


Article

Sustainable Enablers of Knowledge Management Strategies in a Higher Education Institution

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Abstract: By facilitating the capture, organization, and dissemination of knowledge within and beyond the institution, knowledge management (KM) in higher education institutions (HEIs) fuels innovation, enhances research impact, and strengthens collaboration, ultimately leading to the creation of new knowledge and its valuable exchange. However, there is still much to explore in terms of the enablers of knowledge creation, sharing, and transfer. Therefore, this paper aims to identify the enablers of effective KM in the Polytechnic University of Leiria, which serves as a benchmark for other higher education institutions due to its leadership role in RUN-EU, a consortium of European universities. To achieve this, a narrative analysis based on information from SCOPUS and the institute's website, focusing on innovation, research, and development strategies, is proposed. The findings suggest that for KM initiatives to be successful, they need to be strategically designed, culturally supported, technologically enabled, and integrated into existing workflows.

Keywords: knowledge management; open innovation; higher education institutions; university–industry collaboration



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1. Introduction

Over the past two decades, higher education institutions (HEIs) have faced challenges relating to rapid technological progress, knowledge dissemination, increased demand and emphasis on quality, competitiveness, changing funding mechanisms, regulations, and internationalization [1]. The focus of accrediting agencies on research has compelled HEIs to provide related facilities and incentives, leading to a recognition of the need to redesign their external policies, internal strategies, and knowledge management approaches to remain competitive [2,3]. Open innovation has emerged as a driver of value creation, facilitating the flow of resources, knowledge, and practices across organizations, while university–industry collaboration has become a regular approach to innovation [4–6]. In this article, knowledge management (KM) is assumed to have three main strands: knowledge creation, knowledge sharing, and knowledge transfer. KM is recognized as a key factor for innovation and competitive advantage [7,8]. However, despite the importance of KM in supporting HEI activities, such as teaching, research, and knowledge transfer, many adopted KM approaches have been proven to be passive and inconsistent [9]. Therefore, it is necessary to establish a common understanding of KM before evaluating its effectiveness in terms of knowledge creation, sharing, and transfer [10]. However, the topic of KM in HEIs remains to be fully explored [11]. Previous research has focused on specific aspects of the knowledge process [12], knowledge sharing among academics [13], and commercialization opportunities [14].

Currently, there is a need to explore the enablers of knowledge creation, sharing, and transfer to facilitate successful KM [15–17]. Knowledge management enablers are factors or

mechanisms that promote knowledge creation, sharing, and transfer [18,19]. Some studies have analyzed the enablers of KM in HEIs, specifically related to knowledge creation, sharing, and transfer [20–22]. However, there is still a lack of comprehensive research on this topic [23–27]. In this paper, we argue that KM in HEIs should consider the specificities of accountability and the different impacts on society, such as scientific production, the spread of education, and industrial innovation. The purpose of this research is to contribute to the understanding of the enablers of effective KM, particularly through a case study of the Polytechnique Institute of Leiria, an HEI in the Centro region of Portugal. This article aims to generate insights into the internal mechanisms that promote knowledge creation, sharing, and transfer in this specific context [15–17]. To achieve this, a narrative analysis based on information displayed on SCOPUS and the institute’s website regarding innovation, research, and development strategies is proposed. The structure of this paper is as follows: Section 2 provides a literature review on knowledge management practices within HEIs; Section 3 describes the data, methodology, and results; Section 4 discusses the results, concludes, presents the implications and limitations of this research, and sets the avenues for future research.

2. Enablers of Knowledge Management

Knowledge management (KM) is crucial for HEIs to identify, create, manage, and share their intellectual capital effectively. This fosters innovation, improves teaching and research, and ultimately contributes to the institution’s mission. However, unlike private organizations, HEIs face challenges in implementing KM models due to the intangible nature of their knowledge assets. Research offers valuable insights into the key enablers of KM in HEIs. These enablers can be broadly categorized into the following areas.

