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Exploring the Possibilities of Improving Logistics Transport Services in Trade

Author's abstract

OF A DISSERTATION FOR THE AWARD OF

EDUCATIONAL AND SCIENTIFIC DEGREE "DOCTOR"

IN DOCTORAL PROGRAMME "ECONOMICS AND MANAGEMENT (COMMERCE)"

Scientific advisor:

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The author of the dissertation is a full-time doctoral student at the Department of Commerce at D. A. Tsenov Academy of Economics – Svishtov.

The dissertation consists of an introduction, three chapters, a conclusion, a list of references and appendices. It has 216 pages, of which a title page, a table of contents, an introduction – 5 pages, main text – 165 pages, a conclusion – 4 pages, a list of references – 11 pages. The dissertation includes 14 tables and 38 figures. The list of references comprises a total of 105 literary sources in Cyrillic and Latin script, 21 normative sources and 7 electronic sources.

The defence of the doctoral dissertation will be held on ..... at ..... in the Rectorate Conference Hall of D. A. Tsenov Academy of Economics – Svishtov. All materials related to the defence are available on the internet page of D. A. Tsenov Academy of Economics – Svishtov.

I. GENERAL CHARACTERISTICS OF THE DISSERTATION

1. The relevance and importance of the study are determined by the economic globalization and the impact which logistics transport services have on trade. Logistics plays a crucial role in the implementation of commercial operations, ensuring the efficient movement of goods, information and finance. This involves coordinating transportation, storage and distribution, contributing to timely and cost-effective delivery of products. Improving logistics transport services in trade increases the efficiency of supply chain management reducing implementation times and lowering costs, which leads to improved relations in international trade activities.

The interest in logistics transport services in trade is dictated, on the one hand, by the variety of opportunities for conducting trade and the growing competition, and on the other hand, by the European Union's pursuit of a sustainable economy, through the construction of the Trans-European Transport Network (TEN-T), the use of greener transport and the implementation of software solutions for optimizing transportation.

The researched topic is applied in theoretical-methodological formulations of leading authors who study logistics, transportation, transport services and supply chain management. They are both foreign – C. Anaheim, M. Cooper, J. Coyle, J. Haan, M. Habib, A. McKinmon, N. Slack, J. Gattorna, B. Anikina, A. Vorkut, L. Mirotina, I. Sergeev, A. Shumaev, and Bulgarian – D. Zhelyazkova, D. Angelov, V. Bakalova, V. Banabakova, D. Danchev, P. Dimitrov, N. Dragneva, Y. Yotsov, Y. Koraliev, S. Naydenov, T. Milkova, H. Nikolova, V. Perkov, M. Rakovska, M. Chipriyanov.

2. Object and subject of study

The **object** of study are Bulgarian enterprises carrying out commercial activities, offering and/or using transport services.

The **subject** of study is logistics transport services in trade.

3. Aim and objectives of the dissertation

The **main aim** of the dissertation is to adapt and test a model for exploring the possibilities of improving logistics transport services in trade by adapting and approving theoretical-methodological and empirical resources, and on this basis, to formulate conclusions and recommendations.

Objectives:

First. Clarifying the essential characteristics of logistics transport services and classifying the types of transport in trade.

Second. Conceptually defining the importance of supply chain management in trade.

Third. Adapting a model for exploring the possibilities of improving logistics transport services in trade at the micro, meso and macro levels on the basis of the knowledge existing in the economic literature.

Fourth. Testing the proposed model for exploring the possibilities of improving logistics transport services in trade.

Fifth. Deriving specific recommendations for improving the logistics transport services in trade, observing the obtained research results.

4. Research thesis statement

The **main research thesis statement** is that the application of a suitable system of indicators, integrated into a model for analyzing and assessing logistics transport services at the micro, meso and macro levels, determines the decisions of Bulgarian enterprises to improve the supply chain management in trade.

5. Methodological framework

Historical, descriptive, inductive, deductive and analytical methods are used in this scientific research. Synthetic, comparative, regression, correlation and SWOT analyses stand out among the analytical ones. The mathematical models used allow modelling

possibilities for improving logistics transport services in trade. Building a regression model enables the detection of relationships and dependencies between the studied indicators.

The information for conducting the study is obtained through using specialized literary sources, conversations and discussions with representatives of Bulgarian enterprises who are respondents of the study, data from the Bulgarian Chamber of Commerce and the Bulgarian Logistics Association, newspapers, magazines, statistical yearbooks and directories, the global Internet, etc. Statistical data of the National Statistical Institute (NSI), Eurostat, Organization for Economic Cooperation and Development (OECD), World Bank, World Trade Organization (WTO), free access public data of the Ministry of Finance, Ministry of Transport and Communications and European Commission, European Court of Auditors and other sources are used for the overall analysis of the logistics sector (meso level).

6. Restrictive Conditions

Given the multifaceted nature of the studied problems, the following ***restrictive conditions*** are observed during the development of the dissertation:

First: In a theoretical aspect, all problems of logistics transport services in trade are presented through the prism of the subject of study.

Second. Given the theoretical nature of the study, some of the presented technological stages are not fully considered.

Third. Transport services can be viewed in two main aspects – freight transportation and passenger transportation. The present dissertation studies freight transportation.

Fourth. In Bulgaria, road freight transport plays a leading role in freight transportation. For this reason, the present dissertation focuses on it.

Fifth. A survey was conducted on the territory of the Republic of Bulgaria, with the main part of the respondents located on the territory of the Veliko Tarnovo region.

II. STRUCTURE AND CONTENTS OF THE DISSERTATION

The dissertation consists of an introduction, three chapters, a conclusion, a list of references and appendices. It has 216 pages, of which a title page, a table of contents, an introduction – 5 pages, main text – 165 pages, a conclusion – 4 pages, a list of references – 11 pages. The dissertation includes 14 tables and 38 figures. The list of references comprises a total of 105 literary sources in Cyrillic and Latin script, 21 normative sources and 7 electronic sources.

Contents of the dissertation:

III. BRIEF DESCRIPTION OF THE DISSERTATION

INTRODUCTION

The introductory part of the dissertation presents the relevance and significance of the studied issues and defines the following: the object and the subject; the main aim and the objectives enabling its solution; the research thesis statement, it also highlights the research methods and indicates the leading authors on the topic and the restrictive conditions of the dissertation.

CHAPTER ONE
THEORETICAL ASPECTS OF LOGISTICS TRANSPORT SERVICES AND SUPPLY CHAIN MANAGEMENT IN TRADE

Paragraph 1.1. The place and essential characteristics of logistics transport services in trade explores basic concepts such as: logistics, logistics system, logistics sector, transport services, transport logistics, transportation, logistics transport services, etc. The analysis of opinions and views of different authors helps to clarify the concepts and their specifics**.**

Firstly, it examines the concept of "logistics". A number of scholars point out that logistics is an area of management. It is in this way that John Gattorna defines logistics as the process of strategically managing the acquisition, movement and storage of materials, spare parts and finished goods within an organization and its marketing channels to fulfill orders in the most efficient manner. A. Shumaev points out that logistics is a process of improving management. I. Sergeev notes that logistics is an integrated management tool. At the core of the logistics process are activities such as: transportation, storage, processing, packaging, inventory control, production orders, demand forecasting, marketing and customer service. In the scientific literature, one of the most accurate definitions of logistics is considered to be the one issued by the US Council of Logistics Management (CLM),

which states that logistics is a process of planning, executing and controlling the effective and efficient flow and storage of raw materials, unfinished, finished products and related information from the place of their origin to the place of consumption aiming for customer satisfaction. The purpose of logistics is optimizing the processes that make it up and minimizing costs. By achieving the aim, competitive advantages are preserved and the time factor is improved. In summary, it can be concluded that logistics is *a carefully organized process consisting of multiple activities connected in a certain sequence, aimed at minimizing costs and increasing the efficiency of material flow management*.

Secondly, it defines the term "logistics system". The term is studied by a number of authors who define it as a complex economic structure. The logistics system is made up of multiple subsystems related to orders, stocks, storage, transportation, reporting, production, loading and reverse logistics, as well as of two streams – material and accompanying.

