

REVIEW

for the acquisition of the **educational and scientific "Doctor"** in the field of higher education:
 3. Social, economic and legal sciences, professional field: 3.8. Economics, doctoral program:
 "Finance, monetary circulation, credit and insurance" (Finance).

Reviewer: Prof. Dr. Bojidar Violinov Bojinov, Department of Finance and Credit,
 D.A. Tsenov Academy of Economics, Svishtov, professor in scientific specialty
 05.02.05 "Finance, Money Circulation, Credit and Insurance"

Author of the dissertation: doctoral student Tsvetomira Georgieva Veleva (D010222267),
 full-time student in the doctoral program "Finance, Monetary Circulation, Credit
 and Insurance" (Finance) at the Department of Finance and Credit at the "D. A.
 Tsenov" University of Applied Sciences - Svishtov.

Topic of the dissertation: " Digital Transformation in Banking - Risks and Financial Efficiency"

On the basis of Art. 71 and 73 of the **Regulations for the Development of the Academic Staff at the SA "D.A. Tsenov"** and Order No. 571/01 July 2025 of the Rector of the SA "D. A. Tsenov" - Svishtov, I have been appointed as a reviewer in the procedure for the defense of a dissertation on the topic "**Digital Transformation in Banking - Risks and Financial Efficiency**" with author **Tsvetomira Georgieva Veleva**, applying for the acquisition of the educational and scientific degree "Doctor" in the field of higher education: 3. Social, Economic and Legal Sciences, professional field: 3.8 "Economics", doctoral program: "Finance, Money Circulation, Credit and Insurance" (Finance).

This review has been prepared in accordance with the requirements of the **Act on the Development of Academic Staff in the Republic of Bulgaria**, the related **Regulations for the Implementation of the Act on the Development of Academic Staff** in the Republic of Bulgaria and the **Regulations for the Development of Academic Staff at the DA Tsenov University**.

The **normative requirements for the dissertation work for acquiring the educational and scientific degree of "doctor"** are available in Art. 27 of the Regulations for the Implementation of the Law on the Development of the Academic Staff in the Republic of Bulgaria and Art. 68 of the Regulations for the Development of the Academic Staff at the "D.A. Tsenov" Academic University, according to which:

(1) The dissertation must contain scientific or applied scientific results that represent an original contribution to science. The dissertation must demonstrate that the candidate possesses in-depth theoretical knowledge in the relevant specialty and the ability to conduct independent scientific research.

(2) The dissertation must be presented in a form and volume that meets the specific requirements of the primary unit. The dissertation must contain: title page; table of contents, introduction; presentation; conclusion - a summary of the results obtained with a declaration of originality; bibliography.

Art. 72, item 4 of the Regulations for the Development of the Academic Staff at the "D.A. Tsenov" University also implies the requirement to meet the minimum national requirements for acquiring the **educational and scientific degree "doctor"**

The starting point for the review is:

1. Dissertation " Digital Transformation in Banking - Risks and Financial Efficiency " in a volume of 188 pages. Additionally, 8 pages of appendices are presented. I accept the total volume of 196 pages as sufficient to clarify the author's thesis.

2. A list of the candidate's publications on the topic, including the following publications:

1. Veleva, Tsv. **Risk management and effectiveness assessment in digital Transformation in banking** //Dialog magazine, 2025, issue 1, pp. 97-117 (ISSN: 1311-9206).
2. Veleva, Tsv. **Challenges facing the digital transformation of the banking sector in Bulgaria** //Annual Almanac "Scientific Research of Doctoral Students" of the SA "D. A. Tsenov" - Svishtov, AI Tsenov, 2024, Issue XVII, Book 20 (ISSN: 1313-6542) - in press
3. Veleva, Tsv. **Challenges facing omnichannel banking** //Annual Almanac "Scientific Research of Doctoral Students" of the SA "D. A. Tsenov" - Svishtov, AI Tsenov, 2023, Issue XVI, Book 19, pp. 522-537 (ISSN: 1313-6542)
4. Veleva, Tsv. **Macprudential policies - a tool for preventing ad-hoc situations and risks in banking** //Annual almanac "Scientific research of doctoral students" of the SA "D. A. Tsenov" - Svishtov, AI Tsenov, 2022, Issue XV, Book 18, pp. 515-528 (ISSN: 1313-6542)

