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Innovation strategies, teacher development and internationalization: Key factors to organizational performance of HEIS

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Abstract

The objective of this study is to evaluate the impact of innovation strategies, teacher development, and internationalization initiatives on the organizational performance of Higher Education Institutions (HEIs). Considering globalization and the evolving challenges and requirements of contemporary society, HEIs must explore new quality assurance tools to enhance their competitiveness and ensure their survival. Methodologically, a survey was conducted among members of Portuguese HEIs. To analyze the relationships between the identified variables, multiple linear regression analysis was employed. The findings reveal that specific Total Quality Management (TQM) variables, particularly those related to teacher involvement, empowerment, and training, have a notable influence on the organizational performance of HEIs. Moreover, it is important to emphasize that innovation and internationalization strategies exhibit a significant correlation with organizational performance outcomes. This research is essential for deepening the understanding of HEIs, given their critical role in national development and their contributions to knowledge generation and societal advancement. As these institutions navigate increasingly competitive environments, identifying key drivers of organizational performance is of paramount importance.

Keywords: Higher Education institutions, Innovation, Internationalization, Organizational performance, Teacher training.

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1. Introduction

Education and science play a critical role in shaping the economy and society. Their advancement within a country directly affects the quality of life of its citizens, the nation's overall progress, and its position on the global stage. Around the world, science and skilled professionals are widely acknowledged as essential drivers for achieving the internationalization objectives of businesses and the education system. This underscores the need for a more competitive, dynamic, and efficient education system, which is vital for sustainable growth. Within this framework, higher education emerges as a pivotal factor in cultivating human capital and promoting innovation, serving as a cornerstone for the success and long-term sustainability of economic development [1]. Today, higher education institutions (HEIs) encounter a variety of challenges, such as rapid technological advancements in education, internationalization, competitive strategies, and persistent issues related to cost management and funding [2, 3]. By implementing effective quality measures, HEIs can improve their processes and services [4] reinforcing their crucial role in driving economic growth and societal development through the creation, promotion, and dissemination of new ideas and knowledge. HEIs currently face a constantly evolving global environment, characterized by increasing academic competition, the advancement of educational technologies, and the demand for greater social and economic relevance. In this context, innovation and internationalization emerge as two essential strategic pillars for the strengthening and sustainability of HEIs.

Innovation in HEIs is critical for adapting to an ever-changing landscape characterized by technological advancements, the growing demand for interdisciplinary skills, and the need for a more inclusive and accessible education system [5]. Internationalization, on the other hand, is regarded as a strategy to enhance the global visibility of institutions and provide students and faculty with international experiences and collaborations that enrich the teaching and learning process [6]. These practices are closely interconnected, as innovation—whether pedagogical, technological, or organizational—can serve as a significant lever for the internationalization process. Similarly, internationalization provides a platform for the dissemination of innovative practices, fostering academic development and the establishment of global partnerships. Innovation, understood as the implementation of ideas, processes, and technologies that drive change and improvement, and internationalization, which involves expanding academic boundaries through international collaboration, are now essential components of HEI strategies to competitively position themselves in the global landscape [7-9].

However, the processes of innovation and internationalization also present challenges. Managing international partnerships requires adaptations in curricula, academic policies, and governance models. Moreover, innovation in higher education involves not only adopting new technologies but also fostering cultural and structural changes within the institutions themselves, which can be a complex and long-term process [10].

2. Theoretical framework

2.1. Total Quality Management (TQM)

TQM is a comprehensive management philosophy that integrates all aspects of an organization, engaging stakeholders at every level to emphasize continuous improvement in organizational performance and customer satisfaction. Research on TQM's impact on achieving competitive advantage consistently shows that its adoption enhances organizational performance and fosters greater competitiveness [11-14].

The adoption of TQM principles in HEIs has recently gained traction, as these institutions are increasingly recognized as profit-oriented organizations [13, 15, 16]. In this context, differentiation from other HEIs is essential, which explains the rising implementation of TQM practices [17].

Investing in education is vital for promoting economic growth and societal development. As a foundational pillar of society, education intersects with its political, economic, scientific, and cultural dimensions, fostering critical thinking and serving as a measure of societal progress. Given this interplay, the quality of education delivered by HEIs is acknowledged as a critical aspect of their management [18, 19]. Quality not only shapes customer satisfaction but also determines the institution's reputation and competitiveness in the market. From an internal perspective, striving for the highest quality standards places teacher training processes among the key factors for fostering educational success, which is ultimately reflected in the improvement of student learning outcomes [20, 21].