The conclusion reached is that *the logistics system is an organized and adapted system consisting of subsystems (supply, production, storage, transportation, consumption, information, personnel, etc.) that interact with one another. It has the ability to adapt to changes in the macro and micro environment.*

Thirdly, the focus is on the logistics sector, which is formed by logistics service providers who provide specific activities related to the delivery of goods to their customers. In logistics, it is assumed that *the logistics sector is a specific branch of any economy, which is composed of logistics service providers on the territory of the country, having a variety of machines and equipment that support the provision of logistics services, and their personnel are qualified to work with them.*

Fourthly, it examines the structure of the logistics transport services offered on the modern logistics market. With the development of the economy, in particular, trade, there arises the need to expand the basic logistics processes. The logistics market offers a variety of services, which is a consequence of the evolution of logistics. The changes that occur with the progress of the economy and the "struggle" to increase competitiveness and to minimize costs lead to the emergence of independent logistics operators that offer a variety of services.

According to Ts. Tsvetkov, commercial entrepreneurship seeks to include a large part of the logistics chain in its scope. In trade, logistics transport services are used both at the entrance and at the exit in the sale of goods.

The author adheres to the statement that trade logistics is a management process that covers the processes of managing the flow of goods and information between suppliers, traders and end consumers, as well as trade logistics processes while observing the function of minimizing costs and increasing efficiency.

It can be summarized that *transportation is the main foundation of logistics, which represents the actual movement of goods both between individual objects in the logistics system and to end consumers, through the use of an appropriate type of means of transport complied with the route*.

More than a third of the enterprise's logistics costs are generated by transportation. Many authors study the role of transportation in various economic sectors and define it as the basis of the economy. *It is considered that transport service is a major part of the logistics process, which is influenced by the macro and micro environment. It is carried out by different types of vehicles, which have their own characteristics. The transport service has no tangible form, which means that it cannot be stored, its consumption occurs at the time of transportation. After it is done, the final product does not physically change, but the place where it is located changes. The value of the service is transferred to the transported product*.

Paragraph 1.2. Classification aspects of transport services in trade examines basic characteristics of the types of transport that are used in trade. In forming the price of the offered goods, one of the main pricing factors is the cost of transportation. The main goals for the organization and technology of supplies in commercial enterprises are: financial optimization, reliable provision of the necessary goods, coordination of activities, etc.

In this paragraph, the following characteristics of transport are examined in sequence: modes of transportation; means of transportation; evaluation criteria; advantages and disadvantages of own and for-hire transport; criteria for choosing a specific type of

transport. The consistent clarification of the aspects of logistics transport services allows to identify opportunities for optimizing the transportation of goods. When evaluating a particular type of transport, the following selection criteria should be taken into account: transport costs; traceability; opportunity; accessibility; security; reliability and transit time.

The adopted statement is that transport system has a significant impact on the socio-economic development of the regions, it covers all modes of transport together with the means of transport and the built infrastructure. In general, the modes of transport, according to the mode of movement, are divided into: land (ground), water, air and pipeline. According to the type of the means of transport used, transport is classified into: road, rail, water, air, pipeline, and the combination between the means of transport used is called – combined, intermodal and multimodal. The advantages and disadvantages of each type of transport and the different levels of development in individual countries are presented, as well as the increasingly important role of transport in the realization of commercial transactions. Transportation, according to the number of means of transport used, can be differentiated into: unimodal; mixed; combined; multimodal; intermodal and terminal.

Combined, intermodal and multimodal transport are solutions similar in that more than one mode of transport is used in the transportation, but the level of organization of the goods is different.

Regardless of how the actual delivery is made, the logistics transport service must be as environmentally friendly as possible and at the same time efficient. Y. Koraliev presents four directions for evaluation of transportation, namely: legal; infrastructural; delivery and opportunities. The author refers to the statement that the most used mode of transport is road freight transport, as the main advantages it has over other ways of transporting goods are: flexibility; maneuverability; quickness; built infrastructure; adaptability, etc. In addition, this type of transport is part of the existing supply chains, it has a connecting role in the use of other types of transport recommended in the “first and last mile” of the transportation process. In summary, *road freight transport has an important role, both at the macroeconomic level, which is related to the inter-industry connections it makes, and at the microeconomic level, and its role in the enterprise is*

increasing. Road freight transport is an indispensable foundation of international supply chains. Due to its advantages (flexibility, accessibility, mass character, low costs, speed of delivery, etc.), it is necessary for the successful functioning of the other modes of transport – rail, river, sea, air and pipeline.

Transport is divided into own and for-hire. The first is carried out by vehicles that are owned by the commercial enterprise. With this type of transport, the initial investments in creating an own vehicle fleet as well as in subsequent maintenance are significant. Commercial enterprises choose their own freight transport in cases where their deliveries are regular. The stated advantages of own transportation are: independence; control; building a supply management system; timeliness; flexibility; quickness; possibility to avoid empty courses; reverse logistics, etc. The disadvantages are related to: the need for initial capital; impact on the environment; liability for damages and losses; need for a management unit and specially qualified personnel. The listed negative sides hide the risk of delaying the return on the investment made at the beginning. The second type of transport – for-hire, is used when commercial enterprises do not have their own fleet or the capacity they have is inappropriate or insufficient. Freight forwarders are specialized logistics or shipping companies that offer and perform services related to the transportation of goods between the various counterparties in commercial transactions. The main advantages associated with for-hire transport are defined as: the responsibility for transporting the goods is assumed by the carrier; elimination of the need for investment in a fleet of vehicles; no costs for personnel involved in transportation; no additional administrative costs; the delivery period is of fundamental importance to the logistics process. The disadvantages are expressed in the following: lack of adequate and efficient control over the goods during their transportation; a certain way of packaging and combining the goods during transportation, according to the carrier's requirement; additional costs paid to the carrier for the services provided by him, etc.

The for-hire transport in the logistics of goods between counterparties is used when the commercial enterprise does not have its suitable own transport and does not have free capital to invest in the purchase and maintenance of its own fleet. The trends in recent

decades show that more and more large and highly developed enterprises prefer the use of for-hire transport instead of their own in the distribution of their goods.

The main challenges faced by commercial enterprises when using a specific type of transport are: transport costs; the transit time; reliability; security; accessibility; material provision and traceability.

Choosing the most suitable way of transporting goods is related to the analysis and evaluation of the advantages and disadvantages of the different types of transport. The factors on which the choice depends are: type of goods; transit time; price of the service; security and reliability during transportation and climatic conditions. Transportation is the foundation of the supply chain that ensures the physical movement of goods and is an integral part of the chain.

Paragraph 1.3. Conceptually defining the importance of supply chain management in trade presents the essence and evolution of the chain. It clarifies the similarities and differences between a traditional logistics system and supply chain management. In summary, in the traditional logistics system, processes such as stock management, information, risk, organizational relationships and planning are performed by the enterprise, while in the supply chain management they are undertaken by all partners.

In modern commercial relations, the application of the concept of supply chain management is argued with the following circumstances: **First**, effective competition in the market, monitoring and control of the relationships between counterparties; **Second**, establishing connections; **Third**, long-term planning and decision-making in the face of unforeseen disruptions.

This paragraph makes a comparative analysis between supply chain management and marketing channel management. The analysis takes into account differences both in the scope of the two concepts and in their coordination, in supply chain management it is carried out between the separate flows of movement – material, informational, marketing and financial, and in the second concept the marketing flow and partly the financial flow are studied.

Among the leading authors studying these issues are: Y. Koraliev, M. Rakovska, V. Sergeev, M. Cooper, B. Beamon, P. Shelley, E. Nichols, etc. In the economic literature, there are many definitions of supply chain management (SCM), but the opinions of most scientists are consolidated around the fact that it is built by all participants in the process. It can be represented as *a process of planning, organizing, controlling and coordinating the processes that are carried out in an economically optimal way from the moment of its creation to the final consumption and recycling, connecting the interacting links of the processes in the supply chain and creating the value of such interaction to the end consumer*. In its essence, the concept is the need for a single material flow that starts from the primary source of raw materials, passes through production and ends with the sale of goods to the final consumer. According to Y. Koraliev there are three principles in organizing the process – place, time and possession. The reasons for the formation of the supply chain according to M. Rakovska's opinion are: the degree of specialization of business entities; the increasing competition in the market and the dominant role of consumers.

In the scientific literature, supply chain management is divided into two main subsystems:

- Planning – they aim to deliver on time. They are characterized with identifying the most direct route for the delivery of an optimal amount of materials and goods, as well as their adequate and cost-effective storage;

- Operational – they monitor and report control over financial and material flows. They are responsible for the effective management of material stocks and contribute to the optimization and efficiency of the entire process.

The key objectives of the procurement process are, on the one hand, strategies to attract and retain end customers and, on the other, effective supply chain management.

According to the authors, the main actors are: clients; retailers; merchants; wholesalers/distributors; manufacturers; component/raw material suppliers.

