

**REVIEW**

of dissertation for the acquisition of:

educational and scientific degree " <b>doctor</b> "	X
scientific degree " <b>Doctor of Science</b> "	
	the true is indicated by the sign "X"

**Author of the dissertation:**

		Dimitar	Nedelkov	Nedelev	Aurubis Bulgaria
academic position	scientific degree	name	middle name	last name	workplace

**Topic of the dissertation:**

Investigation of the possibilities for increasing the competitiveness of non-ferrous metallurgy in the Republic of Bulgaria
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**Scientific area:**

	Social, Economic and Legal Sciences
code	name

**Professional area:**

	Economics
code	name

**Scientific specialty:**

Economics and Management
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**The review was written by:**

Associate Professor	Dr.	Ivaylo	Borislavov	Ivanov	UNWE-Sofia
academic position	scientific degree	name	middle name	last name	workplace

**1. Completion of the provided documents:**

A) The dissertation and the competition documents are in full compliance with the Regulations.	4 points	X
B) The documents are complete but do not fully comply with the requirements of the Regulations.	2 points	
C) The documents are not completed in accordance with the requirements of the Regulations.	0 points	

		one of the answers given is marked with the sign "X"
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Missing documents and violated standards must be described if response C is marked.

The dissertation, the abstract and the other competition documents are available and fully reflect the scientific work of the PhD student Dimitar Nedelkov Nedelev. The submitted materials meet the requirements for structure, content and applicable scientific contributions, and comply with the regulated formats and rules. The dissertation includes the necessary references, graphs and analyses, and the abstract correctly summarizes the main results. The layout and content of the documents comply with the requirements of the Regulations of the HTMU, with no omissions or inconsistencies. On this basis, the completion of the documents receives a score of 4 points for full compliance.

## 2. Meeting the minimum requirements under the Regulations:

A) The candidate meets the minimum requirements	20 points	X
B) The candidate doesn't meet the minimum requirements	0 points	
		one of the answers given is marked with the sign "X"

It must be filled in if answer B is marked. The publication activity of the candidate is analysed. The response of the results achieved (quoted) is analysed.

The candidate Dimitar Nedelkov Nedelev fulfils the minimum requirements set out in the Regulations for the Award of Scientific Degrees and Academic Positions (RSAAP) of the CMU. The accumulated points for the different groups of indicators are as follows:

- Indicator 1 - Dissertation for the degree of Doctor of Education and Science - 50 points (with a minimum requirement of 50).
- Total points for indicators 4-10 - 40 points (with a minimum requirement of 30).
- Indicator 6 - 15 points (one publication co-authored with the supervisor - 15 points).
- Indicator 7 - 25 points (one co-authored article - 5 points and two solo publications - 20 points).

All submitted scientific achievements and publications meet the regulated academic criteria.

## 3. The relevance of the topic of the dissertation:

A) The topic is relevant and new (there are no known results on the topic by other authors)	8 points	
B) The topic is relevant and results from other authors are known	6 points	X
C) The topic is not relevant, but results from other authors are known	2 points	
D) The topic is not relevant and no results from other authors are known	1 point	
E) The topic does not correspond to the level of dissertation	0 points	
		one of the answers given is marked with the sign "X"

The evaluation of the relevance of the dissertation must be substantiated

Dimitar Nedelkov Nedelev's dissertation work is on a topical issue, as the problem of the competitiveness of industrial enterprises is of utmost importance in a dynamically changing economic environment. The development of methods for self-assessment of internal competitiveness is particularly important, given the need for firms to quickly adapt to market conditions. This study focuses on the non-ferrous metals industry, a strategically important sector for the industry, which faces significant challenges related to resource availability, environmental regulations and international competition. Although many economists and management scholars have studied the issue of competitiveness, this thesis is an important contribution as it develops a specific methodology adapted to the particularities of this sector in Bulgaria.

The PhD student has used well-established theoretical models, such as Porter's Diamond, and adapted them to the needs of the research, which is a good scientific approach. Furthermore, the analysis of the current state of the industry and the resulting practical recommendations show that the results of the research are highly applicable. Other scientific studies on the competitiveness of different industries have been conducted, but the proposed method of self-assessment of the metallurgical industry is among the first of its kind in the country. It has been tested in a real industrial environment, which proves its usefulness and innovativeness.

Therefore, the title of the thesis is appropriate, but there are other authors who have already achieved significant results in the field of competitiveness research. On the basis of the above criteria, the benchmark receives a score of 6 (B - The topic is relevant and results from other authors are known).

**4. Knowledge of the problems, subject of research in the dissertation:**

A) The doctoral student knows in detail the achievements of other authors on the topic of the dissertation	8 points	X
B) The doctoral student is partially familiar with the achieved results on the topic of the dissertation	4 points	
C) The doctoral student has no prior knowledge of the status of the problems in the dissertation	0 points	
		one of the answers given is marked with the sign "X"

The evaluation must be substantiated if answer C is marked.

