REVIEW

From: Prof. Dr. Svetlana Aleksandrova-Zlatanska, University of National and World Economy, Professional Field: 3.8 Economics, Scientific Specialty: "World Economy and International Economic Relations"

Regarding: Doctoral dissertation *"* International innovation and technology transfer and its role in the transition toward innovative and sustainable development of the Bulgarian economy *"* submitted for the award of the educational and scientific degree "Doctor" in the scientific specialty at UNWE.

Information about the competition

The competition was announced for the needs of the Economic Research Institure at the Bulgarian Academy of Sciences, according to the decision of the Scientific Council, Protocol No. 20 dated 17.12.2025.

1. Brief professional profile of the candidate

Simeon Stoilov Stoilov is an economist, graduated in International Economic Relations, with long-standing professional experience in both public administration and the private sector. His research interests focus on strategic management of innovation policies, international technology transfer, and the role of institutional factors in sustainable economic development. The doctoral candidate's extensive practical experience and qualifications have contributed to the successful completion of the dissertation.

Based on the submitted documents and the compliance chart for quantitative requirements and the standards of the Institute for Economic Research at BAS, the candidate meets the minimum national requirements for obtaining the educational and scientific degree "Doctor."

2. General characterization of the dissertation

The dissertation is structured logically and sequentially, comprising an introduction, three chapters, and a conclusion. It spans 234 pages, including 121 pages of main text, 15 tables, and 2 figures.

The dissertation addresses a current and significant problem – the International transfer of innovations and technologies (ITIT) amed to global transformations in technological development and increasing geopolitical instability. ITIT is examined as a strategically significant issue, evaluating opportunities and challenges to enhance innovation capacity and accelerate the structural transformation of the Bulgarian economy. The research is relevant to the dynamics of rapid changes, including developments in artificial intelligence, EU policies and regulations for innovation acceleration, and international technological cooperation.

The scope of the dissertation is broad. International technology and innovation transfer is analyzed as a managerial, institutional, economic, and structural-technological transformational process, allowing for a comprehensive, multi-layered analysis.

The aim of the dissertation is to analyze International transfer of innovations and technologies as a strategically manageable process and instrument to accelerate economic transformation,

enhance competitiveness, and support the sustainable development of the Bulgarian economy in the context of European integration and a dynamically changing global environment.

The eight formulated research tasks are presented in a logical sequence reflecting the progression of the research analysis – constructing a theoretical framework, conducting a comparative analysis of ITIT practices in the EU-27 countries, analyzing the Bulgarian economy in the context of technological transformation and sustainable transition, and developing an analytical model to assess the direct and indirect effects of ITIT – the Ripple Effect Model (REM).

The aim, subject, object, and tasks of the dissertation are clearly formulated and well-aligned with addressing the main research problem.

The formulated research thesis unites current and significant processes related to global technological transformation and Bulgaria's position amid intensified international competition for strategic technologies. However, in its current form, the thesis remains conceptually broad and insufficiently focused, which complicates its clear perception as a strictly formulated scientific thesis. The thesis is thematically relevant and socially significant, but further refinement and clearer definition would highlight the core research statement.

The dissertation content is well-organized, presenting the research problem in full, along with the sequence of empirical results and supporting evidence. To substantiate the thesis, five scientific hypotheses were formulated and tested in the study. They systematically reflect the key dimensions of international technology and innovation transfer amid global geopolitical and economic changes, with an emphasis on the specific characteristics and limitations of the Bulgarian economy. The hypotheses are conceptually sound and cover both external factors of technological dynamics and internal institutional and structural prerequisites for realizing positive effects from ITIT.

The research methodology includes both contemporary and traditional scientific methods, such as analysis and synthesis, comparative analysis, and other approaches related to studying innovation capacity, production structures, institutional environments, and associated economic processes. The methodological toolkit is appropriately chosen and well-aligned with the scientific problem, as well as the goals and objectives of the research. Based on the conducted analysis, the evaluation of the applied methodology is entirely positive.

Chapter 1 examines the main theoretical concepts and analytical approaches that define the international transfer of innovations and technologies (ITIT), as well as economic theories explaining economic growth and the role of innovations. Global trends and factors influencing international technology transfer are analyzed. The author clarifies key concepts such as "innovation," "technological sovereignty," and others that are essential for the subsequent analysis. Fundamental economic theories discussed include Joseph Schumpeter's theory of innovation, technology diffusion models, and Robert Solow's growth model. Contemporary concepts of innovation are also addressed, including the theory of innovation systems and the

links between technology flows, institutional structures, industrial capacity, and the strategic objectives of national economies.

The chapter is notable for its thorough systematization of both international and Bulgarian scientific publications on the dissertation topic, as well as the author's critical approach to analyzing them. The research problem is interdisciplinary, and the study's objectives are broad, which justifies extending the theoretical review to include questions related to the institutional structure of technology transfer systems, the role of transfer mechanisms in supply chains, and EU policies and regulations aimed at technological transformation.