The processes in supply chain management in trade boil down to: coordination, planning, forecasting, supply, production, packaging, distribution, transportation,

warehousing and delivery. Flows also move in it, they are: material, informational and financial.

Transport services in the supply chain in this dynamic macroeconomic situation are characterized by the highest risk of disruption, because in reality transport appears between the individual stages, i.e. transport is the "link" that connects the whole chain. The vulnerability of transport is in several directions, such as: transport of raw materials on detour routes; sanctions imposed on some countries that have until now been leaders in the supply of raw materials; construction of new infrastructure facilities; high prices of used energy carriers; EU desire for "greener transport"; high labour turnover (drivers) caused by various legal restrictions, as well as high workload and stress in the work process, etc.

The theoretical study of logistics transport services and supply chain management in trade, which are presented in the first chapter of the dissertation, give grounds for the formulation of the following ***important conclusions***:

1. ***Logistics is a carefully organized process consisting of multiple activities connected in a certain sequence, aimed at minimizing costs and increasing the efficiency of material flow management.***
2. ***The logistics system is an organized and adapted set consisting of subsystems (supply, production, storage, transportation, consumption, information, personnel, etc.) that interact with one another. The participants in this system are logistics service providers who have specific machines and equipment and their personnel are qualified to work with them.***
3. ***Transport service is a major part of the logistics process, which is influenced by the macro and micro environment. It is carried out by different types of vehicles, which have their own characteristics. The transport service does not have a tangible form, which means that it cannot be stored, its consumption occurs at the moment of implementation. After it is done, the end product does not physically change, but the place where it is located changes. The value of the service is transferred to the transported product.***

4. Commercial enterprises can choose between different types of transport. Road freight transport is an essential element of international supply chains, on the one hand, and of the cross-industry supply chain at country level. Its main operations are mainly performed at the beginning and end of the supply chain. For this reason it can be perceived as a necessary condition for the functioning of the other modes of transport – sea, air, etc.; the advantages of road freight transport are rooted in its flexibility, accessibility, mass character, low costs, speed of delivery, etc. A major disadvantage of road freight transport is the high level of pollution.

5. Supply chain management (SCM) involves the processes of planning, organization, supply, production and logistics of materials, production and goods. The aim is to optimize efficiency, minimize costs and increase productivity throughout the chain. Effective supply chain management improves the relationships between the actors (suppliers, distributors, traders and end consumers) in it and helps ensure continuity in the provision of products that satisfy consumer demand.

CHAPTER TWO
METHODOLOGICAL ASPECTS OF STUDYING LOGISTICS TRANSPORT SERVICES IN TRADE

Paragraph 2.1. Measuring apparatus and adapting a model to explore the possibilities of improving logistics transport services in trade integrates an analysis of scientific studies by Bulgarian and foreign authors that investigate problems in the logistics system, logistics, transportation, supply chain, the impact of infrastructure on transportation and other aspects of logistics transport services in trade.

Leading authors study the possibility of diversifying the supply chain to reduce risk in the global economy. Risk reduction is believed to be fundamental when processes such as supply, production and delivery are diversified in individual economies. In this way, the opportunities for the formation of a cartel oligopoly between countries in which specific

industries are well developed, such as the production of medical equipment, pharmaceutical products, etc., are limited.

A publication by a team of scientists from Great Britain led by S. Bougheas analyzes the impact of infrastructure on trade through transport costs. The dissertation found that: the built infrastructure has a favourable effect on the economic growth of the region, but a negative effect on the environment; it is necessary to build an international infrastructure network; the built infrastructure offers better opportunities for carrying out road freight transport compared to other types of transport.

The measurement apparatus of logistics transport services in trade is based on a wide toolkit of scientific and practical methods and models for analysis. The optimization and improvement of logistics transport services in trade is carried out by analyzing the micro, meso and macro environment in the commercial enterprise.

Figure 1 presents the three levels that shape the internal and external environment of a commercial enterprise and the factors that influence the logistics transport services in trade.

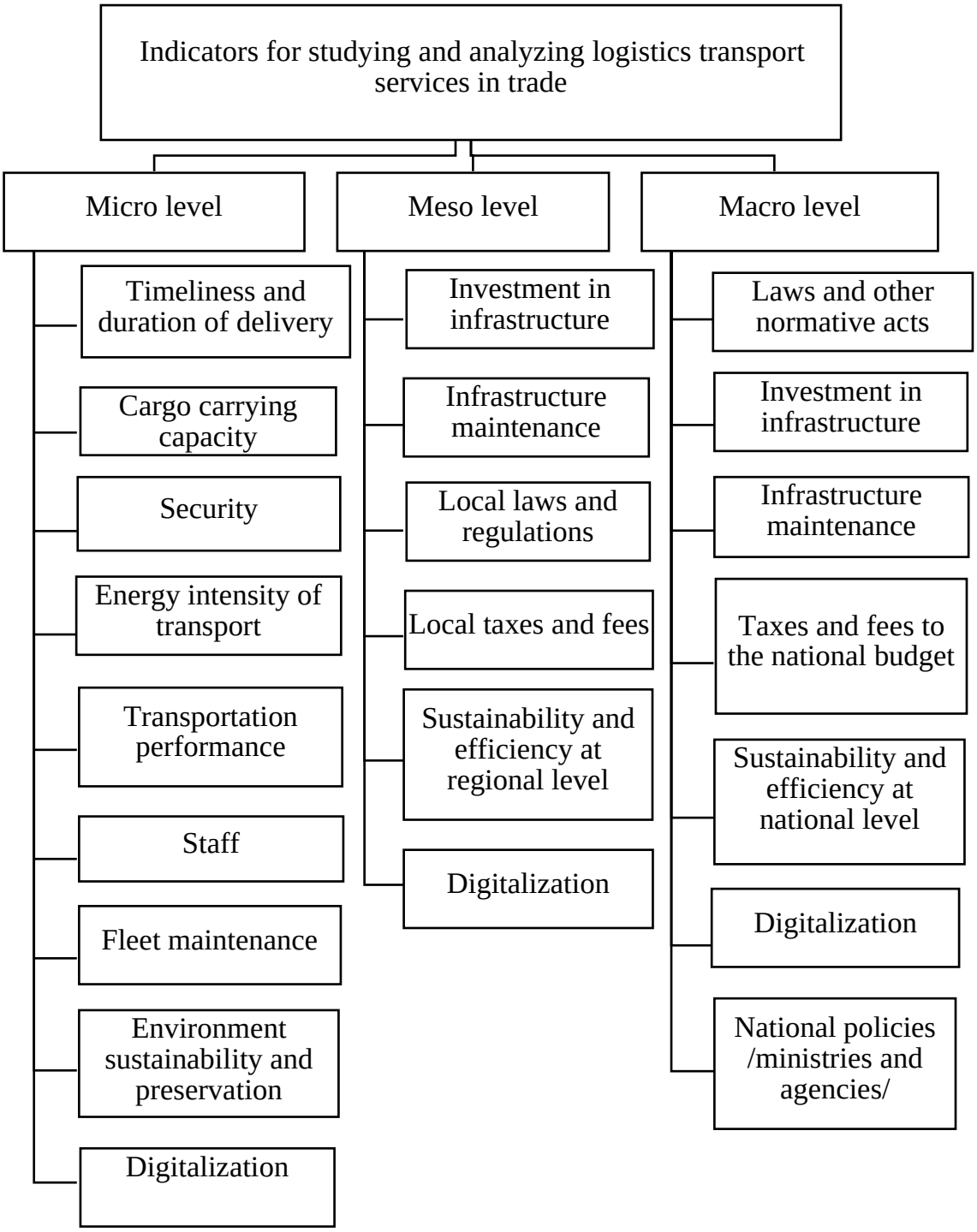

Figure 1. Indicators for studying and analyzing logistics transport services in trade

Source: *adapted after Vorkut Anatoliy Ivanovich, Road freight transport (Gruzovye avtomobil'nye perevozki), 1986, Kiev, pp. 19-27.*

The methodology of this scientific study is aimed at planning and organizing the research activity, by choosing rational and applicable metrics, methods, tools, approaches, etc. to achieve the defined aim, namely drawing conclusions and recommendations for improving logistics transport services in trade. To achieve this aim, the dissertation paper goes through several stages that aim to collect, analyze and summarize data. These stages are presented in Figure 2.