The PhD student Dimitar Nedelkov Nedelev demonstrated a detailed knowledge of the issues related to competitiveness in the non-ferrous metallurgy industry. The dissertation presents an in-depth literature review that analyses key economic theories and models, including those of Porter, Krugman and Schumpeter. In addition to the theoretical grounding, the PhD also examines real case studies of Bulgarian industry using sector analysis, SWOT analysis and comparative analysis of different enterprises. The literature review covers both international and national studies, which shows a good scholarly approach and understanding of the context.

One hundred and three literature sources have been used to develop the dissertation. The dissertation is spread over 142 pages and contains 34 figures, 29 tables and appendices.

Based on this, the grade for this indicator is 8 points (A - The doctoral student knows in detail the achievements of other authors on the topic of the dissertation).

**5. Type of research:**

A) Theoretical	4 points	
B) Applied	4 points	

C) Theoretical with application elements	4 points	X
D) It does not correspond to the level of dissertation	0 points	
		one of the answers given is marked with the sign "X"

The level of research must be substantiated if answer D is marked.

The research in Dimitar Nedelkov Nedelev's dissertation is theoretical with elements of applications, which places it in the C category (4 points).

Theoretical aspect - The first part of the dissertation provides an in-depth analysis of the main economic theories of competitiveness, examining the concepts of Porter, Krugman and Schumpeter. The theoretical framework is structured around well-established economic models such as Porter's Diamond and different approaches to self-assessment of firm competitiveness.

Applied aspect - The second and third parts of the dissertation focus on an empirical study of the non-ferrous metallurgy in Bulgaria. A sector analysis including SWOT-analysis, market environment assessment and strategic recommendations for competitiveness improvement are conducted.

Methodology development - One of the main applied contributions of the study is the developed self-assessment methodology, which has been approbated in a real industrial environment. This shows that the thesis is not just a theoretical development but has direct practical value.

Combination of scientific and practical contribution - The PhD not only analyses existing models, but also adapts scientific theories to the specific needs of industry, making the research applicable in practice.

Conclusion - The thesis has a balance between theory and practice, and the developed methodology can be used to assess and improve the competitiveness of enterprises in real industrial settings.

#### 6. Objectives of the research:

A) Realistic and of scientific and / or applied interest	8 points	X
B) Realistic, but not of scientific and / or applied interest	3 points	
C) Unattainable (unrealistic)	0 points	
		one of the answers given is marked with the sign "X"

Objectives must be specified. The type of the set objectives must be justified.

Main objective:

- To create a conceptual framework for adequate self-assessment of the internal competitiveness of non-ferrous metallurgical enterprises, based on contemporary theories of competition and strategic approaches to self-assessment.

Specific objectives:

1. To analyse and define the concept of competitiveness and the influence of different economic schools on its understanding.
2. Development of a methodology for self-assessment of internal competitiveness of industrial enterprises.

3. Analysis of the state of the non-ferrous metallurgy in Bulgaria through sector analysis and assessment of strengths and weaknesses.
4. Aprobation of the developed methodology in a real industrial environment to confirm its applicability.
5. Formulation of practical guidelines and recommendations for increasing the competitiveness of enterprises.

Evaluation of the objectives:

The set objectives are realistic and meet the scientific and applied requirements as they include both theoretical analysis and practical solutions for the industry. The methodology developed by the PhD student has concrete applicability and can be used by enterprises for self-assessment and strategic management. Based on this, the score for this indicator is 8 points (A - Realistic and of scientific and/or applied interest)

#### 7. Methods of research:

A) Adequate to research and set objectives	8 points	X
B) Partially appropriate, enabling part of the scientific objectives and / or applications to be achieved	4 points	
C) Inappropriate methods	0 points	
		one of the answers given is marked with the sign "X"

Methods must be specified. The type of methods used is justified.

Methods used in the study:

1. Literature review - analysis of existing research papers and theories on competitiveness (Porter, Krugman, Schumpeter).
2. Sector analysis - study of the current state of the non-ferrous metallurgy in Bulgaria through economic and market indicators.
3. SWOT-analysis - identification of strengths, weaknesses, opportunities and threats facing the sector.
4. Development and testing of a self-assessment methodology - creation and testing of an internal competitiveness assessment tool.
5. Benchmarking - comparison of results with international practices and other economic sectors.
6. Surveys and interviews - gathering information from industry experts and executives to validate the methodology.

Evaluation of methods:

The methods used are appropriate to the study and the objectives as they combine theoretical analysis with practical evaluation and aprobaton tools. The combination of quantitative and qualitative methods ensures objectivity and applicability of the results. Based on this, the grade is 8 points (A - Adequate to research and set objectives).

#### 8. Contributions of the dissertation:

A) With lasting scientific and / or applied response, they form the basis for new research and applications	20 points	
B) They are of significant scientific and / or applied interest, complete and / or summarize previous research	16 points	
C) They are of scientific and / or applied interest	12 points	X

D) Lack of significant contributions	8 points	
E) Lack of contributions	0 points	
		one of the answers given is marked with the sign "X"

Contributions must be specified. The type of results achieved must be justified.

