

## **MERGERS OF HIGHER EDUCATION AND RESEARCH INSTITUTIONS IN ROMANIA AND THE IMPACT ON METALLURGICAL AND MATERIALS SCIENCE FIELD OF STUDY**

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### **Abstract**

In the current socio-economic context, where demographics, public policies, internationalization, and other factors have brought major changes to higher education institutions, these institutions must increasingly adopt concepts and practices from the business environment to position themselves competitively in the market. Mergers between educational and research institutions thus represent an effective method for creating stronger entities and increasing regional influence by diversifying activities and gaining access to new resources and/or technologies that can provide competitive advantages. Such mergers are also complex processes that involve aligning and integrating different management systems and organizational cultures. Evaluating and correlating these systems are essential to ensuring the success and efficiency of the merger. In this study, a series of surveys were conducted across universities and research centres from Romania that have undergone or are about to undergo a merger process, focusing on a target group of professors and administrative staff from the field of materials science and engineering, in order to evaluate the management systems, how they have been correlated and implemented, and to identify key factors contributing to the success or failure of these mergers. This case study was conducted, focusing on the largest technical university in Romania, POLITEHNICA University of Bucharest, which in 2023 became the National University of Science and Technology POLITEHNICA Bucharest. Through the analysis of the institutions involved, the evaluation of the management systems, and the assessment of the impact of the merger on metallurgical and materials science field of study, a model and a set of recommendations were proposed for evaluating and correlating management systems in the case of mergers in higher education and research institutions.

**Keywords:** Higher education, research institutions, mergers, management system, metallurgical and materials science

## **1. INTRODUCTION**

### **1.1 International context**

In recent decades, mergers between higher education institutions have become a global phenomenon as response to economic and political pressures, but also as proactive strategy aimed at consolidating resources, improving the quality of education, and expanding research capacity. A review of the literature in the field shows that, although the topic has begun to receive attention from researchers worldwide, it remains relatively underexplored. The premise underlying this research is also one of the main objectives of merger processes, namely, the creation of more efficient entities, both from an educational and a managerial-administrative perspective. The specialized literature highlights that the merger process involves significant changes in governance structures, institutional objectives, academic programs, and other organizational procedures. It also requires a considerable investment of human and financial resources to plan and strategically implement the merger. By improving academic quality, optimizing resources, creating specialized centers of excellence,