Investing in continuous teacher training, both in schools and universities, plays a crucial role in fostering the ongoing acquisition of knowledge and skills that initial training alone cannot fully address. This is particularly important in an era of growing globalization, where education faces significant uncertainties and demands a readiness to adapt to change. In this context, Nóvoa [22] emphasizes continuous teacher training as a crucial element of professional development, particularly when it is tailored to the specific contexts of each school and aligned with the legitimate personal aspirations of individual teachers [23]. The author further underscores the value of teamwork, the collective practice of the teaching profession, and the importance of school education projects in fostering a cohesive and effective educational environment [20, 22].

Regardless of the initiative, format, or conditions under which continuous training takes place, its true value lies in achieving its core objectives, particularly the promotion of teachers' professional development. However, despite its acknowledged importance, continuous teacher training in Portugal is often carried out without the educational system offering optimal conditions for its effective implementation by the responsible entities. Moreover, it frequently fails to address the actual concerns and challenges faced by schools, universities, and their educators Silva et al. [23]. Nóvoa [22] argues that continuous teacher training must increasingly be developed within the profession itself, placing teachers at the heart of educational priorities. Beyond the essential goal of improving teaching quality, such training should serve as a pathway to personal fulfilment, elevate professional status, and empower teachers to engage in the conscious and active practice of citizenship [24].

Numerous authors emphasize the importance of continuous teacher training that is centered on or tailored to the specific realities of each educational institution. Such an approach can play a pivotal role in fostering teachers' professional development and, as a result, enhancing student learning outcomes [20]. The concept of school-centered teacher training emerged in the 1990s [25], encompassing all training initiatives aligned with a school's training policy and tailored to its unique needs. When training becomes school-centered in focus or location, it marks a paradigm shift. This approach allows educational agents within the school to define training strategies based on their specific realities, breaking away from centrally imposed strategies [26, 27].

School-centered training establishes a continuous learning process within its context, encouraging reflective and formative practices that enable teachers to critically analyze and question their methods. This approach empowers educators, transforming them from passive recipients of knowledge into proactive contributors who generate new insights through their contextual experiences. Ten Dam and Blom [28] consider school-centered training to be one of the most impactful and notable advancements in the modern history of teacher training.

Recent research highlights the importance of teacher training and organizational strategies in enhancing the performance of HEIs. A study carried out by Garavan et al. [28] revealed a positive relationship between teacher training and organizational performance, with this relationship strengthening over time and being moderated by country-specific factors like performance orientation and labor costs.

2.2. Innovation Strategies

The higher education sector has been under increasing pressure due to a rapidly changing environment, characterized by rapid technological advancements and growing demand [29], requiring a strategic response [30]. Innovation is essential for leveraging existing business opportunities as well as those that may arise in the future. In the face of constant changes in markets, technologies, and trends, innovation strategies are universally acknowledged as critical for sustaining a competitive edge. Obendhain and Johnson [31] highlight the pivotal role of HEIs in driving innovation by developing new products and services. Consequently, organizations are increasingly prioritizing innovation as a fundamental driver of success and a cornerstone of competitive advantage.

Innovation is widely recognized as a strategic driver for seizing new opportunities [32, 33]. As a result, it has garnered significant attention from researchers aiming to identify the key factors that stimulate and support innovation Becheikh et al. [34]. Dannels [34] emphasized that innovation transforms organizational competencies into new products and processes, thereby providing a competitive advantage. Both product and process innovations strengthen an organization's capacity to adapt to environmental changes and are typically found in environments that encourage problem-solving and creativity [35].

Innovation in HEIs is deeply connected to the use of new digital technologies, the creation of new pedagogical models, and the adaptation of academic practices to meet societal and labor market demands. In recent years, particularly with the impact of the COVID-19 pandemic, there has been an acceleration in the adoption of digital technologies and a rethinking of the educational model. Hybrid and online teaching, for example, have emerged as viable and efficient alternatives to ensure the continuity of teaching and learning. This shift extends beyond the pandemic period, establishing itself as a new reality from that point onward. According to Rauhvargers, et al. [36], innovation in higher education manifests in various ways, such as the digitalization of teaching, the use of data to enhance the student experience, and the creation of personalized learning environments. Educational technology, including online learning platforms and artificial intelligence, has transformed how students interact with academic content, enabling a more flexible and student-centered education. Moreover, innovation is also evident in the organizational models of HEIs, such as the creation of innovation labs, startup incubators, and technology parks, which foster the integration of teaching, research, and entrepreneurship. These academic innovation centers facilitate the transfer of knowledge to society and the market, driving the development of new solutions to global challenges such as health, education, and sustainability.

Recent research highlights the evolving role of HEIs in fostering innovation and economic development. HEIs are increasingly engaging in co-creation and collaboration with external stakeholders, particularly industry and community partners [37]. This shift has led to a greater focus on knowledge transfer, entrepreneurship education, and the "third mission" of universities [37]. Local governments play a crucial role in facilitating partnerships between HEIs and other entities to drive innovation in the local economy. Several studies emphasize the importance of understanding the purpose, context, and stakeholders involved in educational innovations to maximize their impact on academic communities and regional development [33, 37, 38].

