STATEMENT

from

Assoc. Prof. Emil Georgiev Delinov, PhD,

Department of Informatics and Mathematics,

Trakia University, Stara Zagora

(PF 4.6. Informatics and computer sciences)

for

dissertation on a topic
"Risk analysis in smart farming conditions"

with author Todor Atanasov Todorov

for awarding the educational and scientific degree **"Doctor"**

Scientific area: 4. Natural sciences, Mathematics and Informatics,
Professional field: 4.6. Informatics and Computer Science,
doctoral program: Informatics

The opinion was written and presented on the basis of order No. RD-22-1032 of 19.05.2026 of the Rector of Plovdiv University "Paisii Hilendarski", as well as a decision of the scientific jury, taken at its first meeting on 21.05.2026, on the basis of which I was appointed as a member of the scientific jury, which prepares an opinion on the procedure for defending a dissertation on the topic "Risk Analysis in the Conditions of Smart Agriculture" for the acquisition of the educational and scientific degree "Doctor". The author of the dissertation is Todor Atanasov Todorov - a full-time doctoral student at the Department of "Computer Systems", at the Faculty of Economics of the University "Paisii Hilendarski", with scientific supervisor Prof. Stanimir Nedyalkov Stoyanov, PhD.

General description of the presented materials.

As a member of the scientific jury, I have received a set of materials on electronic media in accordance with Art. 36 (1) of the Regulations for the Development of the Academic Staff of the University of Plovdiv.

The submitted documents contain data from which it can be concluded that the doctoral student Todor Atanasov Todorov has in-depth knowledge and extensive experience in

the areas of the dissertation topic (economics and informatics). He has completed master's degrees in "Computer Technologies" in 1998, in "Pedagogy of Education in Informatics and Information Technologies" at the University of Plovdiv "Paisiy Hilendarski", the city of Plovdiv and in "International Economic Relations" in 2003 at the University of National and World Economy, the city of Sofia. Throughout his career, he has worked and developed in the fields of economics and information technologies. He also has management experience.

Relevance of the topic, knowledge of the problem, appropriateness of the set goals and tasks. The topic of the dissertation is relevant and has a significant practical focus, as it addresses the growing financial vulnerability of agricultural producers in the context of continuous climate change and increased price instability in the markets. In the modern digital era, the development of smart agriculture creates new opportunities for real-time data analysis, which, however, are not yet sufficiently integrated for the purposes of systematic financial risk management. The development of a threat identification model through the adaptation of established regional platforms (such as ZEMELA) is a topic that is gaining a wide range of applications and focuses increased scientific interest. The set goals and objectives are clearly formulated, directing the research towards overcoming the existing fragmentation in the processing of agricultural and financial data. The presented documents present data from which it can be concluded that the doctoral student has a thorough knowledge of the essence of the research problem - the referenced literature from 102 sources, the developed mathematical model described in Chapter 3 and the program implementation and validation of a risk analysis system within the ZEMEL platform, described in Chapter 4, as well as the motivation and ideas for future development and integration described in the conclusion.

Research methodology. The research methodology is not clearly described in the presented dissertation, but from the presentation it can be concluded that it is complex and encompasses several consecutive stages aimed at developing an integrated risk management model and combines theoretical analysis, mathematical modeling and program implementation and validation.

Characterization and evaluation of the dissertation work. The dissertation is 131 pages long, consists of an introduction, four chapters, a conclusion and a bibliography. The literature used is up-to-date and appropriately selected in accordance with the nature of the research. It is a good impression that for the "online" sources from the Internet - the dates of last review/access are indicated.

In my opinion, the dissertation is structured logically correctly and consistently. It presents the stages and progress of the research.

The introduction discusses the relevance of the topic and clearly formulates the goal and objectives of the dissertation. The main goal is defined on page 8 of the dissertation and on page 4 of the Abstract in Bulgarian and the same page of its English version. The first chapter is an overview of the state of the issue. The second chapter presents a focus on the effectiveness of risk management in agricultural enterprises, and the third chapter develops a mathematical model for identifying possible financial risks. The fourth chapter presents the program implementation of a system for research and identification of financial risk in the conditions of smart agriculture and the possibilities for adaptation and practical application of the ZEMELA platform.

The abstract summarizes the content and results of the dissertation work and is prepared in accordance with the requirements.

In the presented materials, the contributions of the dissertation work are described - as the main contribution in the conclusion of the dissertation work itself and as 9 scientific and scientific-applied in the Abstract. There is also a declaration of originality for them. I accept that the contributions are of a scientific-applied and applied nature and I express certain reservations about their formulation and presentation.

The doctoral student Todor Atanasov Todorov has presented two publications on the topic of the dissertation work from 2025 and 2026. They are in editions indexed in the Scopus databases and are sufficient to fulfill the minimum national requirements under Art. 2b, p. 2 and 3 of ZRASRB and accordingly according to Art. 24, p. 1 of the Regulations for the implementation of the ZRASRB for the acquisition of the educational and scientific degree "doctor". In my opinion, they summarize the results of the research presented in the dissertation. From the materials presented, I believe that the results achieved are the personal work of the doctoral student. He is the first author in Todorov, T., Tabakova-Komsalova, V., Tsheresharov, S., Stoyanov, S.,

Modeling Financial Risks in Smart Agriculture, 13th International Conference on Intelligent Systems (IS'26).

Critical remarks and recommendations. My main comments are related to the clear formulation of the methodology used and the contributions of the dissertation, as well as the use of appropriate terms in Bulgarian – for example, "interoperability" in Bulgarian instead of "interoperability".

I recommend that the doctoral student consider the possibilities of supplementing the Model with appropriate indicators of operational efficiency, which would give it additional possibilities for application.

CONCLUSION

Based on the documents presented in the procedure, I conclude that the doctoral student:

- satisfies the minimum national requirements in the professional field, as well as the provisions of the ZRASRB and the rules for its implementation, as well as the relevant Rules for the acquisition of scientific degrees in the PU "Paisiy Hilendarski";

- possesses in-depth theoretical and practical knowledge in the specialty "Informatics" and proven abilities for scientific research.

This gives me grounds for a positive assessment and I confidently propose to the respected scientific jury to award the doctoral candidate **Todor Atanasov Todorov** the educational and scientific degree **"Doctor"** in the Scientific area 4. Natural sciences, Mathematics and Informatics, Professional field 4.6. Informatics and Computer Science.

16. 06. 2026.

Member of the scientific jury:

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(Assoc. Prof. Emil Georgiev Delinov, PhD)