

THE POLICY OF PROFESSIONAL DEVELOPMENT OF HUMAN RESOURCES IN RESEARCH INSTITUTIONS IN THE CONTEXT OF A RESILIENT DEVELOPMENT

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Abstract:

The paper examines the importance of resilient human resource (HR) practices in research institutions, essential to fulfilling the Lisbon Strategy's vision of a competitive, knowledge-based economy. It highlights the unique HR challenges these institutions face, such as attracting top talent, continuous training, and retention, which demand adaptable recruitment and development strategies. Through a mixed-methods approach that integrates theoretical frameworks with empirical data from European research institutions, the study explores effective HR strategies, such as competency-based recruitment, targeted training programs, flexible career development opportunities, and multi-dimensional performance evaluation. By fostering an environment that supports professional growth, innovation, and institutional adaptability, resilient HR practices play a critical role in sustaining research excellence and maintaining competitiveness in the dynamic global scientific landscape.

Keywords: human resources, research institutions, professional development, resilient development, knowledge-based economy

JEL classification: J24, O15, I23

Introduction

The European Union's Lisbon Strategy, launched in 2000, outlined a bold vision for Europe to become "the most competitive and dynamic knowledge-based society in the world" (European Commission, 2000). At the heart of this vision is the pivotal role of universities and research institutions, which serve as engines of innovation, scientific progress, and economic growth. These institutions contribute approximately 80% of fundamental research in Europe and employ around 34% of active researchers (European Science Foundation, 2009). Positioned at the intersection of research, education, and innovation, these institutions drive advancements in science and technology while supporting the economic goals of the region.

However, realizing the full potential of this vision requires more than mere investment in infrastructure or resources. The human capital within these institutions—researchers, educators, and administrative staff—is essential to achieving Europe's competitive edge. Unlike in other fields, human resources (HR) in research institutions are subject to unique pressures and challenges due to the highly specialized, interdisciplinary, and rapidly evolving nature of the scientific field. This dynamic environment places demands on HR policies and

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practices that go beyond standard organizational frameworks, necessitating adaptive and resilient HR approaches tailored to the distinctive needs of research personnel.

The challenges faced by research institutions in effectively managing their human resources are multi-faceted. The high degree of mobility among researchers, intense competition for top talent globally, and the growing requirement for interdisciplinary skills and adaptability highlight the complexities in recruitment and retention. Further compounding these issues are evolving global research demands and heightened competition between institutions to attract leading scholars and innovators. Additionally, the focus on producing high-impact research and fostering innovation requires that researchers receive ongoing professional development opportunities to keep pace with advancements and contribute meaningfully to their fields.

This paper delves into the HR policies and practices essential for fostering resilience within research institutions, focusing on recruitment, motivation, training, and performance evaluation as key components of a robust HR strategy. Resilience in HR practices is not only about responding to challenges but also about creating an environment in which researchers can thrive, innovate, and grow. Such resilience enables institutions to meet both current and future demands, preparing them for shifts in research priorities, technological advancements, and emerging interdisciplinary fields. By examining adaptive strategies for professional growth, this study emphasizes the necessity of resilient HR practices that align with the overarching goals of the European Union's knowledge-based economy.

The study draws on both theoretical frameworks and empirical insights from existing literature, institutional reports. By analyzing these data, we aim to highlight the best practices and challenges associated with fostering resilience in HR management within the unique context of research institutions. This paper offers a comprehensive overview of strategies to build and sustain a workforce capable of adapting to the fast-paced and competitive nature of global research environments, contributing to the sustainable development of Europe's knowledge economy.

Literature review

The professional development of human resources in research institutions, particularly through the lens of resilient development, has garnered substantial attention in recent years. As organizations navigate an increasingly volatile world, fostering resilience within their workforce has emerged as a crucial strategy.

Research by Lee and Wang (2017) underscores the importance of entrepreneurial resilience, particularly for leaders who face unpredictable challenges. They found that human resource professionals can play a pivotal role by designing interventions that strengthen resilience among leaders. Such interventions can help leaders develop adaptability, ensuring that institutions are well-prepared to navigate the unexpected (Lee & Wang, 2017).

Luthans and colleagues (2006) took a different angle, exploring the concept of psychological resilience as a core component of "psychological capital." They advocated for a combination of proactive and reactive human resource development (HRD) strategies to help employees build inner resources, like self-efficacy and optimism. By increasing employees' psychological assets and managing stressors, HR professionals can contribute to a more resilient workforce that withstands challenges with a constructive mindset (Luthans et al., 2006).