2.3. Internationalization Strategies

Another important aspect is the internationalization of HEIs, a process that involves integrating the institution and its key stakeholders, such as students, faculty, and staff, into the rapidly changing, globalized world. The internationalization of HEIs refers to the process of integrating a global dimension into the university's academic and research activities. This encompasses the mobility of international students and faculty, international research collaboration, offering joint degree programs, and expanding global academic networks. Internationalization has proven to be a key strategy for ensuring access to academic resources, international funding, and global visibility, while also providing students with a broader and more diverse education. This process helps shape dynamic citizens capable of working in diverse cultural and international environments [39]. Internationalization strategies have arisen from the increasing need to support the evolution of global labor markets and, consequently, to foster international learning.

In this perspective, internationalization has become a crucial aspect of higher education sustainability and development, as HEIs are increasingly adopting internationalization strategies to enhance their competitiveness and sustainability in a

globalized environment. These strategies encompass various dimensions, including student recruitment, faculty development, research collaboration, and program offerings [40]. Key facilitators of internationalization include international partnerships, funding, government policies, technology, and cultural factors [40]. According to Günther and Meissner [42], partnerships between universities, research centers, and companies can lead to new funding opportunities, the development of new technologies, and advancements in knowledge. Also, as noted by Hénard and Mitterer [43], internationalization should not be limited to student exchanges but must also focus on adapting curricula and methodologies to a global context and establishing international collaboration networks. Thus, international strategic partnerships have also become an important channel for development in HEIs, enabling access to international funding, joint research programs, and new teaching methodologies. These partnerships provide institutions with a competitive advantage and equip them with more resources and knowledge to tackle global challenges [41].

However, the COVID-19 pandemic ushered in a paradigm shift, accelerating the adoption of digital solutions and creating a new era of virtual internationalization. This movement has paved the way for more flexible and accessible models of internationalization, enabling universities to expand their global influence in unprecedented, rapid, and cost-effective ways. In an increasingly digital world, the integration of artificial intelligence, big data, and online teaching platforms provides fertile ground for the growth of innovative and internationalized education programs [42]. International collaboration in high-impact areas such as health, climate change, and artificial intelligence has enabled universities to become centers of global innovation and sustainable solutions. Therefore, internationalization is not merely an academic growth strategy but also a strategy for economic development and social impact [43].

Considering the theoretical framework presented, the conceptual model and research hypotheses are shown in Figure 1.

