00	83.88	min. 90.00	%
7	Operation time use	92.23	min. 95.00	92.24	min. 95.00	92.59	min. 95.00	%
8	Means of transport failure rate	0.0013	max. 0.0030	0.0012	max. 0.0030	0.0024	max. 0.0025	%
9	Number of km per means of transport	9000	max. 90000	92600	max. 95000	99800	max. 100000	km
10	Delivery readiness	55.01	min. 75.00	55.04	min. 75.00	76.55	min. 75.00	%

Cargo handling was characterized as an example of a transport and forwarding company, using the information contained in the publication [31]. The organization of the road transport service includes the following stages: transport planning, control, implementation, evaluation of the transport process and payments. The description highlights aspects related to the assessment of customer service and the courier company of road transport services.

Raben carried out activities based on cooperating entities: Raben Transport – domestic and international transport services, Fresh Logistics Polska – UltraFresh transport services, and Raben Logistics Polska – transport services of various complexity levels. Having transshipment warehouses, the company organized transport based on the standards of commercial networks, in the field of groupage and partial loads. It provided services to countries such as the Czech Republic, Germany, Lithuania, Latvia and Estonia, the Netherlands, Slovakia, Ukraine, Hungary and Poland.

Empirical research on the organization of road transport services in a transport and forwarding company covered the stages of: transport planning, control, implementation, evaluation of the transport process and payment.

At the transport planning stage, taking into account the signed transport orders, the following were verified and marked: adaptation of means of transport to the scope of planned services, involvement of people with the desired predispositions and required authorizations, travel routes, times of picking up and delivering cargo [33].

Control is a process whose task is to ensure providing actual services as planned. It is a method that helps management make decisions, checks the planning and organizational skills of subordinates, and allows for the implementation of corrective actions. In transport, the control stage should be at every stage of the transport process. The basic control tools are a mobile phone and a GPS transmitter. Driver notification systems are also helpful, as they show whether the driver has entered the indicated place at the right time. The implementation includes loading activities, cargo transport, un-loading activities, and inspection. The implementation stage is mainly performed by the driver, whose task is to transport the cargo from point A to point B, taking into account intermediate points – in accordance with the regulations on driver's working time and other regulations related to road transport.

The assessment of the transport process had to be consistent with the specific objectives of the planned transport and road service. The service was expected to meet the expectations of both the client and the purchaser of the services. The assessment of the actions was available to: the customer who could assess the carrier and the carrier who assessed the sender of the goods. The summary of the transaction for the implementation of the road transport service was obtaining the payment.

A survey was conducted among customers who ordered parcels from the courier company. The respondents assessed the quality of the transport process of the courier company they chose as the provider of the ordered service. The assessment of the quality of the company's transport process by the customer was also the assessment of the level of service provided by the final buyer. The scope of the study included: selection of a courier company, contact of the courier company with the customer of transport and road services, timeliness, price to quality ratio, the shipment tracking function, the ability for the customer to check if the shipment is complete, delivery of a complete, undamaged cargo, courier culture level, customer satisfaction from the service provided.

The popularity and perception of entities providing transport services by customers were marked, indicating the relationship between service providers: InPost (50%), DHL and Poczta Polska (20%), UPS (10%). It was established that from the point of view of the recipient of the service, timely deliveries play a key role in transport. In terms of the courier's contact with the customer, the respondents considered Poczta Polska and UPS the best, due to the courier's contact with the customer in each of the analyzed cases. It was found that courier companies are of very good quality in terms of the security of shipments. Entities, i.e. DHL, Poczta Polska and UPS achieved 100% of the result. InPost achieved a security quality index of 80%.

The assessment of the quality to price ratio, due to the subjective approach of customers to the issue, did not end with an unequivocal decision. Opinions were divided on this point.

