

**Quality, Visibility, Excellence:
Interpreting the Quality of Higher Education and Its
Challenges in the Visegrád Countries**

THESES OF THE DOCTORAL (PhD) DISSERTATION

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TABLE OF CONTENTS

1. BACKGROUND AND SIGNIFICANCE OF THE RESEARCH	3
2. OBJECTIVES AND RESEARCH HYPOTHESES	4
3. MATERIALS AND METHODS	7
3.1. SYSTEMATIC LITERATURE REVIEW	7
3.2. METHODOLOGY OF THE QUANTITATIVE ANALYSIS	7
3.3. QUALITATIVE COMPARATIVE ANALYSIS.....	9
4. RESULTS AND DISCUSSION	9
4.1. RESULTS OF THE SYSTEMATIC LITERATURE REVIEW.....	9
4.1.1. THE DEVELOPMENT OF EUROPEAN HIGHER EDUCATION: THE BOLOGNA PROCESS AND RECENT DEVELOPMENTS (H1)	9
4.1.2. THE IMPACT OF THE BOLOGNA PROCESS (H1).....	10
4.1.3. THE ECONOMIC AND SOCIAL DIMENSIONS OF HIGHER EDUCATION QUALITY (H4).....	11
4.1.4. INTERNATIONAL COOPERATION: EUROPEAN TRENDS AND CONTRADICTIONS (H2)	11
4.1.5. THE EUROPEAN SYSTEM OF QUALITY ASSURANCE IN HIGHER EDUCATION AND ITS INTERPRETATIVE FRAMEWORKS (H1–H3).....	12
4.1.6. THE DYNAMIC CHARACTER OF HIGHER EDUCATION QUALITY: GLOBAL RANKINGS (H3–H4).....	13
4.1.7. THE DEVELOPMENT OF HIGHER EDUCATION SYSTEMS IN POST-SOCIALIST COUNTRIES, WITH PARTICULAR REFERENCE TO THE V4 COUNTRIES (H1–H4) ...	13
4.1.8. SCIENTIFIC EXCELLENCE AND THE ROLE OF ERC GRANTS (H3).....	14
4.1.9. SCIENCE POLICY AND HIGHER EDUCATION POLICY IN THE V4 COUNTRIES (H2–H4).....	15
4.1.10. SCIENTIFIC PERFORMANCE AND INTERNATIONAL RANKINGS IN THE V4 COUNTRIES (H3–H4)	15
4.2. RESULTS OF THE EMPIRICAL ANALYSIS.....	16
4.2.1. RESULTS OF THE QUANTITATIVE DATA ANALYSIS (TESTING H3)	16
4.2.2. COMPARATIVE ANALYSIS OF EÖTVÖS LORÁND UNIVERSITY AND THE UNIVERSITY OF WARSAW (TESTING H2 AND H3).....	19
4.2.3. THE CONTRIBUTION OF QUALITY ASSURANCE SYSTEMS AND MECHANISMS TO THE PROMOTION OF SCIENTIFIC EXCELLENCE (TESTING H2).....	20
5. RESEARCH LIMITATIONS AND DIRECTIONS FOR FURTHER DEVELOPMENT ...	22
6. NEW SCIENTIFIC FINDINGS AND THESES	22
7. RESEARCH AND PUBLIC POLICY RECOMMENDATIONS.....	23
8. SUMMARY	24
9. SELECTED PUBLICATIONS RELATED TO THE DISSERTATION TOPIC.....	26

1. BACKGROUND AND SIGNIFICANCE OF THE RESEARCH

This dissertation examines the quality of higher education and the paradox of visibility and excellence in the context of the Visegrád countries, with particular emphasis on Hungary and Poland.

The relevance of the topic is justified by several factors. Among these, globalization and increasing international competition play a particularly important role, as higher education institutions are increasingly operating in a global competitive environment in which international visibility and excellence have become key determinants of success. Global university rankings, such as the QS World University Rankings (QS) and the Times Higher Education World University Rankings (THE), have a significant impact on institutional reputation, attractiveness, and funding opportunities. Consequently, higher education institutions devote increasing attention to achieving favourable positions in these rankings. Scientific activity and research excellence constitute essential components of this process. In Europe, important indicators of excellence include grants awarded by the European Research Council (ERC) and the researchers supported through these schemes at both national and institutional levels. At the same time, the relationship between these indicators and quality assurance systems remains a relatively underexplored area of research.

The significance of the topic is further reinforced by the impacts and challenges associated with the Bologna Process. The Bologna reforms brought about substantial transformations within European higher education, including major developments in quality assurance systems. However, despite shared institutional traditions, the Visegrád countries have followed different developmental trajectories, making the examination of higher education in the region particularly relevant. The growing importance of quality assurance and accreditation further underlines the timeliness of the topic, as these mechanisms increasingly shape the international competitiveness of higher education institutions, student mobility, the development of quality indicators, and, indirectly, research evaluation.

Within the European context, these issues are of particular importance for Central European countries. The effects of the COVID-19 pandemic have fundamentally altered the functioning of higher education worldwide, generating new challenges in the fields of quality assurance, teaching methodologies, and international visibility. Such global disruptions further emphasize the importance of flexibility and quality within higher education systems.

The relevance of this research is also supported by regional differences and public policy considerations. Despite their common historical and cultural roots, the Visegrád countries have pursued distinct paths of higher education development over recent decades. These differences carry particular significance with regard to the region's competitiveness, quality performance, and international standing.

The significance of the study is multifaceted. It may contribute to enhancing the competitiveness of the region, supporting evidence-based public policymaking, enriching scholarly discourse, fostering educational innovation, and promoting social mobility. Collectively, these considerations explain why the present research is both timely and important.

The potential contribution to public policymaking further underscores the value of the study. Its findings may provide important insights for the formulation of higher education policies,

particularly in relation to the development of quality assurance systems and the improvement of institutional performance in international rankings. Moreover, the research may support decision-makers in adopting more informed and data-driven approaches concerning the future directions of higher education policy.

From the perspective of regional development and competitiveness, the advancement of higher education systems within the Visegrád countries plays a critical role in strengthening the region's economic and social competitiveness. Improving educational quality and enhancing international visibility are key factors in attracting talented students and researchers, while also increasing the region's capacity for innovation.

Although this dissertation primarily focuses on the interrelationships among institutional quality assurance, scientific visibility, and excellence, it also acknowledges the broader social role of higher education and argues for the continued importance of student-centred institutional practices.

2. OBJECTIVES AND RESEARCH HYPOTHESES

The aim of this research is to examine the quality of higher education in relation to the paradox of visibility and excellence through the example of the Visegrád countries. The objectives of the study include the following:

- The effects of a shared institutional past and previously established development trajectories ("structural path dependency") are either unavoidable systemic influences, or social actors may be capable of adopting new developmental paths and shaping their effectiveness (Gräbner et al., 2020).
- The common post-Second World War institutional legacy of the Visegrád Four (V4) countries, shaped under state socialism, provides an ideal comparative basis for understanding the diverse responses to global challenges affecting higher education.

The dissertation builds upon the interrelationships among three central concepts: quality, visibility, and excellence, the interpretation of which is adapted to the specific characteristics of higher education and research systems.