strengthening research capabilities, increasing financial stability, and enhancing institutional prestige, higher education and research institution mergers become a necessity. In the context of increasing competition, both regionally and internationally, higher education institutions find themselves needing to adopt business-like practices to remain competitive and secure a larger market share [1], a trend observed as early as 1972 [2]. While mergers in the private sector serve as a tool for controlling and eliminating competition, mergers in the public sector are often implemented as a means of increasing financial efficiency, as seen in North America [3], or to create new educational programs that better meet labor market demands and support regional economic development [4]. In countries where the higher education system is part of the public sector, such solutions are typically federal in nature and are introduced in the form of laws, policies, or decrees. This was the case in France [5], where a national policy focused on centralization was adopted to strengthen ties between universities and create strong research centers. Between 2009 and 2017, more than 20 % of the universities that existed merged, with the total number of institutions reduced by 11. Reports have concluded that it takes between ten and fifteen years for a university merger to reach a state of stabilization. Mergers and acquisitions can positively influence the educational quality of higher education institutions, although this relationship is highly sensitive and moderated by institutional incentives. Mergers and acquisitions may have a negative impact on educational quality if these incentives do not promote continuous improvement and the maintenance of high standards. Higher education institutions worldwide are being challenged to invest more in developing strategies and competitive advantages. Finding a new position within the higher education landscape has led to mergers and acquisitions being seen as opportunities, due to the expansion and synergetic benefits they offer [6]. Some authors suggest that administrative, economic, and academic benefits are the most common reasons behind mergers [7]. A larger institutional size is considered beneficial both administratively and academically. Moreover, mergers between institutions with different academic profiles help diversify the profile of the new unit and strengthen its national and international position. Larger institutions are believed to have more potential to address the challenges of competitiveness, research quality, and international reputation. Rocha's 2018 study identifies cost efficiency, economies of scale and scope, influence on reputation and system consolidation as the most common reasons for mergers [8]. Van der Wende [9] focuses on global competition and the desire to achieve a certain level of prestige as defined by global rankings, national strategies for diversification and excellence, and shifts in higher education investment levels and research budgets. Voluntary mergers are believed to be easier to organize and implement and are generally considered more successful (as opposed to forced mergers) due to the greater involvement of staff in planning and implementation [10]. While voluntary mergers may have their own motivations, most are still driven by cost-efficiency, optimized scale of operations, and brand leveraging [11]. Recent research shows that when mergers are politically motivated, reorganization is not driven by efforts to streamline the system but by the desire to reach a certain level of prestige and to create world-class universities [11] as a tool to enter international markets where they can compete for students, staff, and prestige. It is also evident that governments tend to use mergers as a last-resort solution to various national issues. It can be suggested that higher education institutions in a particular country are merging because larger universities are being created in other countries. This idea finds support in institutional theory [12], which focuses on the impact of the environment on organizations. According to this theory, organizations operating in a particular organizational field will tend to become more alike. In other words, they adopt the actions and strategies of institutions perceived as successful and begin to share their organizational characteristics. As we can see, a significant portion of higher education research addresses mergers and their underlying motives. Generally, researchers offer classifications of the rationales for mergers based on specific criteria. For example, Skodvin focuses on the types of benefits that can be obtained through mergers [7], while Rocha et al. and van der Wende investigate the pressures and challenges of the modern higher education sector and how mergers serve as a response. However, despite their different perspectives on studying mergers, these authors do not contradict one another and often identify the same motivations for mergers, even though their classifications may differ [8,9]. Indeed, all the authors mentioned agree that higher education institutions merge to achieve economies of scale, improve education quality, and diversify programs. Moreover, they all address the issue of reputation

and acknowledge that mergers can help universities strengthen their international standing. As we can see, most research is based on case studies of individual countries, and synthesizing these helps us form a broader picture of mergers. Additionally, some of the research is comparative in nature and analyzes mergers, their rationale, and adoption across different countries. Researchers studying higher education issues in Russia identify the gap between university graduates' skills and employers' actual needs; issues related to global university rankings; the need to improve the quality of higher education; challenges in financial support for universities; the low practical value of faculty research; and the absence of study programs taught in English as the main challenges faced by contemporary Russian higher education. Some policy issues have an international dimension (e.g., relevance, quality, contribution to the economy, and internationalization, which will be discussed later), but even when the goals of reforms may align with global trends, policies function differently in countries with different governance regimes [13]. Thus, although the reasons for mergers may vary, they all converge on the need for institutional consolidation and increased competitiveness. The success of a merger depends not only on the strategic alignment of the stakeholders involved but also on the institutions' capacity to manage long-term change within a balanced framework of autonomy, regulation, and shared vision.

## **1.2 National context. The merger between POLITEHNICA University in Bucharest and the University of Pitești. Case study: the Faculty of Materials Science and Engineering**

The Romanian higher education system consists of all accredited or provisionally authorized higher education institutions. According to the Government Decision no. 412/2024 (as amended), for the academic year 2024–2025, the national system includes 52 accredited public universities (including 7 military and 6 medical institutions), 34 accredited private universities and 2 provisionally authorized private universities. The National University of Science and Technology POLITEHNICA Bucharest is an accredited, comprehensive higher education institution within the Romanian academic system, established by Law no. 186 of June 26, 2023, through the merger of the Politehnica University of Bucharest—an institution with over 200 years of academic tradition and a member of numerous international organizations—and the University of Pitești [14,15]. Currently, the university includes 21 faculties, of which 15 operate within the Bucharest University Center and 6 within the Pitești University Center. The Faculty of Materials Science and Engineering, part of the Bucharest Center, offers seven undergraduate study programs—six accredited and one provisionally authorized—across four academic fields: Materials Engineering, Environmental Engineering, Engineering and Management, and Applied Engineering Sciences, as well as numerous master's and doctoral programs.