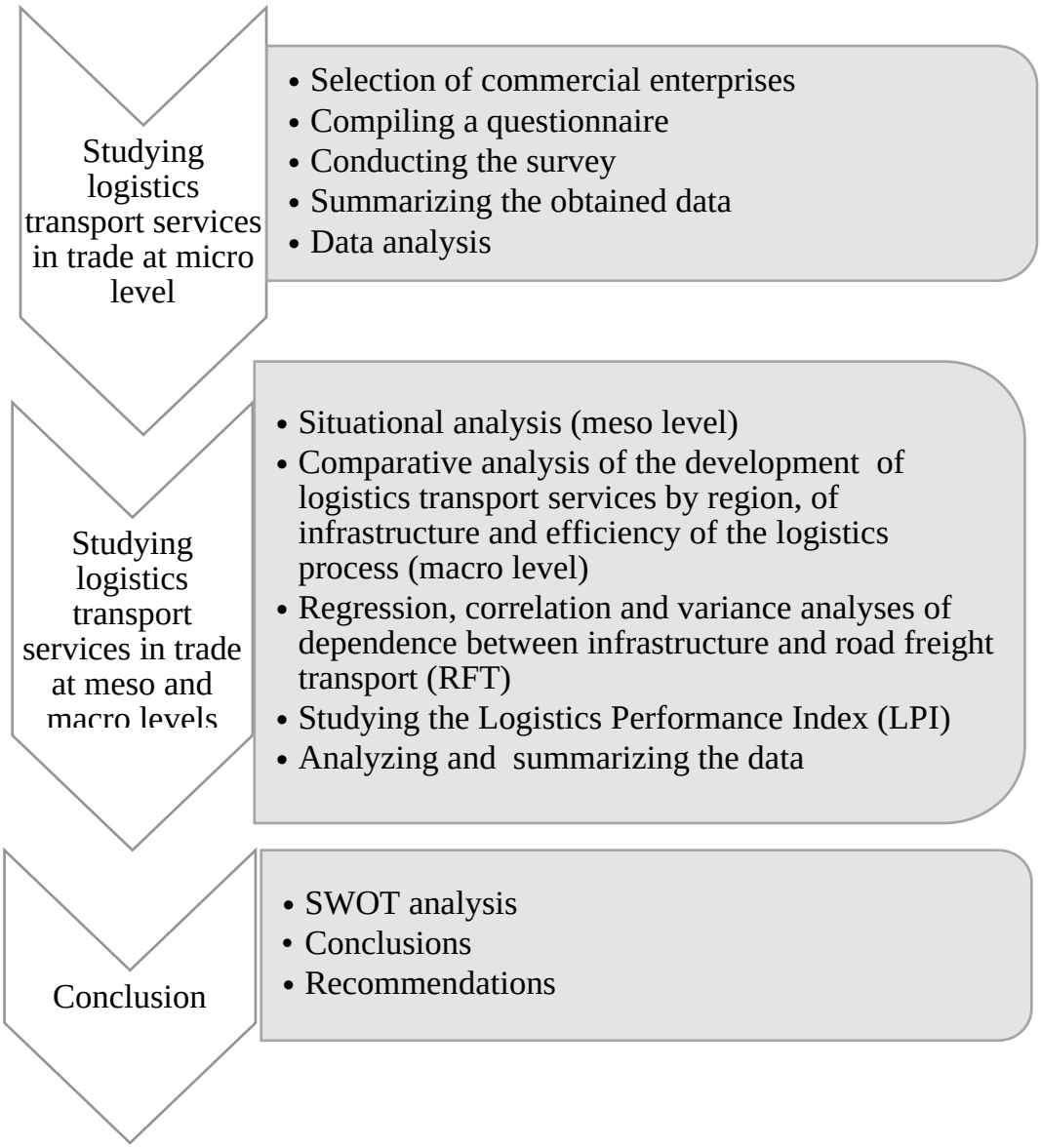

Figure 2. Stages of the model for exploring the possibilities of improving logistics transport services in trade

Source: *developed by the author.*

The first stage of the model for exploring the possibilities of improving logistics services in trade is associated with a study of specific commercial enterprises and is based on survey data. The stage covers the following activities: firstly, selection of Bulgarian enterprises carrying out commercial activities and offering logistics transport services in the sale of the goods they trade with. Secondly, compiling a questionnaire that has internal consistency tied to the set aims of the study. The next steps are conducting the survey, summarizing the results and analyzing the data obtained.

The second stage of the presented model is related to the analysis of statistical data on domestic transport carried out according to the mode of transport used, the volume of the means of transport used, the type (own or for-hire) of the transport used, domestic transport by region of loading and unloading, dynamics of road freight transport in relation to GDP, dynamics of the indices for work performed "Total domestic (land) freight transport" and "Road freight transport", dynamics of the work performed through the indicators "Road freight transport for hire and pay" and "Own-account road freight transport", dynamics of the indicators "Investments in road infrastructure to GDP" and "Share of maintenance of road infrastructure", "Share of investments in road infrastructure to the total investments in the domestic market infrastructure". Within the analysis of the transport services market, a correlation analysis between the indicators listed above, a variance analysis and an analysis of the coefficients of the model are carried out. The indicator "Logistics Performance Index" (LPI) is studied.

The third stage of the structured model requires carrying out a SWOT analysis, bringing out key findings and recommendations aimed at improving logistics transport services in trade.

Using the model for exploring the possibilities of improving logistics transport services in trade at the micro, meso, and macro level aims to consistently examine the internal and external environment of the commercial enterprise and derive specific recommendations.

Paragraph 2.2. Methodological framework for studying the logistics transport services in trade at the micro level presents a technology of conducting the survey of the possibilities of improving logistics transport services in trade (micro level), which covers five phases.

First phase. The selection of Bulgarian commercial enterprises is carried out in two parts. In the first, a preliminary selection of respondents who meet certain criteria is carried out. In the second, the emphasis is on researching Bulgarian enterprises according to size (number of personnel and amount of turnover) – micro, small, medium and large. The criterion expresses the size of the companies and to what extent their commercial activity is developed. The survey also formulates a question related to the amount of the annual turnover to determine the type of the commercial enterprise.

Second phase. Covers developing a questionnaire. It consists of five sections:

First, it includes questions related to basic data about the respondent, namely: name of the enterprise, date of establishment, position held in the enterprise of the respondent. The questions are related to the size of the enterprise, the field of the enterprise's main activity and the average number of the personnel. The data that are required refer to the last accounting period that precedes the current one. This section is called "General Information".

Second, it is aimed at the internal environment of the enterprise and the state of the assets that are used in logistics. In it, the questions are related to: the relative share of assets, persons employed in logistics; the relative proportion of personnel involved in the process; as well as whether the company has a specific person/department responsible for the logistics processes. Emphasis is placed on the internal organizational environment of the logistics process. It finds to what extent the organization manages to cope alone with the logistics transport services in trade, what types of means of transport the enterprise has and which are used in the logistics transport processes. The questions are also related to whether the company uses for-hire transport and what kind it is. It takes into account what part of the realized purchases/sales are carried out with own transport and what part – with for-hire transport. This section is called "Internal Environment".

Third, it includes information on investment, innovation and the use of technology to improve logistics transport services in the trade processes of the enterprise. The study refers to the amount of investment in improving the technical means related to transportation for a specific period (2006 – 2021). Questions are formulated regarding the attitudes towards future investments: what would companies invest in, whether the investments are aimed at own vehicle fleet meeting the high environmental standards and low fuel consumption, which the EU strives for; in electric vehicles; in improving staff qualifications and implementing best practices for interaction with schools and universities; in software solutions; in optimizing the processes related to storage; in investments aimed at protecting the environment and exploring opportunities for inclusion in regional and national infrastructure projects. This section focuses on the attitudes of enterprises for the near future and is called "Investments and Innovations".

Fourth, it covers issues related to the influence of the enterprise's external environment. Here, the respondents' views on European Union transport policy are explored. Another part of the questions refers to what difficulties in transportation the companies encounter, such as: infrastructure, lack of personnel, fuel prices, policies, environmental protection, management, competition, etc. The section is titled "External Environment".

Fifth, it relates to alternative solutions for transportation, namely – the implementation of combined transport. This section is titled "Alternative Transportation Solutions".

Third phase. The aim of the survey is to investigate and analyze the attitudes of commercial enterprises regarding the possibilities for improving logistics transport services in trade. Data is accumulated through: "face to face" direct contact with respondents, sending a survey via e-mail, telephone conversation and by using special software for developing and distributing the survey. The survey is created in Google Forms. The latter is a free software product with the ability to create questions of different types and structures. The questions covered in the questionnaire are in a specific consistency, which is related to the need for data on the internal and external environment of the enterprises

participating in the survey. The respondents' attitudes related to investment, innovation and alternative transportation solutions are reported.

