

## REVIEW

from professor D.Sc. Daniela Borissova, IICT-BAS

Member of the Scientific Jury appointed by the Director of IICT-BAS via  
Order No 129/27.05.2021

About: Dissertation thesis of Rumen Rumenov Ketipov with title "*Personality and decision making models in internet*", presented for the acquisition of educational and scientific degree "Doctor" in a doctoral program "Informatics",  
Professional field 4.6. "Informatics and Computer Science"

At the first meeting of the scientific jury, held on 28 of May 2021, I received all the documents on the procedure, including dissertation, abstract in Bulgarian and English, declaration of originality, list and copies of the printed publications, list of noticed citations, reference for the fulfilment of the minimum requirements of IICT-BAS, order for deduction.

## ACTUALITY

The rapid development of the Internet, as well as the technologies related to its provision and use is a prerequisite for the emergence of new business models in various fields, incl. e-commerce. On the other hand, the current pandemic situation appears as an additional motivation for the use of Internet resources for the implementation of e-commerce. E-commerce as the main form of consumption of goods and services has the highest relative share in e-business, as evidenced by the analysis of large online commerce companies such as Amazon and eBay. Therefore, the formation of individual models for decision-making in the presence of a wide variety of goods and services in e-commerce is a current research area.

## **KNOWLEDGE OF THE PROBLEM**

From the review, as well as from the published results on the topic of the dissertation, it can be established that the doctoral student is well acquainted with the nature of the researched issues. Additional proof of this is the number of used literature sources (273), the availability of a developed survey for the conducted research (Appendix A), as well as the program implementation of machine learning models (Appendix B).

## **ANALYTICAL CHARACTERISTIC**

The dissertation has a total volume of 259 pages and contains 27 tables, 36 figures and 2 appendices. It is structured as follows: abstract, list of abbreviations used, list of tables, list of figures, introduction, 3 chapters, conclusion – summary of results, publications, scientific and applied results, declaration of originality of results, bibliography, and 2 appendices.

The purpose of the dissertation research is formulated on page 3, and on page 4 are presented the tasks for its achievement.

Chapter 1 analyses existing psychometric theories, focusing on the theory of personality traits and in particular the Big Five concept. The main functionalities of the online shopping platforms are defined.

Chapter 2 presents the main aspects of the methodology used for the organization and implementation of the empirical study, incl. the method of collecting the primary data. The chosen research approach and strategy for conducting the research are described, incl. and survey structure. The choice of the type of test (TIPI) to be used is also justified. 19 characteristics of e-shops have been identified, on the basis of which to study the preferences of the participants.

Chapter 3 presents the results of the empirical study used to collect data. Significant relationships between the personality of consumers and their individual propensity to take risks in online shopping are described, as well as their preferences for certain functionalities of e-shops. These relationships and preferences are determined on the basis of the results obtained from 3 models of machine learning



used to predict consumer preferences as a result of their individuality. It is shown that all three models achieve approximately the same average values of the forecasts according to the used evaluation metrics. At the end of the study, models of decision-making behaviour in online commerce are summarized.

The conclusion summarizes the results obtained and sets out some guidelines for future research.

## **RESEARCH METHODOLOGY**

The object of the study are the users of e-shops. The research methodology is based on the implementation of a survey and analysis of behavioural patterns of shopping. The chosen methodology is based on different models of machine learning in order to predict user preferences, taking into account their individuality. Therefore, the methodology is appropriately chosen and corresponds to the goal and the tasks formulated in the dissertation.

## **ABSTRACT AND AUTHOR'S REFERENCE**

The presented abstracts in Bulgarian and English reliably reflect the content of the dissertation and comply with the requirements of ZRASRB and PPZRASRB. From the presented declaration of originality, as well as from the publications on the topic of the dissertation, it can be determined that the described results are the personal work of the author.

## **ASSESSMENT OF COMPLIANCE WITH THE MINIMUM NATIONAL REQUIREMENTS**

A total of 9 publications on the topic of the dissertation are presented. Three of these publications are indexed in Scopus and are in editions with SJR, and the rest are in journals and proceedings of national scientific conferences. It should be noted that a list of 3 observed citations of the publications is presented.

According to PPZRASRB, for fulfilment of the minimum national requirements for obtaining educational and scientific degree "Doctor" in professional field 4.6. "Informatics and Computer Science" requires at least 30

points in Group D. The same number of points is required by the Regulations on the terms and conditions for obtaining scientific degrees and for holding academic positions at BAS and the Regulations on specific conditions for acquisition of scientific degrees and for holding academic positions at IICT-BAS. The total amount of points for the indicators from Group D is equal to 60 points, which significantly exceeds the required minimum points.

The reference made in this way shows that the presented publications fully satisfy the specific requirements of IICT-BAS in procedures for acquiring the educational and scientific degree “Doctor”.

### **CONTRIBUTIONS**

I accept the contributions formulated by the doctoral student with the exception of the first one. For the last contribution of the doctoral student there is no convincing evidence for a specific formulation of the compiled models.

I appreciate the doctoral student's contributions as scientific and applied.

### **CRITICAL COMMENTS AND RECOMMENDATIONS**

The dissertation is relatively well balanced, but it would be good if the author's contributions were presented more precisely. I recommend the doctoral student to be more concise in his speech in subsequent publications and descriptions of scientific results.

I have the following questions for the doctoral student:

1. How the topic of the dissertation research “Individuality and models in decision-making on the Internet” corresponds to the purpose of page 3 “to analyse and establish whether and how the various determinants of consumer personality affect their behaviour in online commerce”?
2. What are the proposed models for decision making on the Internet? How do these models correspond to the defined 19 functionalities of e-shops?



3. How does the added personal determinant “risk avoidance” affect the formation of the proposed personalities decision-making models in online shopping?

### CONCLUSION

The results obtained on the topic of the dissertation convincingly show that the doctoral student **Rumen Ketipov** has the necessary theoretical knowledge and practical skills in the field of informatics and computer science, as well as proven abilities for independent research. The presented dissertation meets the requirements of the Law for the development of the academic staff in the Republic of Bulgaria, the Regulations for its implementation and the Regulations for the specific conditions for acquiring scientific degrees and for holding academic positions in IICT-BAS. The obtained results on the topic of the dissertation give me enough grounds to give a positive assessment of the presented dissertation and **I suggest to the honourable scientific jury to award to Rumen Rumenov Ketipov the educational and scientific degree “Doctor” in the doctoral program “Informatics”, professional field 4.6. “Informatics and Computer Science”.**

22 June 2020

Reviewer: .

**NOT FOR  
PUBLIC RELEASE**

(prof. Daniela Borissova, D.Sc.)