Health workers, who are at the core of healthcare resilience, also benefit from robust HR practices, as noted by George, Campbell, and Ghaffar (2018). Their research highlights the

unique role of health personnel as pillars of resilient health systems, emphasizing the need for HR policies that prioritize engagement, retention, and motivation. This ensures that health workers, crucial to resilient development, remain committed to their roles, ultimately supporting sustainable progress in healthcare settings (George et al., 2018).

Organizational resilience is similarly supported by strategic HR initiatives, as shown in Lengnick-Hall's (2011) research. By fostering resilience-oriented practices within HR, institutions can cultivate individual behaviors that, when combined, contribute to an organization's overall capacity to adapt. This strategic approach enables organizations to respond flexibly to adverse conditions, which is crucial in fast-evolving sectors (Lengnick-Hall et al., 2011).

In the industrial sector, Blanco and Montes-Botella (2017) found that human capital and research and development (R&D) are key to resilience in manufacturing companies. Their study of Spanish firms suggests that investments in HR and R&D create a stronger foundation for resilience, enabling companies to handle global economic shifts with greater ease. This indicates that resilience is not just about individual employee capabilities but also the structural support of human resources and innovation (Blanco & Montes-Botella, 2017).

Finally, the education sector also requires resilience-based HR policies, especially during crises. Slatvinskyi and Tsymbal-Slatvinska (2023) examined HR strategies in higher education amid current crises and found that adapting HR policies to prioritize safe work environments, continuous professional development, and strategic use of financial resources significantly benefits institutions. Their findings highlight the need for educational institutions to support faculty resilience, ensuring that educators can fulfill their roles even under pressure, thus enhancing the institution's overall stability (Slatvinskyi & Tsymbal-Slatvinska, 2023).

Thus, the development of human resources with a focus on resilience can fortify research institutions and organizations across sectors. Strategic HR practices enable employees not only to cope but to thrive, contributing to institutions that are better prepared for the unpredictable demands of a dynamic world.

Description of the problem

The rapid advancement of knowledge, and the demands of a globalized scientific community, present unique HR challenges for research institutions. Studies indicate that human resource management (HRM) within research settings is perceived as more complex and anxiety-inducing than financial or administrative management. As the competition for skilled researchers intensifies, institutions must continuously adapt their HR policies to meet evolving demands.

Recruiting qualified research personnel is particularly challenging in a competitive global environment. Research institutions require highly specialized expertise that often crosses disciplinary boundaries. To address this need, institutions frequently expand their recruitment efforts to include international candidates. Top institutions such as the University of Cambridge and Oxford University recruit over 30% of their researchers from international talent pools, emphasizing the importance of a global approach to recruitment (Φραγκούλης, 2005). This strategy allows institutions to access diverse perspectives and foster collaboration across geographic boundaries.

However, international recruitment alone is insufficient to meet the complex needs of research institutions. Many institutions have implemented structured recruitment processes that include job analysis, role-specific criteria, and performance predictors to identify

candidates most likely to succeed. Given the complexity of research roles, this structured approach helps institutions select candidates who possess both the technical skills and adaptability required for success. However, the recruitment process in research settings is often time-consuming and resource-intensive, underscoring the need for efficient yet rigorous selection methods.

Retention of skilled researchers is a critical challenge for research institutions, as high turnover can disrupt research continuity and institutional productivity. Researchers are often driven by factors such as intellectual challenge, recognition, and career development opportunities. Studies indicate that fostering an environment that meets these needs is key to retaining researchers in the long term (Harley, 1999). Institutions can support retention by offering incentives such as flexible working conditions, sabbaticals, and funding opportunities for research projects.

In addition to these structural supports, institutions benefit from providing career advancement opportunities and professional recognition. For example, allowing researchers to participate in conference presentations, leadership roles, and collaborative projects can foster a sense of belonging and encourage long-term commitment. Financial incentives, such as performance-based bonuses, also play an important role in retention, although non-monetary rewards such as mentorship and professional development opportunities are equally valuable.

Methodology and Data

This study employs a mixed-methods approach, integrating theoretical frameworks and empirical data from existing reports, policy documents, and academic literature to analyze resilient HR practices in research institutions. The research focuses on key aspects of HR management, including recruitment, motivation, training, and performance evaluation, to understand how institutions adapt to evolving research demands and workforce challenges.

A comprehensive review of scholarly literature, institutional reports, and policy documents was conducted to identify trends, challenges, and best practices in HR management within research institutions. This review included academic journal articles, reports from European research organizations, and policy documents from institutions such as the European Commission. The selected sources provide insights into competency-based recruitment, interdisciplinary skill development, structured career pathways, and multi-dimensional performance evaluation.

