

Review
by a member of a scientific jury,
for the acquisition of an educational and scientific degree "doctor"
under the "Organization and Management of Production/Industry" program, professional
direction 3.7. Administration and Management
at the University "Prof. Dr. Asen Zlatarov" – Burgas

Reviewer: Associate Professor Dr. Ivaylo Mihailov Mihailov, Department of Economics and Management at the University of Prof. Dr. Asen Zlatarov" - Burgas.

Author of the dissertation: Rusen Zhelev Gigov, full-time student at the Department of Economics and Management at the University of Prof. Dr. Asen Zlatarov" - Burgas.

Dissertation topic: "Increasing the competitiveness of the supply chain of Bulgarian enterprises by using blockchain technology".

Research supervisor: Prof. Dr. Ivan Tenev Dimitrov, Department of "Economics and Management" at the University "Prof. Dr. Asen Zlatarov" - Burgas.

I. General presentation of the dissertation

The basis for writing the review is the decision of the Faculty Council of the Faculty of Social Sciences (protocol №7/June 19, 2023) at the University "Prof. Dr. Asen Zlatarov" - Burgas, approved by Rector's Order №165/July 6, 2023. The review of the dissertation work was prepared in accordance with the regulatory requirements of Law on the development of the academic staff in the republic of Bulgaria and complied with the requirements of the University "Prof. Dr. Asen Zlatarov" - Burgas for composition and structure of the content.

The object of research in the dissertation work are economic units located in Bulgaria, operating in the supply chains both at the national and international level.

The subject of the development is the analysis of the possibility of increasing the competitiveness of the enterprise through blockchain technology, the adoption of which is influenced by certain factors (internal to the business organization).

Structurally, the exposition of the dissertation work is presented as follows: introduction, three chapters, conclusion, bibliography and recommendations for future development of the scientific work. The development includes 231 standard pages, of which 212 pages are main text, 44 tables and 16 figures. There is a relative balance between the individual chapters of the dissertation. The bibliographic reference includes 261 sources (203 scientific publications and 58 Internet resources), of which 7 are in Bulgarian and 196 in English, which shows an extremely good literary awareness of the author. The literature used is relatively new, which shows that the doctoral student is familiar with the current state of the problem and the scientific achievements of other authors in the relevant field.

II. Assessment of the form and content of the dissertation

The introductory part of the dissertation substantiates the relevance and significance of the researched problem - business needs evidence of the advantages of using blockchain technology

and, more specifically, of its role in increasing the competitiveness of the company's supply chains. It is noted that in the specialized literature there is an increasing emphasis on concepts such as: new blue ocean, artificial intelligence (AI), Internet of things (IoT), flexible logistics, platforms for direct communication (peer-to-peer, P2P), blockchain technology, all they contribute to increasing the efficiency of supply chains. It is also considered that the main limitations to their widespread use are due to a lack of sufficient data on the relevance, supported by scientific and practical-applied evidence. In support of his theses, the author proposes research to be conducted at the national level, with a view to revealing the potential of using technology, with the aim of increasing the recognition of digitally adaptable companies as potential business partners.

The choice of the topic is successful, the problem is current, significant and insufficiently well studied in Bulgaria, especially in a practical and applied aspect. I believe that the research thesis that the author defends is correctly formulated and has a discussion character. It states: "blockchain technology increases the competitiveness of an enterprise when it operates in the field of supply chains. In order to achieve the desired level of competitiveness, the business unit must be part of a blockchain network, i.e. to perform the so-called onboarding criterion. In other words, by connecting with a certain number of actors in the supply chains, benefits are derived, thanks to the coincidence of interests for industry cooperation. In this way, the economic unit falls into the so-called "elite of the digital economy".

The author aims to investigate, establish and argue the possibility of increasing the competitiveness of the supply chain of Bulgarian enterprises by using blockchain technology.