The chapter also presents an analysis of countries' competitiveness and institutional frameworks in the context of rapid technological innovation. A comparison is made of innovation and technological progress between the European Union, the United States, and China. Bulgaria's position in the global technological race is examined through its participation in EU-funded scientific and applied projects. The chapter concludes with an analysis of technological nationalism and technological sovereignty in the international economic system, as well as the positioning of smaller and medium-developed economies in this context.

As a result of this comprehensive theoretical and literature review, the author logically directs the analysis in **Chapters 2 and 3** toward the problems of small open economies with limited scientific, industrial, and innovation capacities. In this sense, the section dedicated to Bulgaria could have been more appropriately placed in Chapter 2.

Chapter 2 focuses on Bulgaria and ITIT, identifying the specific constraints limiting the efficiency of transfer processes. The author systematically constructs an analytical framework that allows for evaluating structural, institutional, and sectoral prerequisites for ITIT, as well as identifying the key limitations affecting its effectiveness. This chapter performs the empirical and comparative verification of the theoretical framework developed in Chapter 1. Using systematic, comparative analysis, the author assesses Bulgaria's capacity for international technology transfer and identifies structural and institutional obstacles to effective processes. The analysis relies on indicators from established empirical sources (European Innovation Scoreboard, DESI, Eurostat, participation in EU programs), ensuring high reliability and objectivity of the findings.

The comparative analysis with other EU countries is appropriately selected and demonstrates that differences in innovation outcomes are not due to structural inevitability but to differing strategic and institutional decisions. This further justifies the need for a strategic restructuring model, developed in the following chapter.

The use of various macroeconomic, structural, and energy indicators highlights the economy's vulnerabilities, including low labor productivity, weak resource and energy efficiency, limited participation in value creation chains, and low R&D efficiency. The analysis convincingly shows that the relative resilience of the economy during the 2020 crisis was not the result of structural transformation, but rather of peripheral positioning in global economic processes.

A strong point of this chapter is the in-depth institutional and sectoral analysis, revealing the fragmentation of innovation policy, weak coordination between science and business, and unfavorable positioning of the country in global value chains. The conclusions align with the theoretical premises of the study and have clear analytical and practical significance.

Chapter 3 presents the conclussions , synthesizing the theoretical findings from Chapter 1 and the empirical results from Chapter 2 into a comprehensive strategic model for managing international technology transfer in Bulgaria.

A significant scientific and practical contribution is the development of the **Ripple Effect Model (REM)** for the multiplier impact of international technology transfer. The model integrates key theoretical concepts, such as spillover effects, absorptive capacity, and innovation systems, and adapts them to the Bulgarian institutional and structural context. The analysis convincingly shows that the main constraints on ITIT in Bulgaria are primarily structural and institutional, rather than a lack of access to external technologies, adding high analytical value to the conclusions.

Historical and international comparative analyses are appropriately used as tools to validate the strategic model, rather than as descriptive elements. The identified relationships regarding the role of institutional coordination, industrial cores, and the strategic nature of transfers further support the model's applicability in Bulgarian conditions.

The developed **three-phase strategic roadmap** represents the main practical contribution of the dissertation. It provides a sequential management logic, clearly defined participants, coordination mechanisms, and evaluation indicators, making the model an operational framework for national policy in international technology transfer.

The conclusion of the dissertation represents a complete and methodologically consistent synthesis of the research, clearly demonstrating the achievement of the stated research objective. The dissertation possesses both scientific and practical value, logically connecting theoretical concepts with empirical and historical evidence, and formulating concrete recommendations for strategic ITIT management in Bulgaria.

The scientific literature used is directly relevant to the research topic and correctly cited. In total, 340 sources were used, including 54 Bulgarian sources.

Based on the research conducted, it can be concluded that the objective and specific tasks of the dissertation have been successfully achieved. The author demonstrates solid command of the scientific apparatus and terminology, and the presentation is characterized by a clear and coherent style.

3. Evaluation of the Scientific and Applied Research Results

Scientific Results: The main scientific results of the dissertation are related to the synthesis and development of key theoretical propositions in the field of international technology transfer and innovation. The most significant results can be highlighted as follows:

- **Development of an interdisciplinary theoretical framework** for international technology and innovation transfer (ITIT), integrating classical and contemporary economic approaches—from the theories of Schumpeter and Solow to the endogenous growth models of Romer, Lucas, and Mankiw–Romer–Weil—placing knowledge and innovation at the center of long-term economic growth. Based on a comprehensive review and analysis of scientific publications and theories, the author conceptualizes international technology transfer not as a mechanical process but as a multidimensional structural mechanism for accelerated technological modernization and sustainable development.
- **Critical analysis and identification of research and institutional gaps** in ITIT studies. The dissertation systematizes international and Bulgarian literature on ITIT and identifies key deficiencies: fragmented analytical approaches, a dominant focus on individual transfer channels or sectoral cases, and the absence of an integrated conceptual framework linking technology flows with institutional environments and national strategic objectives.
- **Conceptualization of ITIT as a multiplier of economic development.** The study demonstrates that the impact of international technology transfer is determined more by the quality of management than by the quantity of technologies absorbed. ITIT is viewed as a multiplier mechanism that not only accelerates technological catch-up but also enhances the long-term resilience and competitiveness of the national economy.
- **Link between ITIT and sustainable development.** The dissertation argues that selective and strategically managed international technology transfer leads to long-term economic, social, and institutional sustainability.