Additionally, statistical data from policy briefs, education management systems, and publicly available datasets were analyzed to examine researcher employment trends, training participation, and institutional performance metrics. By synthesizing findings from these sources, the study highlights effective HR strategies that enhance resilience in research institutions and identifies common challenges across different organizational contexts.

By synthesizing insights from existing literature and empirical data from institutional sources, this study provides a comprehensive assessment of resilient HR management in research institutions. The findings contribute to a deeper understanding of how HR policies can be optimized to sustain research excellence and institutional competitiveness in a knowledge-based economy.

Results

In the Figure 1 it is illustrated a cyclical approach to human resource management within research institutions, highlighting the interconnected processes of recruitment, training and development (including motivation and retention), and performance evaluation. This continuous loop ensures that institutions can attract, develop, and retain highly skilled researchers while maintaining a structured assessment framework to support long-term resilience.

The cycle begins with recruitment, where institutions seek to attract top talent with the necessary expertise and adaptability to thrive in research environments. Once researchers are integrated into the institution, training and development initiatives, along with motivation and retention strategies, play a crucial role in fostering professional growth. These efforts help researchers stay engaged, refine their skills, and adapt to evolving scientific and institutional demands.

As researchers contribute to their fields, performance evaluation becomes essential in assessing their progress and impact. This assessment not only ensures accountability and excellence but also informs future training needs and recruitment strategies, reinforcing a continuous improvement cycle. By integrating these key HR components into a dynamic and adaptive framework, research institutions can build a resilient workforce capable of sustaining innovation and competitiveness in a rapidly evolving knowledge-based economy.

Effective recruitment is essential for building a resilient workforce in research institutions. Many institutions target international talent pools, seeking individuals with specific expertise in areas of high demand. This international recruitment strategy allows institutions to tap into a broader range of skills and experiences, particularly in emerging fields that require interdisciplinary knowledge (European Science Foundation, 2009).

Selection processes typically include job analysis, identification of role-specific skills, and criteria for professional efficiency. Structured recruitment processes help institutions identify candidates who are well-suited to the demands of their roles. However, the time and resources required for these processes can be a barrier, particularly in fast-paced research fields where positions must be filled quickly. Some institutions have begun to experiment with faster, technology-driven recruitment methods, such as virtual assessments and online interview platforms, to streamline the selection process without compromising rigor (Φραγκούλης, 2005).

Training and development programs are critical for fostering a resilient research workforce. Research institutions emphasize two primary skill sets: research expertise and management capabilities. Researchers are often provided with training in areas such as securing research funding, managing interdisciplinary collaborations, and intellectual property management. Training in these areas not only enhances individual skills but also strengthens the institution's capacity to engage in complex research projects (Middlehurst, 2009).

