

RESEARCH ON THE MANAGEMENT OF CONTINUOUS IMPROVEMENT OF UNIVERSITY SUPPORT SERVICES

Executive Summary

for obtaining the scientific title of doctor at
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Contemporary higher education faces complex challenges in the context of an ever-changing society, where the quality of services provided to students becomes a determining factor for institutional success and for ensuring an educational experience of excellence. University support services represent the social dimension of university education, viewed as a complex system operating under the influence of a wide range of endogenous and exogenous factors. These services include:

- Accommodation services in student hostels
- Meal services provided in own canteens
- Psychological counselling and career guidance services
- Sports facilities and medical services
- Scholarships and student mobility
- Access to library and online information resources
- Extracurricular activities and student organisations

Of these, some student services represent elements of major interest in university management, as it depends on them the decision of students to enroll in a study program at a certain university, especially for students who do not live in the locality where the university is based. The issue of equity in the university education system continues to be a central concern for Romanian tertiary education, as school dropout and absenteeism remain significant challenges.

European statistics reveal significant challenges: 60% of students in Europe reported difficulties in accessing a stable internet connection, 70% complained about inconsistencies in access to study materials, and 35% of students surveyed by EUROSTUDENT reported a lack of space to study quietly. In this context, the quality and easy access to student support services becomes a serious problem not only to increase students' satisfaction with their experience with these services, but also a concern to ensure access to tertiary education, especially for students from disadvantaged backgrounds, who are already prone to dropping out of school.

Although there are studies in the scientific literature on students' perception of the quality of university services, most of these scientific directions refer to countries such as the UK, Australia, New Zealand or the USA, with very few such scientific approaches to analyze the situation in developing countries, as well as analyses at regional and continental level. Moreover,

a significant number of studies focus on the quality of the educational process, while only a limited share of researchers attach importance to support services.

Continuous improvement management is a systematic approach that can address these challenges by implementing the principles of continuous optimization of the services offered. This methodology, adapted to the specifics of higher education institutions, can contribute to the development of an efficient economic model for optimizing university support services, in accordance with the needs and expectations of students.

At European level, the COVID-19 pandemic has been shown to exacerbate disparities and inequities that already existed before the outbreak of this health crisis. European statistics reveal significant challenges, with 60% of students in Europe reporting difficulties in accessing a stable internet connection, 70% complaining of inconsistencies in access to study materials, and 35% of students responding to the EUROSTUDENT study signalling the lack of space to study quietly.

In this context, the quality and easy access to student support services becomes a serious problem not only to increase students' satisfaction with their experience with these services, but also a concern to ensure access to tertiary education, especially for students from disadvantaged backgrounds, who are already prone to dropping out of school. Although there are studies in the scientific literature on students' perception of the quality of university services, most of these scientific directions refer to countries such as the UK, Australia, New Zealand or the USA, with very few such scientific approaches to analyze the situation in developing countries, as well as analyses at regional and continental level.

Moreover, a significant number of studies focus on the quality of the educational process, while only a limited share of researchers attach importance to university support services. Continuous improvement management is a systematic approach that can address these challenges by implementing the principles of continuous optimization of the services offered. This methodology, adapted to the specifics of higher education institutions, can contribute to the development of an efficient economic model for optimizing university support services, in accordance with the needs and expectations of students.

The doctoral research topic has as central objective the conception of an economic model of optimization of support services from universities, in accordance with the principles of continuous improvement management.

This general objective shall take the form of the following operational objectives:

PO1. Description of the conceptual framework on university management, process approach to support services and continuous improvement management. This objective aims at the theoretical substantiation of the research through the analysis of the specialized literature and the conceptual delimitation of the areas of interest.

PO2. Theoretical substantiation of methodologies for analysis and diversification of support services in order to implement the principles of continuous improvement. This objective aims to identify and systematize the theoretical tools necessary for the development of the proposed model.

OP3. Propose a theoretical-applicative approach to identify the need for continuous improvement of support services in universities. This objective focuses on developing a practical methodology for assessing and identifying areas for improvement.

OP4. Design of an economic model for optimising university support services. This objective aims to develop the theoretical model itself, integrating the principles of continuous improvement management with the specificity of university services.

OP5. Testing and validation of the proposed economic model. The ultimate operational objective is to demonstrate the applicability and effectiveness of the model developed through empirical research and case studies.

The paper adopts a mixed approach, combining theoretical and applied methods to ensure a solid foundation and empirical validation of the proposed model. This complex methodology allows a comprehensive understanding of the researched issues and offers multiple perspectives on the studied phenomena.

The methodology includes literature analysis for theoretical substantiation, comparative studies at national and international level for the contextualization of research, questionnaire-based research for the assessment of student satisfaction, statistical analysis using the JASP software tool for the processing of collected data, as well as the application of the AHP (Analytical Hierarchy Process) model for the analysis of determinants of the quality of university support services.