## **2. RESEARCH PURPOSE, OBJECTIVES AND METHOD**

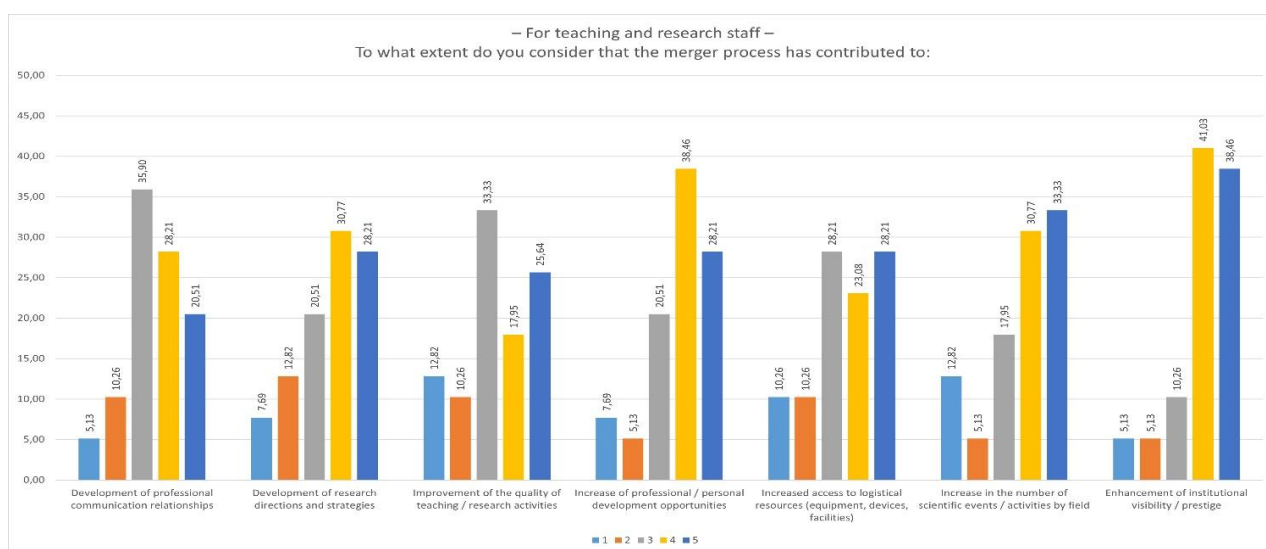
The study aims to identify the perception of employees at the Faculty of Materials Science and Engineering regarding the institutional merger that led to the creation of the National University of Science and Technology POLITEHNICA Bucharest. The research focuses on identifying key information sources used by faculty staff, perceived institutional benefits of the merger, major challenges in its implementation, and strategies for institutional development through expansion. The study used an online questionnaire created via Microsoft Forms and distributed over a 30-day period in 2025. The data, exported to Excel, underwent statistical analysis to support interpretation. The questionnaire included 16 items and required approximately 10 minutes to complete. It comprised 15 closed-ended items—10 with predefined answers and 5 using a Likert scale—and 1 open-ended item for personal suggestions. Content-wise, 2 items collected demographic data (gender, age group), 5 assessed the respondent's relationship with the institution, 3 gathered opinions through predefined options, and 5 Likert-scale items measured attitudes on 26 relevant aspects. One open item allowed free recommendations. The Faculty of Materials Science and Engineering has 95 employees: 56 teaching staff, 1 researcher, 34 technical/administrative support staff, and 4 non-teaching staff. A total of 58 employees from the Faculty of Materials Science and Engineering participated in the survey, representing 61.05 % of the

