

Review of doctoral dissertation

written by Ms. Mariya Sira, MA, entitled:

“Implementation of cognitive technologies in management in the modern business services sector”

written under the scientific supervision of Dr. Aleksandra Kuzior, Prof. SUT

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Formal and legal basis for the review

The formal basis for this review is Resolution No. 64/2025 of the Discipline Council for Management and Quality Studies at the Silesian University of Technology dated 26 November 2025 on the appointment of reviewers for doctoral dissertation, signed by the Chair of the Discipline Council for Management and Quality Studies at the Silesian University of Technology, Dr Lilla Knop, Prof. SUT, and in terms of content, the Act of 20 July 2018 - Law on Higher Education and Science (Journal of Laws 2022, item 574).

1. Assessment of the selection of research issues and the topic of the dissertation

The doctoral dissertation submitted for review by Ms Mariya Sira, MA, is devoted to the issue of implementing cognitive technologies in management in the modern business services sector (BSS). The choice of research field deserves attention due to its significance for both the development of management science theory and economic practice. The Author has taken up a topic that is fundamental to understanding digital transformation processes, especially in knowledge-based organisations, which today constitute an important segment of the global economy.

The subject of cognitive technologies, including artificial intelligence, machine learning, intelligent automation, predictive analytics and natural language processing, is currently one of the most dynamically developing areas of research. The application of these technologies in the business services sector is particularly important due to the high degree of process standardisation, large-scale data processing and strong optimisation and cost pressures. At the same time, this sector is characterised by dynamic growth, especially in Central and Eastern European countries, including Poland.

The choice of the subject matter should be considered fully justified both from the point of view of economic theory and practice. The Author accurately identifies existing research gaps resulting from the relatively limited scientific output on the implementation of artificial intelligence and cognitive technologies in the business services sector, especially in comparison with the areas of industry and commerce, which have been much better recognised empirically to date. Furthermore, the Author rightly points to the dominance of technological and operational approaches in previous research, with a simultaneous lack of holistic analyses that take into account the broader managerial, organisational, ethical and social context.

The topic of the doctoral dissertation is precisely formulated and its scope is clearly defined. It covers issues related to the characteristics of cognitive technologies, their role in business processes, the determinants of implementation effectiveness, and their impact on employees, managers, and the overall functioning of the organisation. The dissertation focuses on aspects of strategic and operational management, which corresponds to the profile of the discipline of management and quality studies.

2. Evaluation of the formal aspects of the work

Mariya Sira, MA's doctoral dissertation has been prepared in accordance with the formal requirements for doctoral dissertations in the discipline of management and quality studies. The dissertation comprises a total of 428 pages and is characterised by a logical and consistently implemented structure, corresponding to the formulated research objective, scientific problem and adopted methodology.

The layout of the dissertation is correct and consistent. The work consists of an introduction, seven chapters, a conclusion, a bibliography, a list of abbreviations, a list of figures and tables, and other appendices. This division should be considered consistent with the canons of theoretical and empirical works. The individual chapters are logically connected, and the Author's line of reasoning is clear. At the same time, the considerable volume of the

work and the very detailed segmentation of the content lead in places to excessive fragmentation of the narrative and repetitions, which weakens the synthetic nature of the argument.

The structure of the chapters is orderly, and the subchapters have been correctly separated and numbered. The uniform presentation of the objectives, research questions and research results testifies to the Author's good methodological discipline.

The language and editing of the dissertation are correct. The work is written in English in an academic style, and the specialist terminology is used consistently and appropriately. The drawings, diagrams and tables are correctly integrated into the text, although it should be noted that some of the drawings could be more legible.

The bibliography, containing 413 entries, is extensive and up-to-date, and the method of citing and documenting sources raises no formal objections.

In summary, the formal aspects of the dissertation meet all the requirements for doctoral theses.

3. Assessment of the dissertation objectives and hypotheses

The research objectives formulated in the dissertation and the corresponding hypotheses should be considered correct, logically consistent and embedded in the current trend of research on the implementation of cognitive technologies in organisations in the modern business services sector. The Author clearly identifies a research gap, focusing on the relationships between cognitive technologies and organisational, competence and ethical factors, which is a significant contribution to the development of research in the field of management and digital transformation.

The main objective of the dissertation is clearly formulated and consistently pursued throughout the entire structure of the work. The content of the goal is directly related to both the theoretical and empirical parts of the dissertation, and the analytical perspective adopted allows for the simultaneous treatment of cognitive technologies as tools for process automation and decision support. This dual approach should be viewed positively, as it allows for a comprehensive analysis of the phenomenon of technological implementations in knowledge-intensive organisations.