Fourth phase. Summarizing the data obtained. The software used provides the possibility of summarizing the completed questionnaires, as well as exporting them to Excel for post-processing, synthesizing and deriving dependencies.

Fifth phase. Analyzing the survey results. On this basis, specific recommendations for improving the researched process in commercial enterprises are made.

Paragraph 2.3. is called Methodological framework for studying the logistics transport services in trade at the meso and macro levels. Presenting the technology of the analysis of specific statistical data aims to study the logistics transport services in trade at the meso and macro levels and reach conclusions for improvement. The methodological framework consists of five phases of an algorithm related to the selection of indicators, analysis of the selected indicators, conducting regression, correlation and variance analyses, studying the "Logistics Performance Index" (LPI), conducting a SWOT analysis of the road freight transport used in trade and presenting conclusions. The following figure illustrates the process of the technology of conducting a study of logistics transport services in trade at the meso and macro levels.

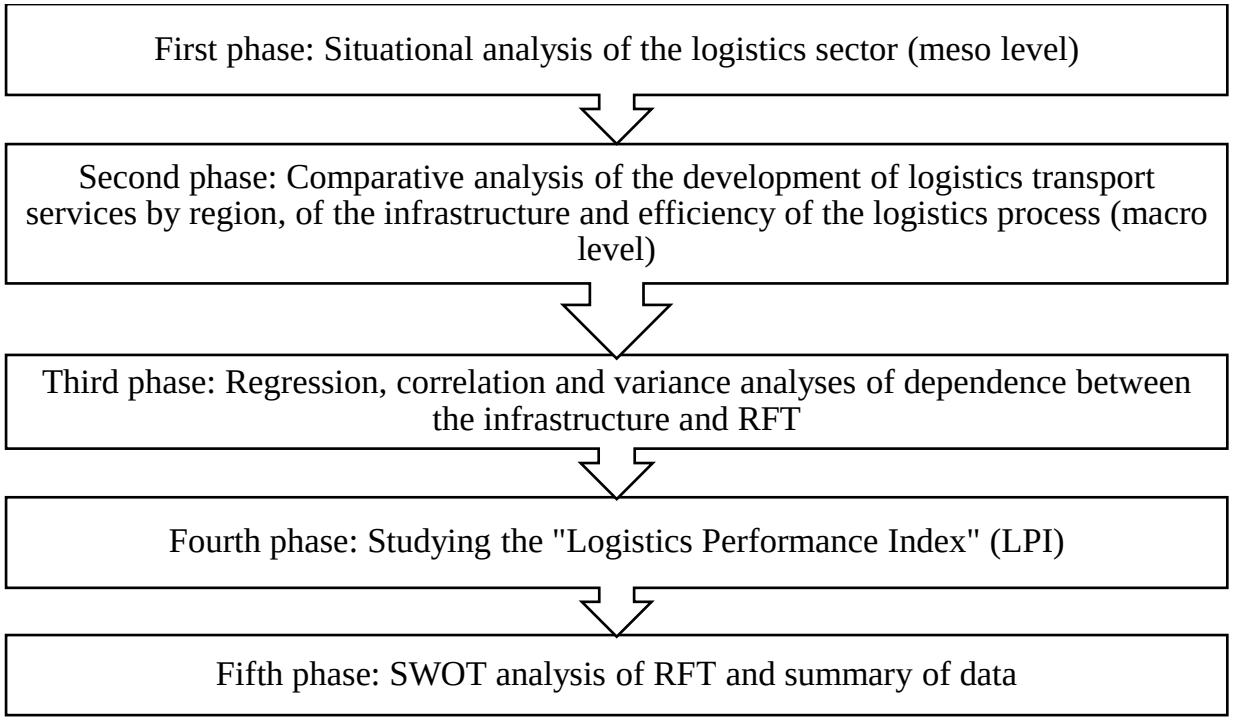

Figure 3. Technology of conducting a study of logistics transport services in trade at the meso and macro levels

Source: *developed by the author.*

First phase: Situational analysis of the logistics sector (meso level). In order to make a comprehensive analysis, statistical data of the National Statistical Institute (NSI), Eurostat, Organization for Economic Cooperation and Development (OECD), World Bank, World Trade Organization (WTO) are used, as well as free-access public data published by the Ministry of Finance, the Ministry of Transport and Communications, and the European Commission, the European Court of Auditors and other sources. The study covers indicators related to the domestic transport performed, the type of transport used, the transport of goods by total weight of the means of transport, the type of transport – own-account or for-hire, volume of freight transport in relation to the GDP of Bulgaria and analysis of the infrastructure by regions.

Second phase: Comparative analysis of the development of logistics transport services by region, infrastructure and the efficiency of the logistics process as a whole in

the country (macro level). The analysis is based on a comparison between the same quantity measured in different periods or compared to base/plan values.

Third phase: Regression, correlation and variance analysis of dependence between infrastructure and road freight transport. In the dissertation, a regression model is built to reveal the relationships and dependencies between selected indicators from the OECD database. The model takes into account the trends in the listed indicators for the studied period, based on graphic analysis and construction of a regression line on a straight line. For all indicators characterizing the relevant indicators, figures illustrating their dynamics for the studied period are presented and an equation on a straight line is created in order to identify the trend. Initially, to avoid multicollinearity in the model, a correlation analysis is performed using the Pearson coefficient – indicating the direction and strength of the relationships. Statistical software SPSS 19 and Excel are used to implement the correlation and regression analysis. After identifying the strength and direction of the relationships and dependencies between the indicators and excluding some of them, we move on to performing a regression analysis. The evaluation indicator "Road freight transport in tonne-km per thousand units of the current GDP of Bulgaria in US dollars" is perceived as a dependent variable, and the indicators characterizing the indicators of infrastructure and the use of freight transport are perceived as independent variables. In general, the regression model has the following form:

$$Y=\alpha+\beta_1 X_1+\beta_2 X_2+\beta_3 X_3+\cdots+\beta_k X_k+\varepsilon, \text{ where:} \qquad (2)$$

α is the free term of the model;

$\beta 1$, $\beta 2$, βk – the regression coefficient of the corresponding independent variable;

ε – vector error-correction model

Trends in selected indicators for the studied period 2006 – 2021, based on graphic analysis, construction of a regression line on a straight line and analysis of the obtained results are also reported.

A time series method is used to calculate absolute growth, with empirical data taken from national and international databases.

The following indicators are used in the current phase:

- "Valuation" with an indicator – "Road freight transport in tonne-km per thousand units of current GDP in USD";
- "Freight transport (work performed)" with four indicators – "Total domestic (land) freight transport"; "Road freight transport"; "Road freight transport for hire and pay" and "Own-account road freight transport";
- "Road infrastructure" with two indicators – "Investments in road infrastructure to GDP"; "Share of road infrastructure maintenance in total road infrastructure expenditure" and "Share of road infrastructure investment in total domestic transport infrastructure investment".

Fourth phase: Studying the "Logistics Performance Index" (LPI). It is an interactive tool that includes six indicators: the efficiency of the process, the built infrastructure, the competence of the logistics services, the possibilities of tracking the shipments, the timeliness of the delivery of the shipments and the efficiency of the customs processes. The challenges and opportunities they face in the field of trade logistics can be identified using a comparative analysis between the countries involved in the study.

Fifth phase: Performing a SWOT analysis of the road freight transport and summarizing the data involves research and interpretation of the collected and processed information in order to obtain the main characteristics of the data, trends, deriving evidence and formulating conclusions and recommendations.

The created methodological framework for studying logistics transport services in trade at the meso and macro levels aims to present a systematic approach for analyzing statistical data and drawing conclusions and recommendations.

Based on the exposition in the second chapter of the dissertation, the following ***important conclusions*** are reached:

1. Transport affects all spheres of the economy. Business entities are concerned with transportation and its improvement in order to optimize it. Studying and analyzing logistics transport services in trade is carried out at three levels – micro, meso and macro levels.

2. The adapted model of the dissertation is structured in three stages. The first stage explores logistics transport services in trade at the micro level, the second stage explores logistics transport services in trade at the meso and macro levels, the third stage is a conclusion.

3. The first stage includes creating, conducting and analyzing a survey among commercial enterprises performing logistics transport services in the sale of their goods.

4. The second stage analyzes data from the National Statistical Institute (NSI), Eurostat, Organization for Economic Cooperation and Development (OECD), World Bank, World Trade Organization (WTO), as well as free-access public data, published by the Ministry of Finance, the Ministry of Transport and Communications and the European Commission, the European Court of Auditors and other sources.