In the case of Poczta Polska, 60% of recipients found the services adequate to the price, and 40% of the respondents stated that the price was not adequate to the service provided. According to the surveyed of UPS, the price did not meet the expectations of the service quality criteria. The behaviour of the courier in the case of all courier companies did not raise any objections. It was established that the services of Poczta Polska and UPS InPost, DHL would be used again, respectively, by: 100%, 80% and 50% of current service recipients. The respondents were extremely diverse in terms of quality and satisfaction ratings. The reason for the discrepancies was most likely the individual subjective understanding of the indicated features. It has been proven that the evaluation of the services of companies providing courier services does not arouse much objections of the target audience.

5. Discussion

The transition from the manufacturer's market to the consumer's market has forced companies to look for savings. This action allowed for a reduction in the costs of running a business and, as a result, a decrease in the price of services or products offered. Enterprises have started to outsource the performance of services to, inter alia, transport. As a result, the costs of running a business were reduced.

Manufacturing companies account for a large percentage of expenses related to running a business. Entities wanting to reduce the amount of costs started using the services of specialized entities providing logistics services as part of outsourcing. Out-sourcing of logistic services consists in separating the functions related to transport and storage of manufactured products from the organizational structure of a production company and their transfer to external economic organizations [57].

The subject of logistics services outsourcing are transport, storage and forwarding activities carried out within the organization. The condition for using outsourcing is the legal and organizational independence of the client. The contractor, in most cases, performs the tasks entrusted to him using his own resources [human, material, information].

A characteristic feature of the outsourcing of logistics services is the repeatability of activities carried out as part of a specific project. Actions carried out once cannot be treated as a separation of functions from the outside. Manufacturing companies using the services of external logistic entities can count on assistance in transport, storage and customs clearance of the goods entrusted to them [18]. Currently, the range of logistic services provided by logistic entities has been extended by: adding instructions to goods, adding warranty cards to goods, labeling, creating promotional stocks, packaging, packing, unpacking, collecting payments from the customer, and handling returns.

Entrusting the performance of logistics activities to external entities allows enterprises to concentrate on conducting basic production activities. Enterprises can use the knowledge, transport infrastructure, storage infrastructure, and licenses held by logistic entities without the need to have them [23]. Outsourcing also allows you to reduce the costs of performing

the necessary logistic activities with the same level of quality of their performance. This is possible thanks to the selection by enterprises of the most competitive offer on the logistics services market [35].

There are many benefits of outsourcing logistics services in manufacturing companies. The most important of them is the possibility of reducing the costs of implementing the necessary logistic activities. Enterprises should not forget about the disadvantages of using outsourcing, especially about the possibility of losing control over separate logistics processes.

The demand for the provision of services related to the movement of goods contributed to the emergence of a group of companies on the market, which started to provide logistics services. Logistics operators offer various types of services to satisfy the customer. For this to happen, in addition to standard logistics services related to transport (products, parcels), warehousing and forwarding, companies have enriched their offer with a number of additional services. The services create added value of logistics services and allow to raise the rank of the company on the TSL market. Below there is a description of the key entities in the industry operating on the global market, including Poland, and the characteristics of selected services that guarantee the strengthening of the service provider–customer relationship.

Based on the data of the Central Statistical Office [11], revenues from carrying out transport services are systematically growing (Figure 4).



Fig. 4. Revenues from carrying out transport services [11]

The share of revenues from the sale of products (services) in the total value of revenues obtained by transport enterprises was 90%. Over 79% of revenues from the total transport activity was generated by private sector enterprises, and 21% by public sector enterprises. Data from 2020 shows a further increase in sales of transport services at the level of 8%. The

largest increase in sales of transport services was recorded by road transport – 16.5%, and rail transport – 6%. A decrease by 8.5% took place in the transmission transport.

When analyzing the potential of warehouse management, particular attention should be paid to the number and area of warehouses, storage yards, as well as the number and capacity of silos and tanks.

In 2019, the number of closed warehouses, storage yards as well as silos and tanks decreased. It should be noted, however, that despite the decline in the number of covered warehouses, their total area increased from 19 718 000 m² (2015) to 21 085 000 m² (2019). According to the data of the Central Statistical Office [11], both the number and the area of covered warehouses have increased.