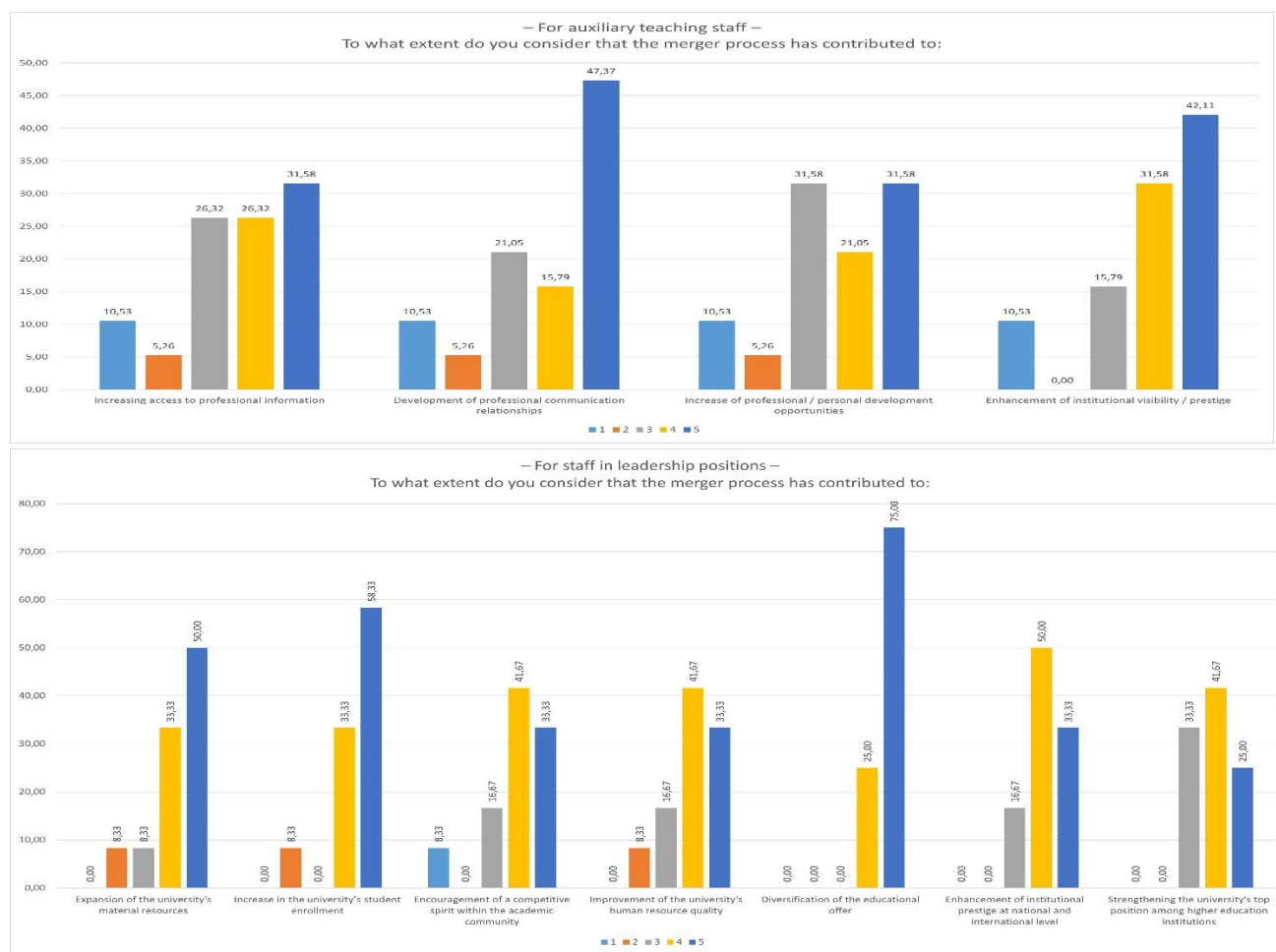
faculty's staff. Among the respondents, 37 were teaching staff (63.79 %), 1 was research staff (1.72 %), 18 were technical and administrative support staff (31.03 %), and 2 were non-teaching staff (3.45 %).

