

OPINION

by a member of a scientific jury,
for the acquisition of the educational and scientific degree "Doctor"
at the Academy of Arts "D. A. Tsenov" – Svishtov

Prepared by Assoc. Prof. Dr. Vanya Todorova Lazarova

Author of the dissertation: Penka Stefanova Chernaeva

Dissertation topic: Role of the information system in the process of digital transformation of the agricultural enterprise

I. General presentation of the dissertation:

The graduate has defined as the subject of the study "the influence of information systems on the process of digital transformation of an agricultural enterprise and the opportunities for their optimization through modern approaches and technologies."

The dissertation is structured logically and consistently and includes an introduction, three main chapters, a conclusion, a bibliography and appendices. The total volume of 262 pages and its content fully correspond to the requirements for a dissertation for the PhD degree.

The dissertation is richly illustrated, contains many figures, tables and two appendices, which contribute a lot to the clarity and clarity of the presented material.

The bibliography is very rich and shows that the PhD student has conducted an in-depth study on the topic - it contains 222 sources that are relevant and from various scientific fields. Studies by Bulgarian and foreign scientists are presented, statistical data, standards and regulatory documents are used.

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

The dissertation is dedicated to an extremely topical and significant scientifically applied problem – the role of information systems in the process of digital transformation of agricultural enterprises, with a special focus on grain production. The topic is in full consonance with the strategic priorities of the European Union and Bulgaria related to sustainable development, smart agriculture and digital transformation of the economy. The relevance of the study is determined both by the low level of digitalization of the agricultural sector in Bulgaria and by the need for integrated information solutions for the management of production, land and management processes in the sector.

The methodological approach used by the PhD student is mixed, combining: historical and theoretical analysis; benchmarking; quantitative and qualitative methods such as surveys,

interviews; modeling; tabular and graphical presentation of the results. The practical experience of the PhD student makes it possible to test in real conditions some of the concepts and models defined in the dissertation, which is very valuable for obtaining actual results.

The abstract fully reflects all the essential elements of the full text of the dissertation.

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

The study has a strong practical and applied character, based on the real expertise of the PhD student in the development and implementation of systems such as "Agrosystems", "Tenant-BG" and "Bank of Properties", and their testing in a real business environment.

In general, the following main scientific and applied contributions can be highlighted in the dissertation, which I accept:

1. Systematization and enrichment of the theoretical framework on information systems in agribusiness, taking into account the approaches, technologies and limitations to the digitalization of the agricultural sector.
2. In-depth analysis of the role of digitalization in grain production enterprises, including identification of key barriers, technological limitations and organizational problems.
3. The level of digitalization and the use of modern information systems in grain production enterprises is analyzed, and more than 100 Bulgarian enterprises are examined.
4. A system of key indicators has been defined to quantify the effects and identify economic benefits from the implementation of digital solutions.
5. A conceptual and architectural model for digital transformation of the grain production enterprise has been developed, based on the integration of FMIS, ERP/CRM, IoT, GIS, AI and BI solutions.

IV. Questions on the dissertation.

I have the following questions:

1. In the dissertation, a general definition is given, but what is the fundamental distinction between digitalization and digital transformation, specifically in the context of an agricultural enterprise?
2. How is the credibility and representativeness of the empirical data obtained by these 100 enterprises used in the analysis ensured?
3. How can the proposed model support management decision-making in high uncertainty - climate, market, etc.?
4. How do you see the role of generative artificial intelligence in the future development of agricultural information systems (p. 52)?

V. Summary evaluation of the dissertation and conclusion.

The dissertation of Penka Stefanova Chernaeva is an independent, in-depth and scientifically correct research, which has both theoretical and practical value. The set goals and objectives have been fulfilled, the research thesis has been reasonably defended, and the presented results have real applicability for agricultural practice.

Based on the above, I believe that the dissertation "The role of the information system in the process of digital transformation of an agricultural enterprise" meets all the requirements for awarding the doctoral student the educational and scientific degree "Doctor".

I vote in the affirmative and propose to the esteemed scientific jury to award the PhD student Penka Stefanova Chernaeva the educational and scientific degree of Doctor.

Date: 18.05.2026

Issued the opinion: ..

(Assoc. Prof. Dr. Vanya Lazarova)