Table 2 presents the ranking of logistics companies in 2019, published by the web-site www.eurologistics.pl.

Table 2. Ranking of logistics companies

No	Company from TSL sector
1	Hellmann Worldwide Logistics Polska
2	TNT Express Worldwide (Poland)
3	GEFCO Polska
4	DPD Polska
5	Raben Polska
6	Diera
7	Fresh Logistic
8	FM Logistic
9	PANALPINA Polska
10	CAT LC Polska
11	No Limit
12	General Logistics Systems Poland
13	DHL Supply Chain
14	DHL Global Forwarding
15	Maszoński-Logistic
16	ET Logistik
17	DELTA TRANS
18	NYK LOGISTICS (POLSKA)
19	Raben Sea & Air

Research has shown that damaged parcels are not a common phenomenon, but almost half of the respondents encountered this difficulty. The “last mile issue” can affect the status of the package as an initially undelivered shipment takes a long distance. Repeated postponement of the shipment may result in additional damage. Analysis of the problem shows that

the percentage of people who confirmed that they received a damaged package is generally twice as high among those responding to the “last mile issue”.

The respondents also commented on the time of delivery of the parcel. Research has shown that 60% of customers always received their shipment at a time other than that indicated by the online store. At the same time, 40% of respondents indicated that they had never received the package on a date other than that specified on the store’s website. It is about the inconsistency of the delivery time with the one given on the store’s website in the case of pickup at parcel lockers, which is surprising as this form of shipping is free from the “last mile” problem.

6. Conclusions

Summing up, the selection of the research tool and method used is a key decision in terms of assessing and defining forecasts for service providers, in particular companies from the transport industry. The criterion for the selection of the procedure should be the effectiveness of measuring the features important from the client’s point of view. However, it is important that the tool allows to measure not only the specific features of the service offered, but also the improvement function, i.e. the possibility of making conclusions based on the results. The studies be made at strictly defined intervals, and the results should form the basis for searching for strengths and weaknesses and identification of areas for improvement.

The prepared assessment was aimed at measuring customer satisfaction in the transport of goods and verifying the correctness and reliability of shipment delivery to end recipients. It was found that:

- the factor determining the method of sending/delivering a shipment are costs related to transport;
- inspection of people using courier services is required in order to eliminate leaving parcels to third parties, due to the identified lower security of the parcel and the consequences of looking for the parcel, if the courier did not inform us about the situation (he did not leave a notification letter);
- contacting the courier before attempting to deliver the parcel should be obligatory, due to the aim of minimizing the delivery costs incurred by transport companies and reducing the risk of damage to the goods.

Funding: This publication was created thanks to support under the Operational Program Integrated Infrastructure for the project: Identification and possibilities of implementation of new technological measures in transport to achieve safe mobility during a pandemic caused by COVID-19 (ITMS code: 313011AUX5), co-financed by the European Regional Development Fund.

