R E V I E W

of:	dissertation on the topic: "INNOVATIVE GAMIFICATION MODELS AND TOOLS USED IN THE CORPORATE CRM STRATEGY "
for awarding:	of educational and scientific degree "Doctor of Philosphy" in professional field 3.7. Administration and Management, scientific specialty "Business Administration"
Ph. d. candidate:	**APOSTOL USTIYANOV MUSHMOV - PhD student in the doctoral program at the DEPARTMENT "ADMINISTRATION AND MANAGEMENT "**
Scientific supervisor:	**Assoc. Prof. Dr. Eng. Kiril Radev NEW BULGARIAN UNIVERSITY - SOFIA**
Reviewer:	**Prof. Dr. Hristo Ivanov Katrandzhiev UNIVERSITY OF NATIONAL AND WORLD ECONOMY Department of Marketing and Strategic Planning**

1. Assessment of the significance of the researched problem in scientific and scientific-applied relation

The dissertation presented for review is dedicated to a poorly studied issue - the role of gamification in business (generally speaking). Numerous publications can be found on the Internet for gamification, but there have been attempts to explore the role of gamification in terms of brand loyalty, attracting new customers and other marketing aspects, but I have not yet seen a dissertation on this topic. The low level of research on the role of gamification in modern business contrasts with its importance. In the introductory part of the dissertation, the doctoral student correctly outlined three factors (named paths) that justify the importance and relevance of the dissertation: (1) the need to attract, retain employees, especially

the new generations; the great awareness of researchers and managers of the role of the so-called internal motivators, (3) the possibilities of gamification to "extract desired behavior" in a way that is unobtrusive, exciting and ultimately leading to high results.

The discrepancy between the importance of the researched question on the one hand and on the other hand its importance in modern management determine the indisputable importance of the dissertation work proposed by Apostol Mushmov. This gives me reason as a reviewer to welcome the choice of topic by the doctoral student and his / her supervisor.

2. Evaluation of the goals and objectives of the dissertation

The main goal of the dissertation is threefold and includes the following: (1) development of a conceptual model of the content of a software platform for motivating employees with gamification elements; (2) research of the influence of a software platform for motivation of employees with gamification elements on different attitudes of employees' (3) derivation of recommendations for development (upgrade) of traditional systems for motivation and engagement of employees in the direction of achieving internal CRM goals of the company.

The main goal formulated in this way is decomposed into 4 sub-goals: (1) substantiation and development of conceptual models of the content of gamified software systems for motivation and engagement; (2) research on the contribution of gamified systems of motivation and engagement to employees; (3) study of the effectiveness of different gamification instruments in relation to segments; (4) Formulation of recommendations for development (upgrade) of the traditional systems of motivation and engagement.

Each of the sub-objectives is decomposed into specific research tasks, which are described and argued in the meteorological part of the study.

In summary, it can be said that the goals and objectives are set out correctly. The decomposition process (including: main goal (s) - sub-goals - research tasks) is logically sound, adequate to the specifics of the subject and object of research and is well-argued. This allows me to appreciate the way in which the goals and objectives of the dissertation research are formulated.

3. Degree of knowledge of the state of the problem and compliance of the used literature

The PhD student structured the work in four chapters. The first chapter is devoted to the theoretical rationale for creating gamified motivation systems. The second chapter is methodological and methodological in nature, the third chapter presents the research conducted and their results, and the fourth contains analyzes, discussion, conclusions and recommendations.

An in-depth reading of the dissertation shows that the author is aware of the state of the problem and is well aware of the level of his research in Bulgaria and around the world. The used literature is in accordance with the researched problem, which is very clear from the first chapter, in which the author analyzes the gamified systems of motivation - including their theoretical justification, actual implementation and research process. The doctoral student has demonstrated a good knowledge of the relevant scientific literature on this subject and correctly considered the issue through the prism of process theories, theories of engagement and loyalty. This approach, in addition to being adequate, allows the doctoral

student to reveal the state of the researched problem and to continue further in the right direction from a methodological point of view.

4. Correctness in quoting a representative number of authors

The dissertation cites about 180 literary sources - books and scientific articles. Some of the literature sources are available online. Literary sources are cited correctly. In terms of number and subject matter, they are completely relevant to the dissertation research.

