STATEMENT

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Regarding: Submitted dissertation for the acquisition of **educational and scientific degree "Doctor"** in professional field 3.7 Administration and Management

Author of the dissertation: **Lingling Ma,** full-time PhD student in professional direction 3.7 Administration and Management, Doctoral Program - Business Administration at the Department of Business Administration , Department of Business Administration, Sofia University "St. Kliment Ohridski"

Dissertation topic: **" Artificial Intelligence Readiness and Adoption in SMEs "**

Supervisor: **Assoc. Prof. Todor Yalamov, PhD**, Department of Business Administration, Sofia University "St. Kliment Ohridski"

Grounds for submitting the statement: participation as a member of the Academic jury for the defense of the dissertation in accordance with Order **RD 38-500/29.07.2024** of the Rector of Sofia University "St. Kliment Ohridski"

The statement has been prepared in accordance with the Law on the Development of the Academic Staff in the Republic of Bulgaria, the Regulations for its implementation and the Order **RD 38-500/29.07.2024** of the Rector of Sofia University "St. Kliment Ohridski".

1. Significance of the researched problem, justification of the goals and tasks of the dissertation work

The presented dissertation on the topic " Artificial Intelligence Readiness and Adoption in SMEs ", developed by Lingling Ma, refers to a contemporary and significant issue of the management science, related to the dynamic processes of the external business environment and its reflection and perception within the internal business environment.

Technological progress and specifically the latest developments in the field of cognitive technologies, namely the rapid development of artificial intelligence (AI) and generative artificial intelligence, have a significant impact on organizational culture, management choices and tools, as the doctoral student notes in the introduction, progressively imposing the automation of business processes, the use of big data and the offering of personalized products and services as a result of the improved prediction of customer needs and behavior.

The dissertation work is structured in a logical and standard sequence for scientific works. It is organized into an introduction, two balanced chapters, each with 6 sections, a conclusion, sources of information (98), appendices (2), including tables (26) and figures (13), with a total volume of 133 pages.

In the introduction, the actuality and significance of the research are highlighted clearly and accurately, the purpose, object and subject of the research, the research thesis and methodology are justified, the structure of the work is described.

The dissertation is aimed at the identification and analysis of the key promoting and hindering factors that determine the technological, organizational and related to the external environment readiness and integration of artificial intelligence technologies in Bulgarian companies from various economic sectors.

The set research tasks fully correspond to the formulated goal, thesis, object and subject in the dissertation work.

1. Methodology and Research Methods

Research methodology in the presented dissertation work is very well reasoned and consistently applied. To achieve the research goal and the resulting research tasks, the PhD student has used a variety of tools, a combination of qualitative and quantitative methods, which provides a broader perspective and a deeper analysis of the researched problems. A systematic approach to data collection has been applied, including a literature review, questionnaire surveys, interviews and secondary data analysis and case studies, allowing validation of results through cross-checking from different sources.

The comprehensive review of the literature is aimed both at the essence of AI - the main definitions, components and applications in various spheres, as well as at the fundamental theories in management science and specifically to the management of innovation processes related to the adoption of new technologies.

The choice of the "Technology-Organization-Environment" system approach adopted in the dissertation research (the so-called "TOE" framework) of Tornatzk & Fleischer (1990) is justified as the most appropriate among a dozen discussed theoretical models, e.g. DOI (Rogers, 1962), TAM (Davis, 1989), UTAUT (Venkatesh et al. , 2003) , and other challenges determining the readiness and adoption of innovative technologies.

The comparative summary of the factors on each of the three investigated dimensions, which have been identified in scientific research in the last few years, is impressive. In this way, the doctoral student applies an extended structure of TOE with different, relevant for the current management and innovation practice, variables.

An analysis of the current state of the application and approach to AI in Bulgaria was also made, structured according to the PEST model, which complements and updates existing previous analyzes of AI in our country according to the method of research and evaluation of entrepreneurial and innovative ecosystems.

On this basis, the developed research model includes three working hypotheses in the fields of technology, organizations and the external environment.

The methodology of the empirical study of the factors related to the readiness and integration of AI technologies in companies covers a variety of methods.

The data was collected through a structured questionnaire based on surveys of European enterprises on the use of AI technologies from 2020.

The reliability of the variables or constructs was checked. Factor analysis was used to establish the correlation between the variables and cluster analyzes were used to identify groups of companies with significant similarities, differentiating along the lines of AI awareness, attitudes and barriers, and regarding the impact of the latter on the implementation of 10 specific AI applications.

The listed methods allow verification of working hypotheses.

2. Scientific and Scientific-Applied Contributions

The doctoral student summarizes the contributions of the dissertation work in six main directions, in short:

(1) Enrichment of the literature on the introduction of AI in the Bulgarian business environment and a new mechanism based on the TOE framework,

(2) Identification of the importance of three specific factors that influence the readiness of Bulgarian companies to integrate AI, including the availability of internal data, AI awareness and attitudes, as well as access to external funding,

(3) Identifying four types of companies in terms of adoption of AI technologies – leaders, laggards, catchers and willing companies,

(4) Identification of four groups of companies in terms of ways to enter AI technologies, incl. in-house company-specific development for leaders, modification of open-source solutions from catch-up companies and purchase of ready-made solutions from lagging companies,

(5) Usefulness of research findings for business and political players, and

(6) Outline specific opportunities for future research.

I accept the contributions mentioned by the doctoral student as authentic.

As such, they demonstrate in-depth knowledge of the researched scientific field, abilities to develop a research model, apply appropriate scientific tools, skills to conduct independent scientific research, as well as logical interpretation of its results.

The contributions of the dissertation work could be summarized in two directions.

Scientific Contributions that cover:

(1) **Systematization of theoretical frameworks** related to innovation management in the context of AI readiness and implementation , providing a structured basis for analyzing the integration of AI technologies in companies.

(2) **Development of an enhanced TOE (Technology-Organization-Environment) framework** that introduces a new mechanism for evaluating different groups of companies based on their technological, organizational and environmental readiness, as well as their ability to implement and implement AI technologies.

Scientific and Applied-Contributions that cover:

(3) **Analysis of key factors** specific to the Bulgarian business and innovation environment that shape companies' readiness to integrate AI, such as the availability of internal data, awareness and attitudes towards AI, as well as access to external funding. These insights can be applied in the development of strategic and conceptual documents for the development of AI in Bulgaria.

(4) **Characterization of Bulgarian companies** into four separate categories — leaders, laggards, catch-up and ambitious — based on their maturity in AI adoption. This framework allows businesses to self-assess and set strategic and operational goals for AI integration.

(5) **Assessment of different approaches to AI integration** in Bulgarian companies, including in-house development (predominant among leaders), modification of open-source solutions (used by catch-up companies) and purchase of off-the-shelf solutions (preferred by laggards). This helps companies choose the optimal AI adoption strategy according to their profile.

3. Conclusion

The presented dissertation concerns current issues for the management science. The achieved results give reason to claim that the PhD student has the potential to continue developing her scientific knowledge and turning into effect its application in practice.

Considering the above, I give a **positive evaluation** of the dissertation "Artificial Intelligence Readiness and Adoption in SMEs" and recommend that the **Academic jury** award Lingling Ma the degree of "**Doctor**" in Professional field 3.7 Administration and Management.

September 23, 2024

Sofia

Assoc. Prof. Ivan Angelov, PhD