7. References

- [1] Abramović B., Šipuš D., Jurešić D.: A Preparatory Survey in Integrated Passenger Transport Planning: A Case Study. *Transportation Research Procedia*. 2021, 53, 16–22, DOI: 10.1016/j.trpro.2021.02.002.
- [2] Ahmadi-Javid A., Ebadi M.: A two-step method for monitoring normally distributed multi-stream processes in high dimensions. *Quality Engineering*. 2021, 33(1), DOI: 10.1080/08982112.2020.1786118.
- [3] Alam M., Dappe M., Malecky M., Goldblatt R.: Wider economic benefits of transport corridors: Evidence from international development organizations. *Journal of Development Economics*. 2022, 158, 102900, DOI: 10.1016/j.jdeveco.2022.102900.
- [4] Bażyński J.: *Badania zdolności procesów, maszyn i narzędzi pomiarowych. Zarządzanie przez jakość*, Wydawnictwo Bellona, Warszawa, 1994.
- [5] Bínová H., Hykš O., Hykšová M., Neubergová K., Kekula F., Sadil J.: Perspective of Clean Mobility in Road Freight Transport. *Transportation Research Procedia*. 2021, 53, 289–304, DOI: 10.1016/j.trpro.2021.02.035.
- [6] Bruhn M.: *Qualitätsmanagement für Dienstleistungen*. Springer, Berlin, 2003.
- [7] Czubała A., Jonas A., Smoleń T., Wiktor J.W.: *Marketing usług*. Wolters Kluwers, Kraków, 2006.
- [8] Dziadkowiec J.: Wybrane metody badania i oceny jakości usług. *Zeszyty Naukowe Akademii Ekonomicznej w Krakowie*. 2006, 717, 26–28.
- [9] Frąs J., Gołębiowski M., Bielawa A.: Rozwój systemów zarządzania w globalnej gospodarce. *Studia i Prace Wydziału Nauk Ekonomicznych i Zarządzania* 17, Toruń, 2010.
- [10] Frąs J.: *Zarządzanie jakością usług w instytucjach publicznych*. Wydawnictwo Naukowe Uniwersytetu Szczecińskiego. Szczecin, 2008.
- [11] Główny Urząd Statystyczny 2022, <https://stat.gov.pl/obszary-tematyczne/ceny-handel/> (accessed on 8.04.2022).
- [12] Gołębska E.: *Kompendium wiedzy o logistyce*. Wydawnictwo Naukowe PWN, Warszawa, 2010.
- [13] Gołębska E., Tyc-Szmił K., Brauer J.: *Logistyka w usługach*. PWN, Warszawa, 2008.
- [14] Grzelakowski A.S.: Komodalność transportu jako forma kreowania ładu transportowego i logistycznego w UE. *Logistyka*. 2014, 1.
- [15] Grzywacz W., Burnewicz J.: *Ekonomika transportu*. Wydawnictwa Komunikacji i Łączności. Warszawa, 1989.
- [16] Harrison A., van Hoek R.: *Zarządzanie logistyką*. Wydawnictwo PWE. Warszawa, 2010.
- [17] Hughes, H.: Critical Incident Technique. In S. Lipu (ed.), *Exploring Methods in Information Literacy Research*. Topics in Australasian Library and Information Studies. 2007, 49–66, DOI: 10.1016/B978-1-876938-61-1.50004-6.
- [18] Jeszka A.M.: *Sektor usług logistycznych w teorii i praktyce*. Difin, Warszawa, 2009.
- [19] Jiang H., Cheng Y., Yang J., Gao S.: AI-powered chatbot communication with customers: Dialogic interactions, satisfaction, engagement, and customer behavior. *Computers in Human Behavior*. 2022, 134, 107329, DOI: 10.1016/j.chb.2022.107329.
- [20] Juran J.M.: *How to manage for quality: The Juran Trilogy*. 'Juran's Quality Handbook. Juran Institute, Inc., Wilton, CT., McGraw-Hill Professional Pub; 6th Edition, USA, 2010.
- [21] Juránková P.: Mobility as a Service in the Shift2MaaS Project. *Transportation Research Procedia*. 2021, 53, 125–131, DOI: 10.1016/j.trpro.2021.02.016.
- [22] Keyt J.C., Yavas U., Riecken G.: Importance-Performance Analysis Revisiting a tool for the evaluation of clinical services. *International Journal of Retail & Distribution Management*. 1994, 22(5), 35–40, DOI: 10.1108/09590559410067325.
- [23] Kisperska-Moroń D., Krzyżaniak S.: *Logistyka*. Biblioteka Logistyka. Poznań, 2009.