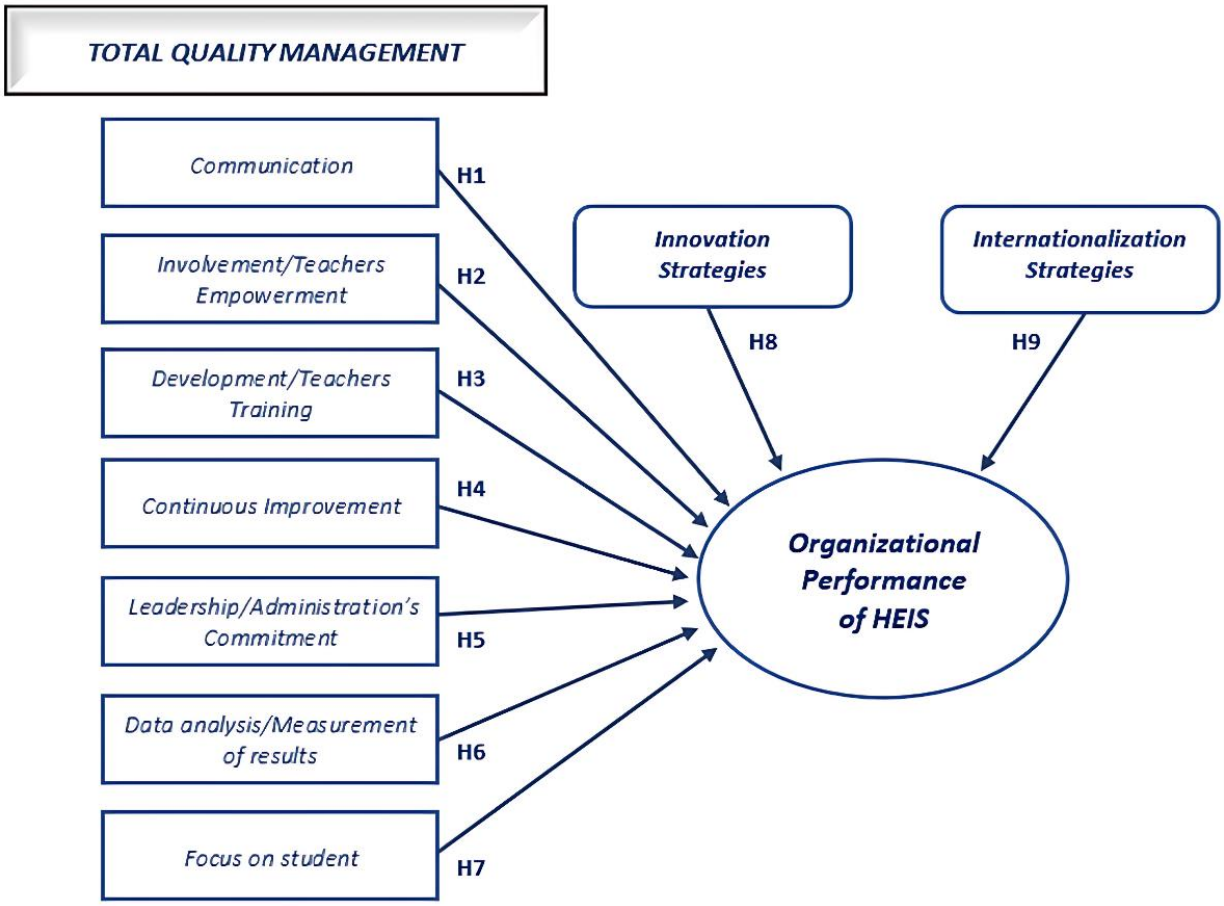

Figure 1. Conceptual Model and Research Hypotheses.

3. Empirical Research

3.1. Data Collection and Sample Characterization

For the present investigation, data were collected through a survey consisting of closed-ended questions, employing a five-point Likert scale to assess respondents' perceptions of the specified dimensions. The survey was distributed via email to higher education faculty members from both public and private universities and polytechnic institutes, who also hold additional institutional roles (Appendix). A total of 316 valid questionnaires were returned.

Table 1 provides the sociobiographical characterization of the respondents.

Table 1.
Sociobiographical characterization.

Gender	Number	%
Male	146	46%
Female	170	54%
Age		
< 30 years old	1	0.3%
31 – 40 years old	32	10.1%
41 – 50 years old	122	38.6%
51 – 60 years old	113	35.8%
Over 61 years old	48	15.2%
Academic Experience		
< 5 years	6	1.9%
5 – 10 years	32	10.1%
11 – 20 years	89	28.2%
Over 20 years	189	59.8%

3.2. Data Analysis

To examine the association between innovation strategies, teacher training, and internationalization strategies with the organizational performance of HEIs, a multiple linear regression analysis was used. According to Hair et al. [47], this tool is designed to analyze the connections between a set of independent variables and one dependent variable. Multiple linear regression is a widely used statistical technique for analyzing relationships between multiple explanatory variables and a response variable [44].

A multiple linear regression model with nine predictors was introduced. The predictors are Communication (X1), Involvement/Teacher Empowerment (X2), Development/Teacher Training (X3), Continuous Improvement (X4), Leadership/Administration's Commitment (X5), Data Analysis/Measurement of Results (X6), Focus on Students (X7), Innovation Strategies (X8), and Internationalization Strategy (X9). The equation for the proposed model is illustrated as follows:

$$Y(P1) = b0 + b1(X1) + b2(X2) + b3(X3) + b4(X4) + b5(X5) + b6(X6) + b7(X7) + b8(X8) + b9(X9) + \varepsilon$$

where:

Y (P1) = Dependent variable (organizational performance of HEIs), b0 = Constant, ε = Error

First, the reliability test was performed for the variables involved in the investigation using Cronbach's Alpha [44]. All values were greater than 0.67, which means that there is a good to excellent internal consistency (**Table 2**). For the score calculation, the following considerations were applied, in the case of "Internationalization strategies" (Q9 + Q10 + Q11 + Q12 + Q13) / 5, and so on for the others.

Table 2.
Cronbach's Alpha.

Dimensions	Cronbach's Alpha
Internationalization strategies	0.843
Organizational Performance	0.858
* Operational Performance	0.672
* Market Performance	0.785
* Financial Performance	0.758
TQM Dimensions	
* Design / Conception of programs	0.804
* Involvement/teacher empowerment	0.884
* Development/teacher training	0.910
* Continuous improvement	0.915
* Leadership/administration's commitment	0.931
* Data analysis/measurement of results	0.899
* Focus on students	0.785
Innovation strategies	0.937
* Products & Services - Courses	0.929
* Processes	0.924

Regarding the characterization of dependent and independent variables, Table 3 shows the descriptive statistics of the variables under study, with the variable "Focus on Students" having the highest average of M = 3.86 and the variables "Involvement/teacher empowerment" and "Development/teacher training" those with the lowest average value (M = 2.98 and M = 2.97, respectively).