2.1. Human Resources and Cultural Enablers

Qualified and experienced staff are essential for knowledge creation and sharing. Effective human resource management practices can further enhance this. For example, a university could offer training programs on knowledge sharing and collaboration skills for faculty and staff. The relationship between human resource management (HRM) practices and knowledge management (KM) maturity is a central focus in contemporary organizational research [28]. Recruitment and compensation positively influence KM maturity, while other HRM practices such as training and development may have adverse effects [29]. Furthermore, studies shed light on the pivotal role of HRM practices in higher education settings, where teaching knowledge management courses not only enhances HR practices, but also fosters better research outcomes and educational quality [30,31]. Such findings emphasize the significance of aligning HRM strategies with knowledge-related objectives to drive organizational success [32].

Communities of practice (CoPs) are groups of individuals who share expertise and learn from each other. For example, a CoP could be formed among faculty members in the engineering department who collaborate on research projects. Faculty members across various disciplines, particularly in engineering departments, recognize the significance of cultivating community beyond traditional course boundaries. Strategies such as social media engagement, synchronous communication, face-to-face interactions, and cohort models are important in sustaining a vibrant online program community [33]. The CoPs serve as platforms for faculty to exchange ideas, implement best practices, and enhance their teaching methods, contributing to individual growth and institutional advancement [34].

Enhancing knowledge sharing and research collaboration among academics hinges on various factors within the realm of knowledge management. Trust, rewards, and organizational culture are pivotal elements that foster knowledge sharing among academics, ultimately strengthening research collaboration [35,36]. Individual beliefs and leadership significantly influence UK academics’ attitudes toward knowledge sharing, with rewards through associations emerging as a notable individual factor [37]. Additionally, top management support plays a strategic role in fostering affiliation and trust, which, in turn,

mediate the relationship between top management support and knowledge sharing within academic environments [38]. Moreover, the effectiveness of reward systems in promoting knowledge sharing among faculty members is a subject of considerable interest. Thus, there is an interplay between individual beliefs, organizational culture, rewards, and top management support in nurturing a conducive environment for knowledge sharing and research collaboration among academics.

2.2. Technological Enablers

Digital learning platforms play a pivotal role in shaping university students' learning behaviors and motivations, ultimately impacting their knowledge development. The use of educational apps and virtual classrooms correlates with increased learning and motivation among students [39]. Similarly, digital collaboration platforms facilitate two-way knowledge sharing, fostering lifelong learning and bridging the gap between academia and industry [40]. Moreover, the effectiveness of technology integration in teaching and learning, particularly in life sciences education, has been shown to enhance academic achievement and motivation among learners, thereby promoting the acquisition of essential skills and competencies [41]. Overall, technology integration holds promise for creating a more student-focused atmosphere and curriculum, particularly for underserved and disadvantaged students, thereby bridging the digital divide and fostering equitable access to educational opportunities.

However, successful integration requires ongoing training and support for educators to effectively incorporate technology into their instruction, emphasizing the importance of understanding technology and its benefits for student achievement [42].

Technology integration in teaching and learning, particularly in life sciences education, has been shown to enhance academic achievement and motivation among learners, thereby promoting the acquisition of essential skills and competencies [41]. Additionally, technology integration in educational management impacts on community participation, ultimately enhancing the overall learning environment [42,43].

Academic libraries play a pivotal role in driving digital transformation, revolutionizing teaching, learning, and research practices within higher education institutions. ICT enhances knowledge management by providing platforms for collaboration and knowledge sharing [44]. For example, the University of Michigan Digital Library Program has played a pivotal role in advancing digital content creation and information infrastructure within the campus community [45]. This initiative has significantly expanded access to electronic information resources, enriching academic research and learning activities [46]. Furthermore, innovative projects such as the Interactive Reference Assistance (IRA) project have transformed library services by offering virtual assistance and breaking down geographical barriers to resource accessibility [47]. Additionally, efforts such as the Library as Research Lab Project foster collaboration between graduate students, academic librarians, and information science faculty, advancing research activities and uncovering tacit knowledge in information studies [48]. These tools are crucial in creating a shared knowledge base, offering best practices, and enabling experts and professionals to contribute their knowledge effectively and efficiently [49].

