

STANDPOINT

Prof. Krassimir Kalev, PhD

NMU „Vasil Levski“

on doctoral dissertation

for awarding the educational and scientific degree

"Doctor"

The author of the dissertation: M.Sc.Eng. Marian Iliev Rahnev

The title of the Ph.D. dissertation: „Network-centric approach in modeling and optimization of modern transport technologies in logistics“

Doctoral program: Engineering logistics

Area of higher education: Technical Sciences,

Professional field: General engineering

The standpoint was prepared in implementation of a decision adopted at a meeting of the Scientific Jury dated 10.05.2023, approved by order No. RD-16-050/26.04.2023 of the Rector of Shumen University "Konstantin Preslavski".

1. General description of the materials provided under the dissertation defense procedure

The developed dissertation is structured as follows: abbreviations used, introduction, aim and objectives, three chapters, conclusions at the end of the chapters, conclusion, contributions, proposals for solving problems with the dissertation research and information sources. In total, the work is placed in a volume of 126 pages. The content of the dissertation is illustrated with 34 figures and 11 tables. The information sources used are a total of 136, with the last 33 being pages from the electronic information network.

Авторефератът на дисертациония труд е разработен в обем от 57 стр., като съдържа основните части, изводи, схеми и таблици на дисертацията.

The abstract of the dissertation work is developed in a volume of 57 pages, containing the main parts, conclusions, diagrams and tables of the dissertation.

The doctoral student has attached 12 publications related to the topic of the dissertation work, nine of which are independent and three co-authored. Nine publications have been accepted at scientific forums in our country and three in international journals.

2. Actuality of the problem

Logistics is the basis of the world market. Its importance is constantly increasing in today's rapidly changing global economic environment. The trends towards close interaction of national and multinational companies, the multifaceted forms of interoperability required for timely provision of work processes, the developing modern communication technologies require innovative logistics solutions and an efficiently functioning transport system.

Transport is an important factor for the successful implementation of the logistics task. The transportation process takes place in a complex and dynamic environment under the influence of deterministic and random disturbances. In this growing complex of guarantee activities and external influences, a basic logistic principle is followed, which leads to the minimization of transport costs. Due to the developing technological environment, including transport units, information and communication software products, a theoretical and practical study of the problem regarding the modern state of transport technologies is needed to achieve logistics goals. In this sense, the topic of the presented dissertation is relevant and practically significant in the development of transport technologies in logistics.

3. Characteristics of the dissertation work

In Chapter One of the dissertation, an extensive review of combined transportation is made, highlighting their advantages in reducing costs and unifying management. The conditions of interaction of the types of transport in the logistic transport system have been examined. Attention is paid to the advantages

and disadvantages of each type of transport in connection with the competition for more rational logistic parameters in the transportation of goods. It has been logically concluded that the integrated combined logistics transport system is suitable for the implementation of the Integrated Transport Strategy in the period up to 2030 in accordance with the white paper Roadmap for the achievement of the Single European Transport Area – towards a competitive transport system with efficient use of resources.

The doctoral student in Chapter Two describes in detail the characteristics of the elements of the "combined transport" subsystem, such as multimodal and intermodal transport, infrastructure, logistics intermodal terminals, transport corridors, etc. A multimodal logistics transport system is considered. The economic efficiency and cost effectiveness of the combined transport technologies were assessed.

In his work, Eng. Marijan Iliev Rahnev has applied graph theory to model a transport network and determine the optimal routes and flows. The approach used through the method of linear mathematical programming (developed by Leonid Kantorovich) allows to solve the complex problems arising when optimizing the structure and elements of logistics supply chains.

I reckon that the chosen research approach and the provided sequence of operations for its implementation correspond to the purpose and tasks of the dissertation work.

The doctoral student formulated four contributions based on his work. I accept the proposal made without the text "The integral paradigm is applicable only with the consideration of the value chain, as the main complex (integral) characteristic of the material flow.", combining the last two into one. I classify the first two contributions as scientific-applied and the third as applied.

4. Opinions, recommendations and notes

As notes, I would indicate the following:

- use of the term *intermodal terminal* in the first chapter, and its definition is

given in the second chapter;

- the first conclusion of the second chapter has an unclear content;
- the heading 2.5. *Transport infrastructure for the modes of transport* does not correspond to the content of the point;
- part of the content of point 2.7. *Logistics systems for combined transport the concept of combined transport* should be at the beginning of the chapter; - incorrect expression Most authors synthesize the concept of "model" ...;
- the text *The material flow is characterized by a value chain that presents the structure of the activities that add value to the final product* is by another author, and the same is not cited;
- the text *The basis of this trend is the adoption of the integral approach and the application of the relevant tools in the management of material and accompanying flows from the place of their origin, through all phases of movement (supply, production, distribution), to the end user* is by another author, and the same is not cited;
- the text *Verification of the model is the process of determining the degree to which the steps of the implementation of the model correspond to each other* is by another author, and the same is not cited in the dissertation;
- according to fig. 16 the conclusion *The dependence of fig.16. shows that the changes in the indicators are carried out according to an exponential law is not true*, in addition, the dependence on which the graph in question was obtained is not given.

CONCLUSION

I positively evaluate the dissertation work *Network-centric approach in modeling and optimization of modern transport technologies in logistics* with author Eng. Mariyan Iliev Rahnev.

06.06.2023

Shumen

Member of the jury:

Prof. Dr. Krasimir Kalev