Table 3.
Descriptive statistics of the variables under study.

	N	Min.	Max.	Mean	Std. Deviation
Organizational Performance (Y)	316	1.78	5.00	3.43	0.54
Design / Conception of programs (X1)	316	1.00	5.00	3.28	0.85
Involvement/teacher empowerment (X2)	316	1.00	5.00	2.98	0.97
Development/teacher training (X3)	316	1.00	5.00	2.97	1.02
Continuous improvement (X4)	316	1.00	5.00	3.23	0.90
Leadership/administration's commitment (X5)	316	1.00	5.00	3.31	1.04
Data analysis/measurement of results (X6)	316	1.00	5.00	3.22	0.92
Focus on students (X7)	316	1.00	5.00	3.86	0.78
Innovation strategies (X8)	316	1.00	5.00	3.33	0.84
Internationalization strategies of HEIs (X9)	316	1.40	5.00	3.71	0.77

Pearson's correlation between the variables was also performed, verifying that all independent variables have a significant and positive correlation with the dependent variable (Table 4).

Table 4.
Pearson's correlation.

	Y	X1	X2	X3	X4	X5	X6	X7	X8	X9
Y	1	0.614**	0.675**	0.674**	0.627**	0.658**	0.633**	0.537**	0.674**	0.585**
X1		1	0.693**	0.639**	0.728**	0.702**	0.641**	0.645**	0.724**	0.499**
X2			1	0.764**	0.755**	0.758**	0.751**	0.623**	0.707**	0.537**
X3				1	0.713**	0.744**	0.717**	0.608**	0.677**	0.553**
X4					1	0.774**	0.744**	0.600**	0.719**	0.491**
X5						1	0.767**	0.634**	0.752**	0.529**
X6							1	0.629**	0.703**	0.538**
X7								1	0.664**	0.416**
X8									1	0.477**
X9										1

Note: **. Correlation is significant at the 0.01 level (2-tailed).

Then, the multiple linear regression model was estimated. The variable selection method chosen was Stepwise [44], where the first independent variable to enter is the one with the highest correlation coefficient (0.675), which corresponds to the variable "Involvement/teacher empowerment".

Table 5 shows the results of multiple linear regression. Thus, of the nine variables that initially entered the model, only four were significant, and all had a positive coefficient, namely, "Involvement/Teacher Empowerment" (X2) (B1 = 0.105; t = 3.031; p = 0.003), "Innovation Strategies" (X8) (B2 = 0.189; t = 5.455; p < 0.001), "Internationalization Strategy" (X9) (B3 = 0.163; t = 5.198; p < 0.001), and "Development/Teacher Training" (X3) (B4 = 0.110; t = 3.425; p = 0.001).

Table 5.
Multiple linear regression results.

Model		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	2.304	0.073		31.451	0.000	2.160	2.449		
	Involv_X2	0.379	0.023	0.675	16.207	0.000	0.333	0.425	1.000	1.000
2	(Constant)	1.922	0.086		22.269	0.000	1.752	2.091		
	Involv_X2	0.223	0.031	0.397	7.255	0.000	0.162	0.283	0.500	2.001
	Innovation_X8	0.255	0.035	0.394	7.202	0.000	0.185	0.324	0.500	2.001
3	(Constant)	1.516	0.106		14.305	0.000	1.307	1.724		
	Involv_X2	0.163	0.031	0.290	5.309	0.000	0.103	0.224	0.448	2.232
	Innovation_X8	0.221	0.034	0.342	6.512	0.000	0.154	0.288	0.486	2.056
	Intern_X9	0.187	0.031	0.265	6.031	0.000	0.126	0.248	0.692	1.444
4	(Constant)	1.559	0.105		14.858	0.000	1.353	1.766		
	Involv_X2	0.105	0.035	0.187	3.031	0.003	0.037	0.173	0.341	2.936
	Innovation_X8	0.189	0.035	0.292	5.455	0.000	0.121	0.258	0.451	2.217
	Intern_X9	0.163	0.031	0.231	5.198	0.000	0.101	0.224	0.657	1.523
	Develop_X3	0.110	0.032	0.206	3.425	0.001	0.047	0.173	0.360	2.779

Note: a. Dependent Variable: OrgPerf_Y; Method: Stepwise.

Taking into account the data presented, it is possible to mention that the main evidence, with greater statistical relevance, is the role of innovation in the organizational performance of higher education institutions (for "Innovation Strategies," a one-unit increase implies a 0.189-unit rise in "Organizational Performance"), followed by the role of internationalization ("Internationalization Strategy" corresponds to a 0.163-unit increase in "Organizational Performance") and teacher professional development based on ongoing teacher training ("Development/Teacher Training" results in a 0.110-unit increase in "Organizational Performance").