ICT enhances knowledge management by providing platforms for collaboration and knowledge sharing [50]. Thus, these tools are pivotal in creating a shared knowledge base, offering best practices, and enabling experts and professionals to contribute their knowledge effectively and efficiently [51]. They are crucial in the different phases of the SECI model (socialization, externalization, combination, and internalization), widely used for knowledge management in HEIs. Single ICTs and varied combinations of ICTs effectively facilitate these phases, thereby promoting knowledge creation and sharing [50].

Data mining and big data science techniques play a significant role in knowledge management within HEIs [52]. These technologies can uncover valuable insights hidden in student information systems, leading to improved strategic planning and decision-making processes [53]. Effective ICT tools also include strategies for managing ICT infrastructure,

technology transfer, and cooperative marketing [54]. E-learning platforms are another critical ICT tool for knowledge management in HEIs [55]. Such platforms support the e-learning environment, enhancing knowledge dissemination and accessibility [56].

2.3. Structural and Resource Enablers

Organizational structure positively influences KM by impacting the creation, sharing, and utilization of knowledge [57]. In Malaysian SMEs, technology utilization and organizational structure are key factors in KM, while organizational culture focuses on knowledge conversion and protection [58]. Organizational structure, especially specialization and centralization, plays a crucial role in fostering both inbound and outbound open innovation in Chinese SMEs [59]. Both organizational culture and a formalized organizational structure positively impact knowledge circulation processes, enhancing job performance [60]. Furthermore, increased KM capability mediates the relationship between environmental uncertainty and structural changes, aiding organizations in adapting to external changes [61].

Leadership in HEIs is instrumental in cultivating an entrepreneurial mindset and promoting intrapreneurial activities. Henry and Lahikainen (2024) highlight the significance of leadership in steering entrepreneurial universities towards intrapreneurial endeavors, emphasizing that effective governance structures support these activities by aligning them with institutional goals [62]. In the context of Abu Dhabi's HEIs, Al Shamsi (2020) underscores the critical role of leadership in driving entrepreneurial and innovative practices within educational institutions. The assessment indicates that leadership commitment is essential for embedding entrepreneurial culture and facilitating the development of innovative strategies [63]. The strategizing practices of middle managers also play a crucial role in effecting strategic change within HEIs. Van Niekerk and Jansen van Rensburg (2022) examine how middle managers' strategic initiatives are integral to implementing KM practices, asserting that leadership at various levels within the organization is necessary for achieving meaningful change and enhancing KM capabilities [64]. Furthermore, the effective governance of information and technology is highlighted by Kalusopa et al. (2021) as a key factor in supporting KM initiatives in African HEIs. The authors argue that robust governance frameworks ensure the proper management of knowledge and technology, which is vital for development and innovation within educational institutions [65].

University–industry partnerships are crucial for fostering social capital, facilitating knowledge transfer, and driving innovation, which, in turn, create opportunities for growth [66]. These collaborations often involve various educational involvement practices, such as student projects and jointly organized courses, which promote relational learning and innovation development [67]. Success in these collaborations depends on factors such as organizational context, individual attributes, and the nature of knowledge being transferred [68]. In recent years, intensified university–industry collaboration has been driven by factors such as technological advancements, funding needs, and government policies promoting technology transfer [69]. Open innovation and value co-creation through these partnerships have been particularly beneficial in industrialized countries, although they require systemic orchestration in emerging economies [70]. Additionally, frameworks have been developed to manage successful collaborations, emphasizing the stages and communities of practice as essential elements [71].

Information technology repositories play a crucial role in facilitating knowledge management processes, connecting to individual learning [72]. These repositories positively impact knowledge retrieval and storage, with factors such as knowledge self-efficacy and enjoyment in helping others influencing their usage [73]. Contextual factors, including codification effort, reciprocity, and organizational reward, moderate this impact [74]. Moreover, learning object repositories, when integrated with knowledge management system functionalities, can effectively organize, and share explicit and tacit knowledge within educational communities [75].

