



OPINION

on a dissertation submitted for the award of the educational and scientific degree "Doctor" in: 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: Petar Asenov Kazakov, part-time doctoral candidate at the Department of Economics, Agricultural University -Plovdiv.

Title of the dissertation: "The Influence of Centres of Excellence on the Development of the Bioeconomy in Europe".

Reviewer: Prof. Dr Vanya Georgieva, Professor at the Agricultural University -Plovdiv in the field of higher education 3.0 Social, Economic and Legal Sciences, professional field 3.8. Economics, scientific speciality Accounting, Control and Analysis of Economic Activity, appointed as a member of the scientific jury pursuant to Order No РД-16-736/08.06.2026 of the Rector of the Agricultural University -Plovdiv.

1. Relevance of the problem.

The topic of the dissertation is undoubtedly relevant and significant. The bioeconomy is establishing itself as a key transformational framework for sustainable development under conditions of increasing pressure on natural resources, climate change and the need for a transition towards bio-based and circular economic models. In this context, centres of excellence (CoE) are emerging as institutions that connect fundamental science, applied research, industry and public policy. The choice to focus on the Center of Plant Systems Biology and Biotechnology (CPSBB) lends the study national relevance and practical value, as it places the Bulgarian scientific infrastructure within a comparative European context. The problem is closely linked to the priorities of the European Green Deal, the EU bioeconomy strategies (2018 and 2025) and national smart specialisation policies, which determines its relevance in both theoretical and applied terms.

2. Aim, tasks, hypotheses and methods of the study.

The main aim is clearly and correctly formulated - to analyse the role of centres of excellence in the development of the bioeconomy in Europe, assessing their influence on the innovation system and deriving guidelines for strategic development, with a focus

on the CPSBB. The object (CoE in Europe as part of the European science and innovation system) and the subject (their role, organisational models, financing, interactions and socio-economic impact) are precisely defined. To achieve the aim, nine logically consistent research tasks are set out, covering the theoretical foundations, the strategic frameworks, the institutional infrastructure, the comparative analysis of leading centres and the in-depth analysis of the CPSBB.

The methodological framework is well justified and built upon a mixed-methods design, in which data from different sources are combined and cross-referenced. Four mutually complementary methods are employed: a comparative case study of four leading European centres - CPSBB (Bulgaria), John Innes Centre (United Kingdom), MPI-MP (Germany) and VIB-UGent (Belgium); documentary analysis; semi-structured interviews; and a bilingual survey among national and international stakeholders. The study integrates three theoretical perspectives - the theory of innovation systems and the Triple Helix model, the understanding of the bioeconomy as a transformational framework, and the theory of organisational and institutional impact - which lends conceptual coherence to the analysis. It should be noted that the survey is predominantly descriptive in nature and does not test causal hypotheses - a circumstance which the doctoral candidate correctly states and justifies.

3. Presentation and illustration of the results obtained.

The dissertation runs to 233 pages and is structured into an introduction, four chapters, conclusions and recommendations, and a list of over 200 literature sources. The results are presented clearly and are richly illustrated - the work contains over 30 tables and numerous figures, which systematise the comparative data on the organisational models, financing, scientific productivity and partnerships of the centres studied, as well as the results of the survey. The empirical part is based on 68 valid responses (42 from Bulgaria and 26 from abroad) and is presented through frequency distributions, percentages and visualisations, accompanied by well-argued interpretation. The exposition is logically consistent, and the transition from the theoretical foundations, through the comparative analysis, to the specific case of the CPSBB and the strategic recommendations is clearly traceable.

4. Discussion of the results and literature used.

The discussion of the results is thorough and demonstrates a sound command of the subject matter. The doctoral candidate skilfully compares the data from the four centres, drawing out patterns, similarities and differences and relating them to the theoretical framework of the study. Particularly valuable is the comparative reading between the national and international samples, which highlights differences in expectations and in the maturity of the innovation systems. The literature used is extensive, current and relevant, including foundational and up-to-date sources in Bulgarian and English, official EU strategic documents and national policies. Citation is accurate and consistent. The literature used fully provides the necessary theoretical and empirical basis for the work.

5. Contributions of the dissertation.

I accept the contributions formulated by the doctoral candidate, which I summarise as follows:

Scientific contributions

- The theoretical analysis of the bioeconomy and of centres of excellence as intermediary institutions in innovation systems has been systematised and enriched through the integration of three interrelated theoretical perspectives.
- A comparative analytical framework has been developed and a multiple-case analysis of four leading European centres has been applied, allowing the identification of patterns, similarities and differences in management, financing and scientific productivity.
- Evaluative indicators (e.g. "industrially connected capital" and productivity per researcher) have been proposed and applied for comparing the contribution of CoE to the bioeconomy.

Scientific and applied contributions

- A first in-depth empirical analysis of the CPSBB (mission, structure, financing, partnerships and impact) has been carried out in the context of the national and regional bioeconomy.
- A bilingual survey among national and international stakeholders has been conducted, empirically documenting perceptions of the role and impact of centres of excellence.
- A conceptual framework for strategic optimisation has been formulated, together with specific, practically applicable recommendations for science and innovation policy in Bulgaria (institutional sustainability, technology transfer, diversified financing models, alignment with RIS3 and the Green Deal, living labs).

6. Critical remarks and questions.

I have the following questions for the doctoral candidate:

- How does the doctoral candidate envisage the practical application of the proposed conceptual framework for strategic optimisation - are measurable indicators (KPIs) foreseen for tracking the effectiveness of the CPSBB?
- Is the "industrially connected capital" indicator an original development, and how has it been methodologically validated?
- Which specific national institutional or regulatory instrument does the doctoral candidate consider most applicable for ensuring the sustainability of the centres after the completion of European funding in the Bulgarian context?

7. Published articles and citations.

In connection with the dissertation, the doctoral candidate presents 6 scientific publications, which exceeds the minimum requirements for the award of the educational and scientific degree "Doctor". The publications have been printed in prestigious international peer-reviewed journals, four of them indexed in Scopus, one in Web of Science (CABI) and one in Google Scholar. The doctoral candidate is the lead (first) author of four of the publications, which is indicative of his personal contribution.

The candidate's publication activity has been verified by the Commission for the Prevention of Plagiarism at the Agricultural University -Plovdiv, which certifies that the candidate meets the minimum national scientometric requirements under Art. 2b of the

LDASRB, with 31.59 points achieved under group "G" (indicator 7) against the 30 points required. The publications provide the necessary and sufficient dissemination of the results of the dissertation before a national and international scientific audience.

The abstract objectively reflects the structure and content of the dissertation.

CONCLUSION:

The dissertation represents a completed, independent and relevant piece of scientific research that meets the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria and of the Regulations of the Agricultural University -Plovdiv for its application. On the basis of the diverse research methods applied, the properly conducted empirical analysis and the well-founded generalisations and recommendations made, I assess the presented dissertation **POSITIVELY**.

I take the liberty of proposing to the esteemed Scientific Jury likewise to vote positively and to award **Petar Asenov Kazakov** the educational and scientific degree "**Doctor**" in the scientific speciality "**Economics and Management (Agriculture)**".

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