4. Conclusions

4.1. Main Conclusions of the Research

This research is highly significant for the study of Higher Education Institutions (HEIs) due to their critical role in a country's development and their impact on society as creators of knowledge and science. As these institutions increasingly operate in highly competitive market environments, understanding the factors that can enhance their organizational performance becomes essential in the global market [38, 45, 46].

The present study reveals significant relationships between the predictor variables and organizational performance. Notably, the implementation of "Innovation Strategies" was found to have a substantial impact. Specifically, a one-unit increase in "Innovation Strategies" corresponded to a 0.189-unit increase in "Organizational Performance". This indicates that organizations emphasizing innovation are likely to experience notable improvements in their performance metrics. These results are in line with other studies, such as those by Hurmelinna-Laukkanen et al. [33], Pedro et al. [39], and [37].

Additionally, the "Internationalization Strategy" also demonstrated a significant effect. A one-unit increase in the "Internationalization Strategy" resulted in a 0.163-unit rise in "Organizational Performance". This finding underscores the importance of adopting strategies that enhance international engagement and collaboration, as these can contribute positively to overall organizational outcomes. These results are in line with other studies, such as those by Denson and Zhang [39] and Avolio and Benzaquen [40].

These conclusions emphasize the critical role of both innovation and internationalization in driving organizational success. By prioritizing these strategies, institutions can achieve substantial gains in performance, reinforcing the value of continuous improvement and global integration within their operational frameworks.

Additionally, innovation and internationalization strategies offer organizations a range of benefits that often justify the investments in developing new products and services, entering new markets, or improving technologies, processes, and procedures to support production and service delivery. Our research found a significant association between innovation and internationalization strategies and the organizational performance of higher education institutions (HEIs). These results align with studies by Dannels [34], which highlighted that innovation strategies help institutions gain a competitive advantage, ultimately enhancing organizational performance.

Our findings also reveal that "Development/Teacher Training" is significantly associated with the organizational performance of HEIs. These results are consistent with the work of various authors who have demonstrated a positive correlation between TQM and organizational performance. They also underscore the critical role of teacher training in fostering professional development among educators and, ultimately, enhancing the overall quality of the institution [14, 20].

4.2. Major Contributions of the Research

HEIs play a crucial role in promoting innovation and social development and contribute to social innovation through collaborative learning, knowledge diffusion, and technology-based collaboration. HEIs contribute to social innovation through collaborative learning, transdisciplinary approaches, and technology-based collaboration. These findings highlight the multifaceted role of HEIs in driving innovation, from internal organizational strategies to broader societal impacts, emphasizing the importance of collaboration, quality management, and strategic leadership in fostering innovation within higher education [37, 38].

Innovation and internationalization are now more critical than ever for the future of higher education institutions (HEIs). These strategies can not only enhance academic quality but also expand the impact of HEIs, preparing students for the challenges of a highly technological and globalized labor market. Universities that strategically integrate these two dimensions will have the opportunity to excel in an increasingly competitive global landscape, becoming centers of academic excellence and innovation that address the needs of the contemporary world.

In summary, the study's findings point to the strategic role of several TQM components for HEIs in higher education in Portugal. However, despite the enormous importance of teacher training and involvement, innovation and internationalization strategies should be highlighted. Only Portuguese HEIs that increasingly invest in improving these innovation and internationalization strategies will be able to see improvements in their organizational performance. For the future, HEIs must develop more effective strategies to integrate innovation and internationalization sustainably, considering both local and global contexts. Collaboration among universities, governments, and the private sector will be essential to create more inclusive and efficient educational models that meet the needs of students and societies in an increasingly globalized and digitized world.

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Appendix

Questionnaire:

Socio-Biographic Characterization

Type of institution where you teach:

- Public University Institution
- Private University Institution
- Public Polytechnic Institute
- Private Polytechnic Institute

Please indicate your time/dedication to your educational institution:

- Part-time
- Full-time
- Exclusive dedication
- Teaching at more than one higher education institution

Please indicate your academic qualifications (degree obtained/completed):

- Bachelor's Degree
- Master's Degree
- PhD

Please indicate if you hold a specialist title (if applicable):

- No
- Yes. If so, choose one of the following options:
- Specialist Title (with public exams under Decree-Law No. 206/2009 of August 31)
- Specialist Title (without public exams in compliance with Decree-Law No. 3/2015 of January 6)

Besides your teaching duties, please indicate the governing body to which you belong or the functions performed at your hi gher education institution:

- Presidency/Rectorate
- Representatives Council
- Technical-Scientific Council
- Pedagogical Council
- Master's Program Direction
- Bachelor's Program Direction

