# SCIENTIFIC OPINION

On a Dissertation Thesis Submitted for the Award of the Educational and Scientific Degree "Doctor" in the Field of Higher Education 3. Social, Economic and Legal Sciences, Professional Field 3.8 Economics, Scientific Speciality Economics and Management (Agriculture)

**Author of the Dissertation Thesis: Petar Asenov Kazakov**, part-time PhD student at the Department of Economics, Agricultural University – Plovdiv

**Title of the Dissertation Thesis: IMPACT OF CENTRES OF EXCELLENCE ON THE DEVELOPMENT OF THE BIOECONOMY IN EUROPE**

**Reviewer: Prof. Nadezhda Blagoeva**, PhD, Agricultural University – Plovdiv, Field of Higher Education 3. Social, Economic and Legal Sciences, Professional Field 3.8 Economics, Scientific Speciality Finance, Monetary Circulation, Credit and Insurance, appointed as a member of the Scientific Jury by Order No. RD-16-736/8.06.2026 of the Rector of the Agricultural University – Plovdiv.

## 1. Relevance of the Research Problem

The topic of the dissertation, "The Impact of Centres of Excellence on the Development of the Bioeconomy in Europe," is highly relevant and significant from both scientific and theoretical, as well as practical and applied, perspectives. Its relevance stems from the growing need for European economies to transition towards sustainable, resource-efficient and low-carbon development models based on the rational use of renewable biological resources, technological innovation and the principles of the circular economy.

Against the backdrop of intensifying climate change, limited natural resources, biodiversity loss and increasing dependence on imported energy resources and raw materials, the bioeconomy is acquiring strategic importance for the European Union. It encompasses a broad range of interconnected activities, including agriculture, forestry, fisheries, the food industry, biotechnology, and the production of biomaterials and bioenergy. These activities create opportunities to combine economic growth with environmental sustainability and social cohesion. The bioeconomy is particularly important for the development of rural and less-developed regions, where biological resources, scientific potential and local entrepreneurship can become sources of higher added value and quality employment.

In this context, Centres of Excellence serve as key components of innovation ecosystems. They bring together scientific expertise, research infrastructure and highly qualified human capital, while simultaneously creating conditions for cooperation among universities, research organisations, businesses, public institutions and other stakeholders. By conducting interdisciplinary research, facilitating knowledge and technology transfer, generating innovations and training specialists, these structures can accelerate the transformation of scientific results into applicable solutions for the bioeconomy.

The relevance of the study is further reinforced by the need to assess the actual contribution of Centres of Excellence to economic and social development. Substantial public investment in research infrastructure and research capacity raises the question of the extent to which these centres generate measurable outcomes, such as scientific developments, patents, technological solutions, business partnerships, new enterprises, employment and added value, and the degree to which they facilitate the diffusion of innovation across sectors and regions. Therefore, analysing their impact is important not only for advancing scientific knowledge but also for improving the effectiveness of public policies and funding instruments.

The European dimension of the topic is of particular scientific significance. Differences among countries and regions in terms of research capacity, innovation activity, available infrastructure and the level of bioeconomy development imply unequal opportunities to harness the potential of Centres of Excellence. Examining these disparities makes it possible to identify successful models, factors contributing to effectiveness, barriers to knowledge transfer, and opportunities to overcome territorial and innovation imbalances across Europe.

In view of the above, the selected topic is timely, socially significant and promising for scientific research. It addresses an important issue that remains insufficiently explored, namely the relationship between the concentration of research capacity within Centres of Excellence and the specific outcomes of bioeconomy development. Its investigation provides a basis for formulating well-founded conclusions and practical recommendations concerning the more effective integration of science, innovation, business and public policy in support of the sustainable development of the European bioeconomy.

## 2. Research Aim, Objectives, Hypotheses and Methods

**The main aim** of the dissertation is to analyse the role of Centres of Excellence in the development of the bioeconomy in Europe by assessing their impact on the innovation system and formulating guidelines for strategic development, with a particular focus on the Centre of Plant Systems Biology and Biotechnology (CPSBB) in Bulgaria.