Quality is understood primarily as a multidimensional concept associated with the functioning and performance of higher education institutions, framed by quality assurance systems and evaluation mechanisms. Visibility refers to the international presence and measurability of scientific performance, particularly in the context of publication indicators and university rankings. Excellence, in turn, is conceived as a relative category denoting outstanding performance in international comparison, the assessment of which relies heavily on competitive research funding schemes and indicators, particularly European Research Council (ERC) grants within the scope of this dissertation.

The relationship among these three concepts is not linear. Quality does not necessarily coincide with high visibility or excellence; however, visibility and excellence substantially influence institutional understandings of quality and organisational practices. The dissertation aims to investigate this complex relationship empirically.

The research questions were formulated as analytical units serving the empirical testing of the hypotheses and were organised around three principal thematic areas, as follows:

- The heterogeneity of higher education quality (Q1–Q4) (H1)
 - o What role do different quality assurance processes play in enabling higher education institutions to achieve their strategic objectives?
 - o What organisational conflicts may emerge from contradictions between organically developed quality goals and external expectations?
 - o What factors influence the formulation of institutional quality objectives, and what roles do policy actors as well as national and international higher education organisations play in this process?
 - o What is the nature of the relationships among the various actors involved (the state and public authorities, higher education institutions, and individual actors such as academics and researchers), and how do these relationships shape the heterogeneous character of quality?
- The relationship between quality assurance and scientific output (Q1–Q3) (H2 and H3)
 - o How do internal quality assurance processes contribute to improvements in scientific performance, including those reflected in higher education rankings?
 - o Which organisational and institutional mechanisms support the enhancement of scientific performance through quality assurance systems?
 - o How are quality assurance processes organised and operated at the institutional level, and what patterns can be observed regarding internal coordination and the involvement of external stakeholders?
- The intersectoral nature of higher education (Q1–Q2) (H4)
 - o How is the relationship between higher education institutions and the broader research and innovation environment manifested in institutional operations, and how does it influence scientific performance?
 - o What role do policy and institutional frameworks play in shaping the relationships between higher education and the wider research and innovation ecosystem? Furthermore, what differences can be observed across institutional and national contexts in the functioning of these relationships, and how are these reflected in scientific performance?

The following hypotheses are examined in this dissertation:

1. Hypothesis: Heterogeneous interpretations of quality require different institutional approaches.

The quality of higher education is highly heterogeneous, as numerous factors influence it and may endow higher education systems with widely differing characteristics. Policy interventions based on homogeneous and mechanistic understandings of quality are unlikely to achieve their intended objectives. Effectively functioning quality assurance processes within higher education institutions positively influence the achievement of institutional quality goals.

According to the hypothesis of quality heterogeneity, the quality of higher education in the Visegrád countries is structurally heterogeneous. Consequently, homogeneous and mechanistic policy and quality assurance approaches are unable to effectively support the achievement of institutional quality objectives. Institutions that align their internal quality assurance systems with their organisational strategies demonstrate measurably stronger scientific performance and greater international visibility.

2. Hypothesis: The growing prominence and effectiveness of institution-level quality assurance and accreditation.

The emphasis has increasingly shifted from programme-level accreditation towards institution-level quality assurance and accreditation. Moreover, traditional quality assurance, which is primarily based on accountability, is progressively being complemented or replaced by quality enhancement approaches that encourage continuous improvement and development.

According to this hypothesis, strategically integrated institution-level quality assurance and quality enhancement systems in the V4 countries are capable of strengthening organisational learning capacities and indirectly contributing to the enhancement of scientific excellence and international visibility.

3. Hypothesis: The relationship between quality assurance and scientific output.

Internal quality assurance systems and processes designed in accordance with the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG), particularly when reinforced through positive external evaluations, are capable of contributing to improvements in scientific performance and research output, despite the fact that scientific research itself does not constitute a separate ESG standard.

According to this hypothesis, ESG-based internal quality assurance systems, supported by external evaluation, contribute to improved scientific outcomes not directly, but through organisational mechanisms and academic career pathways. These outcomes include ERC success, publication performance, and ranking indicators.

4. Hypothesis: The role of institutional context: higher education operates within an ecosystem of socio-economic actors.

Due to its intersectoral nature, the quality of higher education is not shaped by a single actor. In order for higher education to achieve its intended objectives, it cannot be understood or governed in isolation from other sectors. Instead, close attention must be paid to its relationship with primary and secondary education as the input side, and with the labour market, including the research sector, as the output side. From this broader perspective, higher education also constitutes an issue of economic policy and political economy.

According to the institutional ecosystem hypothesis, scientific excellence in higher education institutions cannot be interpreted in isolation. The quality of both input-side relationships (primary and secondary education and student selection) and output-side relationships (the labour market and the research sector) fundamentally determines the actual impact of quality assurance mechanisms.

3. MATERIALS AND METHODS

The dissertation employs a combination of methodological approaches. The theoretical foundation is provided through a systematic literature review conducted in accordance with the PRISMA guidelines, while the empirical investigation is based on quantitative data analysis and qualitative comparative analysis.

3.1. SYSTEMATIC LITERATURE REVIEW

The literature review was conducted using the method of systematic literature analysis. The review first addresses the evolution of higher education and the Bologna Process, followed by an examination of the economic and social dimensions of higher education quality, including issues such as the third mission of universities and regional embeddedness.

Kartali (2023) distinguished five stages in conducting a systematic literature review. These stages were followed throughout the literature review process and included problem formulation, data collection, data evaluation, data analysis and interpretation, and the final stages of writing.

To complement the literature and identify emerging perspectives, Scopus AI was also used in the following areas of inquiry: external quality assurance in European higher education; the Bologna Process; the relationship between quality assurance and research performance; the influence of higher education quality assurance on university rankings; the role of quality assurance in promoting organisational development; the impact of higher education quality on economic development; organisational systems of quality assurance in European higher education; global higher education rankings; effective evaluation of scientific performance; key indicators of scientific performance in higher education; the meaning of quality in higher education; whether higher levels of funding imply higher quality in higher education; and how the quality of primary and secondary education influences the quality of higher education. The processing of the scholarly literature was also supported by Copilot (Microsoft).

The artificial intelligence-based tools employed in the course of this research were not used to generate the final content of the dissertation. The interpretation and validation of all findings presented in the dissertation were carried out solely as part of the author's independent scholarly work.

The review process followed the PRISMA framework, comprising the stages of identification, screening, eligibility, and inclusion.

3.2. METHODOLOGY OF THE QUANTITATIVE ANALYSIS

The quantitative analysis was based on the official list of European Research Council (ERC) grant recipients. Working jointly with my co-authors, we collected data on projects involving Hungarian and Polish researchers.

Following the identification of each grant recipient, the researchers' Scopus profiles were retrieved, and the affiliations associated with their publications were extracted, including institutional names and the corresponding years of publication.

For researchers who had received more than one ERC grant, the year of their first ERC success was consistently used as the reference point. Only those projects that could be unequivocally linked to a single principal investigator were included in the analysis. Multi-principal investigator projects, such as certain Synergy Grants, were excluded in cases where attribution was ambiguous.

To determine the "pre-application institution," the Scopus publication timeline was used to identify the institution with which the principal investigator had maintained a stable affiliation prior to the year of application, based on publication affiliations.

The indicator "number of years before application" was estimated using the first and last publication years associated with the pre-application institution, thereby approximating the duration of affiliation before the ERC application.

Post-award affiliations were tracked from the year of the ERC grant until 2025 using Scopus affiliation records. In doing so, it was taken into account that ERC principal investigators are generally expected to remain at the host institution during the first five years of the project.