5. The third stage covers SWOT analysis, conclusions and recommendations for improving logistics transport services in trade.

CHAPTER THREE
PRACTICAL AND APPLIED ASPECTS OF IMPROVING LOGISTICS TRANSPORT SERVICES IN TRADE

Paragraph 3.1. Testing the model for exploring the possibilities of improving logistics transport services in trade at the micro level demonstrates the results of the conducted survey. The aim is to clarify the possibilities of improving logistics transport services in trade, by identifying the current problems of commercial enterprises and their ability to cope with them. The study covers five phases. First, Bulgarian enterprises designated as respondents of the research are selected. The second phase is related to designing a questionnaire. During the third phase, the study is carried out. In the fourth

phase, the information received from the respondents is summarized. The last, fifth phase is related to the analysis of the results. A survey is conducted on the territory of the Republic of Bulgaria, with the majority of respondents located on the territory of the Veliko Tarnovo region. The sample is formed by enterprises from the non-financial sector in Bulgaria, carrying out commercial activity, by the method of random selection without duplicates. The results of the research are expressed in identifying the attitudes and expectations of commercial enterprises in relation to logistics transport services in trade.

The statistical aggregation encompasses the Bulgarian enterprises carrying out commercial activities, offering and/or using transport services.

The following tasks are set before the survey: collecting reliable and credible information from commercial enterprises, summarizing the collected information, developing opportunities for improving logistics transport services in trade through analyzing the aggregated data.

The questionnaire was sent to 53 respondents, both electronically and in hard copy. The returned questionnaires are 18, i.e. the relative share of completed surveys is 34%. The enterprises that answered belong to the following sectors: trade in fast moving goods, trade in office supplies, retail trade in food and non-food goods, trade in alcoholic and non-alcoholic beverages, forwarding and transport, construction, trade in auto parts, trade in modern materials and architecture, production of wagons and diesel trains, production of electronic components. According to their size, the surveyed enterprises are: micro enterprises – 53%, small – 23%, medium – 12% and large – 12%. At the time of conducting the survey, the persons who filled out the questionnaire are owners (53%) or persons with managerial positions in the enterprises.

According to the data of the conducted survey, the enterprises assess the logistics process they carry out as “very good” – 53%, but add that they encounter certain difficulties along the supply chain. The logistics implemented by 35% of the respondents are defined as “satisfactory”, i.e. they consider that it is not an extremely critical point for their activity, but optimizing the process is recommended. According to survey data, problems in logistics

are found throughout the chain, 17% indicate that there are tangible problems in the actual transportation.

The findings are that the long-term goals of the respondents are aimed at increasing the qualifications of the staff, renewing the fleet and optimizing the routes. The following lower priority objectives are highlighted: acquiring/hiring warehouse space, entering new markets and protecting the environment. Software solutions remain in the background, the reason for this, according to the respondents, is that they are not familiar with such solutions and would rely on an external provider to implement them. As examples of such solutions during the survey discussed with the respondents are software offering fuel consumption analysis, report on completed routes, route analysis and management, fleet management systems, etc. Respondents are categorical that it is more difficult to hire qualified employees, therefore 41% indicate that they intend to increase the qualifications of their employees engaged in the logistics transport services they offer. The survey identifies the need for dual training. The representatives of the enterprises are interested and express a positive attitude towards this method of education.

In the course of the survey, it was found that over 80% of enterprises use external transport. A significant share of the external transport used in the implementation of commercial transactions is occupied by road freight transport (RFT) – 72%. The other types - rail, air and sea transport, in total cover 28%. It is found that the reasons for choosing RFT are its advantages.

The respondents answered the questions related to investments in logistics transport services indicating that they have made similar investments in the last 10 years. A large part – 64% of them note that the investments they have made are up to BGN 100 thousand, only 9% of the recipients invested more than BGN 2 million. About 52% of the enterprises intend to invest in the improvement of logistics transport services. 67% intend to invest up to BGN 100 000, and 11% – over BGN 2 million. The main directions for investment outlined are the following: creating a cooperation with educational institutions; increasing safety; renewing the fleet of vehicles; implementing software solutions and increasing automation.

More than half of the respondents approve of the EU's policy regarding sustainable green transport and programmes related to a smooth transition, construction and renovation of infrastructure; the common transport policy; the enlargement of Schengen; the unified policy for fuels and energy sources; stimulating the use of rail transport, etc.

The respondents indicate the following as opportunities for optimizing logistics transport services and protecting the environment: first – introducing guidelines for more economical driving, implementing software for choosing routes; second – optimizing the warehouses; third – consolidating freight and packaging.

The main difficulties that the commercial enterprises pointed are related to: toll fees and taxes; infrastructure; lack of qualified personnel; supply risks; prices of transport services; depreciation of vehicles, etc.

As a generalization to the analysis of the survey related to the possibilities of improving logistics transport services in trade, it can be deduced that commercial enterprises should direct their actions to the optimization of the internal environment – through consistent investment in environmentally friendly and sustainable means of transport; cooperation with schools, universities and training centers to improve qualifications and attract qualified personnel; through an active role in public discussions of municipal, regional and national projects.

The performed situational analysis of the data from the survey among enterprises using logistics transport services in their commercial activity outlines the following trends: by mode and type of transport used, mainly for-hire road freight transport is used; respondents intend to invest in fleet improvement, implement software systems to increase efficiency in the supply chain, and cooperate with schools and universities for the purpose of dual training.

Based on the analysis of the results of the survey, specific recommendations for improving the logistics services in trade are made. They allow to highlight the future opportunities in Bulgaria for improving logistics transport services in trade, but it is necessary to enrich the study of this issue with an analysis of indicators for the dynamics of the environment at the meso and macro levels.

Paragraph 3.2. Testing the model for exploring the possibilities of improving logistics transport services in trade at the meso and macro levels consists in testing the second stage of the model and covers five phases. A situational analysis of the logistics sector at a meso level aims to clarify the types of means of transport that are used by domestic transport, the modes of transport used, the types of transport and the distribution of infrastructure. A comparative analysis of the development of logistics transport services by region, infrastructure and the efficiency of the logistics process at the macro level is carried out. Regression, correlation and variance analyses of the dependence between the infrastructure and road freight transport are performed, with the aim of finding whether there is a dependence between the studied indicators. The "Logistics Performance Index" (LPI) is examined, which aims to identify the challenges and opportunities faced by commercial logistics enterprises doing business in Bulgaria. A SWOT analysis of the performed road freight transport is carried out. By summarizing and interpreting the collected data, the trends in logistics transport services in trade are indicated and conclusions and recommendations are formulated.

Trade relationships, both nationally and internationally, are increasingly complex and large-scale. The need for reliable and continuous connectivity requires the availability of both efficient transport and the improvement of the processing of information needed in transportation, increasing the qualifications of the personnel, strategic infrastructure policy and, last but not least, reducing the negative impact of transport on the environment. Economic development and the efficiency of trade processes are extremely dependent on the transportation of goods. In this regard, the characteristics and specifics of the transport services in Bulgaria for freight transport are examined in sequence. Emphasis is placed on an analysis of the main modes of transport that are used in the transportation of goods. The structure of the model requires an analysis of the Logistics Performance Index (LPI) for Bulgaria. The consequences of global problems on transport services are investigated, conclusions are drawn and recommendations are made to improve the process itself.

The dissertation substantiates that the most used type of transport is road freight transport. As a type of transport, for-hire transport is significantly more used than own transport. The dominance of RFT over the other types of transport is due to its advantages: speed, convenience, built infrastructure, accessibility to the service, efficiency, maneuverability, the ability to change the course or the final delivery point at any time, etc. Another feature of RFT compared to the others is related to the investments in capital and human resources, which are many times smaller than those required for the implementation of railway, river or sea freight services. It also investigates the dependence of the volume of domestic freight transport on GDP and confirms the opinion that freight transport is an indispensable component for the development of the economy.

Another indicator that is the subject of the study and affects logistics transport services in trade and more specifically road freight transport is infrastructure. The dynamics between road freight transport in tonne-km per thousand units of the current GDP of Bulgaria in USD, as well as the dynamics of the indicators for work performed "Total domestic (land) freight transport" and "Road freight transport" in Bulgaria, are studied and also the dynamics of the work performed through the indicators "Road freight transport for hire and pay" and "Own-account Road freight transport" in Bulgaria, and last but not least the dynamics of the indicators "Investments in road infrastructure to GDP", "Share of road infrastructure maintenance in the total road infrastructure costs" and "Share of investments in road infrastructure in the total investments in the domestic transport infrastructure" in Bulgaria.