2.4. Behavioral Enablers

Institutional repositories also contribute significantly to academic knowledge management by sharing, disseminating, reusing, and preserving knowledge, benefiting scholarly and operational domains alike [76]. Efforts to evaluate knowledge in electronic repositories can enhance content quality, fostering knowledge sharing, reuse, and learning within organizations [77]. Proposals for essential operations in learning object repositories aim to facilitate knowledge creation, sharing, and application in web-facilitated educational communities [78]. Additionally, semantic knowledge management systems have emerged as effective tools for enhancing knowledge sharing in scholarly and government repositories [79]. By leveraging semantic web technologies, these systems automatically identify patterns and generate taxonomies from unstructured texts, improving knowledge retrieval accuracy.

Creating a conducive environment with appropriate incentives and organizational culture is essential for promoting knowledge sharing and enhancing research collaboration among academics. Factors such as trust, rewards, and organizational culture positively influence knowledge sharing behaviors, ultimately leading to stronger research collaboration [80]. Incentive systems are essential in motivating knowledge sharing, with sufficient and team-oriented incentives proving to be effective, especially when balanced between individual and workgroup levels [81]. Organizational factors, such as culture and information technology, also play a significant role in shaping knowledge sharing motivation [82]. However, the impact of reward systems on knowledge sharing remains complex, with the effectiveness of individual-based versus group-based systems varying depending on organizational contexts [83,84].

3. Data, Methodology, and Results

3.1. Data Collection

Data for this study were obtained through an analysis of the IPLeiria website, serving as a source of insights into the institution's research and innovation ecosystem, as well as its collaboration with industry partners. The methodological approach employed in this research is narrative analysis, which involved systematically examining and interpreting the information available on IPLeiria's website.

The URLs listed below were accessed to gather information pertinent to the study:

Main IPLeiria website: <https://www.ipleiria.pt/> (accessed on 8 May 2024).

International cooperation networks: <https://www.ipleiria.pt/internacional/cooperacao-internacional/redes-internacionais/> (accessed on 8 May 2024).

International partners: <https://www.ipleiria.pt/internacional/cooperacao-internacional/parceiros-internacionais/> (accessed on 8 May 2024).

RUN-EU European University cooperation: <https://www.ipleiria.pt/internacional/cooperacao-internacional/run-eu-european-university/> (accessed on 8 May 2024).

Human resources management: https://www.ipleiria.pt/politecnico/servico_gestao_pessoas/informacoes-e-plataformas/ (accessed on 8 May 2024).

Organizational structure: <https://www.ipleiria.pt/politecnico/institucional/organizacao-interna/> (accessed on 8 May 2024).

Institutional statistics: <https://www.ipleiria.pt/politecnico/institucional/factos-e-numeros/> (accessed on 8 May 2024).

Management information: <https://www.ipleiria.pt/politecnico/institucional/informacao-de-gestao/> (accessed on 8 May 2024).

Strategic planning: <https://www.ipleiria.pt/politecnico/institucional/plano-estrategico/> (accessed on 8 May 2024).

Archives: <https://www.ipleiria.pt/arquivo/bright-fridays/> (accessed on 8 May 2024).

The data collection process involved systematically browsing through the content available on these web pages, extracting relevant information related to knowledge management strategies and enablers, for example, via reports, plans of activities, statistics, among others.

3.2. Methodological Approach

In this study, narrative analysis was chosen as the methodological approach to explore KM strategies within the organizational context of IPLeiria. Narrative analysis is a qualitative research method suited for examining textual data in the form of stories or narratives. It allows for a nuanced exploration of complex phenomena, making it well-suited for investigating the multifaceted nature of KM strategies [85,86]; narrative analysis was deemed appropriate for this study due to several factors. Firstly, the IPLeiria website provided a rich source of textual data, including institutional documents and reports relevant to KM. Secondly, KM involves intricate processes and organizational dynamics, which narrative analysis can effectively capture by focusing on the narratives embedded within the textual data. Lastly, narrative analysis enables a holistic understanding of the data by uncovering underlying themes and meanings inherent in the narratives.