5. Existence of a substantiated and developed theoretical model of the research

The first chapter of the dissertation research, as already mentioned, contains an analysis of theoretical models / systems / for motivation. Based on the existing models considered, the author has described and presented the main aspects of gemification in the context of CRM. The theoretical model of the research is well substantiated and has been developed at the required level of detail.

6. Correspondence of the chosen methodology and research methodology with the set goal and tasks of the dissertation and the presence of own contribution to the collection and analysis of data

The research methodology is presented in Chapter 2. This part of the dissertation is in full sync with the stated research goals and sub-goals. There is a clear decomposition of the methodological tools along the lines of the sub-objectives: the four research sub-objectives correspond to four methodologies to ensure their achievement (of the sub-objectives), which ultimately ensures the achievement of the main research objective. I fully accept this approach to the development of research methodology. He is well-argued and logical. On the one hand, the limit clearly shows the connection and the logical line of the dissertation in terms of "goals-methodologies-results", and on the other hand it guarantees the precision of the research and the relevance of the obtained results.

The developed methodologies are entirely the work of the doctoral student, as well as the collection and analysis of empirical data. Appropriate statistical methods such as cluster analysis, etc. are applied.

7. Scientific and applied scientific contributions

In the author's abstract the doctoral student has stated 6 scientific and scientific-applied contributions. I unreservedly accept the following contributions:
1) Based on qualitative research on theories of motivation, leadership, company culture, team dynamics, etc. entirely new, authorial processes are proposed. These are: a. the process of giving ideas for improvements by employees (implemented in both systems subject to research)

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b) the process of stimulating employee advertising activities

c) the process of learning and subsequent recognition of the company's values

2) A methodology for differentiating the typological groups of participants in the systems has been proposed and implemented, and here it is proposed to introduce additional dimensions taking into account the attitudes of employees, in addition to the classic (gamification) focused on interaction between participants and the environment.

3) The understanding is expressed and defended that the created systems (object of the research) participate in the life of the company as leaders with artificial intelligence and can be considered as independent models for employee management.

4) A socio-economic effect has been achieved through the implemented innovation in the organizations related to the object of research.

5) Recommendations, analyzes and summaries have been made, which would help other companies in developing similar types of systems.

I believe that the scientific and applied contributions of the doctoral student exceed the expectations for such research. The personal participation of the doctoral student in these contributions is indisputable and visible from the beginning to the end of the dissertation research.

8. Abstract

The abstract is developed in a volume of 49 pages. It accurately reflects the content of the dissertation. Contains the required components.

9. Impacts of the dissertation on the external environment

The doctoral student has presented a total of 7 publications that are directly related to the topic of the dissertation. Two of them were published in the magazine Human Resources. The other 5 are reports that have been presented at scientific conferences and have been published in collections. The doctoral student also presented 3 publications that are not directly related to the dissertation research, one of which is a book.

It can be concluded that the publications are sufficient both in terms of quantity and in terms of quality. They cover and even significantly exceed the minimum national requirements.

10. Opinions, recommendations and remarks

The doctoral student could consider publishing a book based on the dissertation. Some figures with inscriptions in English could be presented with Bulgarian inscriptions.

Questions: What are the reasons on the basis of which the candidate has chosen the method of K-means for clustering? Assessing the significance of the resulting clusters - how could they be validated?

11. Conclusion

The presented dissertation contains important scientific and applied results and methodological achievements. Significant volume of research work has been done on an important and poorly researched aspect related to innovative gamification models and tools used in the corporate CRM strategy. The dissertation works

meets the requirements set out in the Law on the Protection of the Education and Science of the Republic of Bulgaria, as well as in the internal rules of the NBU for awarding the educational and scientific degree "Doctor". Based on these facts, I declare my positive assessment of the dissertation submitted for defense and propose to the esteemed Scientific Jury to award Apostol Ustiyanov Mushmov the educational and scientific degree "Doctor" in professional field 3.7. Administration and management, scientific specialty "Business Administration".

20.03.2022 г.   **Рецензент:** …………………………..

гр. София   **(проф. д-р Христо Катранджиев)**