An innovative aspect of the methodology is the use of artificial intelligence tools, in particular the Manus tool, to validate results obtained through traditional research methods. This approach allows for further verification of the conclusions and helps to increase the credibility of the research results.

The paper is structured in six main chapters, each contributing to the achievement of the proposed objectives and to the progressive development of scientific argumentation. The first chapter presents the introduction and context of the research, establishing the general framework of the researched problem and justifying the relevance of the chosen topic.

The second chapter focuses on the description of the contextual and conceptual framework of the research, including conceptual delimitations regarding the university support services and academic management, the analysis of the university support services at international and national level, as well as the analysis of the situation of the support services at Politehnica University Timisoara. This chapter also includes a detailed analysis of EUROSTUDENT VII and VIII studies for Romania, providing a comparative perspective on the situation of university support services.

The third chapter addresses theoretical research on continuous improvement management, defining the fundamental concepts and principles of this approach, analyzing total quality management for higher education institutions, exploring the relationship between continuous improvement management and university support services, and examining customer relationship management as a tool for service quality assurance.

The fourth chapter presents the theoretical-applicative researches for the validation of the proposed theoretical model, including the evaluation of the students' satisfaction degree through the questionnaire, the statistical analysis using the JASP software tool, and the presentation of the research methodology and the obtained results. This chapter links the theoretical and practical aspects of research.

Chapter 5 focuses on applied research for the validation of the proposed model, presenting the conceptual boundaries on the AHP model of substantiation of decisions, the analysis of the determinants of the quality of university support services using the AHP model, the role of

software tools based on artificial intelligence in decision-making processes, and the validation of the proposed model with the help of the AI Manus tool.

The last chapter presents the conclusions, personal contributions and future research directions, summarizing the obtained results and highlighting the theoretical, methodological, practical and empirical contributions of the research, as well as proposing directions for further developments in the field.

The thesis has generated ***significant results in several fields, contributing both to the theoretical understanding of the problem of university support services and to the development of practical solutions for their improvement.*** The analysis of the support services at Politehnica University Timisoara during 2018-2022 provided a detailed perspective on the evolution and performance of these services.

As regards accommodation services, the thesis analysed the distribution of accommodation places in UPT dorms between 2018 and October 2021, identifying indicators characterising accommodation capacity and assessing occupancy and accommodation conditions. This analysis revealed important aspects regarding the accessibility and quality of accommodation services offered to students.

The scholarship system was subject to a comprehensive analysis for the period 2018-2022, examining the award criteria and scholarship amounts, as well as their impact on students' academic performance. The results highlighted both strengths and areas for improvement in the current scholarship system.

Questionnaire-based research was a central component of the study, applying a structured questionnaire to UPT students to assess satisfaction with support services. The analysis of the respondents' distribution by faculties, gender, age and category of housing space provided a representative image of the studied population. The assessment of the importance of support services for academic performance and leisure allowed to identify the priorities of students and areas that require increased attention from university management.

The main results of the questionnaire included the identification of services with the lowest degree of satisfaction, the collection of proposals for improvement made directly by students, and the analysis of statistical differences between groups of students in different study cycles. These results provided a solid basis for developing recommendations for improvement and validating the proposed model.

The statistical analysis carried out using the JASP software tool allowed for a rigorous processing of the data collected through the questionnaire. The use of ANOVA tests for the analysis of students' perception of university support services identified significant differences between groups, while the post-hoc analysis using the HSD Tukey test allowed the identification of variables with significant statistical differences.

Key findings of the statistical analysis included identifying significant differences in service perception between study cycles, determining variables with a major impact on student satisfaction, and establishing correlations between demographic characteristics and degree of satisfaction. These results helped to understand the factors that influence students' perception of support services and guided the development of improvement strategies.

The application of the AHP (Analytical Hierarchy Process) model represented an important methodological innovation in research, allowing systematic analysis of the determinants of the quality of university support services. By establishing the weighted values of the analysis criteria and creating a ranking of the importance of the support services, the AHP model provided a

scientific basis for prioritizing investments and improvement efforts.

The results of the application of the AHP model included the ranking of services by importance, the identification of priorities for investments and improvements, and the scientific validation of managerial decisions. This approach has demonstrated the usefulness of multi-criteria analysis methods in the context of university service management.

An innovative aspect of the research was the validation of results using artificial intelligence tools, in particular the Manus tool. The comparison between traditional AI tools and Manus highlighted the advantages of this approach, while the analysis of parameters correlated with statistical differences provided additional insight into the results achieved by traditional research methods.

Validation with artificial intelligence confirmed the results of the proposed theoretical-applicative model and contributed to increasing the credibility of the research findings. This innovative approach demonstrates the potential of AI tools in validating and improving higher education research.