To achieve this aim, the author has formulated nine **research objectives**, which follow a logical sequence. They primarily involve analysing the specific characteristics of the bioeconomy and the main strategic documents concerning its development; assessing the impact of Centres of Excellence on regional and national development; and, in particular, conducting an in-depth analysis of the Centre of Plant Systems Biology and Biotechnology (CPSBB) in Bulgaria.

To achieve the research aim and fulfil the formulated objectives, the doctoral candidate has applied a diverse range of **methods and approaches**, including case study analysis, documentary analysis of strategic, programme and institutional documents, semi-structured interviews with key stakeholders, and a questionnaire survey.

**3. Visualisation and Presentation of the Research Results**

The dissertation is organised in a logical sequence. Structurally, it comprises an introduction, four chapters, a conclusion, findings and recommendations, and a list of references. The individual chapters are not fully balanced in length, with Chapters Two and Three accounting for a particularly substantial proportion of the dissertation. To enhance the presentation and visualisation of the research, the author has included 38 figures and 32 tables. These not only contribute to the effective graphical presentation of the results but also facilitate understanding of the dissertation's content, which is presented in a substantial 223-page volume.

The doctoral candidate presents the essence of the research in the dissertation abstract, where the main elements of the dissertation are systematically and clearly summarised. The abstract comprises 43 pages and has been prepared in full compliance with the established structural requirements, incorporating all mandatory components. It successively presents the relevance of the topic, the object and subject matter of the research, its aim and objectives, the methodology employed, the structure of the dissertation, a summary of the scientific and applied contributions, and a list of the author's publications.

**4. Discussion of the Results and Literature Used**

In the introductory section of the dissertation, the author consistently presents the main aim of the research, which is to be achieved through the formulated research objectives. The subject matter and object of the study, as well as the research methods, are appropriately defined.

Chapter One is theoretical and devoted to the conceptual foundations of the bioeconomy and the role of Centres of Excellence. It systematically examines the nature, evolution and principal areas of the bioeconomy, as well as the regulatory framework governing its development. In addition, the chapter discusses the role of Centres of Excellence in advancing the bioeconomy. The methodological framework of the study is presented at the end of the chapter.

Chapter Two focuses on Centres of Excellence in Europe and their role within the innovation system. Particular emphasis is placed on the need to achieve synergy with universities, industry, and regional and international partners. The chapter also examines successful models and good practices of Centres of Excellence across Europe.

Chapter Three contains a comprehensive analysis of the Centre of Plant Systems Biology and Biotechnology in Bulgaria. It presents an empirical assessment of the role of Centres of Excellence in the development of the bioeconomy.

By analysing the current state and key challenges facing Centres of Excellence, Chapter Four identifies opportunities to optimise and strategically develop them.

This structure has enabled the doctoral candidate to synthesise the most important findings of the research and formulate key recommendations for the future development of this type of centre.

In preparing the dissertation, the author has reviewed 206 academic and other relevant sources. Of these, 200 are in Latin script, and six are in Bulgarian, all of which are directly related to the subject matter of the dissertation.

**5. Contributions of the Dissertation**

The submitted dissertation constitutes a complete and coherent scientific study in which the research aim formulated at the outset is systematically achieved by addressing the principal research questions. The author identifies eight contributions, subsequently classified as scientific and theoretical, and as scientific and applied. I fully endorse the contributions formulated by the author and consider them to be entirely the result of the doctoral candidate's own research.

**Scientific and Theoretical Contributions**

- An integrated theoretical and conceptual framework has been developed for analysing the interrelationship between the bioeconomy, Centres of Excellence, and innovation systems, combining the economic, institutional, and governance dimensions of sustainable development.
- A conceptual typology of Centres of Excellence has been developed, identifying their organisational characteristics, governance models, funding mechanisms, and functional linkages with the scientific, innovation, and economic environment.
- The role of Centres of Excellence as strategic intermediaries between science, industry, and public policy has been theoretically justified through the integration of the concepts of innovation systems and the Triple Helix model.
- The scientific understanding of Centres of Excellence as a key component of the European bioeconomy transformation has been further advanced by demonstrating their role in knowledge transfer, human capital development, and regional socio-economic development.