Building a regression model aims to outline the trends, as well as to reveal the relationships and dependencies between the studied indicators. Pearson's correlation coefficient is used in the analysis. Table 1 presents the results of this analysis.

Table 1. Results of correlation analysis between indicators

		RFT in tonne-km per thousand units of the current GDP in USD	Road infrastructure investment to GDP	Share of the road infrastructure maintenance in the total road infrastructure costs	Share of the road infrastructure investment in the total domestic transport infrastructure investment	Total domestic freight transport	Road freight transport	RFT for hire and pay	Own-account RFT
RFT in tonne-km per thousand units of the current GDP in USD	Coeff.	1,00	0,10	0,03	-0,12	***0,79***	***0,80***	***0,82***	-0,15
	Value		0,88	0,91	0,55	***0,00***	***0,00***	***0,00***	0,55
Road infrastructure investment to GDP	Coeff.	0,10	1,00	***-0,88***	***0,64***	0,07	-0,07	-0,05	-0,17
	Value	0,88		***0,00***	***0,04***	0,88	0,73	0,70	0,54
Share of the road infrastructure maintenance in the total road infrastructure costs	Coeff.	0,03	***-0,88***	1,00	***-0,72***	0,08	0,17	0,16	0,07
	Value	0,91	***0,00***		***0,00***	0,79	0,95	0,90	0,40
Share of the road infrastructure investment in the total domestic transport infrastructure investment	Coeff.	-0,12	***0,64***	***-0,72***	1,00	0,08	0,02	0,03	0,15
	Value	0,55	***0,04***	***0,00***		0,93	0,72	0,82	0,01
Total domestic freight transport	Coeff.	***0,79***	0,11	0,24	0,08	1,00	***1,00***	***1,00***	0,21
	Value	***0,00***	0,88	0,78	0,93		***0,00***	***0,00***	0,70
Road freight transport	Coeff.	***0,80***	-0,07	0,17	0,02	***1,00***	1,00	***1,00***	0,21
	Value	***0,00***	0,73	0,95	0,72	***0,00***		***0,00***	0,80
RFT for hire and pay	Coeff.	***0,82***	-0,05	0,16	0,03	***1,00***	***1,00***	***1,00***	0,14
	Value	***0,00***	0,70	0,90	0,82	***0,00***	***0,00***		0,60
Own-account RFT	Coeff.	-0,15	-0,17	0,07	***0,15***	***0,21***	***0,21***	0,14	1,00
	Value	0,55	0,54	0,40	***0,01***	***0,70***	***0,80***	0,60	

Source: Author's own calculations

The obtained results of the performed correlation analysis (Table 1) between the investigated indicators show the *presence of strong and very strong, both positive and negative dependencies* (underlined data are the significant coefficients). Due to the very strong correlation, the indicators "Total domestic freight transport" and "Road freight

transport" as well as "Road infrastructure Investment to GDP" are excluded from the regression analysis, although its coefficient is negative. A significant indicator for the study is "Road freight transport for hire and pay", for this reason, despite its high correlation coefficient, it is included in the model.

Firstly, *a slow development of road freight transport compared to GD*P, a decrease in the amount of the freight transportation carried out and an almost double decrease in the amount of work carried out by road freight transport can be noted. Secondly, it can be concluded that the dynamics of the indicators characterizing the road infrastructure necessary for road freight transport are at very low levels for the studied period, which indicates *the need to build new infrastructure facilities and improve maintenance*. Thirdly, the developed regression model shows that for the studied period, the indicators characterizing the work performed by road freight transport have a direct relationship with the dependent variable, but very low values, and the indicators describing the infrastructure have an inverse relationship with the dependent variable.

Another significant indicator that provides information on the progress of logistics processes worldwide is the "Logistics Performance Index" (LPI). For the last studied period, the indicator reports *an increase in efficiency in the movement of goods in the developing countries*. But this is not enough to improve global supply chains, due to the large differences in the countries' economic progress. The sustainable development of supply chains is a factor that causes difficulties and slows down the processes of improving trade management and logistics services.

Paragraph 3.3. is entitled Conclusions and recommendations for the improvement of logistics transport services in trade. On the basis of the discussed issues in paragraph 3.1., which is related to the micro level survey and paragraph 3.2., which summarizes data on the meso and macro levels, paragraph 3.3. performs a SWOT analysis and derives results and references.

The SWOT analysis of the road freight transport used in trade allows us to highlight the following:

Strengths of logistics transport services in trade:

- Use of logistics transport services offered by specialized companies that have a variety of cargo capacity. In this way, the commercial enterprise can use means of transport that meet the needs of the delivery, i.e. to choose according to the specifics of the load.
- Flexibility, timeliness, speed and maneuverability in making deliveries. These advantages are fundamental in the choice of transport.
- Having its own truck fleet to meet the needs of customers. Technical maintenance of trucks is relatively cheaper than that of other types of transport.
- The low costs of short distances. Road freight transport is extremely efficient for short courses.
- Road freight transport is used as a link between the other types of transport.

Weaknesses of logistics transport services in trade:

- Dependence on fuel prices and high long-haul costs for both fuel and personnel.
- Insufficient skilled personnel needed to manage the supply chain. Shortage of truck drivers.
- Relatively outdated and depreciated fleet, which has a negative impact on the environment due to the use of vehicles with lower environmental performance (EURO 2, EURO 3 and EURO 4).
- Smaller cargo capacity compared to rail and sea transport.

Potentialities of logistics transport services in trade:

- Increasing use of road freight services due to their flexibility. A functioning logistics sector with a large number of transport companies offering a wide range of services.

- Improving the state of the fleet and meeting the requirements for sustainable development. Renewing the fleet and switching to more energy efficient means of transport.
- Optimizing routes, improving administrative services and a smooth transition to digitalization through the implementation of software solutions. Using technology applications to manage the time of drivers and staff properly.
- Flexibility in charging the used transport network and better insurance conditions. Relatively good level of taxes and fees.
- Improving the condition and construction of new infrastructure, as well as connectivity between the different types of transport, through European and national programmes.
- Opportunities to build transit corridors connecting the Middle East and Asia with Western and Central Europe and Moldova, Ukraine and the Baltic Republics. The strategic geographical location and relatively favourable relief allow the construction of pan-European transport corridors through the country – IV, VII, VIII, IX and X. The country falls under the construction of the Trans-European Transport Network (TEN-T) Orient/Eastern Mediterranean and Rhine-Danube corridors
- Improving safety and security.
- Introducing a dual form of training and flexible programmes to increase the qualification of the staff.

Threats to logistics transport services in trade:

- Increase in car prices. Government policies that do not stimulate the use of greener means of transport.
- Aggravation of the problems with the shortage of personnel and insufficiently skilled personnel. Shortage of motor vehicle drivers and low qualification of personnel.
- Increase in fuel prices. Relatively high share of fuel costs.
- Failure in the smooth transition to sustainability. Slowing down the process of transport digitalization.

- Uncertainty in the political situation in the country and in international politics, possible emergence of new conflicts or deepening the existing ones. Engendering discontent among the population and closing hubs.
- Poor organization and failure to prepare infrastructure projects. Delay in the construction of necessary facilities, roads, etc. Deterioration of the condition and failure to maintain the road infrastructure and presence of significant violations in the constructed projects. Road sections that do not meet European rules and norms. Increase in fees for using the transport network.
- A small number of border checkpoints with neighbouring countries and the inability to handle the flow of cargo. Low share of high-speed roads and highways and lack of such roads around border crossings on the territory of the country. The country is not yet a member of the Schengen area.
- Low level of road safety and security. Multiple sections with a concentration of road accidents on first-class roads and border areas. Climatic zones with presence of fogs, high temperature amplitudes and high summer temperatures. Poor control of traffic and vehicle status.

The testing of the proposed model and the performed SWOT analysis are the basis for deriving recommendations for improving logistic transport services.

The foundation of these micro level changes is **the investment in new trucks**. They must be: energy efficient, meeting the European safety standards, with low emissions of harmful gases and particles; if possible to choose those made of recyclable materials, having innovative technologies that allow extracting and analyzing the data on their condition, fuel consumption, etc. The commercial enterprises plan to invest in the purchase of new trucks. By renewing their fleets, they strive to meet customer expectations, reduce fuel use, increase transportation productivity, meet the conditions laid down in the policies of the European Union and Bulgaria aimed at sustainability, and improve the conditions of labour of their staff employed in the enterprise’s logistics. When using for-hire transport, businesses rely primarily on established partnerships and established supply chains. It is a

fact that road freight transport is the most used type of transport and connecting transport between other types of transport. Investment in road freight transport is needed to overcome the disadvantage of this type of transport related to environmental pollution. The use of more efficient means of transport reduces the impact on the environment.