To achieve the goal, the doctoral student Rusen Gigov defined the following tasks, which are segmented in a sequence following the structure of the dissertation work and outline the logic of the development:

- analysis and summarization of the factors leading to an increase in the competitiveness of supply chains, reflecting the accompanying risks, opportunities and threats;
- performing a taxonomic review of blockchain technology, including technical features, practically used good practices, reflecting the strengths and weaknesses of the technology;
- consideration of the possibilities for implementation of blockchain technology in supply chains through descriptive and case analysis;
- study of the methods carried out so far to evaluate the factors influencing the implementation, categorizing the so-called motivating and limiting factors;
- development of the conceptual model of the study, i.e. setting out the philosophy of the study;
- reworking and supplementing a questionnaire borrowed from a study conducted in the USA in the field of supply chains, with which to gather the data necessary for the analysis;
- to emphasize the formation of the influencing factors in research constructs, through which to conduct the research, and the same are used to create a survey map;
- formulation of research hypotheses;
- reasoning about computational techniques;

- presentation of the steps by which the research is conducted, namely the recruitment and calculation of the results.
- verification of the data through a reliability test of the constructions in accordance with generally accepted scientific principles
- conducting descriptive statistical analysis, factor analysis, linear and non-linear regression analysis with constructs relevant for inclusion in calculations and additional verification through logistic analysis;
- analysis of residues (residues) and verification of research hypotheses.

The data necessary for the implementation of the tasks were collected through a study, which is an exploratory data analysis by means of a survey method.

The first chapter has a theoretical character and is devoted to the literature review on the subject. Basic concepts, concepts and theoretical statements are defined. The opportunities, management, advantages and disadvantages of supply chains, as well as its innovations and threats, are examined. Emphasis is placed on the essence and practical application of blockchain technology. The strengths and weaknesses, threats and limitations to the large-scale use of blockchain technology are discussed in detail. At the end of the chapter, the main conclusions of the research are presented.

The research methodology is presented in the second chapter. The research model and methodology are presented sequentially, with the emphasis being placed on the stages through which it goes to achieve the main goal and the research toolkit. The algorithm of the statistical analysis of the data is clarified, which includes: descriptive statistical analysis, analysis of the reliability and validity of the study, factorial, regression and correlation analyses, conducting stepwise analysis, analysis of the significance of the regression model and testing of the research hypotheses. Based on the analysis, the author reaches the relevant conclusions and conclusions.

A third chapter is devoted to recruitment, processing and analysis of the results. For this purpose, the main concept used in the processing and analysis of the source data is presented, as well as the descriptive statistics of the source data obtained in the course of the research. According to the chosen methodology, an empirical study was conducted using a complex formula apparatus and the statistical software SPSS. At the end of the chapter, the author summarizes that the presented facts significantly support the conducted statistical research and provide a solid basis for accepting as true the statement that if blockchain technology is introduced in the field of supply chains, Bulgarian enterprises will increase their competitiveness and be more recognized as innovative and reliable partners in the global economic turnover.

In the conclusion of the dissertation, the doctoral student Rusen Gigov successfully summarizes the results of the theoretical-applied research on increasing the competitiveness of the supply chain of Bulgarian enterprises by using blockchain technology and outlines the current problems and challenges related to this process. The realization of the set goals and tasks is reflected, with which the thesis of the dissertation is argued.

To solve the set tasks and achieve the goal of the dissertation, the author uses established methods for performing scientific research in the field of economics and management: theoretical-

historical analysis, systematic approach, analysis of strengths and weaknesses, analysis through case studies, processing of empirical data, descriptive statistics, Kolmogorov-Smirnov test, Cronbach's Alpha test, Kaiser-Meyer-Olkin test, factor analysis, logistic (stepwise) analysis, linear and non-linear regression analysis, residual variance analysis (SPSS, R, Jasp , Microsoft Office). I believe that the toolkit is suitable for conducting the research and justifying the results obtained.

Pursuant to article 27, paragraph 2 of the Regulations for the Implementation of the Law on the development of the academic staff in the republic of Bulgaria, the doctoral student has submitted a declaration of originality and credibility, with which he guarantees that the dissertation work is authentic and represents his own scientific production.

The dissertation work of Rusen Gigov is in sufficient volume for a scientific study of this nature. I believe that the text is written clearly and legibly, respecting the generally accepted style of presentation, from the point of view of academic standards. The literature used has been selected according to generally accepted scientific principles, prescribing consideration of both the latest research on the subject and taking into account the early theories analyzing the issues addressed in this dissertation.