**Scientific and Applied Contributions**

- A comparative analysis of leading European Centres of Excellence in the field of plant systems biology has been conducted, identifying best practices, organisational models, and sustainability factors that can be adapted to the Bulgarian context.
- An empirical approach for assessing the role of Centres of Excellence in the development of the bioeconomy has been developed and validated through a bilingual survey, enabling the identification and systematisation of the principal factors determining their impact on innovation ecosystems and regional development.

• An integrated multi-component model for the strategic development and optimisation of Centres of Excellence has been developed, combining institutional, financial, scientific, and innovation mechanisms to support their sustainable operation.

• A business model and a strategic roadmap for the sustainable development of the Centre of Plant Systems Biology and Biotechnology (CPSBB), as well as for Centres of Excellence more broadly, have been proposed. These include mechanisms for ensuring financial sustainability, strengthening technology transfer, promoting international cooperation, and enhancing interaction among science, industry, and public institutions.

**6. Critical Remarks and Questions**

I consider the submitted dissertation, entitled "The Impact of Centres of Excellence on the Development of the Bioeconomy in Europe," to be a comprehensive, in-depth, and highly relevant scientific study with a clearly defined practical and applied orientation. The research problem is complex and multidimensional, as it brings together issues related to the bioeconomy, innovation policy, research infrastructure, knowledge transfer and regional development. This inevitably posed considerable challenges for the doctoral candidate, which he has successfully addressed. The dissertation has been prepared in accordance with the established academic criteria and statutory requirements for the award of the educational and scientific degree of Doctor.

The dissertation is distinguished by its sound theoretical foundation, appropriately selected and correctly applied methodological framework, and clearly defined research aim, objectives and results. The research problem is analysed logically and systematically, with the necessary depth, while the findings possess scientific significance and clearly demonstrate practical and applied value.

The doctoral candidate demonstrates the ability to conduct independent scientific research, systematise, process and interpret empirical data, and formulate well-substantiated conclusions and practical recommendations. The above provides sufficient grounds to conclude that Petar Kazakov possesses the theoretical knowledge, research skills, and professional competence required to prepare a dissertation that meets the established academic standards.

Taking into consideration the comprehensive nature of the study, the logical consistency of its presentation and the soundness of the conclusions reached, I have no substantial critical remarks that would diminish its scientific or practical and applied value. Instead, I would like to raise the following question, which would provide the doctoral candidate with an opportunity to further elaborate on and enrich the results presented:

What mechanisms could facilitate the more effective transfer of the results generated by Centres of Excellence to small and medium-sized enterprises and agricultural producers, so that scientific research can be transformed into tangible innovations delivering concrete economic benefits?

**7. Published Articles and Citations**

Regarding the dissertation's subject matter, the doctoral candidate has published six scientific papers co-authored with research teams. He is the first author of four of these publications and the second or subsequent author of the remaining two. Four of the publications are indexed in Scopus, one in the Web of Science All Databases – CAB Abstracts, and one in Google Scholar. Together, these publications total 31.59 points, thereby fully meeting the statutory minimum requirement of 30 points.

**CONCLUSION**

Based on the diverse research methods applied by the doctoral candidate, the properly conducted research, and the resulting summaries and conclusions, I consider that the submitted dissertation meets the requirements of the Development of Academic Staff in the Republic of Bulgaria Act and the Regulations of the A

gricultural University governing its implementation. This provides sufficient grounds for me to give the dissertation a **POSITIVE** evaluation.

I respectfully propose that the distinguished members of the Scientific Jury also vote in favour of awarding **PETAR ASENOV KAZAKOV** the educational and scientific degree of Doctor (PhD) in the doctoral programme Economics and Management (Agriculture).

**Date:** 10 July 2026
**Plovdiv**

Подписите в този документ са заличени във връзка с чл.4, т.1 от Регламент (ЕС) 2016/679
(Общ Регламент относно защитата на данни).