University Planning and Knowledge Management: Connections of Possible Strategies for Institutionalized Integration

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Abstract

Knowledge management (KM) becomes a priority in the strategic planning (SP) of higher education institutions, as it strengthens adaptation to changes and identifies new knowledge needs. The SECI model by Nonaka and Takeuchi was considered to identify theoretical evidence of KM associated with the SP process. The descriptive research was conducted through a scope review considering the databases Eric, Web of Science, and Scopus, according to PRISMA-ScR, 2018. The descriptors were selected from the Institutional Development Plan (PDI-2023-2027) of the Universidade do Estado da Bahia, the regulatory framework of Brazil, and the elements which characterize SP in the literature. The results consolidate the main strategic areas applied in institutions, offering information on successful initiatives, sustainability, and institutional efficiency, integrated to KM processes. The content analysis highlights four categories: Tools and technologies, understood as digital platforms, evaluation systems, and artificial intelligence, which emerge as central elements in supporting organizational learning. KM was identified as strategic for aligning institutional objectives with organizational practices, promoting efficiency and innovation; Structural models, such as the Balanced Scorecard, were widely applied, highlighting their importance in translating strategic goals into concrete actions; challenges related to the fragmentation of models, resistance to adopting technological practices; impacts on increase in organizational learning capacity and strategic alignment, and in the promotion of innovative practices. It is concluded that the integration of technologies, planning, and KM strategies is relevant for transforming institutional practices, aligning them with innovation demands in the performance of universities.

Keywords: university planning, knowledge management, public institutions

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Introduction

Strategic planning is widely recognized as an integrating tool that plays a fundamental role in promoting the integration and alignment of organizational goals and objectives, enabling various organizational divisions to engage and work toward common goals (Ketokivi & Castañer, 2004).

Conducting strategic planning with broad functional coverage increases the effectiveness of strategic planning and overall performance. In this way, there is a need for deep knowledge of the many functional areas, as well as an awareness of employees within the organization and their skills, in order to put guiding ideas into practice and face the challenges that change the system to rationally manage internal and external knowledge, organize learning processes that continuously change the structure and objectives of the organization (Shoham & Perry, 2008).

Research by Roys et al. (2023) also points to strategy formulation based on knowledge management (KM) as an opportunity to improve educational quality and the performance of university institutions, characterized by high levels of communication and information resulting from strategic management theories and technological transformations.

Another important benefit of strategic planning is its ability to anticipate and deal with risks and uncertainties that can arise from understanding the environment. By analyzing both the external and internal contexts, planning helps the organization identify possible challenges and create strategies to reduce risks. This condition makes the organization more resilient and better prepared to adapt to unexpected changes (Cheng, 2020; Dias et al., 2018; Inga et al., 2021).

However, it is important to find evidence that indicates how feasible, appropriate, relevant, and effective planning models are when used in public universities, especially those that can be adapted to different contexts. It is also necessary to consider conceptual approaches and innovative methods that involve different academic areas and are connected to university management. Understanding how these practices contribute to better overall performance is essential, especially since there are many tools and approaches available that can be used in the university environment according to necessary adaptations.

Planning cycles, which include processes from development to implementation and evaluation, can have their strategic performance assessed in universities based on criteria such as alignment with organizational vision, employee engagement, improvement plans, and performance evaluation. Knowledge management (KM), as emphasized by Roys et al. (2023), is essential for the creation of new knowledge, relying on the quality of human capital, information management, and the integration of appropriate tools. KM promotes continuous learning, innovation, experience sharing, and monitoring of initiative impacts, incorporating technologies to support knowledge management and improve the efficiency of teaching and learning processes (Baldé et al., 2018).

The extension and continuity of these common practices lead to theoretical implications regarding the association of the term “strategic” with planning literature in public higher education institutions (HEIs), as well as its relationship with the knowledge management required for continuous assessment integrated into strategies across all dimensions of institutional planning. This involves examining how knowledge assets are appropriately used

and how HEIs develop strategies to leverage institutional knowledge to enhance the efficiency of their activities.

