REVIEW

by Prof. Vassil Guliashki, PhD
Institute of Information and Communication Technologies - BAS
on a dissertation thesis for awarding the educational and scientific degree **"Doctor"**
in professional direction **4.6 "Informatics and Computer Science"**
Doctoral programme „Informatics"

titled:

"RESEARCH AND MODELING OF BUSINESS PROCESSES SUPPORTING DECISION-MAKING RELATED TO DIGITAL TRANSFORMATION"

by NAYDEN KIRILOV NAYDENOV

By order № 61/28.03.2025 of the Director of the Institute of Information and Communication Technologies – Corr. Mem. D.Sc. Svetozar Margenov – in connection with the procedure for acquiring the educational and scientific degree "Doctor" in the professional field 4.6 Informatics and Computer Science, Doctoral programme „Informatics" by Nayden Kirilov Naydenov with a dissertation thesis titled „Research and modeling of business processes supporting decision-making related to digital transformation" I have been included in the Scientific Jury as a member.
As a member of the scientific jury, I received:

1. Dissertation thesis for awarding the educational and scientific degree „Doctor" in Bulgarian.
2. Abstract in Bulgarian.
3. Abstract in English.

When evaluating the dissertation, the terms of the Law for development of the academic staff in the Republic of Bulgaria (LDASRB), the Regulations for Implementation of LDASRB (Decree No. 26 of February 13, 2019) and the Regulations of University of Library Studies and Information Technologies for application of the Law for the development of the academic staff in the Republic of Bulgaria are decisive.

1. According to Art. 27 (1) of LDASRB "the dissertation work shall contain scientific or applied research results that represent an original contribution to science. The dissertation shall show that the candidate has profound theoretical knowledge in the respective subject, as well as their abilities of independent scientific research."
2. According to Art. 27 (2) of LDASRB the dissertation work should be presented in a form and volume corresponding to the specific requirements of the primary unit. The dissertation work should contain: title page; contents; introduction; presentation; conclusion – summary of the obtained results, accompanied by declaration of originality; bibliography.

The scientific supervisor of the dissertation thesis is Prof. D.Sc. Daniela Borissova.

Relevance of the topic

The topic of the dissertation is particularly relevant because Digital Transformation is of utmost importance for the modern business environment. It not only changes the way companies interact with each other and with consumers, but also fundamentally rethinks the goals and strategies of organizations. At the same time, many aspects of business are covered, including technology, processes, culture and customer experience, not only technological progress, but also a strategic variable, requiring a new approach to enterprise management..

GENERAL CHARACTERISTICS OF THE DISSERTATION THESIS

Dissertation thesis is in a volume of 125 pages with 14 tables, 22 figures, and includes introduction, three chapters, conclusion, contributions, list of publications, and list of noted citations, declaration of originality and bibliography of 186 literary sources.

The goal of the dissertation is to study business processes related to digital transformation, based on which to propose appropriate mathematical models supporting decision-making and leading to improvement of digital transformation processes.

To achieve this goal, the **following tasks** have been formulated and completed:

1) To analyze the main business processes and elements, the presence of which is a prerequisite for a successful digital transformation.

2) To identify key indicators for assessing the progress of digital transformation.

3) To propose a model for assessing the progress of digital transformation, taking into account both objective and subjective indicators.

4) To propose a model for supporting the work of the person driving digital transformation.

5) To propose a model for selecting the person driving digital transformation.

The formulated goal and tasks have scientific and scientific-practical potential for research and application in the field of informatics, information systems and technologies.

There are **three publications** on the dissertation, which are co-authored and are included in Proceedings of international conferences, with SJR, i.e. the points for this indicator are 60. In addition, a fourth paper is available, which has been accepted for publication and is currently in press. These publications meet the minimal national requirements for the acquisition of the Doctor's educational and scientific degree. The publications presented give reason to assume that the study has the necessary publicity. Each of the three publications has citations. A total of 7 citations were noted.

CONTRIBUTIONS

The **results** obtained can be summarized in the following scientific and scientific-practical **contributions**:

1. A model for assessing the progress of digital transformation is proposed, taking into account both objective and subjective indicators. This model can be easily modified if necessary to take into account only the objective or only the subjective evaluation criteria.

2. Three groups of indicators are defined, through which it is possible to determine the progress of the stages of digital transformation, namely indicators of operational readiness, indicators of organizational readiness and indicators of realized business value. These groups of indicators are used to formulate a corresponding model.

3. Two models are formulated, supporting the work of the chief information manager. The first of them is a variation of the classic SAW model, and instead of criteria scores, normalized parameter values are used. The second model simultaneously determines the best group solution, representing a combination of the three software products for remote collaborative work.

4. A group decision-making model is proposed that considers the combination of technical and soft skills of candidates when selecting a person for the position of chief digital transformation manager. The formulated model can also be applied in organizations and companies with different fields of activity.

It can be assumed that the results presented sufficiently cover the scope of the set goal and tasks.
The **Abstract in Bulgarian** has a volume of 43 pages and presents the dissertation work.
The **Abstract in English** has a volume of 42 pages and presents the dissertation work.

CRITICAL NOTES

1) Some stylistic and spelling errors have been noticed in the dissertation, which should be eliminated.
2) In Chapter 3 of the dissertation, from page 82 to page 97, there is confusion in the numbering of both figures and tables. However, from page 98 onwards, the numbering is correct.
3) In Chapter 2, objective and subjective evaluation criteria for measuring the effectiveness of business activities in digitalization are considered (Table 2.1). One of the objective criteria is "Successfully implemented market innovations" – their number is taken into account. Here it should be taken into account that there are also key innovations that are not easy to implement. Therefore, some companies are late in implementing them, and others do not even manage to implement them. This can lead to losses and bankruptcy of companies, respectively. Therefore, the importance and significance of individual innovations must also be considered.
4) In Chapter 3, the obtained results can be analyzed in more depth statistically.

COMMENT

The dissertation identifies three groups of key indicators for assessing the progress of digital transformation. Models supporting decision-making in the implementation of digital transformation and a model for assessing the progress of digital transformation are also proposed. I believe that these models are very useful and it is good for them to find application in the practice of companies. They should receive appropriate advertising and, if possible, wider implementation.

FINAL COMPLEX ASSESSMENT

The critical notes made do not reduce the scientific contributions achieved in the dissertation. I believe that the presented dissertation **meets** the requirements of the Law for development of academic staff in the Republic of Bulgaria. The achieved results give me grounds to propose to the respected Scientific Jury to award to **Nayden Kirilov Naydenov** the educational and scientific degree "Doctor" (Ph.D.) in the professional field – 4.6 "Informatics and Computer Science", Doctoral programme „Informatics".

09.05.2025.
Sofia city

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На основание
ЗЗЛД