Institutional name normalisation and data cleaning were performed through manual verification (e.g., ELTE/"Eötvös Loránd University," HUN-REN/former Hungarian Academy of Sciences, CEU/"Central European University"). Rare, heterogeneous, or difficult-to-standardise affiliations were grouped into an "Other" category.

The identification of individuals and institutions relied primarily on Scopus Author IDs and, secondarily, on publication titles, co-authorship networks, disciplinary profiles, and publication years.

For international comparison, the reference framework was provided by the panel structure published by the European Research Council (2023) for the 2024 calls.

Furthermore, the structure and orientation of the NKKP_25 programme were examined at three levels:

1. Disciplinary distribution – calculation of the proportions of Life Sciences (LS), Physical Sciences and Engineering (PE), and Social Sciences and Humanities (SH) both for the full sample and by programme component (European Research Council, 2023).
2. Institutional concentration – identification of the institutions receiving the largest number of funded projects and comparison with the ERC trends reported by Lakatos et al. (2025).
3. Programme-level structure – examination of how programmes were distributed across different institutional types, including HUN-REN research institutes, universities, and independent research organisations (Whitley, 2007; Braun and Merrien, 1999).

Data processing was carried out using Microsoft Excel and SPSS. Descriptive statistical methods, including frequencies, proportions, and institutional rankings, were employed.

The purpose of the analysis was not hypothesis testing. Rather, it aimed to present the scientific structure of the NKKP_25 programme and to provide a qualitative interpretation of its alignment with the ERC model.

3.3. QUALITATIVE COMPARATIVE ANALYSIS

The qualitative component of the study was not designed as a case study but as a comparative institutional analysis aimed at exploring the functioning, quality assurance systems, and performance characteristics of higher education institutions.

The analysis was based on the integrated use of multiple data sources, including institutional documents, publicly available information, and ranking indicators. Its objective was to identify patterns and mechanisms associated with institutional functioning.

The methodological design drew upon the case study literature, particularly the work of Yin (2014), as a point of reference, especially regarding the use of multiple sources of evidence and context-sensitive analysis.

The qualitative investigation focused on the relationships among quality assurance systems, organisational functioning, and scientific performance.

The comparative analysis concentrated on Hungary and Poland, with particular emphasis on Eötvös Loránd University and the University of Warsaw. The institutions were selected on the basis of several criteria, including ranking positions, institutional size, participation in international research networks, and educational profiles.

The analysis relied on document analysis and the processing of publicly available institutional data.

4. RESULTS AND DISCUSSION

4.1. RESULTS OF THE SYSTEMATIC LITERATURE REVIEW

The literature review presents the principal theories and studies related to the topic. It also draws upon relevant grey literature and professional reports. This section discusses the evolution of European higher education, the economic and social dimensions of higher education quality, the organisational framework of quality assurance, the dynamic character of quality, and the divergent developmental trajectories of post-socialist countries.

4.1.1. THE DEVELOPMENT OF EUROPEAN HIGHER EDUCATION: THE BOLOGNA PROCESS AND RECENT DEVELOPMENTS (H1)

Education has played an important role in European integration from the very beginning. From the 1980s onwards, cooperation in higher education gained increasing importance, driven by the competitive disadvantages of the European economy, the rigidity of educational systems, and barriers to mobility. Between 2004 and 2019, nearly seven million working-age individuals left Central Europe as part of the phenomenon commonly referred to as "brain drain". The challenges associated with the emergence of the knowledge society necessitated the modernisation of educational systems.

Several important developments preceded the Bologna Process, including the Helsinki Final Act (1975), the UNESCO Convention (1979), the establishment of the NARIC network, and the launch of the Erasmus and Tempus programmes. The Sorbonne Declaration (1998) identified the harmonisation of higher education structures and the introduction of a two-cycle degree system as major priorities.

The Bologna Declaration (1999) aimed to establish the European Higher Education Area (EHEA), promote comparable degrees, strengthen the credit system, and enhance mobility. Subsequent milestones of the process, including Prague (2001), Berlin (2003), Bergen (2005), London (2007), and Leuven (2009), progressively expanded these objectives, particularly in the fields of quality assurance, mobility, and the social dimension of higher education.

Quality assurance gradually became a central component of the process, resulting in the adoption of the ESG framework in 2005, revised in 2015. The European Association for Quality Assurance in Higher Education (ENQA), the European Quality Assurance Register for Higher Education (EQAR), and the European Higher Education Area itself subsequently took shape.

Later ministerial meetings held in Bucharest (2012), Yerevan (2015), Paris (2018), Rome (2020), and Tirana (2024) introduced new priorities, including digitalisation, innovation, and social engagement.

The Bologna Process has also been criticised, particularly because of the risks associated with excessive uniformity and political influence. Nevertheless, significant achievements have been realised in the areas of harmonisation, mobility, and mutual recognition.

Higher education currently faces new challenges, including digitalisation, artificial intelligence, and labour market transformation, all of which require further reforms.

In Hungary, the implementation of the Bologna reforms was closely linked to the Higher Education Act of 2005. The introduction of the cyclical degree structure created more flexible educational pathways; however, several difficulties emerged concerning credit recognition, transitions between educational levels, and the role of long-cycle programmes. Although the nationwide implementation of the credit system took place in 2003, flexibility was not realised in every instance. These challenges justify the need for continuous monitoring at the national level.

4.1.2. THE IMPACT OF THE BOLOGNA PROCESS (H1)

This subsection examines the differentiated effects of the Bologna reforms. Significant changes have taken place in Hungary; however, further harmonisation remains necessary.

Witte's (2006) model describes the structure of higher education through seven dimensions: funding, access, curriculum governance, curriculum content, institutional types, programme structure, and labour market transition. The model also considers the orientations and capacities of relevant actors, which shape policy change.

According to the OECD's institution-level approach, student engagement is an essential prerequisite for achieving high-quality teaching. The combination of these two models enables the interpretation of implementation processes at both macro and micro levels.

Higher education is confronted with new challenges, including digitalisation, climate change, COVID-19, and the Sustainable Development Goals. Labour market transformation and the growing influence of artificial intelligence further increase the need for institutional adaptation.

4.1.3. THE ECONOMIC AND SOCIAL DIMENSIONS OF HIGHER EDUCATION QUALITY (H4)

Competitiveness and the quality of higher education are closely interconnected. Higher education quality and national competitiveness exhibit a positive correlation, particularly in countries with high proportions of tertiary-educated populations. Both the Human Capital Index and the Human Development Index highlight the importance of education for economic development.

The international dimension of scientific performance is equally important. In the evaluation of publications, the SCImago Journal Rank classification plays a significant role and reinforces the importance of international research collaboration.

Higher education rankings, including THE, QS, and ARWU, have a substantial influence on institutional strategies; however, they also have methodological limitations. Criticisms of rankings include excessive simplification, distortive effects, and the concentration of resources. U-Multirank offers an alternative approach through its multidimensional evaluation framework.

Rankings influence student choices, government policies, and institutional strategies, while simultaneously carrying the risk of distorting institutional priorities. In the future, social engagement, sustainability, and student satisfaction are likely to receive increasing attention.

The internationalisation of higher education, growing mobility, and intensified global competition further enhance the importance of quality. Europe's competitiveness relative to the United States and China appears to be declining, both in terms of tertiary educational attainment and scientific performance.