The author's abstract of the dissertation work has been compiled according to the requirements and is 58 pages long. It summarizes the author's theses and results of the conducted scientific research, which give a comprehensive idea of achieving the set goal. There is a reference for the scientific and scientific-applied contributions in the dissertation. A list of publications on the subject is also attached, which includes: nine articles published in peer-reviewed scientific publications, of which 4 nos. in Bulgarian and 3 pcs. in English, and 2 pcs. scientific reports in English, also published in peer-reviewed volumes. In two publications from the scientific production, PhD student Rusen Gigov is the sole author, and the rest are co-authors. The publication activity is high and completely sufficient (the total number of points is 90 with a minimum requirement of 30) for the award of the educational and scientific degree "doctor", according to Regulations for the Implementation of the Law on the development of the academic staff in the republic of Bulgaria. Publications are the creative achievement of the author. There are also citation data for the scientific production presented.

The overall assessment of the submitted dissertation and publications of the doctoral student for the fulfillment of the minimum national requirements for awarding the ONS "Doctor" for area 3. Social, economic and legal sciences shows that, with a required minimum of 80 points, the doctoral student has accumulated 140. This allows the finding, that the quantitative requirements for the educational and scientific degree "Doctor" have been exceeded according to the Regulations for the implementation of the Law on the development of the academic staff in the Republic of Bulgaria for area 3. Social, economic and legal sciences.

III. Scientific and scientific-applied contributions to the dissertation

The contributions of the study are set out in a submitted Statement of Contributions. The author has made nine contributions of a scientific-theoretical and scientific-applied nature. The contributions are as follows:

First, the normality of the distribution and the reliability of the data were established through appropriate statistical tests.

Secondly, the so-called latent factors influencing the increase in the competitiveness of the supply chains of Bulgarian enterprises through the use of blockchain technology.

Third, the leading sublatent influencing factors influencing the use of blockchain technology to increase the competitiveness of supply chains are identified.

Fourth, dependencies were established for the importance of the leading sublatent factors, when forming the assessment reflecting the impact on the competitiveness of the supply chains.

Fifth, regression analysis estimates of the validity of the results, supported by logistic analysis, are presented.

Sixth, the contributions of the research results and methodology are established, and despite its general use, it allows for modification according to the constraints of the specific case.

Seventh, the possibilities of increasing the competitive advantages of the supply chains are established, and the calculations prove the importance of inclusion in a blockchain network.

Eighth, the proposed research methodology and model for evaluating the influence of blockchain technology on the competitiveness of supply chains has the potential to be applied in practice, as well as to upgrade future scientific and practical-applied research.

Ninth, the need for the introduction of blockchain technology in Bulgarian enterprises with a view to positioning them in the global digitized supply chains has been established.

IV. Critical notes, questions and recommendations on the dissertation

There are also some gaps and weaknesses in the doctoral student's work, which gives me the reason to make the following critical remarks:

1. In places, there is a double indication of the used literary source - in the main text and in a footnote (note no. 4, 6, 8, 9).

2. The content of item 1.2. "Essence of blockchain technology" does not live up to the title. Nowhere in the text is the essence of blockchain technology considered, but rather the emphasis is on Bitcoin and opinions are cited on the possible advantages of the application of the technology.

3. It was good to go through a style edit before printing the final version of the dissertation work.

In connection with the defense of the dissertation, the following clarifying questions can be addressed to doctoral student Rusen Gigov:

1. What are the obstacles for Bulgarian enterprises to introduce and use blockchain technology?

2. What is meant by the following statement "...the idea behind the creation of blockchain technology is to eliminate the double recording of assets"? (p. 38)

3. What type of network is more appropriate to introduce in Bulgarian enterprises in order to increase the competitiveness of the supply chain - not using assets in communication or using cryptocurrency?

V. Summary conclusion and opinion

Based on the above, I believe that my dissertation work submitted for review on the topic *"Increasing the competitiveness of the supply chain of Bulgarian enterprises by using blockchain technology"* is dedicated to a current and significant problem for science and business and represents graduate research. The contributions contained in it meet the requirements of the Law on the development of the academic staff in the Republic of Bulgaria and the Regulations for its implementation.

The presented arguments give me grounds with complete conviction to propose to the members of the respected scientific jury to vote positively for the awarding of the educational and scientific degree "doctor" to Rusen Zhelev Gigov in the field of higher education 3. Social, economic and legal sciences, professional direction 3.7. Administration and management, scientific specialty "Organization and management of production/industry".

Date: August 10, 2023 г.

Reviewer: ..
Assoc. Prof. Dr. Ivaylo Mihaylov

Подпис заличен
Чл.2 от ЗЗЛД