- Community Relations Department
- Internationalization Department
- Scientific Research Department
- Quality Department

Please indicate the range corresponding to the number of years of your professional experience as a higher education teache r:

- Less than 5 years
- 5 to 10 years
- 11 to 20 years
- More than 20 years

Please indicate your gender:

- Male
- Female

Please indicate the range corresponding to your age:

- Less than 30 years
- 30 to 40 years
- 41 to 50 years
- 51 to 60 years
- More than 60 years

Internationalization of Higher Education Institutions (HEIs)

Please indicate, in your opinion, on a scale of "1 = Strongly Disagree" to "5 = Strongly Agree" the importance of the follow ing aspects regarding the internationalization strategies adopted by your HEI:

- The internationalization strategies of my HEI highlight the quality of the institution's education.
- The internationalization strategies of my HEI promote the prestige, visibility, and competitiveness of my educatio nal institution.
- The internationalization strategies of my HEI equip students with the knowledge, skills, and abilities to enter the la bor market anywhere in the world, preparing students for the global market.
- The internationalization strategies of my HEI promote the development of scientific and research activities (throug h international conferences, mobility actions for teachers, non-
  teaching staff, and students, research projects with other foreign institutions, etc.).
- The internationalization strategies of my HEI play a fundamental financial role, as they allow for increased revenu e and funding.

HEIs as Learning Organizations

Please indicate, in your opinion, on a scale of "1 = Strongly Disagree" to "5 = Strongly Agree" the importance of the follow ing aspects related to the characteristics of your HEI:

- In my educational institution, people openly discuss mistakes to learn from them.
- In my educational institution, people help each other to learn.
- In my educational institution, people can obtain funding and other resources to support their learning and training.
- In my educational institution, people are rewarded for learning and developing their training.
- In my educational institution, people give open and honest feedback to each other.

Organizational Performance

Please indicate, in your opinion, on a scale of "1 = Strongly Disagree" to "5 = Strongly Agree," the importance of the follo wing aspects related to the organizational performance of your HEI:

Operational Performance

- In my educational institution, over the past three years, there has been an increase in the number of faculty membe rs holding a doctorate and/or specialist title (with public exams).
- In my educational institution, over the past three years, there has been an increase in the ratio between the number of faculty and the number of students in each educational cycle.
- In my educational institution, over the past three years, there has been an increase in the number of scientific publi cations by the faculty.
- In my educational institution, over the past three years, there has been greater adherence to deadlines for tasks suc h as publishing grades, preparing syllabi, filling out course unit forms, etc.
- In my educational institution, over the past three years, there has been an adequate distribution of faculty service h ours according to the expected activities to be developed.
- In my educational institution, over the past three years, there has been an increase in the number of seminars, cong resses, lectures, training sessions, etc.

Market Performance

- In my educational institution, over the past three years, there has been a higher demand and an increase in the num ber of students enrolled in the first cycle.

- In my educational institution, over the past three years, there has been a higher demand and an increase in the number of students enrolled in the second cycle.
- In my educational institution, over the past three years, there has been an increase in the employability of students who have completed their first cycle courses.
- In my educational institution, over the past three years, there has been a higher demand from foreign students for exchange programs (e.g., Erasmus).
- In my educational institution, over the past three years, first-cycle courses have filled more than 90% of the available spots in the first phase of the national competition.
- In my educational institution, over the past three years, there has been an increase in agreements with other entities, educational institutions, or employers.

Financial Performance

- In my educational institution, over the past three years, there has been an increase in market share compared to other HEIs.
- In my educational institution, over the past three years, there has been an increase in overall profitability (revenue vs. expenses).
- In my educational institution, over the past three years, a higher percentage of funding has been obtained from state budgets.
- In my educational institution, over the past three years, there has been an increase in own-source revenue (e.g., through renting spaces/classrooms/auditoriums, conducting training sessions for external entities, other academic and/or scientific events, etc.).
- In my educational institution, over the past three years, funding has been obtained from European funds aimed at developing research projects and promoting the educational institution.
- In my educational institution, over the past three years, funding has been obtained from the Foundation for Science and Technology (FCT) for developing research projects and promoting the educational institution.

Relevance of Financial and Non-Financial Indicators in HEIs

Please indicate, in your opinion, on a scale of "1 = Strongly Disagree" to "5 = Strongly Agree," the importance of using financial and non-financial indicators related to your HEI:

Non-Financial Indicators

- They allow for evaluating the satisfaction of faculty, non-faculty, and students (e.g., through satisfaction surveys conducted or complaints received by various bodies and departments).
- They enable better control over response times in providing services by the various departments of the HEI.
- They allow for better control over the allocation of human resources of the HEI, such as the number of faculty assigned to scientific areas, the number of faculty per course, the number of faculty with a doctorate, etc.
- They allow for better control over the evaluation of faculty, for example, through the analysis of surveys completed by students, faculty evaluation based on the scientific activity developed, etc.
- They allow for better control over the number of students per course, success rates, and dropout rates.

