

# Review

of a dissertation for the acquisition of the educational and scientific degree "doctor" at the D. A. Tsenov Academy of Economics – Svishtov

**Reviewer: Prof. Dr. Krasimir Shishmanov**, scientific specialty "Application of Computer Technology in Economics", appointed as a member of the Scientific Jury on the basis of an order of the Rector of the D. A. Tsenov Academy of Economics - Svishtov No. 341/28.04.2026 and as a reviewer on the basis of a decision from the first meeting of the Scientific Jury of 29.04.2026 to appoint a chairman and reviewers.

**Author: PhD student Penka Stefanova Chernaeva**

The PhD student started her studies at the Department of Business Informatics at the D. A. Tsenov Academy of Economics as a full-time PhD student in 2022. She was discharged in 2026 with the right to defend her thesis. Currently, PhD student Penka Chernaeva works as a manager at VA CONSULT OOD and AGROMENAGER OOD and as a programmer, business management systems at ZEMEDELKA KASHTA OOD.

**Тема на дисертационния труд: ROLE OF THE INFORMATION SYSTEM IN THE PROCESS OF DIGITAL TRANSFORMATION OF THE AGRICULTURAL ENTERPRISE**

## **I. General presentation of the dissertation work:**

The problem chosen for research is *topical* and *significant*. It concerns factors that determine the development of an extremely important sector in the national economy, which is undoubtedly the agricultural sector. Any scientific research in this area, especially from an economic and technological perspective,

has the potential for numerous scientific and applied contributions that can find their real application in practice.

*The object* of research is the process of digital transformation in the grain production enterprise, and *the subject* is the influence of IS on the process of digital transformation of the agricultural enterprise.

*The main thesis* is that the evolution of information systems in agricultural enterprises from reporting to intelligent and analytical platforms is a determining prerequisite for the implementation of a full-fledged digital transformation of production and management processes

I believe that these formulations are **correct** and correspond to the set goals and objectives.

The presented work is 256 pages long and consists of an introduction, three chapters, conclusion, bibliography and appendices. The presentation is 244 pages of main text and contains 34 tables and 33 figures. The cited literature includes 222 titles. The anti-plagiarism system indicates a similarity coefficient 1: 4.22%, a similarity coefficient 2: 1.23%, which is within the permissible norms for correctly presented research.

Overall, the work is *well structured*. The traditional approach was used - first, *the theoretical and methodological aspects* of the opportunities and problems in implementing digital transformation in the digital sector were examined, and then a *comprehensive study* was carried out and a model for digital transformation of the grain production enterprise was proposed.

The study used 222 domestic and foreign literary sources, and the author used them correctly and appropriately.

Each of the chapters has *formulated conclusions and generalizations*, which are logically related both to each other and to the thesis raised.

## **II. Assessment of the form and content of the dissertation**

The present study reveals the main methodological aspects and solutions of digital transformation to increase the sustainability, effectiveness and efficiency of agribusiness. The pursuit of the main goal - to study the role of the information system in the process of digital transformation of the agricultural enterprise and to propose a model for the optimization of this system reveals both the possibilities for its effective management and the factors by which it is achieved.

In the process of research, the views of a number of our and foreign scientists on the main theoretical propositions related to the essence and possibilities for the integration of artificial intelligence, machine learning, big data analysis (Big Data), forecasting models, etc., whose joint use provides a platform for dynamic planning, monitoring and control of agribusiness processes, are presented. In many places, the presentation reflects the author's attitude to the issues under consideration, and the assessments are in-depth and reasoned. As a result of the research conducted, the doctoral student has systematized the trends, assessed the risks, and proposed the possible optimization of resources when using modern technological solutions. As a result, she asserts that information systems are becoming a strategic tool for increasing the efficiency, sustainability and competitiveness of agricultural holdings and agricultural enterprises.

The empirical study conducted is *representative*. The statistical is *correctly determined*. Many agricultural producers are covered, which allows for the collection of sufficient information on the researched issues.

The content is of the required volume, and a sufficient amount of illustrative material is offered – graphs, tables, etc., successfully supporting the content of the dissertation.

It is necessary to point out that the presented study fills a gap in the scientific aspect, raises several current issues, offers rational solutions and will be useful in practice

The abstract is 43 pages long and reflects the main points of the dissertation and the achieved research results. It is also accompanied by a Statement of the main scientific contributions, a Declaration of originality and reliability and a List of publications related to the dissertation work.

The PhD student has presented 4 publications (2 articles and 2 reports) on the problems of the research, published in specialized scientific publications and collections of scientific reports. The publications are on the topic of the dissertation and meet the requirements.

### **III. Scientific and applied contributions of the dissertation**

The author's contributions are of a scientific and applied nature. They can be distinguished as follows:

#### *1. Scientific achievements*

- 1.1. The real opportunities and problems for the application of information systems in agribusiness are outlined.
- 1.2. 1.2. The main approaches, technologies, challenges and trends in the digitalization of the agricultural sector are studied and systematized.
- 1.3. 1.3. On the basis of a specific empirical current state of digitalization and the application of modern information systems in grain production enterprises are analysed.

#### *2. Scientific and applied achievements*

- 2.1. 2.1. A model for digital transformation and optimization of information systems has been developed and proposed in order to increase the efficiency of the grain production enterprise
- 2.2. 2.2. An IS model for managing land relations with AI has been proposed.
- 2.3. 2.3. Recommendations have been proposed for solving problems revealed by the study.

#### **IV. Notes and questions on the dissertation**

Recommendations for the development were made during the discussion of the dissertation. They are reflected with the necessary attention and completeness.

The following questions can be addressed to the PhD candidate:

1. 1. What are the main problems in the implementation of modern digital technologies in agribusiness?
2. 2. What are the starting points for state intervention to accelerate the process of digital transformation in the sector?

#### **V. General assessment of the dissertation work**

The dissertation work of PhD student Penka Chernaeva is a thorough study on a topical problem, both for theory and practice. It contains significant scientific and applied scientific contributions and meets all the requirements and criteria for research of this nature. All this gives me reason to propose to the esteemed Scientific Jury to award the educational and scientific degree "doctor" in the specialty "Application of Computing Technology in economics" to PhD student **Penka Stefanova Chernaeva**.

Svishtov,

Prof. Dr. Krasimir Shishmanov

04.05.2026