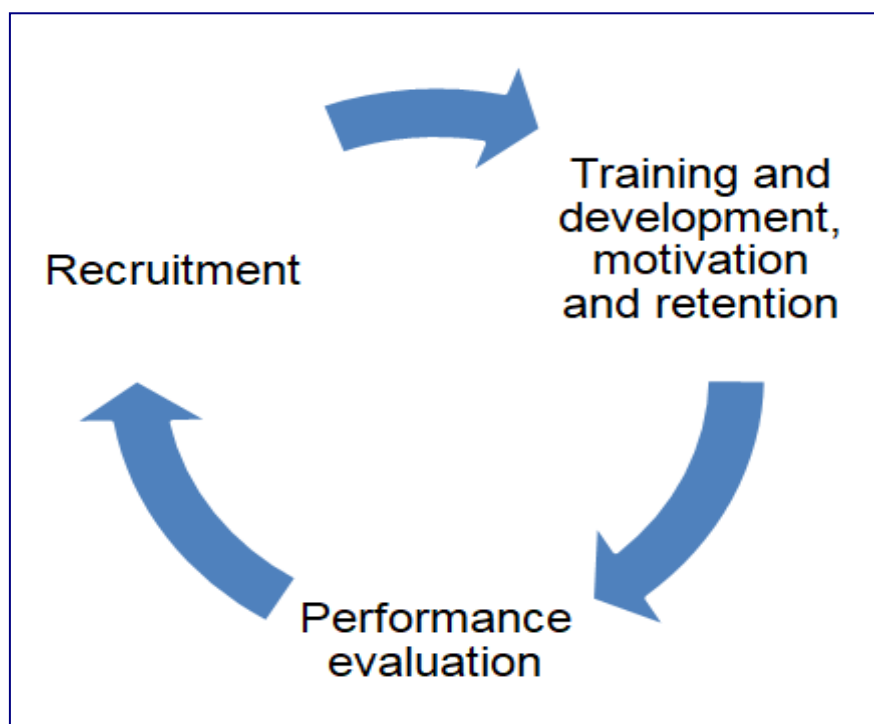


Figure 1 - Flowchart of the resilient HR approach

Source: Elaborated by the authors

Mentorship programs are another vital component of professional development in research settings. For example, over 75% of European universities report that they offer mentorship opportunities to doctoral and postdoctoral researchers, helping early-career researchers develop foundational skills and providing guidance on career progression. In addition to mentorship, institutions offer training in project management, financial management, and research methodology, equipping researchers with the tools they need to make meaningful contributions to their institutions.

The importance of flexible and targeted training is underscored by the demanding schedules of research personnel. Short-term, high-impact training sessions allow researchers to develop skills without significant disruption to their primary responsibilities. Studies suggest that targeted, practical training programs are more effective than traditional methods, as they are easier to integrate into busy work schedules and address the specific needs of researchers (Φραγκούλης, 2005).

Retention strategies in research institutions are focused on creating an environment that fosters both personal and professional growth. Research indicates that providing researchers with intellectual challenges and opportunities for professional recognition are key factors in retaining skilled personnel (Harley, 1999). Institutions can further support retention by implementing flexible work policies that allow researchers to balance their teaching and research responsibilities, thereby reducing burnout and enhancing job satisfaction.

Financial incentives, such as competitive salaries and performance-based bonuses, contribute to motivation and retention. Many institutions have developed transparent pay structures that reward high performance, helping to retain top talent. In addition to financial rewards, non-monetary incentives such as professional recognition, conference invitations, and leadership opportunities are equally important. These initiatives help researchers feel valued and motivated, which strengthens their loyalty to the institution.

A robust retention strategy also includes providing career development opportunities. Leadership training programs, for example, allow researchers to develop skills in project management, team building, and strategic planning. These programs are particularly valuable for early-career researchers, as they provide a clear pathway to advancement within the institution. By supporting the professional growth of researchers, institutions can create a more resilient workforce capable of adapting to new challenges.

Performance evaluation in research settings requires a multi-dimensional approach that goes beyond traditional metrics. While peer review remains a key component of research assessment, many institutions are adopting scientometric tools to complement peer review, allowing for a more comprehensive evaluation of research impact (Whitchurch & Gordon, 2009). These tools measure research output based on metrics such as citation counts, publication quality, and societal relevance.

The evaluation process also considers the broader impact of research, including its contributions to education, technology, and public policy. For instance, research that influences policy decisions or contributes to economic development is highly valued, as it aligns with the goals of the knowledge-based economy (Φραγκούλης, 2005). This approach ensures that research is not only productive but also relevant, providing tangible benefits to society.

Research institutions face considerable challenges in managing human resources, particularly in the context of a dynamic and competitive global research environment. Recruitment, motivation, training, and performance evaluation are all critical components of an effective HR strategy, yet each of these areas requires a resilient approach that can adapt to the changing needs of the field.

Recruitment practices, for example, must be flexible enough to attract a diverse and highly skilled workforce while ensuring that candidates possess the specific skills needed for their roles. Similarly, training and development programs must be tailored to the unique demands of research, providing researchers with targeted skills that enable them to succeed in their careers. Motivation and retention strategies must go beyond financial incentives, fostering a supportive environment that recognizes the contributions of researchers and encourages long-term commitment.

Performance evaluation is particularly complex in research settings, as it requires balancing quantitative metrics with qualitative assessments of impact. Institutions that adopt a multi-dimensional approach to evaluation can more accurately assess the contributions of their researchers, promoting a culture of excellence and accountability.

Conclusions

The development of resilient HR policies within research institutions is a foundational component for fostering a sustainable and adaptable research workforce. Resilience in HR practices is essential not only for supporting researchers' individual growth but also for enhancing the institution's capacity to adapt to the demands of a rapidly changing knowledge-based economy. By focusing on key areas such as recruitment, training, motivation, and performance evaluation, research institutions can establish a workforce capable of meeting current challenges while remaining prepared for future uncertainties.

Effective recruitment strategies are critical for attracting top talent, especially as institutions increasingly compete on a global scale. Structured, competency-based recruitment processes enable institutions to select candidates with the specific technical and interpersonal skills necessary for complex research roles. Furthermore, targeting diverse,

international talent pools allows institutions to draw from a wide range of perspectives, which can enrich interdisciplinary research and innovation.