3. List of contributions including 5 defined contributions, namely:

First. The concept of "digitalization risk in banking" is defined and the risk profile of digital transformation in banks is studied. The elements of digitalization risk management are examined in detail. To this end, the types of risks are identified, the sources of these risks and the consequences of their implementation are specified, possible ways to protect against them are analyzed and specific indicators for their quantitative assessment are proposed.

Second. A system of specific quantitative indicators for assessing the effectiveness of digitalization in the banking sector is argued. The cause-and-effect relationships between them are outlined.

Third. An empirical comparative analysis of banks in Bulgaria is carried out in terms of digital transformation and a critical assessment of the state of this process in recent years is made.

Fourth. Based on a survey conducted by the author among specialists from the Bulgarian banking practice, the difficulties and challenges facing the digital transformation of the sector are summarized. The key problem in this regard is the discrepancy between the relatively outdated infrastructure of banks in our country and the rapid pace of technological development, which necessitates the need for strategic investments and organizational changes.

Fifth. Based on a detailed SWOT analysis, which summarizes the advantages, weaknesses, opportunities and threats of digitalization, specific opportunities are outlined for optimizing the efficiency and risk management processes in the digital transformation of banks in Bulgaria.

4. Abstract in volume 40 pages.

5. A report on the fulfillment of the minimum national requirements and publications for the dissertation, with 4 publications listed, allowing for the acquisition of 50 points according to the national requirements.

6. List of the doctoral student's participation in scientific forums, with indicated participation in 3 scientific forums, namely:

1. Participation at the XV Doctoral Scientific Session, held at the D. A. Tsenov University - Svishtov on December 5, 2022.
2. Participation in the XVI Doctoral Scientific Session, held at the D. A. Tsenov University of Applied Sciences - Svishtov on December 7, 2023.
3. Participation in the XVII Doctoral Scientific Session, held at the D. A. Tsenov University - Svishtov on November 29, 2024.

The doctoral student has submitted the materials that are formally required for candidacy for the educational and scientific degree of "doctor".

In fulfillment of **my duties as a reviewer**, I present the following findings and conclusions:

I. General presentation of the dissertation work

Dissertation work "**Digital Transformation in Banking - Risks and Financial Efficiency**" in a volume of **196 pages**, including 8 pages of appendices. I accept the total volume as sufficient to clarify the **author's** thesis. The title fully corresponds to the content of the study.

The subject of the dissertation is formulated as "**the risks and financial efficiency associated with the digital transformation in banking**". As the author points out, "On the one hand, the study covers the identification and assessment of risks that arise as a result of the implementation of new technologies and changes in the operating models of banks. On the other hand, the study focuses on measuring financial efficiency through the analysis of investments, revenues, the number of new customers, improvements in customer service and the optimization of operational processes."

For the writing of the dissertation, **110 literary sources were used**, of which 71 are in English, 2 in Russian and 37 in Bulgarian. The sources used are thematically related to the topic being developed and duly used in the dissertation work and, in my opinion, have been used correctly.

Structurally, the dissertation is structured neatly and logically – three chapters, an introduction and conclusion, and additional appendices. In my opinion, the structure of the dissertation, the balance between the parts, and most of all their content, present the doctoral student as an extremely conscientious researcher.

The first chapter is entitled "**THEORETICAL AND APPLIED ASPECTS OF DIGITAL TRANSFORMATION IN THE BANKING SECTOR**" and it provides a critical review of the achievements in the specialized literature and banking practice in the field of the researched issues. Particular attention in the dissertation is paid to the process of transition from multi-channel to omni-channel and optical-channel offering of banking services by the sector. An in-depth analysis of the prerequisites for and the ongoing process of digital transformation in the banking sector has been carried out, with particular emphasis on the financial-economic and socio-demographic prerequisites.