Financial Indicators

- They enable better control of costs in a segmented manner within the HEI, at the level of courses, departments, sections, or scientific areas.
- They allow for obtaining financial information, such as profit margins on courses offered by the institution, services, space rentals, or business areas.
- They allow for obtaining information about market share, growth rates of the HEI, and forecast indicators.
- They allow for obtaining information about the return on investments made.
- They allow for obtaining information about the financial goals to be achieved.

Dimensions of TQM

Please indicate, in your opinion, on a scale of "1 = Strongly Disagree" to "5 = Strongly Agree," the importance of the following aspects regarding the implementation of quality management in your HEI:

Program Design

- In my educational institution, the suggestions of experienced academics are carefully considered in curriculum design.
- In my educational institution, the needs and suggestions of business managers and CEOs are carefully considered in the design of the curriculum and new academic programs.
- In my educational institution, academic programs are evaluated and updated annually.
- In my educational institution, the facilities and resources (e.g., laboratories, hardware, finances, and human resources) are considered in the development and enhancement of the curriculum and academic programs.

Faculty Involvement/Empowerment

- In my educational institution, cross-functional teams are frequently used to improve quality.
- In my educational institution, a platform is available for staff (both academic and administrative) to clarify questio ns and resolve quality-related issues.
- In my educational institution, all staff (both academic and administrative) suggestions regarding quality are review ed.
- In my educational institution, most staff (both academic and administrative) suggestions for quality improvement are implemented.

Faculty Development/Training

- My educational institution encourages development and training activities for academic and administrative staff ai med at achieving academic excellence.
- Faculty and staff, being considered the institution's most valuable and long-term resources, deserve the necessary training to achieve the institution's vision.
- In my educational institution, financial resources are provided for faculty and staff training.
- My educational institution organizes quality management training sessions for faculty and staff, encouraging every one to participate.

Continuous Improvement

- All employees at my educational institution (both academic and administrative) consider continuous improvement their responsibility as well.
- In my educational institution, there is a strong commitment to continuous improvement at all levels of the organiza tion.
- In my educational institution, quality improvement programs are adopted to reduce waste, better utilize resources, and eliminate non-value-adding activities in products, services, or processes.
- In my educational institution, continuous improvement is viewed as a way to gain a competitive advantage over co mpetitors.

Leadership and Commitment

- The top management of my institution actively participates in the implementation of total quality and supports the process of continuous improvement.
- The top management of my institution seeks stable, long-term performance rather than short-term fixes.
- The top management of my institution allocates adequate and necessary resources for faculty and administrative st aff training.
- The top management of my institution encourages the involvement of faculty, staff, and students in resolving quali ty issues.

Data Analysis/Results Measurement

- My educational institution regularly audits practices according to defined policies and strategies.
- In my educational institution, the purpose of evaluation and results measurement is continuous improvement, not c riticism.
- My educational institution assesses and compares our academic and administrative processes with other HEIs.
- My educational institution has standard performance measures (e.g., number of publications, course evaluations, a bsenteeism, job satisfaction) to evaluate institutional performance and TQM implementation.

Focus on Students

- My educational institution provides continuous training for our students for their professional and personal develo pment after completing their academic degree.
- My educational institution requests all students, at the end of each semester, to complete a questionnaire to evaluat e each course taught regularly each semester.
- My educational institution carefully receives and analyzes students' complaints and grievances.
- My educational institution supports and collaborates with student associations and their activities.

Innovation

Please indicate, in your opinion, on a scale of "1 = Strongly Disagree" to "5 = Strongly Agree," the importance of the follo wing aspects regarding the innovation strategies of your HEI:

Products and Services - Courses/Training Offers

- In launching new courses and training offers, my educational institution is often the first to enter the market.
- The courses, training offers, and curriculum programs of my educational institution are often perceived as innovati ve by students and the general market.
- Compared to other HEIs, my educational institution has launched more innovative courses and training offers in th e last three years.
- Compared to other HEIs, my educational institution is quicker in launching new courses and training offers to the market.

- The innovation strategy for products and services is viewed by my educational institution as crucial for increasing market share and results.

Processes

- My educational institution adopts the latest technological innovations in its internal processes.
- My educational institution frequently modifies its processes, techniques, and technology to follow an innovative st rategy.
- The innovation strategy for internal processes is viewed by my educational institution as crucial for increasing org anizational efficiency.
- The innovation strategy is communicated clearly and objectively to all staff within my educational institution so th at it can be applied and executed in all internal processes.
- In my educational institution, people are encouraged to think and act in an original and innovative way.