Training and development programs form the backbone of professional growth within research institutions. These programs not only provide researchers with the technical skills and management capabilities needed to succeed but also contribute to the overall institutional resilience by preparing researchers for leadership roles. Short-term, targeted training programs that are easily integrated into researchers' busy schedules have proven to be effective, ensuring that researchers can continuously update their skills without disrupting their primary responsibilities.

Motivation and retention are equally important in fostering a committed and resilient workforce. Research institutions can retain skilled personnel by creating an environment that supports intellectual curiosity, professional recognition, and career development. Flexible work policies and incentives—both financial and non-financial—help address researchers' unique motivational drivers, such as the need for recognition and opportunities to contribute meaningfully to their fields. By cultivating a supportive work environment, institutions can reduce turnover and maintain continuity in their research agendas.

Performance evaluation presents unique challenges in research settings, where traditional metrics alone cannot fully capture the impact and relevance of a researcher's contributions. A multi-dimensional approach to evaluation, which combines quantitative metrics with qualitative assessments of broader societal and policy impacts, is essential for fostering a culture of excellence and accountability. This approach aligns individual contributions with the broader mission of advancing knowledge and innovation for societal benefit.

Ultimately, resilient HR practices in research institutions not only support the professional growth of individual researchers but also enhance the competitiveness and adaptability of the institution itself. By embedding resilience into HR policies, research institutions can position themselves to thrive in a global, knowledge-driven economy, effectively contributing to scientific advancements, technological innovation, and economic development.

The findings of this paper also underscore the broader implications of resilient HR policies in research settings. By building a robust talent pool, research institutions enhance their ability to address global challenges, drive sustainable development, and support regional economic growth. Additionally, resilient HR practices can serve as a model for other sectors that rely heavily on knowledge-based workforces, showcasing how adaptability, targeted skill development, and motivational strategies can create a dynamic and future-ready workforce.

The insights provided in this study can guide research institutions in refining their HR policies to support a resilient and engaged workforce. These practices have the potential not only to benefit researchers but also to contribute to the institution's long-term success and to the advancement of a knowledge-based economy that meets the needs of society and future generations.

Future Directions

The future of human resource management (HRM) in research institutions presents several promising directions. One area for further research is the development and identification of best HRM practices across different types of research institutions, such as public universities, private research entities, and non-profit research organizations. Comparative studies could reveal how various institutional structures, funding models, and research priorities influence HR policies and their effectiveness in enhancing productivity, innovation, and institutional reputation.

Another potential direction involves examining the long-term impact of resilient HR practices

on both researchers and institutions. Longitudinal studies could assess the correlation between adaptive HR strategies, such as flexible recruitment and performance evaluation, and indicators of institutional success, such as research output, researcher satisfaction, and talent retention. Understanding these impacts would provide valuable insights into how HR policies influence not only individual career progression but also the overall competitiveness and sustainability of research institutions.

With the digital transformation accelerating across sectors, another area of interest is the role of digital platforms in enhancing professional development, collaboration, and recruitment processes in research institutions. Virtual learning environments, online mentoring, and digital skill-building platforms offer new ways to support researcher development, making it easier for institutions to deliver training and professional resources, especially in remote or under-resourced areas. Digital tools also facilitate cross-institutional collaboration and global recruitment, creating more inclusive and diverse research environments.

Exploring the impact of artificial intelligence (AI) and machine learning on HR processes in research settings is another promising avenue. AI-powered tools can streamline recruitment by efficiently screening candidate profiles, predicting job-fit, and reducing the time required for the selection process. Additionally, AI can play a role in personalized career development by analyzing researchers' performance data and suggesting tailored training programs or professional pathways, helping institutions retain and nurture talent.

Lastly, establishing international standards for researcher evaluation would enhance transparency, competitiveness, and alignment with the goals of a global knowledge-based economy. Standardized metrics and evaluation frameworks could improve cross-border recognition of research contributions, facilitating international collaboration and researcher mobility. Such standards could also include guidelines for recognizing interdisciplinary work and societal impact, ensuring that evaluations reflect the diverse contributions of research beyond traditional publication metrics.

These future directions highlight the potential for HR practices to evolve in ways that meet the demands of a dynamic research environment. By embracing digital transformation, AI, international standards, and comparative studies, research institutions can enhance the resilience and effectiveness of their HRM strategies, ultimately strengthening their capacity to contribute to global scientific and technological advancements.

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