The specific goals have been correctly broken down and form a logical sequence leading to the achievement of the main objective. Their scope includes the identification of determinants of cognitive technology implementations, the analysis of managerial competences and employee attitudes, as well as the assessment of the consequences of implementations for organisational effectiveness and ethical dimensions.

The six research hypotheses have been formulated correctly. Those relating to the role of managerial competences and ethical factors as variables moderating the process of cognitive technology implementation are particularly valuable. The number of hypotheses formulated is also noteworthy, which, although justified by the complexity of the research model, increases the complexity of empirical analyses. As a result, one may gather an impression that not all hypotheses are of equal importance from the point of view of achieving the main objective of the dissertation. A clearer indication of key and auxiliary hypotheses could increase the transparency of the research design. In summary, the objectives of the dissertation and the research hypotheses have been formulated at a level that meets the requirements for doctoral dissertations. Despite the comments made regarding their scope, level of detail and methodological implications, they provide a solid basis for the conducted theoretical and empirical analyses. The limitations indicated do not undermine the scientific value of the work, but point to potential directions for its further development in the doctoral student's future research.

4. Research methodology

The research methodology used in the doctoral dissertation was designed in a conscious manner, consistent with the main objective of the work and adequate to the complex and multidimensional nature of the analysed research problem. The Author accurately identifies the limitations of research on the implementation of cognitive technologies in the modern business services sector and, in response, adopts a mixed-methods approach, combining quantitative and qualitative methods.

The use of a mixed-methods research strategy should be assessed positively, as it allows for the capture of both structural relationships between organisational variables and an in-depth understanding of the implementation context, decision-making conditions and the experiences of organisational actors. This approach is fully justified in research on cognitive technologies, which function simultaneously as tools for automating operational processes and supporting decision-making in management.

The quantitative part of the research is based on an original questionnaire addressed to employees and management staff of organisations in the modern business services sector in Poland. The research sample includes 489 respondents representing various organisational levels, which should be considered sufficient for statistical analysis and testing of research hypotheses. The sample selection is consistent with the subject and scope of the study, and the focus on organisations implementing Intelligent Process Automation solutions ensures high empirical accuracy of the results obtained.

The Author clearly operationalises the research variables, assigning them to clearly formulated research questions and hypotheses. The construction of the research model, which takes into account direct, mediating and moderating relationships, should be assessed particularly positively, as it demonstrates a high level of methodological maturity. The quantitative data analysis was performed using appropriate statistical tools, and the presentation of the results is characterised by a logical structure and clarity of interpretation.

The qualitative part of the research includes in-depth individual interviews with ten experts holding managerial positions and having real decision-making powers in the implementation of cognitive technologies. The selection of qualitative respondents is purposeful and fully justified by the aim of validating and deepening the results of quantitative research. The thematic analysis used enables the identification of key interpretative patterns and the confrontation of the managerial perspective with the results obtained in the survey.

The way in which the two research streams are integrated deserves special emphasis. The Author does not limit herself to a simple comparison of results, but consistently applies methodological triangulation, strengthening the credibility of the conclusions and increasing their cognitive value. This approach also allows for a better understanding of the dynamics of implementation processes and the identification of success factors and implementation barriers in organisational and human terms.

The time frame of the research (2020-2024), with particular emphasis on empirical data from 2023-2024, is well chosen and allows for the analysis of cognitive technology implementations in the context of accelerated digital transformation after the pandemic. The Author demonstrates awareness of the limitations resulting from the dynamic development of technology and the volatility of the regulatory environment, which is reflected in her critical methodological reflection.

In summary, the research methodology used is characterised by a high level of methodological correctness, logical consistency and adequacy to the research objectives and problems set. The selection of research methods, techniques and tools should be assessed very positively, and the way they are used demonstrates the Author's research independence and her competence in designing and conducting complex empirical research in management and quality sciences.

5. Detailed substantive assessment of the content of the dissertation

The substantive part of the dissertation includes both a broad review of the literature, a theoretical part, and in-depth empirical analyses. In both areas, the work presents a high scientific level. The theoretical chapters are characterised by great detail, good structure and terminological correctness. The doctoral student presents the development of cognitive technologies from classical approaches to the latest models based on generative artificial intelligence. She draws attention to the differences in the definition of cognitive technologies in management and IT literature, which demonstrates the interdisciplinary nature of the analysis. An important advantage of the theoretical part is the clear distinction between the operational and management perspectives in the analysis of cognitive technology implementation processes, which allows for a better understanding of the complexity of the phenomenon under study: The doctoral student accurately refers to key organisational theories, such as resource theory, dynamic capability theory and socio-technical systems concepts, creating a solid theoretical framework for further empirical analysis.