The narrative analysis process comprises several key steps. Firstly, data collection involves gathering textual data from relevant sections of the IPLeiria website, focusing on KM strategies and enablers. Next, we familiarized ourselves with the data by reviewing and reading the material. The data were then systematically coded and categorized based on their content, helping to organize the information and identify recurring themes. For instance, according to Riessman [86], coding in narrative analysis involves identifying significant statements or events in the narratives. Examples of the coding process included tagging sections of the text related to “knowledge creation”, “knowledge sharing”, and “knowledge transfer”, which helped in identifying recurring patterns and themes.

We then identified themes emerging from the coded data. Finally, we interpreted the themes within the broader context of the research objectives, synthesizing findings and drawing conclusions. This methodological approach allowed for a thorough examination of the textual data, facilitating the identification of key themes and patterns related to KM strategies. Through narrative analysis, this study sought to uncover the underlying narratives inherent in the institutional documents and reports, providing insights into the KM practices at IPLeiria.

3.3. Results

Human Resources Development. IPLeiria prioritizes the professional growth of its faculty and staff through initiatives such as faculty development programs, staff training, and strategic recruitment. These efforts aim to attract and retain top talent, enhancing knowledge and scientific production. The institution invests in faculty development and implements recruitment strategies to ensure a skilled workforce.

National and International Cooperation. Aligned with its strategic goals, IPLeiria builds national and international networks to tackle regional and global challenges. By connecting with regional companies and attracting talented educators and researchers, the institution aims to boost knowledge creation and scientific impact. Table 1 breaks down staff composition over three years, detailing faculty, specialists, research personnel, and technical/administrative staff. The steady increase in faculty, especially those with PhDs, indicates a commitment to academic excellence and research capacity.

Cultural Engagement. IPLeiria promotes a vibrant cultural community through initiatives that foster artistic expression, cultural events, and community engagement. This enriches the academic experience and promotes a collaborative organizational culture. *Poliempreende*, a flagship project, promotes an entrepreneurial culture with over 855 participants and EUR 62,500 in prizes. It involves entrepreneurship awareness sessions, idea generation workshops, and competitions at regional and national levels. Table 2 shows data on approved projects, distinguishing between national and international projects, and total budget allocation. A decrease in international projects highlights the need for stronger international collaborations.

Table 1. Staff composition trends at IPLeiria (2020–2022).

Category	2020	2021	2022
Faculty			
- Total	1047	1129	1162
- Faculty (Full-Time Equivalent)	759.95	805.65	825.05
- Faculty with PhD (Full-Time Equivalent)	461.35	480.85	503.35
Specialists	131	140	148
Research Personnel	17	24	25
Technical and Administrative Staff	502	518	533

Source: <https://www.ipleiria.pt/politecnico/institucional/factos-e-numeros> (accessed on 8 May 2024).

Table 2. Projects with external funding to the Polytechnic of Leiria, 2020–2022.

Projects with External Funding to IPLeiria	2020	2021	2022
Approved Projects	63	51	48
National Projects	43	30	34
International Projects	20	21	14
Total Budget (Approved Projects)	EUR 12.2 M	EUR 20.9 M	EUR 45.1 M

Source: <https://www.ipleiria.pt/politecnico/institucional/factos-e-numeros/> (accessed on 8 May 2024).

Technological Enablers. IPLeiria promotes digital literacy through training programs and initiatives, equipping the community with necessary digital skills. The institution also modernizes its infrastructure to support learning and collaboration. Table 3 lists ICT-related courses, showing a strong focus on practical training and advanced academic programs. This promotes interdisciplinary collaboration and innovation, enhancing the institution's technological and knowledge management capabilities.

Table 3. ICT-related courses.

Professional higher technical courses	11
Degrees	2
Masters	1
Post-graduate	5

Source: <https://www.ipleiria.pt> (accessed on 8 May 2024).