-
- [24] Klapita V.: Implementation of Electronic Data Interchange as a Method of Communication Between Customers and Transport Company. *Transportation Research Procedia*. 2021, 53, 174–179, DOI: 10.1016/j.trpro.2021.02.023.
- [25] Korkmaz M.C., Chesneau C., Korkmaz Z.S.: A new alternative quantile regression model for the bounded response with educational measurements applications of OECD countries. *Journal of Applied Statistics*. 2021, DOI: 10.1080/02664763.2021.1981834.
- [26] Kotler P., Armstrong G., Saunders J., Wong V.: *Marketing. Podręcznik europejski*. PWE. Warszawa, 2000.
- [27] Koźlak A.: *Ekonomika transportu. Teoria i praktyka gospodarcza*. Wydawnictwo Zeszyty Naukowe Uniwersytetu Gdańskiego. Gdańsk, 2008.
- [28] Lichtarski J.: *Kryteria i metody oceny w diagnozowaniu systemu zarządzania przedsiębiorstwem*. Akademia Ekonomiczna w Krakowie. Katowice, 1997.
- [29] Lou X., Homburg C.: Neglected Outcomes of Customer Satisfaction. *Journal of Marketing*. 2007, 71.
- [30] Madeyski M., Lissowska E., Marzec J.: *Wstęp do nauki o transporcie*. Wydawnictwo Szkoła Główna Planowania i Statystyki. Warszawa, 1971.
- [31] Markowska K., Jamka M.: Realizacja usługi transportu drogowego na przykładzie przedsiębiorstwa transportowo – spedycyjnego. *Prace Naukowe Politechniki Warszawskiej, Transport*. 2018, 120.
- [32] Morgan N., Anderson E., Mittal V.: Understanding Firms' Customer Satisfaction Information Usage. *Journal of Marketing*. 2005, 69.
- [33] Navarro-Ligero M., Valenzuela-Montes L.: Scenario archetypes in urban transport planning: Insights from the implementation of LRT systems. *Transport Policy*. 2022, 118, 152–164, DOI: 10.1016/j.tranpol.2022.02.002.
- [34] Neider J.: *Transport międzynarodowy*. Wydawnictwo PWE. Warszawa, 2008.
- [35] Nowakowska-Grunt J.: *Outsourcing jako metoda obniżki kosztów logistycznych w przedsiębiorstwach*. Uczelniane Wydawnictwa Naukowo-Dydaktyczne. Kraków, 2006.
- [36] Nowicki P., Sikora T.: *Czynniki kształtujące satysfakcję klienta oraz korzyści z pomiaru satysfakcji klienta w procesie doskonalenia jakości*. Wydawnictwo Naukowe PTTŻ. Kraków, 2010.
- [37] Ottman K.E., Kohrt B.A., Pedersen G.A., Schafer A.: Use of role plays to assess therapist competency and its association with client outcomes in psychological interventions: A scoping review and competency research agenda. *Behaviour Research and Therapy*. 2020, 130(S1), DOI: 10.1016/j.brat.2019.103531.
- [38] Otto J.: *Marketing korelacji. Koncepcja i stosowanie*. C. H. Beck. Warszawa, 2004.
- [39] Parasuraman A., Zeithaml V.A., Berry L.L.: SERVQUAL: a multiple – item scale for measuring consumer perceptions of service quality. *Journal of Retailing*. 1988, 64(1), 12–40.
- [40] Piskozub A.: *Gospodarowanie w transporcie. Podstawy teoretyczne*. Wydawnictwo WKiŁ. Warszawa, 1982.
- [41] PN-EN ISO 9000:2015. *Systemy zarządzania jakością. Podstawy i terminologia*. PKN. Warszawa, 2015.
- [42] Rao S., Goldsby T.J., Griffis S.E., Iyengar D.: Electronic Logistics Service Quality (e-LSQ): Its Impact on the Customer's Purchase Satisfaction and Retention. *Journal of Business Logistics*. 2011, 32(2), 167–179, DOI: 10.1111/j.2158-1592.2011.01014.x.
- [43] Roslender R., Nielsen C.: Accounting for the value expectations of customers: Re-imagining the Integrated Reporting initiative. *Critical Perspectives on Accounting*. 2021, 81, 102244, DOI: 10.1016/j.cpa.2020.102244.
- [44] Rudnicki A.: *Jakość komunikacji miejskiej*. Wydawnictwo Stowarzyszenia Inżynierów i Techników Komunikacji. Kraków, 1999.