Applied Research Results:

- **Empirical analysis demonstrates that international technology transfer is a source of long-term structural transformation** rather than a purely isolated technological process.
- **Comparative assessment across countries shows that sustainable international technology transfer is not automatic**; it requires a robust institutional and strategic framework. The Bulgarian economy lags behind due to limited technological and innovation capacity, fragmented management of innovation processes, and low coordination potential among institutions, science, and industry.
- **Empirical analysis clearly differentiates models of strategic transfer management.** Countries with integrated ITIT strategies demonstrate higher growth resilience and stronger multiplier effects, whereas economies with fragmented management, such as Bulgaria, exhibit partial, unsystematic, and weakly sustainable effects.
- **Scientific-practical contribution is concretely defined** through the development of the analytical and management Ripple Effect Model (REM) and its accompanying

strategic roadmap, which establish the conditions under which international technology and innovation transfer can be transformed into a multiplier process.

Evaluation of Scientific and Applied Contributions

The doctoral candidate has formulated eight contributions, grouped into scientific, empirical, and applied categories. The following contributions can be highlighted. Contributions with a strong scientific focus include:

- Development of an integrated theoretical-conceptual framework interpreting international technology and innovation transfer as a systemic and bidirectional process of adaptation and innovation upgrading in a small open economy.
- Systematization of historical and contemporary models of international technology transfer, highlighting the decisive role of institutional capacity for successful technological catch-up in small open economies.
- Comparative empirical analysis of international practices and Bulgaria, identifying key dependencies between institutional coordination, innovation infrastructure, and the effectiveness of ITIT.

Applied and practically relevant contributions include:

- Development of the analytical and management Ripple Effect Model (REM) and its accompanying strategic roadmap.
- Identification of structural limitations and untapped potential in the Bulgarian economy, related to fragmented management of innovation processes and low absorptive capacity.

5. Evaluation of Publications Related to the Dissertation

A total of five publications are presented, four of which are directly related to the dissertation topic, including three independent conference reports and one article in a peer-reviewed journal. These publications fulfill the minimum requirements for obtaining the doctoral degree (PhD). The submitted publications complement the theoretical and applied contributions of the dissertation regarding innovation and technology transfer.

6. Evaluation of the Abstract (Autoreferat)

An abstract) of 32 pages has been submitted for review, including a list of references, a summary of contributions, a list of publications, and a declaration of originality. The abstract is well-structured and effectively presents the essence and results of the dissertation research.

7. Critical Remarks, Recommendations, and Questions

The dissertation is scientifically sound and properly structured, presenting an objective research study on a highly relevant topic, developed at a high level. In the content of the first chapter, the author not only examines theoretical concepts but also analyzes the state of innovation

competitiveness and technology transfer, as well as Bulgaria's participation in European scientific programs and innovation projects. Structurally, there is a slight imbalance between the chapters, with the first chapter being approximately 100 pages long.

The dissertation does not clearly indicate the extent to which the five hypotheses have been empirically validated. In the conclusion, it is mentioned that "The study confirms the main hypotheses of the dissertation, that the effectiveness of international technology and innovation transfer decisively depends on the presence of a purposefully built institutional and management framework capable of coordinating the selection, adaptation, and upgrading of technologies." However, the empirical verification of the formulated hypotheses is not explicitly emphasized.

Questions for the Doctoral Candidate:

- What are the effects of global geopolitical fragmentation and the dynamics of technological innovations on international technology transfer within the EU?
- What strategic policies should small open economies like Bulgaria develop to avoid falling behind the leading EU countries?

8. Conclusion

The submitted dissertation by Simeon Stoilov, titled *"International Transfer of New Technologies and Its Role in the Transition to Innovative and Sustainable Development of the Bulgarian Economy"*, fully complies with the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria (LDASRB) and the Regulations for Obtaining Academic Degrees and Holding Academic Positions at the Economic Research Institute, Bulgarian Academy of Sciences.

The dissertation and its contributions demonstrate that the doctoral candidate possesses the theoretical knowledge in the field and the ability to conduct independent scientific research. I confidently give a positive evaluation of the dissertation and express my statement for the awarding of the educational and scientific degree of **Doctor** in the professional direction 3.8 "Economics,", scientific specialty "World Economy and International Economic Relations."

Date: **09.02.2026**

Member of the scientific jury:
Prof. Svetlana Aleksandrova –Zlatanska