The commercial enterprise can improve the logistics transport services it provides by **optimizing the fleet** and/or the third-party logistics transport services used. Through a historical analysis of the completed commercial transactions, in which a logistics transport service is used, it is found that the enterprise should get an idea of its needs related to transportation. The condition of the fleet and its maintenance are a major factor in the formation of transportation costs.

The choice of a suitable mode of transport affects the pricing of the transported goods. It is important to note that when choosing transport, the rules for: timeliness, satisfaction and condition of the product upon arrival at its final destination should be observed. In today's economically uncertain environment, commercial enterprises should also consider alternative options for performing logistics transport services. Combined transport is a means of reducing dependence on fuels (oil, gas). Using alternative modes of transport, such as rail, reduces the impact on the environment, the need to maintain a large fleet and the need for specialized personnel, indirectly increases safety and reduces traffic. Transport companies such as PIMK, MAERKS, Discordia, etc. have best practices in the field of combined, modal and intermodal transport. By using a selected third-party transport service provider, a commercial enterprise can improve the carrying capacity of a course by not having to maintain a fleet, staff and a large base to house its own vehicles.

At a micro level, a company can improve the organization of logistics transport services by **implementing software solutions**, such as: Customer Relationship Management (CRM) – a system for managing customer relationships; Enterprise Resource Planning (ERP) – a system for planning the resources of the enterprise; Supplier Relationship Management (SRM) – a system for managing relationships with suppliers, etc. The use of such systems facilitates both transportation and the supply chains built by the enterprises.

For future benefits, commercial enterprises can implement **best educational practices** in their company, such as dual training, which is an opportunity to improve training and increase the qualification of the personnel. An opportunity to deal with the shortage of personnel and **increase the qualification** is through the programmes and projects of the Ministry of Labour and Social Policy, within the Employment Agency. The trends for a shortage of qualified personnel are confirmed. Due to the specifics of freight transportation, the personnel engaged in the actual transportation of goods should meet requirements for acquired legal capacity, psychological fitness, a category "B" driving licence in order to obtain category "C" and completed 21 years. The requirements for category "C+E" are the same except that the person must have experience with category "C" for at least one year. Due to the listed requirements, it is difficult for the commercial enterprise to meet the needs related to the requirements for truck drivers.

By **analyzing the performance indicators** of logistics transport services, any enterprise that independently performs this activity or uses a third-party service has the opportunity to increase its competitiveness. In order to improve the quality of logistics transport services that are used in implementing commercial activity, the trader can directly influence the internal environment.

Timeliness, duration of delivery and security are of utmost importance for the business of an enterprise. Through these, the image and commercial reputation are increased and long-term relations with the client are created. Achieving timeliness and security enhances the flexibility in a supply chain that is crucial to the success of a commercial enterprise. Improving adaptability in the supply chain achieves continuity and increases competitive advantages.

Commercial companies cope with the provision of logistics transport services, but experience difficulties related to the timely delivery of goods, as well as uncertainty in the duration of delivery due to worsening weather conditions, road closures, etc. Timeliness is an indicator that is studied and participates in the formation of the Logistics Performance Index (LPI).

Commercial enterprises can improve logistics transport services by **implementing innovative value-added solutions** that are to increase "connectivity" in the supply chains in which they participate, facilitate the enterprise's work with government institutions and contractors, i.e. to increase their competitiveness through digitalization. They tend to invest in software products and staff training.

The dynamics of the studied indicators, characterizing the road infrastructure used by road freight transport, report low levels. This finding is a prerequisite for the need to **develop infrastructure projects** at the meso and macroeconomic level. Adherence to the EU's Common Transport Policy is a condition for improving infrastructure, continuity in supply chains and increasing the competitiveness of commercial enterprises.

There is a need for both a **unified political position** at the meso and macro levels and a policy to encourage young people to study in the field of trade, logistics and transport both in secondary and higher education.

In terms of social responsibility towards truck drivers, it is necessary to **introduce more social and health benefits**, such as re-categorization of labour and a special fund related to professional diseases and prevention. In this way, the profession becomes more attractive and desirable.

Based on the conducted research and the results of testing the model for improving logistics transport services in trade, the following important **conclusions** are drawn.

1. As a result of summarizing the data from the survey, it can be found that: according to the mode and type of the used transport, mainly for-hire truck transport is used, there is a need for qualified personnel, incl. introduction of dual training, need to implement supply chain management software systems, renewal of the fleet in order to improve its efficiency and meet the requirements of the Sustainability and Green Transition Plan.

2. The performed situational analysis of the market of logistics transport services in trade highlights the following trends: the use of road freight transport continues to be of the greatest importance for Bulgaria; slow development of road freight transport

compared to GDP, decrease in the volume of freight transport; the presence of strong and very strong positive and negative dependencies between the indicators included in the study; the indicator "Share of road infrastructure maintenance in total road infrastructure costs" and the indicator "Share of road infrastructure investment in the total domestic transport infrastructure investment" are inversely related.

3. On the basis of the analysis of the activity, specific recommendations are made for improving logistics transport services in trade. These recommendations make it possible to highlight future opportunities for commercial enterprises.

CONCLUSION

Using the examined and summarized theoretical propositions of the explored topic, definitions of the studied issues are formulated and indicators for studying and analyzing logistics transport services in trade at the micro, meso and macro levels are highlighted. The results achieved by developing the present topic are presented. The empirical analyses made are a foundation for drawing conclusions and determining dependencies supporting the research thesis statement of the dissertation. The main conclusions and recommendations for follow-up actions that can improve logistics transport services in trade are systematized.

IV. REFERENCE OF THE CONTRIBUTIONS IN THE DISSERTATION

Based on the theoretical and practical studies, the following important contributions of the dissertation can be highlighted:

1. On the basis of theoretical interpretation, summarization and synthesization of basic concepts related to logistics transport services in trade, the author's definitions are derived and the importance of supply chain management is substantiated.

2. Through studying some formulations in the specialized theory and practice, a methodological framework of the study is outlined, and indicators for research and analysis of logistics transport services in trade at the micro, meso and macro levels are highlighted.

3. As a result of systematization and presentation of a sequence of stages, a model is adapted for exploring the possibilities of improving logistics transport services in trade.

4. Based on an accumulated empirical resource, the research model is tested in Bulgarian enterprises carrying out commercial services in trade at the micro, meso and macro levels.

V. PUBLICATIONS ON THE TOPIC OF THE DISSERTATION

1. Scientific studies

1.1. Valcheva, E. Analysis of road freight transport in Bulgaria. Annual almanac of doctoral research, vol. XIV, 2021, book 17, Tsenov Academic Publishing House – Svishtov, ISSN 1313-6542, pp. 118-136.

2. Scientific papers

2.1. **Valcheva, E.** Problems and opportunities for the development of intermodal transport in Bulgaria. Round table "Trade – scientific knowledge and business reality" on the occasion of 30 years of the Department of Commerce, 2021, Tsenov Academic Publishing House – Svishtov, ISBN 978-954-23-2005-0, pp. 451-458.

2.2. **Valcheva, E.** Analysis of the market of transport services in Bulgaria. Proceedings of International scientific conference dedicated to the 70th anniversary of the establishment of the department "Economics and Management of Trade and Services" (1953-2023) and the 75th anniversary of the beginning of training in the specialty |"Economics and commerce" Science and Economy Publishing House, University of Economics – Varna, ISBN 978-954-21-1160-3, pp. 172-179.

DECLARATION OF ORIGINALITY AND AUTHENTICITY

by Elena Valerieva Valcheva

In connection with the procedure for obtaining the educational and scientific degree "Doctor" in the doctoral programme "Economics and management (Commerce)", I declare:

1. The results and contributions in the dissertation on the topic: "**Exploring the possibilities of improving logistics transport services in trade**" are original and are not borrowed from research and publications in which the author is not involved.

2. The information presented by the author in the form of copies of documents and publications, personally compiled references, etc. corresponds to objective truth.

3. The scientific results obtained, described and/or published by other authors are duly and extensively cited in the references.

Date: March 2024 Declarant:……

Svishtov /Elena Valcheva, Ph.D. student/