4.1.4. INTERNATIONAL COOPERATION: EUROPEAN TRENDS AND CONTRADICTIONS (H2)

One characteristic of the internationalisation of higher education is the increasing prevalence of joint programmes, which create opportunities for integrating local content and fostering long-term economic and diplomatic relationships.

In principle, the ECTS system facilitates automatic credit recognition. In practice, however, implementation remains incomplete. According to the 2024 Bologna Process Implementation Report, full automatic recognition has been achieved in only 19 EHEA countries, while 13 countries have no such system at all. This situation hinders both mobility and international cooperation.

Mobility is also shaped by political and institutional factors. In 2023, Hungary was excluded from new Erasmus+ and Horizon Europe projects, while the United Kingdom's withdrawal from Erasmus+ narrowed opportunities for international collaboration.

Although the European Union seeks to strengthen the mutual recognition of qualifications, internationalisation also generates new quality assurance challenges, including the accreditation

of joint programmes, distance education, student evaluation, and the quality assurance of foreign campuses.

These developments are underpinned by the European Approach for Quality Assurance of Joint Programmes and reflect the growing importance of cross-border quality assurance.

The increasing number of agencies listed in EQAR and the expansion of the DEQAR database clearly demonstrate the growing prominence of quality assurance across Europe. Although quality assurance processes are based on ESG principles, they continue to allow room for national specificities.

Research suggests that quality assurance systems influence institutional structures, incentive mechanisms, and organisational cultures. Since industrial quality management models have only limited applicability within higher education, maximising student learning remains the central element of quality.

4.1.5. THE EUROPEAN SYSTEM OF QUALITY ASSURANCE IN HIGHER EDUCATION AND ITS INTERPRETATIVE FRAMEWORKS (H1–H3)

The quality assurance system in higher education can be interpreted at multiple levels, encompassing both external quality evaluation mechanisms (such as accreditation and evaluation procedures) and institution-level internal quality assurance systems. The ESG framework plays a decisive role in harmonising these processes, although its scope primarily extends to teaching activities and related processes. Nevertheless, as this dissertation argues, the ESG also has several important connections to research activities.

Within the ESG, research generally appears only indirectly: on the one hand, as part of the operational context of higher education institutions falling within the document's scope, and, on the other hand, through specific standards related to the relationship between teaching and research, academic staff competences, and institutional strategy.

It is therefore important to distinguish between research quality assurance and research assessment. While the former primarily focuses on process- and organisational-level compliance and enhancement, the latter generally relies on performance-based indicators, such as publication output, citation impact, and success in competitive grant schemes. At the same time, the relationship between these two areas has become increasingly close, particularly due to the influence of international rankings and excellence initiatives, which treat research performance as a defining dimension of overall institutional quality.

The most recent recommendation of the Council of the European Union further reinforces this direction by interpreting quality assurance as a foundation for trust and cooperation among higher education systems, while simultaneously emphasising the growing importance of institution-level approaches. According to the recommendation, responsibility for quality rests primarily with higher education institutions themselves, signalling the continued strengthening of institution-level quality assurance and strategic governance.

4.1.6. THE DYNAMIC CHARACTER OF HIGHER EDUCATION QUALITY: GLOBAL RANKINGS (H3–H4)

Global rankings indicate an indirect relationship between quality assurance and scientific outcomes. The most influential international rankings include:

- ARWU (Shanghai Ranking): primarily focused on scientific performance;
- Times Higher Education (THE): balancing research, teaching, and citation impact;
- QS: placing particular emphasis on reputation and internationalisation indicators;
- U.S. News: highlighting reputation, publication performance, and international collaboration.

These rankings exert a substantial influence on institutional strategies; however, they have also been criticised on methodological grounds, including concerns regarding data quality, representativeness, and the use of differing indicators.

According to the recommendations of the European University Association (EUA), rankings should be interpreted critically, through multidimensional approaches and with institutional strategy taking precedence over ranking positions.

The external effects of global rankings also extend to economic and social dimensions. A correlation can be observed between the quality of higher education and levels of economic development. More advanced economies tend to possess more developed higher education systems and quality assurance mechanisms.

According to human capital theory, investment in higher education enhances productivity and stimulates economic growth. OECD data further demonstrate that tertiary education is associated with more favourable employment prospects and higher earnings, although inequalities related to gender and social background continue to persist.

Rankings influence both sectoral policies and institutional strategies; however, they are not suitable instruments for comprehensively measuring university performance. In the post-pandemic period, increasing emphasis has been placed on universities' social engagement, inclusiveness, and resilience alongside ranking positions.

Overall, global rankings constitute important reference points. Nevertheless, their use is justified only when accompanied by critical interpretation and consideration of quality assurance processes and broader societal impacts.

4.1.7. THE DEVELOPMENT OF HIGHER EDUCATION SYSTEMS IN POST-SOCIALIST COUNTRIES, WITH PARTICULAR REFERENCE TO THE V4 COUNTRIES (H1–H4)

The higher education systems of post-socialist countries evolved on the basis of the Soviet model, characterised by the institutional separation of teaching and research. Scientific activity, particularly basic research, was conducted predominantly within academic research institutes, while universities were primarily responsible for professional training and played only a limited research role.

Universities provided education aligned with the needs of centrally planned economies under strong ideological control. Academies of sciences, by contrast, functioned as the principal centres of science policy and basic research, supported by substantial state funding. Although cooperation existed between the academic and university sectors, functional separation remained the dominant organisational principle.

While this model facilitated industrial and technological development, synergies between teaching and research remained limited, which later became one of the principal drivers of reform.

Following the political transition, post-socialist countries initiated comprehensive reforms aimed at modernising science and higher education. The primary objectives included convergence with Western European models, strengthening university autonomy, and introducing competitive research funding systems.

Independent research funding organisations were established in several countries, while universities assumed increasingly important research functions. The Baltic states implemented more radical integration by incorporating academic research institutes into universities, whereas reforms in Central Europe proceeded more gradually.

In Hungary, the competitive allocation of research funding and the establishment of accreditation systems supported institutional transformation. As a result of these reforms, universities expanded their research capacities and cooperation between academic institutes and universities intensified, although the extent of integration varied across countries.

From the 1990s onwards, post-socialist countries gradually moved towards the research university model. The Bologna Process, accession to the European Union, and participation in European research framework programmes accelerated structural reforms.

The strengthening of doctoral education, the introduction of international publication requirements, and incentives to improve performance in global rankings all reflected the adaptation of Western models. Universities also established innovation centres and technology parks, while university–industry collaboration intensified.

At the same time, historical legacies preserved a degree of duality between the academic and university sectors in several countries, resulting in divergent developmental trajectories.

4.1.8. SCIENTIFIC EXCELLENCE AND THE ROLE OF ERC GRANTS (H3)

European Research Council (ERC) grants constitute one of the most prominent indicators of scientific excellence. The ERC applies an exclusively excellence-based, bottom-up funding model and provides support tailored to different stages of researchers' careers.

ERC grants are not only indicators of individual achievement but also reflect the maturity and quality of the institutional ecosystem in which researchers operate. Successful applications require strong institutional support, adequate research infrastructure, mentoring opportunities, and international mobility.

Researcher mobility enhances publication performance and increases the number of international collaborations, while institutional capacity plays a decisive role in sustaining

excellence over time. Consequently, ERC grants represent a suitable instrument for the international comparison of scientific performance.