Structural and Resource Enablers. IPLeiria modernizes administrative processes to enhance efficiency and transparency. Digital transformation initiatives streamline operations, and the institution maintains infrastructure to support teaching, research, and innovation. The HEI includes 15 research units and various centers and incubators, promoting technology transfer and community engagement. Table 4 provides details on research units.

Table 4. Number of research units at IPLeiria by scientific fields of knowledge.

Category	2020	2021	2022
Research Units	15	15	15
Intellectual Property			
Patents—National	5	14	8
Patents—International	3	5	5
Utility Models	1	1	2
Design—National Models	13	-	1
Design—Community Models	-	5	14
Trademarks—National	15	22	5
Trademarks—European	1	2	1
Copyrights	-	-	1

Source: <https://www.ipleiria.pt/politecnico/institucional/factos-e-numeros/> (accessed on 8 May 2024).

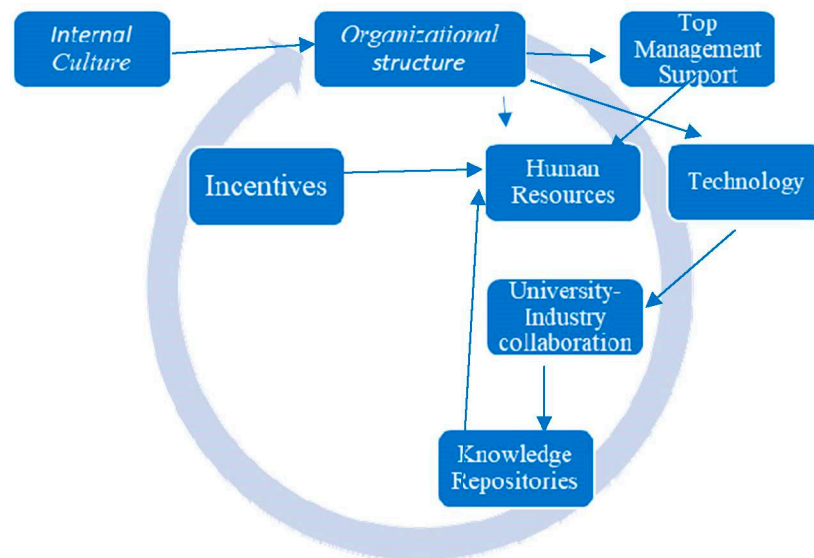


Figure 3. Model of KM enablers' hierarchy.

The model of KM at IPLeiria is shaped by various inter-related factors. The internal structure of the institution influences its organizational culture, which, in turn, is influenced by top management practices. This organizational culture plays a significant role in determining attitudes and behaviors related to knowledge sharing and innovation. Top management support is crucial for driving KM initiatives and shaping the institution's priorities and vision.

Technology implementation is another key aspect influenced by organizational culture and top management support. The adoption of digital platforms and knowledge management systems is driven by leadership decisions and organizational values. These technological tools facilitate communication, collaboration, and knowledge dissemination across the institution.

Incentives and rewards offered to human resources also play a significant role in shaping KM behaviors. Recognition, career development opportunities, and performance incentives motivate employees to actively participate in knowledge sharing and collaboration efforts. Aligning these incentives with KM objectives is essential for promoting a culture of continuous learning and improvement.

University–industry collaboration is facilitated by technology, allowing for seamless communication, project management, and data sharing between stakeholders. Digital platforms connect researchers, industry partners, and students, enabling collaborative research projects and knowledge exchange activities.

Knowledge repositories, where research outputs and intellectual assets are stored, are shaped by university–industry collaboration and technology implementation. These repositories serve as valuable resources for knowledge dissemination and utilization within and beyond the institution.

Overall, the model of KM at IPLeiria emphasizes the importance of aligning organizational structure, culture, top management support, technology, human resources incentives, university–industry collaboration, and knowledge repositories to drive innovation, collaboration, and organizational success.

