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OPINION

by Assoc. Prof. Eng. Anton Yankov Antonov, PhD

on the dissertation
of Nikolay Hristov Yordanov
on the topic:

"Improvement of Logistic Activities in the Field of Digital Technologies"
for obtaining the educational and scientific degree "Doctor"
in Higher Education Area 5. Technical Sciences
Professional Field 5.13. "General Engineering"
Doctoral Program: "Engineering Logistics"

1. General Characteristics of the Presented Dissertation

The dissertation is structured into an introduction, four chapters, a conclusion, and a list of references. The total volume is 154 pages, including 37 figures and 14 tables. A review of 117 literary sources has been conducted. Each chapter ends with conclusions, and the final part presents the overall findings of the research.

The submitted materials comply with the minimum national requirements under Art. 26, para. 2 and 3 and Art. 26, para. 5 of the Academic Staff Development Act. It follows that the conditions under items 3 and 4 of Art. 24, para. 1 of the same Act are also met.

2. Relevance of the Topic

The dissertation represents a scientific study encompassing a comprehensive research problem, including clearly defined goals and objectives, supported by proven theoretical studies and test results. A new concept for a methodological framework for improving logistics activities in the field of digital technologies is proposed, emphasizing the integration of innovations, methodological approaches, and strategies for addressing the challenges of the modern global economy. The research provides a complete overview of the topic by identifying major issues, analyzing existing solutions, and proposing innovative approaches for optimizing logistics processes.

3. Contributions

Scientific and Applied Contributions

1. *Expansion of the methodology for analyzing logistics processes*
   The study contributes to the development of existing theoretical approaches through the application of quantitative methods such as regression analysis, time series, and forecasting models. This enables more accurate identification of key factors influencing supply chain efficiency in conditions of digitalization.
2. *Development of a conceptual model for integrating digital technologies*
   The work proposes a theoretical framework for applying technologies such as Artificial Intelligence (AI), Internet of Things (IoT), and Blockchain in managing logistics systems. This model allows for improved flexibility, security, and cost optimization in transportation and distribution processes.

3. *Assessment of the impact of digital transformation on logistics efficiency*
   The research analyzes the relationship between the level of digitalization of logistics processes and the economic performance of companies implementing innovation in this field. This enables the formulation of new hypotheses regarding the influence of technology on competitiveness.

Applied Contributions

1. *Development of a model for optimizing logistics processes*
   The research proposes practically applicable methods for improving supply chain efficiency through market trend forecasting and operational automation. These solutions can be used by logistics companies to increase competitiveness.
2. *Implementation of digital technologies in supply chain management*
   The proposed strategies for using artificial intelligence, machine learning, and blockchain can be applied in real business environments to improve transparency, traceability, and security of logistics operations.
3. *Formulation of guidelines for sustainable logistics development*
   The study proposes specific recommendations for adapting logistics systems to modern environmental and regulatory standards. This includes developing strategies for reducing carbon footprint and optimizing energy consumption.
4. *Forecasting future trends in digital logistics*
   The developed methodological framework enables predictions of risks and challenges related to global supply chains. This supports businesses in making strategic decisions in rapidly changing market environments.
5. *A significant contribution is made to the field of digital logistics* by offering new methodological frameworks and practically applicable solutions for optimizing logistics processes. Combining classical and innovative analytical methods, the study identifies and justifies ways in

which digital technologies can transform supply chains by increasing their efficiency, sustainability, and adaptability to global economic challenges. At the methodological level, a new analytical model is developed, enhancing traditional statistical methods through integration of regression analysis, time series, and forecasting algorithms.

6. *A conceptual model is created for applying blockchain, artificial intelligence,* and the Internet of Things in logistics management, offering practical solutions for traceability, automation, and resource optimization, demonstrating significant economic benefits and high applicability.
7. *A method for evaluating the impact of digital transformation on logistics efficiency is proposed.* Through case studies and empirical data, it is demonstrated that technologies not only reduce operational costs but also improve supply chain resilience.

4. Personal Contribution of the Author and Publication Activity

The materials developed in the dissertation have been presented and discussed at the Scientific Conference "Logistics and Public Systems" (Veliko Tarnovo, 16–17 March 2023), Vol. 3, Scientific Area "Business Logistics," Veliko Tarnovo, 2023. They were published in the Proceedings of the MATTEH 2024 International Scientific Conference of Shumen University "Bishop Konstantin Preslavski," Faculty of Technical Sciences, 2024, and in the Yearbook of Shumen University for 2024.

This proves that the doctoral candidate's research has been approved by scientific forums.

5. The Author's Abstract

The author's abstract fully corresponds to the content of the dissertation and provides a clear understanding of the conducted scientific research.

6. Critical Notes, Recommendations, and Questions

The doctoral candidate presents a dissertation demonstrating good preparation and proven potential for further research. I would recommend that the candidate continue developing his scientific research in logistics activities within the field of general engineering.

Conclusion

The candidate has presented scientific work focused on solving real problems in the professional field of the announced competition. The submitted studies are of high quality and meet the requirements of the regulatory documents.

I propose that the scientific jury award **Nikolay Hristov Yordanov** the educational and scientific degree **"Doctor"** in Higher Education Area 5 "Technical Sciences," Professional Field 5.13 "General Engineering," Doctoral Program "Engineering Logistics."

27.11.2025 Member of the Scientific Jury

Shumen (Assoc. Prof. Eng. A. Antonov, PhD)