4.1.9. SCIENCE POLICY AND HIGHER EDUCATION POLICY IN THE V4 COUNTRIES (H2–H4)

The relationship between science policy and higher education policy has followed different developmental trajectories across the V4 countries. Following the political transition, the two policy domains evolved in parallel, although not always in a coordinated manner.

In Poland, integrated reforms strengthened the strategic role of universities. In the Czech Republic, coordination mechanisms gradually emerged to align science and higher education policies. Slovakia's system remained more fragmented, while Hungary has increasingly exhibited structural separation, particularly following the transformation of the national research network.

These divergent governance arrangements have shaped institutional capacities, research performance, and the ability of higher education systems to respond to international challenges.

4.1.10. SCIENTIFIC PERFORMANCE AND INTERNATIONAL RANKINGS IN THE V4 COUNTRIES (H3–H4)

The higher education systems of the V4 countries originated from broadly similar historical foundations but have achieved markedly different levels of international visibility.

In global university rankings, Czech and Polish institutions generally occupy more favourable positions, which can largely be explained by stronger research infrastructures and higher levels of research funding.

The distribution of ERC grants also reveals substantial differences among the V4 countries:

- Czech Republic – the strongest overall performance;
- Poland – steady and sustained growth;
- Hungary – a period of strong earlier results followed by decline;
- Slovakia – more limited institutional and research capacity.

The principal factors underlying these differences include research funding arrangements, the intensity of international collaboration, and institutional strategies.

Overall, despite their shared institutional heritage, post-socialist countries have developed along distinct trajectories. The reforms introduced after the political transition sought to strengthen the research role of universities and promote convergence with Western European models.

In the case of the V4 countries, the integration of science policy and higher education policy, institutional learning processes, and the development of research capacity emerge as crucial determinants of scientific excellence and international visibility. ERC grants and global university rankings effectively reflect both the differences within the region and the diversity of developmental pathways.

4.2. RESULTS OF THE EMPIRICAL ANALYSIS

4.2.1. RESULTS OF THE QUANTITATIVE DATA ANALYSIS (TESTING H3)

Research excellence is strongly influenced by the quality of institutional processes and quality assurance mechanisms. The close relationship with higher education quality is reflected in the fact that ERC successes occur more frequently in institutions that provide structured support for academic career development, seek to institutionalise international networks, and assign an important role to project management. Institutional quality assurance should therefore not be understood solely in terms of teaching quality; rather, it constitutes a more complex system encompassing organisational coordination functions that play a significant role in achieving high levels of scientific performance.

An examination of the temporal distribution of ERC grants awarded to Hungarian researchers reveals two major waves. The first was associated with the launch of the programme: between 2007 and 2011, Hungarian researchers secured a total of 27 grants. Within this period, 2010 was particularly successful, with nine grants awarded, while six grants were awarded in 2007. During these years, successes were concentrated primarily in the Starting and Advanced Grant schemes, with five Starting Grants and four Advanced Grants awarded in 2010.

The period between 2012 and 2015 was more moderate, with three to four successful applications annually. However, 2016 and 2017 once again proved to be strong years, with ten grants awarded in 2016 and six in 2017. During this phase, the proportion of Consolidator Grants increased substantially; in 2016, the distribution consisted of four Starting Grants, four Consolidator Grants, and two Advanced Grants.

From 2018 onwards, a more fragmented pattern emerged. Synergy Grants appeared only once, in 2018, while Proof of Concept grants were awarded in 2019 (three grants) and again in 2023 (one grant), which may be explained by the growing emphasis on the exploitation and validation of research results. The year 2020 represented a pandemic-related low point, with only a single successful application. Between 2021 and 2023, a degree of stabilisation became evident, with four to five grants awarded annually, while 2024 again recorded only one successful application.

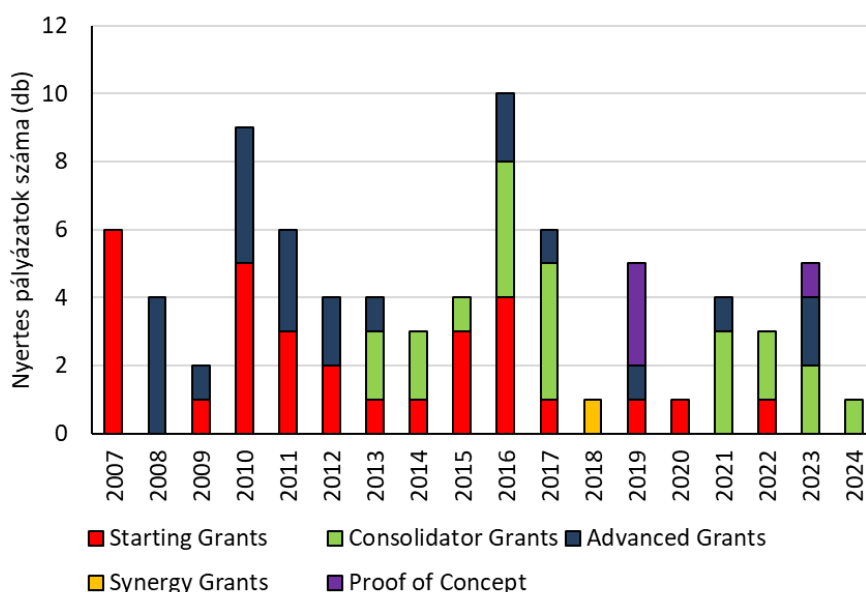


Figure 1. Temporal distribution of Hungarian ERC grants by funding scheme between 2007 and 2024

Source: Lakatos et al. (2025a), p. 10

HUN-REN hosted the largest number of Consolidator and Advanced Grant projects, including fifteen of the twenty-two Advanced Grants, suggesting that the network is particularly well positioned to accommodate mature and large-scale research agendas. Eötvös Loránd University (ELTE) and Central European University (CEU) appear to be stronger in the Starting and Consolidator categories, reflecting their capacity to support early-career development and research consolidation. Budapest University of Technology and Economics (BME) and the University of Szeged (SZTE) exhibit more balanced profiles and are also represented in the Proof of Concept scheme, indicating stronger engagement with the application and innovation dimensions of research.

The host institution landscape therefore reveals a central HUN-REN core surrounded by several university poles with distinct profiles. Alongside the concentration of Advanced Grants within large research networks, vibrant early-career development is evident at ELTE and, historically and regionally, around CEU, while BME and SZTE demonstrate stronger orientations towards the practical application of research outcomes.

ERC principal investigators are generally expected to remain at their host institutions during the first five years of their projects. Consequently, affiliations observed one to three years after the award often reflect secondary or parallel appointments, whereas periods of six to ten years or more indicate more enduring post-ERC institutional anchoring or deliberate institutional mobility.

The system appears to function in a cyclical manner: domestic retention and targeted international linkages reinforce one another and may contribute to subsequent ERC successes. The data reveal complementary career strategies. On the one hand, some successful applicants display relatively short institutional histories, integrating rapidly into a domestic institution and preparing their ERC applications there. On the other hand, researchers with longer institutional trajectories either build their careers entirely within the same Hungarian institution or return after substantial international experience and subsequently deepen their institutional engagement.

The central role of HUN-REN, together with its strong connections to ELTE, BME, and SZTE, suggests that supporting consortium-based and permeable career pathways within the domestic ecosystem is of critical importance for ERC success.