4. Discussion and Conclusions

Over the last twenty-two years, HEIs have faced substantial instability, exacerbated by unpredictable shifts in governance due to the COVID-19 pandemic. Additionally, there is growing pressure on HEIs to act as catalysts for regional economic growth. In this context, innovation ecosystems have gained traction among academics and policymakers for explaining the complex interactions between innovation activities and entrepreneurial

capacities. These ecosystems require substantial funding, which significantly influences HEIs' strategies. However, attracting funding is highly competitive, with opportunities constantly evolving. To secure funding from industry and the European Union, HEIs must produce knowledge that addresses industry-specific problems. This presents a significant challenge in Europe, where, despite high levels of scientific knowledge production, industrial application remains low—a phenomenon known as the “European Paradox”. The proximity of business incubators and technology parks to university campuses can foster university–industry collaboration, typically facilitated through private non-profit institutions, short-term research contracts, and technical problem-solving assistance. Although Portuguese HEIs have the potential to generate new ideas and technologies, their R&D activities often primarily benefit the institution or society rather than industry. However, with changing EU funding requirements favoring industrially applied R&D results, this scenario is expected to improve soon. If this prediction holds true, it will enable HEIs to reshape their knowledge management (KM) strategies more effectively. According to our model, this could involve reshaping internal culture and organizational structure to better support KM.

This study explored the potential enablers of KM in an HEI through a narrative analysis of publicly available information on the Polytechnique Institute of Leiria (IPLeiria). The analysis identified several key enablers, consistent with the broader literature on KM enablers in HEIs.

Human Resources and Cultural Enablers. IPLeiria's emphasis on attracting and retaining top educators and researchers aligns with the literature that highlights the importance of qualified staff in knowledge creation and sharing. Studies indicate that effective human resource management (HRM) practices, including recruitment, training, and compensation, are crucial for enhancing KM maturity and overall organizational success [28]. The sustained growth in R&D+I projects at IPLeiria corroborates the positive impact of strategic HRM practices on research productivity and knowledge dissemination [29,32]. The institution's collaborative and entrepreneurial culture, exemplified by initiatives such as *Poliempreende*, mirrors the findings in the literature that stress the significance of communities of practice (CoPs) and a supportive organizational culture for knowledge sharing and innovation [33,34]. The emphasis on trust, rewards, and top management support at IPLeiria further validates the role of these elements in fostering a conducive environment for knowledge exchange and research collaboration [35–38].

Technological Enablers. IPLeiria's extensive use of ICT and digital learning platforms reflects the literature's assertion that technology is pivotal in enhancing learning behaviors, motivation, and knowledge development [39]. The institution's diverse ICT-related courses and the integration of digital tools into teaching and learning processes align with studies that highlight the benefits of technology for academic achievement and the acquisition of essential skills [41,42]. The role of ICT in facilitating knowledge management at IPLeiria, through platforms such as IC-online, is consistent with research findings that emphasize the importance of digital repositories and ICT tools in creating a shared knowledge base and enhancing collaboration [44,50]. The effective use of ICT tools supports various phases of the SECI model, thereby promoting knowledge creation and sharing within HEIs [50].

Structural and Resource Enablers. IPLeiria's organizational structure, which includes multiple research units and collaborative laboratories, supports the literature's view that a well-defined structure positively influences knowledge creation, sharing, and utilization [57]. The institution's leadership in initiatives such as RUN-EU demonstrates the critical role of leadership and governance in fostering an entrepreneurial mindset and driving innovation [62,63]. The active engagement of IPLeiria in university–industry linkages, which has led to numerous services and projects with regional firms, aligns with studies that highlight the importance of these partnerships for social capital, knowledge transfer, and innovation [66,69]. The practical application of research through industry collaborations at IPLeiria supports the literature's emphasis on the benefits of open innovation and value co-creation [70,71].

