

## OPINION

By **Prof. Todorka Stoyanova Atanassova-Kalaydzhieva, PhD**  
Department of "Management", Faculty of Economics of Trakia University, Stara Zagora,  
scientific specialty "Organization and management of production", professional direction  
3.7 Administration and management

Author of the dissertation: **Elena Dimitrova Tashkova**

Dissertation topic:

**"Opportunities for applying digital technologies in the agricultural sector"**

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

The dissertation work on the topic "Opportunities for applying digital technologies in the agricultural sector" was developed by part-time doctoral student Elena Tashkova with scientific supervisor Assoc. Prof. Violeta Blazheva, Ph.D. It was discussed and referred for public defense at a meeting of the Department of "Agrarian Economics" at the Academy of Economics "D.A. Cenov", town of Svishtov.

The dissertation has a total volume of 185 standard pages; it is structured in an introduction, three chapters, a conclusion, and appendices in a volume of 13 pages. The results of the research and analysis are presented in 22 figures and 31 tables. The literature used includes a total of 111 sources, of which 85 are in Bulgarian and 26 in English.

My opinion was assigned by Order No. 681/10.07.2023 to the Rector of the Academy of Economics "D.A. Cenov", town of Svishtov for participation, as a member of the Scientific Jury, which was elected by the FS of the Faculty of "Manufacturing and Commercial Business", Protocol No. 12/10.07.2023.

The opinion was prepared in accordance with the provisions of the Law on the Development of the Academic Staff in the Republic of Bulgaria, the Rules for its Implementation and the Rules for the Development of the Academic Staff at the Academy of Economics "D.A. Cenov", town of Svishtov.

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

The topicality of the topic of the dissertation stems from the need to implement and use digital technologies in the field of agricultural production in response to the modern challenges to its development. The many questions related to this modern issue concerning the agrarian sector can be answered through studies and analyses, development and offering of scientific models for managing the digitization process, and at the same time highlighting the effects of its implementation. In this sense, I believe that the chosen topic of the dissertation work is relevant, significant for theory and practice.

The subject of research are the possibilities of applying digital technologies in the agricultural sector.

The object of research is modern digital technologies in agriculture and their role in the sustainable development of the sector.

The purpose of the scientific development is focused on research and analysis of the applicability of digital technologies in the agricultural sector. I believe that the goal is correctly formulated. It is subordinate to the topic of the dissertation and corresponds to the four main tasks. They are logically connected to the structure of the dissertation.

In the dissertation, a research thesis is formulated, which is fully provable and corresponds to the researched issues in the dissertation.

The implementation of the set goal and the solution of the main tasks is carried out through a complex of methods: comparative and retrospective analysis, induction, deduction, content analysis, expert evaluation method, research and analysis of Bulgarian and foreign language literary sources.

The researched normative base, which is significant in volume, makes a positive impression including national and European documents related to the digitization of the agricultural sector. All literary sources are cited correctly. The diverse information used is the basis for in-depth analysis and generalizations.

The dissertation work in terms of structure and volume meets the requirements for obtaining the educational and scientific degree "doctor" in the scientific specialty "Economics and management (agrarian economy)". There is a balanced ratio between the structural parts/chapters of the dissertation as a whole.

The introduction presents the topicality of the topic, the object and subject of research, the purpose and tasks, the research thesis. The used methodological approach of the research is presented in a synthesis. The time limit of the research, which is carried out for the period 2014 - 2020, is indicated in an argumentative manner. The features of the index used to assess the degree of application of digital technologies in the economy and society (DESI) are highlighted.

The first chapter has a theoretical-analytical character. The main emphasis is placed on the analysis of the literature dealing with the issue of the possibilities of applying digital technologies in the economy. Based on research by our and foreign authors, normative documents on the issue, the doctoral student builds her own conceptual apparatus, which she uses in her dissertation. It defines the essence of digital technologies in the economy, in particular in agricultural holdings, as well as gives concrete examples of their applicability. The content shows a very good knowledge of the theory related to the importance of information technologies and their use in modern conditions, as well as their applicability in the agrarian sector and more specifically in the Bulgarian agriculture. In the course of the literary analysis, the author's opinion on the matter stands out, the advantages and disadvantages of the digitalization of agricultural production are very well justified.