Chapter Two " RISK MANAGEMENT AND ASSESSMENT OF THE EFFICIENCY OF DIGITAL TRANSFORMATION IN BANKING" focuses on outlining the scope and specificity of the risk profile of banks in the process of their digital transformation. Particular attention is paid to the identification of risks related to the digitalization of the banking business, their factor analysis, the possibilities for their quantitative assessment and the ways to manage them. The chapter presents the author's view on the development of a comprehensive toolkit for assessing the effectiveness of digital transformation in banking.

The third chapter " CHALLENGES TO THE DIGITAL TRANSFORMATION OF THE BANKING SECTOR IN BULGARIA" presents the author's empirical study of the state of digital transformation in banking in Bulgaria. The key problems and a vision of the

possible prospects for risk management are outlined with a view to increasing the effectiveness of the digital transformation of banking in our country. Proposals for possible optimization solutions related to risk management and efficiency in the digitalization of Bulgarian banks are presented.

I accept the structure (and its corresponding research logic) as fully applicable to the researched issues, and the presented assessments and conclusions - accurate and correctly (personally) formulated.

II. Assessment of the form and content of the dissertation

The topic of the research is dissertable, relevant and significant from a theoretical and practical point of view. The title of the dissertation - "Digital Transformation in Banking - Risks and Financial Efficiency" fully corresponds to the content. The author provides convincing evidence of the relevance of the topic on pp. 4-5, which allows me to confirm that the topic is original and relevant.

The object of research of the dissertation work is the digital transformation in banking. The subject of research is focused on the risks and financial efficiency associated with the digital transformation in banking. *The object and subject are formulated correctly on p. 5.*

The main research thesis is, that "in the process of digital transformation, banks in Bulgaria face challenges related to the use of relatively outdated banking systems, which limits their ability to provide the necessary flexibility and innovative functions, which are key to competitiveness in a digital environment." (p. 6).

The purpose of the study is: to analyze the opportunities for successful implementation of digital banking in the context of the Bulgarian banking market, while at the same time investigating them. The corresponding main research tasks are also correctly stated (p. 5). I find the goal and main tasks to be correctly formulated and provide sufficient opportunities for conclusions and recommendations.

The main research approach used in conducting the dissertation research is the *systematic approach*, which is combined with other research methods and scientific tools such as: the method of analysis and synthesis, the method of observation, the comparative method, the inductive and deductive method, the descriptive method, the survey method, etc. To illustrate the results and achieve better clarity, tables and graphics are included in the study.

The limitations are correctly described (pp. 7-8), namely: the study is time-limited for the period from 2017 to 2024 with the aim of studying and analyzing the features of omnichannel banking during the relevant time interval.

The sources of the analyzed data are public data from the BNB, the National Statistical Institute, the websites of banking institutions, other publicly available data, as well as analyses and research by leading economists in the field of this specific issue and data from a survey.

My general opinion about the dissertation work is that the author has clearly and precisely defined his views and ideas and within the framework of the dissertation has managed to argue and defend his views. A distinction is made between the achievements of scientific thought to date and the author's contribution to the researched issues.

The presented dissertation is 196 pages long, of which 188 pages are main text, structured in three interconnected and building upon each other chapters. I believe that the volume of the research is sufficient for the doctoral student to develop and defend his/her view on the researched issues.

In support of the presentation in the dissertation, 7 tables and 34 figures have been designed, which have a sufficiently high degree of informativeness and are directly related to the thesis and views of the doctoral student.

The dissertation is written in understandable language with correct use of specialized

scientific terminology on the issue. There are no significant deviations from the theses in the presentation, repetitions of views and passages, as well as the presence of logical contradictions and proportionality of the parts. The calculations in the dissertation are based on established mathematical and statistical approaches and models, which are correctly and appropriately applied to the analyzed data.

The dissertation was checked using the "AntiPlagiat" type system, according to which it is characterized by a similarity index within the levels permissible for scientific research, which is an independent confirmation that the author has strictly adhered to the rules of scientific ethics when creating scientific research, and has correctly cited the literary sources used.