### 3. RESULTS AND DISCUSSION

Based on the responses regarding the sources of information about the institutional merger that created POLITEHNICA Bucharest, respondents from the Faculty of Materials Science and Engineering ranked the answers as follows: 53.93 % official communications from the institution's leadership, 30.34 % informal discussions with colleagues, 10.11 % media, 3.37 % consulting the current legislation, and 2.25 % reviewing other academic institutional merger models. These results reflect that communication through the hierarchical structure within the higher education institution is functional and effective. We also aimed to identify how many employees from the Faculty of Materials Science and Engineering were actively involved in the institutional merger between Politehnica University of Bucharest and the University of Pitești. Among the 58 respondents, only 3.45 % answered affirmatively, while 96.55 % answered negatively. This is explained by the fact that the academic merger process is complex, and only 2 out of the 12 people in leadership positions were actively involved.

The research instrument included a closed item to assess respondents' views on the impact of the merger process based on Law no. 186/26 June 2023. Given the varying perceptions of respondents based on age, gender, professional experience, and work activities within the institution, the research team set up a routing system based on position. Responses were nuanced, allowing for multiple correlations and interpretations as illustrated in Figure 1 a, b and c. In summary, the merger's impact was highly appreciated by: a) academic and research staff (79.49 % for increased visibility/prestige, 66.67 % for professional/personal development opportunities, 64.10 % for more scientific events); b) auxiliary academic staff (73.69 % for increased visibility/prestige, 63.16 % for improved professional communication, 57.90 % for increased access to professional information); c) leadership (100 % for diversifying the educational offer, 91.66 % for increasing enrollment, 83.33 % for improving the university's material base and national/international prestige).





**Figure 1** The perception of employees of the Faculty of Materials Science and Engineering regarding the institutional merger that led to the creation of the National University of Science and Technology POLITEHNICA Bucharest a) teaching and research staff b) auxiliary teaching staff c) staff in leadership positions

Respondents were asked to assess the characteristics of the merger process using a Likert scale from 1 to 5. The results showed: 84.48 % rated the legality of the process highly, 70.69 % the coordination efficiency by the management team, 68.97 % the process transparency, and 60.34 % the duration of the process. Responses to an item about the integration level of institutional components after the merger revealed that 68.97 % rated the coordination efficiency by the UNSTPB management team highly, while 72.42 % appreciated the integration of assets and administration, 72.41 % the financial-accounting integration, and 68.97 % the human resources integration. Regarding the main barrier in the institutional merger process, 37.80 % cited resistance to change, 22 % the socio-economic and political context, 18.29 % the unpredictability of higher education legislation, 13.41 % the lack of an institutional development strategy, and 8.54 % the reduction in leadership positions. Responses to an open-ended item requesting recommendations for improving the specific activities of respondents within the institution were categorized as follows: 37.93 % did not respond, 24.13 % suggested increasing funding/logistical support for the university infrastructure, 20.68 % recommended improving intra- and inter-institutional communication, 8.62 % proposed other mergers with universities or research centers, 5.17 % recommended increasing research activities, and 3.44 % had other suggestions. A dichotomous closed item gauged the perception of Faculty of Materials Science and Engineering employees regarding the institutional development strategy through mergers with other universities, with 89.66 % affirmative responses and 10.34 % negative responses.

#### 4. CONCLUSION

The conducted research highlights that within the Faculty of Materials Science and Engineering at the National University of Science and Technology POLITEHNICA Bucharest, the institutional merger process carried out under Law no. 186/26 June 2023 is perceived positively from a socio-educational perspective. Employees have been and continue to be informed—through official communications from the university's leadership—regarding the evolution and impact of this process across all levels of university activity. The institutional development strategy through expansion can continue, supported by sustained efforts from the management team and actions aimed at raising awareness and countering resistance to change within the academic community. There are plans to expand the research to the entire academic community (staff/students) in order to generalize the results and correctly phase the institutional development strategy. Also, we aim to contribute to the academic literature by providing a detailed and well-documented perspective on the university merger process and further formulate practical recommendations to support other institutions in effectively managing their own mergers and to serve as a valuable tool for policymakers, academics, and practitioners interested in managing transformations in higher education.

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