Behavioral Enablers. The supportive environment at IPLeiria, characterized by initiatives such as the R&D+I Awards, aligns with the literature that underscores the importance of trust, rewards, and a positive organizational culture in motivating knowledge sharing and enhancing research collaboration [80,82]. The balance between individual and group incentives at IPLeiria reflects the nuanced understanding in the literature regarding the complexity and effectiveness of different reward systems for knowledge sharing [81,83,84]. These findings suggest that strategic HRM practices are crucial for building a robust knowledge-sharing environment and fostering research excellence [28,29,32]; collaborative and supportive organizational cultures promote innovation and the effective implementation of KM practices [33–38]; technological integration plays a vital role in facilitating knowledge management and bridging gaps between academia and industry [39–42,44,50]; well-defined organizational structures and leadership are essential for driving strategic initiatives and fostering a culture of entrepreneurship and innovation [57,62,63]; and university–industry partnerships are instrumental in enhancing knowledge transfer, fostering innovation, and contributing to regional and global development [66,69–71].

The case of IPLeiria provides valuable insights into the effective implementation of KM enablers in HEIs, reinforcing the theoretical frameworks presented in the literature and highlighting the practical benefits of these strategies. For example, strategic alignment between organizational structure and internal culture is paramount for supporting KM initiatives at IPLeiria. This entails fostering a culture that values collaboration, knowledge sharing, and ongoing improvement. Policies should emphasize the need for a flexible organizational structure capable of adapting to evolving KM requirements. Moreover, strong leadership commitment is essential. Top management must actively participate in and endorse KM activities, providing clear communication, setting expectations, and acknowledging the contributions of staff involved in KM practices. Additionally, efforts should focus on attracting and retaining top talent at IPLeiria. Creating an environment conducive to research, offering competitive compensation packages, and providing opportunities for career development are essential strategies. Continuous professional development programs should be implemented to ensure that staff possess the necessary skills for effective KM. This includes training in new technologies, collaborative tools, and research methodologies. On the other hand, institutionalizing initiatives such as *Poliempreende* and *Bright Fridays* are crucial to foster regular knowledge exchange and collaboration among researchers at IPLeiria. These programs should be expanded to encompass a wider range of collaborative activities. Additionally, building and nurturing communities of practice within the university can enhance knowledge sharing and innovation. Policies should support the establishment and maintenance of these communities through dedicated resources and recognition of their contributions.

Investing in state-of-the-art IT infrastructure, including libraries and ICT tools, is essential for supporting KM efforts. Policies should ensure the integration of these technologies into daily workflows and provide adequate training to maximize their effectiveness. Developing and maintaining robust knowledge repositories is also vital for storing and disseminating research outputs. Policies should focus on ensuring that these repositories are user-friendly, accessible, and regularly updated. Moreover, strengthening partnerships with industry is key to enhancing university–industry collaboration at IPLeiria. Policies should facilitate more joint projects, internships, and knowledge transfer activities. Establishing formal agreements and frameworks that streamline collaboration can help achieve this goal. Additionally, prioritizing research and development activities that align with both academic and industry needs can increase the relevance and impact of research outputs. Furthermore, implementing a robust system for monitoring and evaluating KM initiatives is crucial for IPLeiria. This includes setting clear performance metrics and regularly reviewing progress to ensure alignment with organizational goals. Establishing feedback mechanisms where staff can share their experiences and suggest improvements to KM practices can facilitate the continuous refinement and enhancement of KM strategies. Parte superior do formulário.

While this case study of IPLeiria provides valuable insights, it is important to acknowledge its limitations. The reliance on publicly available information might not capture the full picture of KM practices at IPLeiria. Additionally, focusing on a single institution limits the generalizability of the findings. Future research could build on this study by conducting comparative analyses across diverse HEIs to understand how institutional context influences KM practices. Employing quantitative research methods, such as surveys and performance data analysis, to assess the relative effectiveness of different enablers would also be beneficial. Utilizing longitudinal studies to track the evolution of KM practices within HEIs over time would provide further insights. By addressing these limitations and pursuing further research avenues, we can develop a more comprehensive understanding of how HEIs can leverage diverse enablers to foster effective KM. This, in turn, can lead to enhanced innovation, research output, and societal impact.

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