An examination of Polish ERC successes reveals that the years following 2020 were the most successful. In particular, 2021 stands out, with a total of sixteen grants awarded. Although a declining trend can be observed thereafter, even the five grants awarded in 2024 exceed the annual figures recorded during the 2007–2019 period, with the exception of 2015.

The distribution by grant type indicates that Starting Grants accounted for the largest share of successes in most years, followed by Consolidator Grants and Advanced Grants.

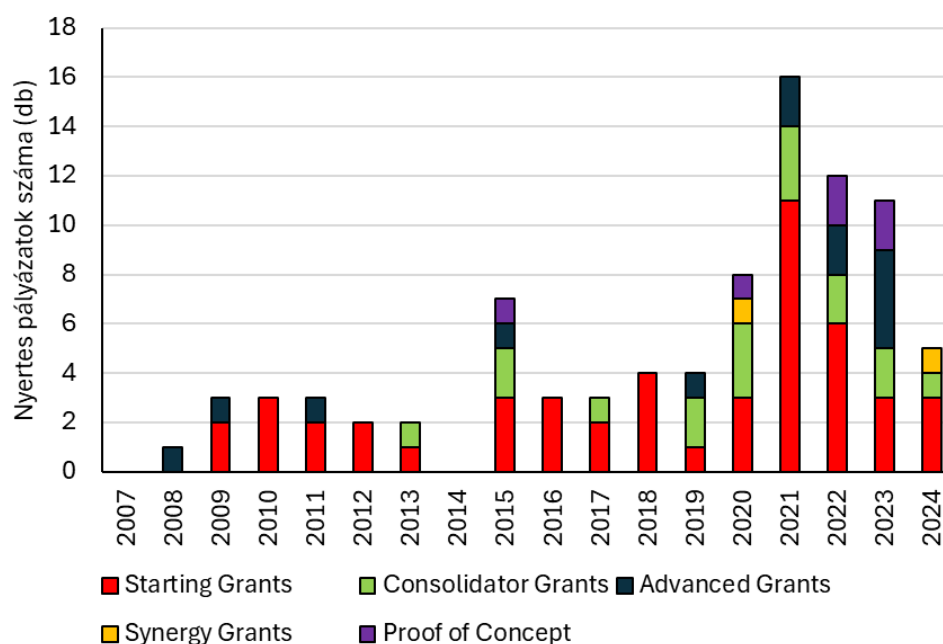


Figure 2. Temporal Distribution of Polish ERC Grants by Funding Scheme Between 2007 and 2024

Source: Author's own compilation based on ERC data

The University of Warsaw secured the largest number of ERC grants, with thirty-three successful applications, accounting for 38% of all grants awarded between 2007 and 2024. The Polish Academy of Sciences ranked second, with twenty grants representing 23% of the total, followed by Jagiellonian University with eleven grants, corresponding to 13%.

Among Polish ERC successes, Starting Grants constituted the largest category, accounting for 56% of all awards (forty-nine grants). Consolidator Grants represented the second largest group, while Advanced Grants also occupied a substantial share of the portfolio. This distribution suggests that the Polish research ecosystem has been particularly effective in supporting early-career researchers while simultaneously maintaining the capacity to consolidate and sustain scientific excellence.

Compared to the Hungarian pattern, the Polish case appears to be characterised by a stronger concentration of ERC success within universities. Whereas Hungary exhibits a more pronounced dual structure involving both universities and the HUN-REN research network, Poland's leading universities occupy a more dominant position within the national excellence landscape.

These findings indicate that ERC success cannot be explained solely by individual scientific excellence. Institutional environments, organisational support mechanisms, and the broader structure of national research systems also play a decisive role in shaping researchers' competitiveness.

The empirical findings therefore support the hypothesis that organisational quality assurance mechanisms and institutional capacities contribute indirectly to scientific performance. Internal support structures, mentoring systems, opportunities for international networking, and effective

project management emerge as important enabling conditions for the achievement of scientific excellence.

Overall, the quantitative analysis demonstrates that the pathways leading to ERC success are embedded within institutional ecosystems. Scientific excellence should thus be interpreted not merely as the outcome of individual talent but also as the product of organisational arrangements capable of identifying, supporting, and retaining high-performing researchers.

4.2.2. COMPARATIVE ANALYSIS OF EÖTVÖS LORÁND UNIVERSITY AND THE UNIVERSITY OF WARSAW (TESTING H2 AND H3)

The comparative analysis of Eötvös Loránd University (ELTE) and the University of Warsaw aimed to explore the relationships among institutional quality assurance systems, organisational functioning, and scientific performance. The two institutions were selected because they occupy prominent positions within their respective national higher education systems and demonstrate strong international visibility.

Both universities operate comprehensive internal quality assurance systems aligned with the ESG framework. At the same time, differences can be observed in the institutional embedding of quality assurance processes, governance arrangements, and the strategic management of scientific performance.

ELTE's quality assurance system is characterised by a strong emphasis on formal procedures and institutional regulation. The university has established a complex framework of committees, evaluation mechanisms, and reporting structures intended to support continuous monitoring and institutional accountability. Quality assurance processes are integrated into organisational decision-making and strategic planning, although the degree of coordination across organisational units varies.

The University of Warsaw similarly operates a mature quality assurance system; however, greater emphasis appears to be placed on strategic integration and the alignment of institutional objectives with international competitiveness. Quality assurance activities are closely linked to internationalisation efforts, research support mechanisms, and initiatives aimed at improving scientific visibility.

Both institutions demonstrate that effective quality assurance extends beyond compliance functions. Internal quality systems can also serve developmental purposes by facilitating organisational learning, encouraging innovation, and strengthening institutional capacities.

The comparative analysis further suggests that scientific performance is influenced not only by the existence of quality assurance mechanisms but also by the manner in which these mechanisms are embedded within institutional culture and governance structures. Institutions that are able to connect quality assurance processes with strategic objectives appear better positioned to enhance their international visibility and scientific competitiveness.

International rankings provide additional insight into institutional performance. Although both universities occupy leading positions nationally, differences remain in their levels of international recognition, publication performance, and research funding profiles. These differences reflect broader characteristics of the national higher education and research environments in which they operate.

The findings indicate that the contribution of quality assurance to scientific excellence is indirect and mediated through organisational processes. Strategic leadership, supportive institutional cultures, effective coordination mechanisms, and investments in research capacity all emerge as important factors linking quality assurance and scientific outcomes.

Overall, the comparison of ELTE and the University of Warsaw supports the view that institution-level quality assurance systems can contribute to scientific excellence when they function not merely as instruments of accountability but as integrated components of organisational development and strategic management.

ELTE currently comprises eight faculties: the Faculty of Science, the Faculty of Informatics, the Faculty of Law, the Faculty of Humanities, the Faculty of Social Sciences, the Faculty of Education and Psychology, the Faculty of Primary and Pre-School Education, and the Bárczi Gusztáv Faculty of Special Needs Education. The university enrolls nearly 40,000 students, of whom approximately 7–10% are international students. It employs more than 3,000 staff members, including around 1,700 academic staff. This figure is less than half of the corresponding number at the University of Warsaw.

ELTE operates primarily through state budget funding, which is allocated to education, culture, and the maintenance of infrastructure. The university also generates revenue from tuition fees paid in self-financed programmes, European Union grants, and collaborations with industry. In terms of student funding, both state-funded and fee-paying programmes are available, while international students are attracted through a range of scholarship schemes.