The contributions of Dimitar Nedelkov Nedelev's dissertation work, I see and would redefine as follows:

1. Development of a methodology for self-assessment of internal competitiveness - a new approach to analyse and improve the competitiveness of enterprises in non-ferrous metallurgy through self-assessment is created.
2. Application of the methodology in a real industrial environment - approbation was carried out in one of the leading enterprises in the sector, which confirmed its applicability.
3. Extension of Porter's competitiveness model - additional industry-specific criteria such as innovation, cost efficiency and quality are integrated.
4. Formulation of strategic recommendations to improve competitiveness - practical guidelines for improving the competitive position of enterprises in the sector are outlined.
5. Systematization and analysis of the state of the non-ferrous metallurgy in Bulgaria\*\* - a detailed sector analysis, including a SWOT-analysis, is made, which outlines the main challenges and opportunities.

Assessment of contributions:

The contributions are of "scientific and/or applied interest", as the thesis completes and summarises previous research, while proposing new approaches to assess competitiveness in an industrial context. The self-assessment methodology and its practical application add value to existing research and could be used in future developments. Therefore, the score for the given criterion is 12 points (C - scientific and/or applied interest).

#### 9. Evaluation of the compliance of the dissertation summary with the dissertation:

A) Full compliance	4 points	X
B) Compliance of the main parts	2 points	
C) Lack of compliance of the main parts	0 points	
		one of the answers given is marked with the sign "X"

The evaluation must be substantiated if answer C is marked.

The abstract of Dimitar Nedelkov Nedelev's dissertation correctly presents the main aspects, aims and results of the dissertation work. The structure and content of the abstract correspond to the key sections of the dissertation, covering the theoretical framework, the analysis of the state of the non-ferrous metallurgy in Bulgaria and the developed methodology for self-assessment of competitiveness. Despite the abbreviated length, all significant scientific contributions and main conclusions are clearly formulated. There are no significant discrepancies between the abstract and the content of the dissertation, indicating good coherence of the two documents. On this basis, the abstract receives a score of 4 points for full compliance.

#### 10. Participation of the doctoral student in the achievement of the results of the dissertation:

A) The doctoral student has at least an equal participation	8 points	X
B) The doctoral student has secondary participation	5 points	
C) The participation of the doctoral student is unnoticeable	0 points	
		one of the answers given is marked with the sign "X"

Critical notes must be provided if one of the items B or C is marked.

The PhD student Dimitar Nedelkov Nedelev has made a significant contribution to the achievement of the results in the dissertation, clearly demonstrating a thorough understanding of the topic under study. The developed methodology for competitiveness assessment, its application and the drawn conclusions show independent scientific work and analytical thinking. The PhD student has carried out a detailed sectoral analysis of the non-ferrous metallurgy in Bulgaria, applying various self-assessment methods and strategic recommendations for improvement. His involvement in achieving the results is at least equivalent to his supervisor, and his contributions are well founded and practically applicable. In view of this, the mark for the criterion set is 8 points.

#### 11. Critical notes:

A) Lack of critical notes	8 points	X
B) Critical notes of a technical nature	7 points	
C) Critical notes that would partially improve the results achieved	4 points	
D) Significant critical notes	0 points	
		one of the answers given is marked with the sign "X"

Critical notes must be provided if one of the answers C or D is marked.

I have no reason to make critical remarks to the dissertation submitted for review. I can, however, make recommendations in several directions referring to the practical and possible future scientific work of the PhD student.

I recommend future development of the research in the direction of its even greater praxeologization. First of all, the results of the research should be further disseminated and popularized among the scientific and expert community. It should be mostly in the form of a monograph. Secondly, of great practical value would be the development of a manual for practical implementation of independent applied research (following the example of the implemented in the course of the dissertation research) on various aspects of the competitiveness of enterprises in the non-ferrous metallurgy.

I would recommend that the doctoral student, for greater clarity and ease of handling of his research, indicate in the lists of tables and figures the pages on which they are placed.

#### 12. Conclusion

A) The evaluation of the dissertation is <b>POSITIVE</b>	This evaluation is assigned to a total number of at least 65 points	X
B) The evaluation of the dissertation is <b>NEGATIVE</b>	This evaluation is assigned to a total number below 65 points	

		one of the answers given is marked with the sign "X"
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<b>To be filled in at the request of the reviewer</b>
<p>In conclusion, I express my categorical positive assessment of the dissertation work presented by Dimitar Nedelkov Nedelev. The developed conceptual framework, the analyses, conclusions and generalizations, as well as the defined scientific and applied contributions are fully justified and adequate. The dissertation work fully meets the requirements of the Law on Chemical Engineering and Metallurgy and the Regulations of the University of Chemical Technology and Metallurgy - Sofia, covering all the scientific-metric indicators necessary for the acquisition of the educational and scientific degree "PhD". Additional justification for this opinion is provided by the result of the evaluation of the dissertation in points. The realized asset of 90 points is more than indicative of the quality of the dissertation research. On the basis of all the above, I propose the esteemed Scientific Jury to vote positively and to award Dimitar Nedelkov Nedelev the degree of Doctor of Education and Science in the professional field 3.8. Economics, scientific specialty "Economics and Management".</p>

<b>13.03.2025</b>	The review was written by:	
date	Assoc. Prof. Dr. Ivaylo Borislavov Ivanov	signature