Particularly noteworthy is the extensive and methodologically sound literature review, enriched with bibliometric and scientometric analyses. The presented maps of keyword co-occurrence, thematic networks, and analysis of the evolution of research interests allow for a synthetic and at the same time in-depth understanding of the dynamics of research on cognitive technologies. This approach should be assessed very positively, as it not only organises the literature, but also justifies the relevance and validity of the research topic.

The empirical part is a logical and valuable extension of the theoretical considerations. The Author used appropriate research methods, combining quantitative and qualitative approaches, which allowed for a multifaceted analysis of the problem. The research results are presented in a clear manner, using appropriate tables and graphs, and their interpretation is consistent, logical and well grounded in the literature on the subject. Particularly noteworthy is the analysis of the factors determining the success of cognitive technology implementations and the proposed model

of the relationship between managerial competences, organisational readiness, ethical and legal aspects, and employee perception. The performed analyses can be considered reliable and convincing.

As part of the substantive assessment of the dissertation, in addition to the unequivocally positive assessment of the scientific value and methodological correctness of the analyses, there are also issues of a debatable nature, which do not undermine the results obtained, but may provide an impetus for deeper scientific reflection and further debate. Therefore, it seems reasonable to ask the doctoral student the following questions:

1. How does the Author resolve the potential overlap between the concepts of 'implementation success' and 'effectiveness of use' of cognitive technologies at the level of variable operationalisation?
2. To what extent can the proposed model of interdependence be considered universal for different segments of modern business services, and where does the Author see its contextual limitations?
3. What factors, in the Author's opinion, most differentiate the perception of cognitive technologies between management and operational staff?
4. How can the ethical and legal aspects of cognitive technology implementations have a long-term impact on the organisational culture of the entities studied?

6. Conclusions

In summary, Mariya Sira's doctoral dissertation entitled 'Implementation of cognitive technologies in management in the modern business services sector' is an independent, original and valuable scientific achievement. The work meets all the criteria specified in the Higher Education and Science Act and the regulations concerning the awarding of doctoral degrees. The doctoral student has demonstrated a high level of research competence, a very good understanding of the current state of knowledge and the ability to critically analyse scientific achievements. Particularly noteworthy is her ability to precisely formulate research problems and hypotheses, consistently ground them in solid theoretical foundations, and correctly select and apply appropriate research methods. The empirical analyses conducted are in-depth and multifaceted, and their results are logically interpreted and coherently linked to the theoretical part of the dissertation.

A significant achievement of the work is the development of an integrated approach to the implementation of cognitive technologies in modern business services, combining organisational, managerial and employee perspectives. The model proposed by the doctoral student, which shows the relationship between managerial competencies, organisational readiness, ethical and legal aspects, and employee perception, is a valuable contribution to the development of research on cognitive technology management and the digital transformation of service organisations.

The dissertation makes a significant contribution to the development of research on cognitive technology management and the digital transformation of service organisations. The research results are both cognitive and practical in value. The work is methodologically sound, substantively mature, adequately written and well documented. The originality of the issues addressed, the multi-threaded nature of the research and the use of diverse and valid research methods, as well as the topicality of the research, contribute to a very positive opinion of the reviewed doctoral dissertation.

7. Final conclusion

I, the undersigned, hereby declare that the reviewed doctoral dissertation by **Mariya Sira, MA, entitled "Implementation of cognitive technologies in management in the modern business services sector,"** meets the conditions specified in Art. 187 of the Act of 20 July 2018, Law on Higher Education and Science (Journal of Laws 2022, item 574) and I request the Discipline Council for Management and Quality Studies at the Silesian University of Technology to admit Mariya Sira, MA, to the next stages of the procedure for awarding a doctoral degree in the field of social sciences in the discipline of management and quality studies.

I, the undersigned, request that the doctoral dissertation be awarded a distinction. Justification for the request:

Due to the high substantive evaluation of the doctoral dissertation by Ms Mariya Sira, MA, entitled "Implementation of cognitive technologies in management in the modern business services sector", including the originality of the solution to the scientific problem, the multifaceted approach to the analysed research issue, and the cognitive and application values of the doctoral dissertation, I request the Discipline Council for Management and Quality Studies at the Silesian University of Technology to award it a distinction.