Research and achievements have become available to the interested audience through 4 specialized publications on the topic - 2 studies and 2 articles. The publications reflect important aspects of the dissertation and do not overlap with each other, i.e. we do not have the publication of the same material under different names in different journals.

Regarding scientific and applied scientific contributions - there are some in the dissertation and, in my opinion, they are the author's personal work.

With regard to the fulfillment of the minimum national criteria for acquiring the educational and scientific degree "Doctor", a list of publications is attached to the dissertation, which shows that the minimum national requirements in this area are met.

Regarding the volume and content of the abstract, I believe that it is of sufficient volume and correctly, completely and accurately reflects in a summary the content and achievements of the author's dissertation research.

III. Scientific and scientific-applied contributions of the dissertation work.

submitted for review is a completed scientific work on the topic "Digital Transformation in Banking - Risks and Financial Efficiency. Within the framework of the research conducted, the author reaches a conclusion and upgrades, separated within 5 contributions, indicated in the attached abstract.

Among the author's achievements we can highlight:

- The study and analysis of changes in the risk profile of banks in the process of digital transformation, the factors that impact the process, and systematization of the overall framework of emerging risks for banks, in the context of the possibilities for their measurement and effective management.
- The critical analysis of the digital transformation of banks in Bulgaria and their grouping into separate categories in terms of the omnichannel offering of their products and services. In this context, the main challenges and problems facing banks, as well as the expectations of their customers regarding digital banking services, are highlighted.
- The online survey conducted in the period January-February 2024 among employees of Bulgarian banks regarding the current readiness for digital transformation, difficulties, obstacles, problems facing banks and their clients in this process, as well as expectations of the effect of the digital transformation of the banking sector in Bulgaria. Among the main challenges, the discrepancy between the relatively outdated infrastructure of banks in our country and the rapid pace of technology development was found, which necessitates the need for strategic investments and organizational changes.
- The implemented SWOT analysis of the digital transformation process of banks in our country, based on which the author outlines specific opportunities for op-

timizing the efficiency and risk management processes in the digital transformation of banks in Bulgaria.

Personally, I do not know whether the ideas and results proposed by the author have found resonance and recognition in the specialized scientific literature.

IV. Critical notes, questions and recommendations on the dissertation.

In science, there is never a study that we can say is completely finished and has no potential for future development and improvement. The same applies to the current dissertation.

definitely improve its qualities if the author had included an analysis of the status and challenges facing digital banking in the European Union and within the global economy, with the aim of highlighting the level of modernization and digitalization of banking services in our country.

I have the following additional questions for the doctoral student related to the topic of the research he conducted:

1. In your opinion, to what extent have modern digital technologies penetrated Bulgarian banks, compared to those in European countries?
2. Based on your research, do you find a connection between the demographic structure, educational background and financial status of bank customers and the digital banking services they use?
3. How do you assess the readiness of banks in our country for the introduction of the digital euro and the use of cryptocurrencies?

V. Summary conclusion and opinion.

My general opinion is: the author has developed a dissertation that has a clearly formulated problem, goal and tasks, implying scientific research; the dissertation is proof that **Tsvetomira Georgieva Veleva** knows the scientific literature and scientific achievements in this scientific field, has identified significant problems, has systematized the researched issues, has correctly interpreted the results of the scientific research, has formed them and presented them in an understandable and logical way. The dissertation work contains scientific or scientifically applied results that represent an original contribution to science and shows that the candidate has in-depth theoretical knowledge in the relevant specialty and abilities for independent scientific research.

This is a reason to give my support through a positive assessment of the dissertation work of Tsvetomira Veleva, and to recommend to the members of the scientific jury in the procedure for the public defense of a dissertation work on the topic "Digital Transformation in Banking - Risks and Financial Efficiency", to award doctoral student Tsvetomira Georgieva Veleva the educational and scientific degree "Doctor" in the professional field 3.8. Economics, in the scientific specialty 05.02.05. "Finance, Money Circulation, Credit and Insurance" (Finance).

Date: 04.08.2025

Svishtov

Reviewer:

(Prof. Dr. Bojidar Bojinov)