The doctoral thesis makes ***significant contributions in several fields, demonstrating the originality and scientific value of the work.*** Theoretical and conceptual contributions include the development of an integrated conceptual framework for the management of continuous improvement of university support services, the adaptation of the principles of total quality management to the specifics of higher education institutions, and the theoretical substantiation of the relationship between student satisfaction and the quality of support services.

From the perspective of methodological innovations, the thesis proposes the development of a mixed research methodology combining quantitative and qualitative analysis, the application of the AHP model in the context of evaluating university support services, and the use of artificial intelligence tools for the validation of research results. This innovative methodological approach can serve as a model for further research in the field.

Practical and applied contributions are materialized by designing an economic model for optimizing university support services, developing a system of indicators for evaluating the performance of support services, and formulating concrete recommendations for improving services at UPT. These contributions have a direct practical value for university management and can be adapted and implemented in other higher education institutions.

Empirical contributions include making a comprehensive analysis of the situation of support services at UPT, collecting and analyzing data on student satisfaction, and identifying critical factors that influence the quality of support services. These contributions enrich the empirical knowledge base in the field of university service management.

Innovation in data analysis and validation is reflected through the use of the JASP software tool for advanced statistical analysis, the application of artificial intelligence tools for the validation of the proposed model, and the development of an integrated data analysis approach. This innovative approach demonstrates the potential of modern technologies in improving the quality of scientific research.

Based on the results of the research, ***concrete recommendations were formulated for the improvement of university support services,*** both at the level of Politehnica University of Timișoara and for the Romanian higher education system in general. These recommendations are based on collected empirical evidence and systematic analysis of students' needs and expectations.

In the field of accommodation services, priority investments are recommended in the

construction of new dorms to supplement available places, upgrading existing dorms with a focus on changing furniture and improving equipment, and optimizing communication with the dorm administration to solve student problems more effectively. These measures are essential to improve the living conditions of students and increase satisfaction with accommodation services.

For meal services, recommendations include diversifying the food supply in UPT canteens to better meet the varied preferences of students, improving the quality and variety of food supply in on-premises serving units, and organizing alternative on-campus dining spaces such as fast-food restaurants, confectioneries and pastries, or own shops. These measures will help improve students' culinary experience and increase satisfaction with mass services.

Regarding library services and information resources, the author proposes updating and diversifying the available book stock to meet the current needs of students and study programs, improving access to international databases and online platforms for research, and increasing the degree of digitization of the process of lending and returning books for a more efficient user experience.

For counselling and career guidance services, recommendations include increasing the attractiveness of these services by organizing workshops and events throughout the student year, expanding and promoting psychological counselling services to meet the growing needs of students in this field, and developing integrated support programs for the transition from studies to professional life.

In the field of infrastructure and study spaces, it is recommended to create alternative work and study spaces on the university campus to provide students with more learning options, develop "student corners" inside the faculties for study and collaboration, and modernize and diversify accessible sports in UPT's sports bases to promote a healthy lifestyle among students.

The doctoral thesis demonstrates that continuous improvement management can be successfully applied in optimizing university support services, contributing to increasing student satisfaction by identifying and addressing deficiencies in the services provided, optimizing resource allocation by prioritizing investments according to the impact on student experience, and improving decision-making processes by integrating student feedback into university management.

At the theoretical level, the thesis contributes to the development of the body of knowledge on service management in higher education, provides a systematic approach to the evaluation and improvement of university support services, and integrates the principles of total quality management with the specifics of higher education institutions. These theoretical contributions enrich the literature and provide solid foundations for further research.

On a practical level, the paper provides an applicable model for optimizing support services in Romanian universities, provides concrete tools for evaluating student satisfaction, and proposes viable solutions for improving the quality of university services. These practical contributions have a direct value for university management and can be implemented to improve the student experience.

From a methodological perspective, the thesis demonstrates the effectiveness of the blended approach in the research of university services, validates the use of artificial intelligence tools in the analysis of educational data, and provides a replicable model for other higher education institutions. These methodological innovations can inspire and guide further research in the field.

This doctoral thesis contributes to the modernization of Romanian university management by providing a solid theoretical model for optimizing university support services, providing

practical tools for the evaluation and continuous improvement of services, demonstrating the importance of support services in the overall educational experience of students, and promoting a student-centered approach to university management.

The proposed model can serve as a basis for the development of educational policies at national level and can contribute to improving the competitiveness of the Romanian higher education system in the European and international context. By implementing the principles and recommendations presented in this doctoral thesis, Romanian universities can significantly improve the quality of services offered to students and contribute to increasing their academic satisfaction and success.

In conclusion, this doctoral thesis demonstrates the critical importance of university support services for students' educational experience and proposes a viable economic model for optimizing these services. By integrating the principles of continuous improvement management with modern methods of analysis and validation, the work contributes significantly to the development of knowledge in the field of university management and provides practical tools for improving the quality of services provided to students. The proposed model can be adapted and implemented in other higher education institutions, thus contributing to increasing the quality and efficiency of the Romanian education system as a whole.

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