Participation in ERC grant schemes constitutes a key component in comparing quality and excellence. Accordingly, this study examined the extent of participation in ERC programmes and the number of grants awarded in the two countries and, more specifically, at the two universities under investigation. In the qualitative component of the research, particular attention is devoted to identifying the factors that may have contributed to the successful acquisition of ERC grants. The nature and characteristics of ERC funding schemes are discussed in greater detail in the subsequent section.

4.2.3. THE CONTRIBUTION OF QUALITY ASSURANCE SYSTEMS AND MECHANISMS TO THE PROMOTION OF SCIENTIFIC EXCELLENCE (TESTING H2)

The accreditation report of Eötvös Loránd University provides a comprehensive overview of the institution's operation, its quality enhancement processes, and its efforts to align its practices with international standards. The report highlights the strengths of ELTE's quality assurance system while also identifying areas requiring further development.

Among the strengths identified, the report emphasises the existence of a formally regulated quality assurance system encompassing both teaching and research activities. Research management is closely linked to the university's strategic objectives, thereby supporting the planned development of scientific performance. Supportive infrastructure and background processes also facilitate the uninterrupted conduct of academic work, providing a stable environment for both teaching and research.

At the same time, the report points to several shortcomings. Although the central quality assurance system is formally adequate, quality assurance practices at faculty level and lower

organisational levels are neither uniform nor consistently implemented. As a consequence, the effective operation of the PDCA (Plan–Do–Check–Act) cycle is weakened.

The coordination of quality assurance activities is carried out by the Quality Assurance Office, while the Quality Enhancement Committee operates under the leadership of the Vice-Rector for Education.

With regard to the University of Warsaw, an important role is played by the University's Educational Quality Office. The primary objective of the office is to establish and fully implement a comprehensive and effective quality assurance system. The system operates at several levels and includes the university-level educational quality assurance team, faculty-level quality assurance groups, quality assurance groups within other organisational units of the university, and a dedicated quality evaluation unit.

The University's quality assurance system respects the autonomy and specific characteristics of individual organisational units. It is based on the conviction that high quality is fostered through self-evaluation, dialogue, cooperation, support, and the dissemination of best and most effective practices. The quality evaluation unit regularly reviews the educational conditions of the university and formulates recommendations aimed at improving teaching quality.

A formally regulated quality assurance system operates at the University of Warsaw through a rector's decree. Institutional coordination is provided by the University Education Council, which defines strategic directions and formulates recommendations regarding the organisation of educational processes.

The principal criticism raised in the report of the Polish Accreditation Committee (PKA) concerns the fact that the same actors are responsible both for programme design and for internal quality evaluation. In other words, executive and supervisory functions are not separated, which may negatively affect objectivity and the credibility of evaluations.

Based on the presentation of the quality assurance systems at ELTE and the University of Warsaw, it can be concluded that both higher education institutions face the same major challenge: their systems do not display uniform levels of maturity and effectiveness. Significant differences can be identified among organisational units, faculties, and research groups. Quality assurance instruments are applied differently, strategic objectives are managed in different ways, and feedback mechanisms also operate with varying degrees of effectiveness. At the same time, existing processes are capable of supporting talent development through feedback systems, albeit with differing levels of efficiency and with the dominance of certain disciplinary areas.

An examination of the internal documentation and accreditation reports of both ELTE and the University of Warsaw suggests that the appropriate implementation of internal quality assurance processes, the systematic collection and integration of feedback, and the effective operation of the PDCA cycle contribute to the academic advancement of early-career researchers and to the further development of institutional mechanisms for research assessment. These findings support the hypothesis that quality assurance systems promote scientific excellence not directly, but through organisational learning processes, developmental feedback loops, and institutional mechanisms that strengthen researchers' career trajectories and research performance.

5. RESEARCH LIMITATIONS AND DIRECTIONS FOR FURTHER DEVELOPMENT

Several methodological and data-related limitations should be taken into account when interpreting the findings of this research.

The quantitative analysis is based primarily on international databases, particularly Scopus and the ERC database, as well as ranking indicators. Although these provide comparable and widely used indicators, they are only able to capture the complex nature of scientific performance to a limited extent. The operationalisation of the relationships among quality, visibility, and excellence necessarily relies on these indicators, which constrains the comprehensive exploration of the mechanisms underlying institutional functioning and scientific performance.

The qualitative research was not conducted as a case study but rather as a comparative institutional analysis based on the examination of a limited number of institutions, namely the leading universities of Hungary and Poland. Consequently, the findings cannot be generalised to the entire higher education sector, nor to other national contexts without caution. The institutional characteristics and developmental trajectories identified in this dissertation should therefore be interpreted within the specific context of the institutions under investigation.

Furthermore, the dissertation primarily focuses on the relationships among institutional quality assurance, scientific visibility, and excellence. Although the analysis seeks to capture the complexity of these interconnections, the broader social, political, and cultural dimensions of higher education receive less attention. Future research may therefore benefit from incorporating additional perspectives and explanatory variables.

Future studies could extend the comparative framework to include additional countries and institutions, thereby facilitating a more nuanced understanding of how different governance arrangements and institutional contexts shape the relationship between quality assurance and scientific performance. The inclusion of further qualitative methods, such as interviews and surveys involving institutional actors, could also contribute to a deeper understanding of the organisational mechanisms underlying quality assurance processes.

Despite these limitations, the applied methodological approach provides an appropriate basis for examining the relationships among quality, visibility, and excellence in higher education and offers valuable insights into the functioning of higher education systems in the Visegrád countries.

6. NEW SCIENTIFIC FINDINGS AND THESES

The research aimed to empirically examine the relationships among higher education quality, visibility, and excellence, with particular reference to the Visegrád countries, especially Hungary and Poland. By combining multiple methods, including a systematic literature review, quantitative data analysis, and qualitative comparative institutional analysis, the dissertation investigated the relationships among quality assurance systems, scientific performance, and institutional functioning.

Based on the examination of Hypothesis H1, it can be concluded that the quality of higher education is structurally heterogeneous and cannot be described through a single, universal interpretation of quality. The empirical findings indicate that institutions define their quality

objectives in different ways, and these differences are closely related to institutional strategy, organisational functioning, and the manner in which institutions respond to external expectations. Quality assurance systems contribute effectively to institutional functioning when they operate not merely as formal compliance instruments but support the achievement of strategic objectives through their integration into organisational processes. These findings support the hypothesis concerning the heterogeneity of quality.

Based on the examination of Hypothesis H2, it can be concluded that quality assurance systems contribute to scientific excellence primarily through indirect organisational mechanisms. The comparative analysis demonstrated that the systematic collection and integration of feedback, the operation of the PDCA cycle, and the developmental application of internal quality assurance processes support researchers' academic advancement and the development of institutional mechanisms for research assessment. At the same time, the effectiveness of these mechanisms depends substantially on the extent to which they are embedded within institutional culture and everyday organisational practice. These findings support the hypothesis that quality assurance contributes to scientific excellence through organisational learning and developmental processes rather than through direct effects.

Based on the examination of Hypothesis H3, the results indicate that scientific excellence is strongly embedded within institutional contexts. The analysis of ERC grant recipients revealed that research performance is influenced not only by individual excellence but also by institutional support systems, international networks, and organisational capacities. The identified Hungarian and Polish patterns suggest that institutional environments capable of supporting different stages of academic careers and balancing international mobility with institutional retention create more favourable conditions for achieving scientific excellence. These findings confirm the hypothesis concerning the relationship between institutional mechanisms and scientific performance.