The second chapter of the dissertation has a conceptual-analytical character, as it explores and reveals the essence of the concept of carrying out the digital transformation of the economy in general and in particular in the agrarian sector. The emphasis in it falls on the study of basic documents (strategies, programs, plans, etc.) reflecting policies for the implementation of digital transformation at the European and national level. Basic provisions and priorities for digitization of the economy, first in the EU, and their relationship with those in our country are analyzed. In the third paragraph of the second chapter, theoretically justified solutions are presented - a "model for digital support" of production processes in agricultural holdings (fig. 10, p. 91). The analysis carried out in the second chapter is distinguished by thoroughness, correct interpretation of the complex legal basis, correctly formulated conclusions.

The third chapter of the dissertation has a constructive character. Initially, the main factors that influence the introduction of digital technologies in agriculture are examined. In the second paragraph, the author tries to test the digitalization model presented in the second chapter - web-based technology "ONDO Smart Farming Solutions" in agricultural production. The model has been implemented in five farms from Bulgaria and one from Macedonia. The achieved results, expressed in economy of production resources, increase in average yields, rationalization of technological processes, etc. are summarized and interpreted (tab. 29, p. 131). In the third paragraph, the doctoral student provides a reasoned presentation of basic recommendations for increasing the effects of digital technologies in agricultural production. The exposition in the third chapter demonstrates the author's in-depth knowledge, creativity and argumentation of the presented proposals.

The conclusion of the dissertation presents a summary of the main results of the study and analysis.

The abstract meets the requirements and objectively reflects the structure and content of the dissertation work.

In connection with popularization of the results obtained from the dissertation work, the doctoral student has three publications: one study, one scientific publication in a scientific publication and one report from participation in an international scientific-practical conference, evenly distributed over the duration of the studies.

Summing up, the assessment of the structural and content characteristics of the dissertation work of doctoral student Elena Tashkova, I consider that the research thesis has been fully proven, the set goal has been fulfilled and the initially set tasks have been solved. The style of expression is scholarly and understandable. When developing the dissertation, the author followed the rules of scientific ethics. Authors used are cited accurately and correctly. The dissertation work is very well designed.

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

I accept and synthesize the contributions presented by the doctoral student as follows:

✓ Contribution resulting from the expansion and enrichment of literature and scientific knowledge based on a formulated definition of the concept of "digital technologies", with an own - author's interpretation - proposed.

✓ A contribution of a scientific and applied nature is the proposed model supporting the implementation of digital technologies in agricultural production. The model was tested on the example of six farms from Bulgaria and Macedonia.

✓ A practical-applied contribution is the identified advantages and the presented proposals for accelerating the process of implementation of digital technologies in the economy in general and in agricultural holdings in particular.

### **IV. Dissertation Questions:**

I have one question for the author of the developed dissertation:

To what extent have digital technologies been implemented in Bulgarian animal husbandry at the current period?


### **V. Summary evaluation of the dissertation work and conclusion:**

Summarizing the above assessment, I consider that part-time doctoral student **Elena Dimitrova Tashkova** has developed the dissertation at the necessary scientific level. This gives me reason to assert that the author knows and successfully applies modern methods of research in the field of agrarian economy, correctly interprets the obtained results, has proven scientific and applied contributions.

In conclusion, I allow myself to propose to the respected Scientific Jury to highly evaluate the dissertation work and to vote positively for awarding **Elena Dimitrova Tashkova the educational and scientific degree "Doctor"** in the doctoral program "Economics and Management (Agrarian Economics)", professional direction 3.8." Economy".

The signature was deleted on the basis  
of Article 4, Paragraph 1 or Regulation  
679/2016 r.

09/01/2023  
Stara Zagora

Prepared the opinion:   
(Prof. Todorka Atanassova-Kalaydzhieva, PhD)