- [45] Sokół B.: Metody mierzenia stopnia zadowolenia klienta w firmie usługowej. Menedżer jako ścisłe rozwiązywanie problemów w praktyce przedsiębiorstw. red. K. Lisiecka. AE w Katowicach. Katowice, 1999.
- [46] Steel M., Dubelaar C., Ewing M.: Developing customised CRM projects: The role of industry norms, organisational context and customer expectations on CRM implementation. *Industrial Marketing Management*. 2013, 42(8), 1328–1344, DOI: 10.1016/j.indmarman.2012.08.009.
- [47] Sundling C., Nilsson M.E., Hellqvist S., Pendrill L.R., Emaradson R., Berglund B.: Travel behaviour change in old age: the role of critical incidents in public transport. *European Journal of Ageing*. 2016, 13(1), 75–83, DOI: 10.1007/s10433-015-0358-8.
- [48] Suoniemi S., Terho H., Zablah A., Olkkonen R., Straub D.W.: The impact of firm-level and project-level capabilities on CRM system quality and organizational productivity. *The Journal of Business Research*. 2021, 127, 108–122, DOI: 10.1016/j.jbusres.2021.01.007.
- [49] Shbool M.A., Al-Bazi A., Al-Hadeethi R.: The Effect of Customer Satisfaction on Parcel Delivery Operations using Autonomous Vehicle: An Agent-Based Simulation Study. *Heliyon*. 2021, 8(5), DOI: 10.1016/j.heliyon.2022.e09409.
- [50] Ślubowski S.: Rynek transportu i logistyki. Wydawnictwo Banku ING. Warszawa, 2007.
- [51] Świdorski A.: Problematyka jakości usług transportowych. *Logistyka*. 2012, 4.
- [52] Šebjan U., Bobek S., Tominc P.: Organizational Factors Influencing Effective Use of CRM Solutions. *Procedia Technology*. 2014, 16, 459–470, DOI: 10.1016/j.protcy.2014.10.113.
- [53] Szymanowski W.: Zarządzanie łańcuchem dostaw żywności w Polsce. Kierunki zmian. Difin. Warszawa, 2008.
- [54] Tarski I.: *Ekonomika i organizacja transportu międzynarodowego*. Państwowe Wydawnictwo Ekonomiczne. Warszawa, 1993.
- [55] Tkaczyk J.: 40 Kongres Europejskiej Organizacji Jakości (EQQ), Berlin 10–12 września 1996. *Problemy Jakości*. 1996, 12.
- [56] Waściński T., Zieliński P.: Efektywność procesu transportowego. *Systemy Logistyczne Wojsk*. 2015, 42.
- [57] Weerawardena J., Salunke S., Haigh N., Mort S.G.: Business model innovation in social purpose organizations: Conceptualizing dual social-economic value creation. *Journal of Business Research*. 2021, 125, 762–771, DOI: 10.1016/j.jbusres.2019.10.016.
- [58] Witkowski J.: Zarządzanie łańcuchem dostaw. PWE. Warszawa, 2003.
- [59] Wolnowska A., Rej K.: Ocena jakości usług spedycyjnych poprzez badanie satysfakcji klientów. *Logistyka*. 2009, 4.
- [60] Yadavalli V.S.S., Darbari J.D., Bhayana N., Jha P.C., Agarwal V.: An integrated optimization model for selection of sustainable suppliers based on customers' expectations. *Operations Research Perspectives*. 2019, 6, 100113, DOI: 10.1016/j.orp.2019.100113.
- [61] Zamkowska S.: Bezpieczny transport jako warunek zmniejszający straty w łańcuchu dostaw, *Filozofia TQM w zrównoważonym rozwoju* (red. Śuchowski J.). Politechnika Radomska. Polska Akademia Nauk. Radom, 2008.