Finally, the examination of Hypothesis H4 demonstrated that higher education quality cannot be interpreted exclusively through educational or research dimensions. Quality, visibility, and excellence constitute a multidimensional and interrelated system shaped simultaneously by economic, social, organisational, and policy factors. The findings indicate that higher education institutions perform multiple functions extending beyond teaching and research, and that their contribution to competitiveness, social mobility, and regional development forms an integral part of quality itself. These results support the hypothesis concerning the intersectoral nature of higher education quality.

Overall, the dissertation demonstrates that the relationships among quality, visibility, and excellence are complex and multidimensional. Higher education quality cannot be interpreted as a static characteristic; rather, it emerges through the interactions among organisational processes, scientific performance, institutional strategies, and broader societal expectations. The findings therefore contribute to a more nuanced understanding of the functioning and international competitiveness of higher education systems in the Visegrád countries.

7. RESEARCH AND PUBLIC POLICY RECOMMENDATIONS

Based on the findings of the research, several conclusions can be drawn that are relevant both to the functioning of higher education institutions and to the development of policy frameworks. The analysis demonstrates that the relationship among quality, visibility, and excellence cannot be interpreted in a linear manner, and that the interconnections among these dimensions can

only be understood by considering both institutional functioning and the broader ecosystem in which institutions operate.

At the institutional level, it can be concluded that quality assurance systems exert a meaningful impact only when they function not merely as formal compliance instruments but support the achievement of institutional strategic objectives through their integration into organisational processes. According to the findings of this research, the relationship between quality assurance and scientific performance operates indirectly, primarily through organisational functioning, career pathway mechanisms, and internal coordination processes.

Consequently, higher education institutions should seek to strengthen the developmental dimension of quality assurance systems. Particular emphasis should be placed on the systematic collection and utilisation of feedback, the effective operation of the PDCA cycle, and the creation of organisational environments that promote institutional learning and continuous improvement.

The findings also suggest that talent management and researcher support mechanisms require strategic attention. Institutions should establish transparent and predictable academic career pathways, mentoring systems, and support structures that facilitate participation in international research networks and competitive funding schemes. Strengthening these mechanisms may contribute to improving scientific visibility and excellence.

From a public policy perspective, the results indicate that higher education policies should avoid relying exclusively on ranking positions and quantitative performance indicators. Instead, greater attention should be devoted to the institutional conditions underlying scientific performance, including organisational capacities, quality assurance arrangements, and the sustainability of talent development processes.

The comparative findings further suggest that policy instruments supporting excellence should be designed with sensitivity to national and institutional contexts. Although international models and good practices provide valuable reference points, their successful implementation requires adaptation to local conditions and existing organisational cultures.

The differences identified between the Hungarian and Polish patterns indicate that the role of national excellence and talent development programmes constitutes an important direction for future policy development. In particular, exploring mechanisms similar to the Hungarian National Excellence Programme (NKKP) within the Polish context may contribute to a deeper understanding of how research capacities are accumulated and retained at the institutional level through specific policy instruments. Such analyses may further clarify how these mechanisms relate to the interconnections among quality, visibility, and excellence.

Overall, the findings suggest that improving higher education performance requires a comprehensive approach. The effective functioning of quality assurance systems, support for scientific excellence, institutional capacity-building, and coherent policy frameworks should be treated as mutually reinforcing elements rather than as isolated objectives.

8. SUMMARY

The dissertation examines the quality of higher education in relation to visibility and excellence in the context of the Visegrád countries, with particular emphasis on Hungary and Poland. The

study is based on the premise that the quality of higher education cannot be interpreted in isolation but must be understood in relation to the international visibility of scientific performance and the various indicators of excellence. The dissertation builds on the interrelation of three core concepts (quality, visibility and excellence) whose relationship is not linear but multidimensional and mutually reinforcing.

The main objective of the research is to explore how quality assurance systems contribute to the scientific performance of higher education institutions and to identify the institutional and policy factors shaping the relationship between quality, visibility and excellence. The analysis focuses on the heterogeneity of quality, the increasing importance of institutional-level quality assurance, the relationship between quality assurance and scientific output, and the intersectoral nature of higher education.

Methodologically, the dissertation combines multiple approaches. The theoretical framework is based on a systematic literature review covering the evolution of higher education, the impacts of the Bologna Process, and the European quality assurance framework. The analysis also addresses the economic and social dimensions of higher education, the role of global rankings, and the divergent development paths of post-socialist countries. The empirical research consists of both quantitative and qualitative components: the quantitative analysis is based on ERC grant data, while the qualitative comparative analysis focuses on institutional functioning, with particular reference to Eötvös Loránd University and the University of Warsaw.

The results indicate that the quality of higher education in the Visegrád countries is structurally heterogeneous, and therefore uniform policy approaches are not capable of effectively supporting institutional quality objectives. Institutions that align their internal quality assurance systems with their organizational strategies tend to demonstrate stronger scientific and international performance. The relationship between quality assurance and scientific output is not direct; rather, it operates through institutional mechanisms and academic career pathways, suggesting that the impact of quality assurance is primarily indirect.

The quantitative findings highlight that scientific excellence (particularly ERC success) is embedded in complex institutional ecosystems. Researcher mobility, international collaboration, and institutional capacities all play a decisive role. The comparison between Hungary and Poland reveals significant differences: while Poland demonstrates a more concentrated and institutionally embedded model with stronger retention capacity, Hungary exhibits a more fragmented and distributed pattern of excellence. In the Polish case, international mobility and “brain gain” are particularly prominent prior to the grant, followed by strong institutional retention.

The qualitative analysis confirms that the effectiveness of quality assurance systems depends heavily on the institutional context and the extent to which these systems are integrated into organizational processes. Higher education institutions cannot be understood in isolation but must be analysed within a broader research and innovation ecosystem, including the roles of primary and secondary education, the labour market, and the research sector.

The conclusions underline that the relationship between quality, visibility and excellence is complex and multidimensional, and can only be interpreted through an integrated approach. The effectiveness of quality assurance systems depends not only on their formal operation but also on their ability to support institutional strategies and scientific performance.

The dissertation proposes the strengthening of differentiated, institution-specific policy approaches, the strategic support of academic career pathways, and the development of international collaboration and mobility channels. It also emphasizes the importance of strengthening excellence and talent development programmes, as well as fostering stronger linkages between institutional and research systems. These measures may contribute to enhancing the international competitiveness and long-term sustainability of higher education systems.

9. SELECTED PUBLICATIONS RELATED TO THE DISSERTATION TOPIC

LAKATOS, P. L. (2021): Helsinkitől – Bolognán át – Rómáig: Felsőoktatási harmonizációs törekvések és reformfolyamatok Európában. *Európai Tükör: A Nemzeti Közzolgálati Egyetem Tudományos Folyóirata*, 24 (2). pp. 91-99. ISSN 1416-6151 (nyomtatott); 2560-287X (elektronikus) DOI: <https://doi.org/10.32559/et.2021.2.5>

LAKATOS, P. L., MAKÓ, Cs. (2021): A felsőoktatás minőségének néhány gazdasági vetülete. *Competitio*, 20 (1-2), 1-17. p. DOI: <https://doi.org/10.21845/comp/2021/1-2/2>

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