In this regard, this scoping review aims to synthesize scientific evidence related to university planning processes, focusing on models applied in various public contexts within the academic literature, to address the following research question: How have public universities applied knowledge management strategies in relation to institutional development plans?

Methodology

For this literature review, a scoping review methodology was used, encompassing five stages: identifying the research question; identifying studies through search strategies; study selection; mapping, grouping, summarizing, and reporting the results.

For the development of this review, the guidelines from the PRISMA-ScR checklist (PRISMA extension for Scoping Review) (Tricco et al., 2018) were followed, and to ensure the scientific rigor of this research, validation was conducted through peer review.

Authors employing the scoping review method for literature reviews recognize its importance for mapping the scientific literature on a topic, identifying key concepts, study characteristics, specific data, and evidence gaps. The scoping review method allows for a deeper understanding of the studied topic, highlights conclusions from the literature, and identifies knowledge areas that need further exploration (Galvão et al., 2021; Silva et al., 2022).

Data Sources

The selection of studies, conducted between January 19th and March 7th, 2024, was performed across three databases, chosen according to their relevance, efficiency, and classification in the field of Education, ERIC (Education Resources Information Centre) SCOPUS (Elsevier), and Web of Science (Core Collection).

Search and Selection Strategy

The criteria used to develop the search strategy were based on terms outlined in the Institutional Development Plan (PDI-2023-2027) of the Universidade do Estado da Bahia (2023) and on the conceptual framework of elements characterizing strategic planning in the literature (mission, vision, values, environmental analysis, objective and goal setting, integration, strategies, monitoring, and evaluation).

Guided by the PCC framework, the search strategy was structured as follows: P represents the population involved in university planning; C, the concept of the evidence; and the second C, the context of the strategies employed in public planning. The PCC elements, aligned with the objective of this study, informed the formulation of the guiding research question and the key themes of this scoping review, serving to define the eligibility criteria.

Descriptors were selected through consultation with the Thesaurus Brasileiro da Educação (Brased) and the ERIC Thesaurus, using synonyms that guide researchers toward the most appropriate terms or descriptors. The Boolean operators “OR” were used to combine similar descriptors, while “AND” was used to connect different search lines, combining them in the three selected databases, as illustrated in Figure 1.

Table 1
Database Search Strategy

Database	Search Strategies
ERIC, SCOPUS (Elsevier), Web of Science	(educational strategies) **AND** (college governing) **OR** (participative decision) **OR** (college governing) **OR** (participative problem solving) **OR** (educational manager) **OR** (educational administration) **OR** (interdisciplinar approach) **OR** (communication strategies) **OR** (differentiated staffs) **OR** (reference groups) **OR** (strategic management) **OR** (vision statements) **OR** (change strategies) **OR** (educational planning) **OR** (educational strategies) **OR** (futures of Society) **OR** (science Society) **OR** (social integration) **OR** (ethnic integration) **OR** (social class integration) **AND** (educational administration) **OR** (educational institutions) **OR** (university administration) **OR** (public universities) **OR** (multicampus colleges) **OR** (organizational effectiveness) **OR** (information flow) **OR** (public higher education) **OR** (higher education) **OR** (public education) **AND** (university management)

Article selection occurred in two phases. In the initial phase, articles were chosen based on abstracts and keywords, applying the following inclusion criteria: abstracts addressing the topics of "public university planning," "strategic planning," "integration strategies and methods," and "knowledge management." Exclusion criteria in the abstract phase were applied to content that did not fit the scope of analysis or did not address the research topic or question.

In the second phase, the selected articles were read in full and assessed based on the following inclusion criteria: studies based in the context of public university planning, studies exploring the interfaces between Strategic Planning and Knowledge Management, as well as studies evaluating the integration of models and tools adopted for strategic management in the university context. Exclusion criteria included: abstracts not presenting results relevant to the research, articles focusing on themes and/or technology development, and articles with conclusions that were either unclear or unsupported. There were no exclusions based on publication date or language.

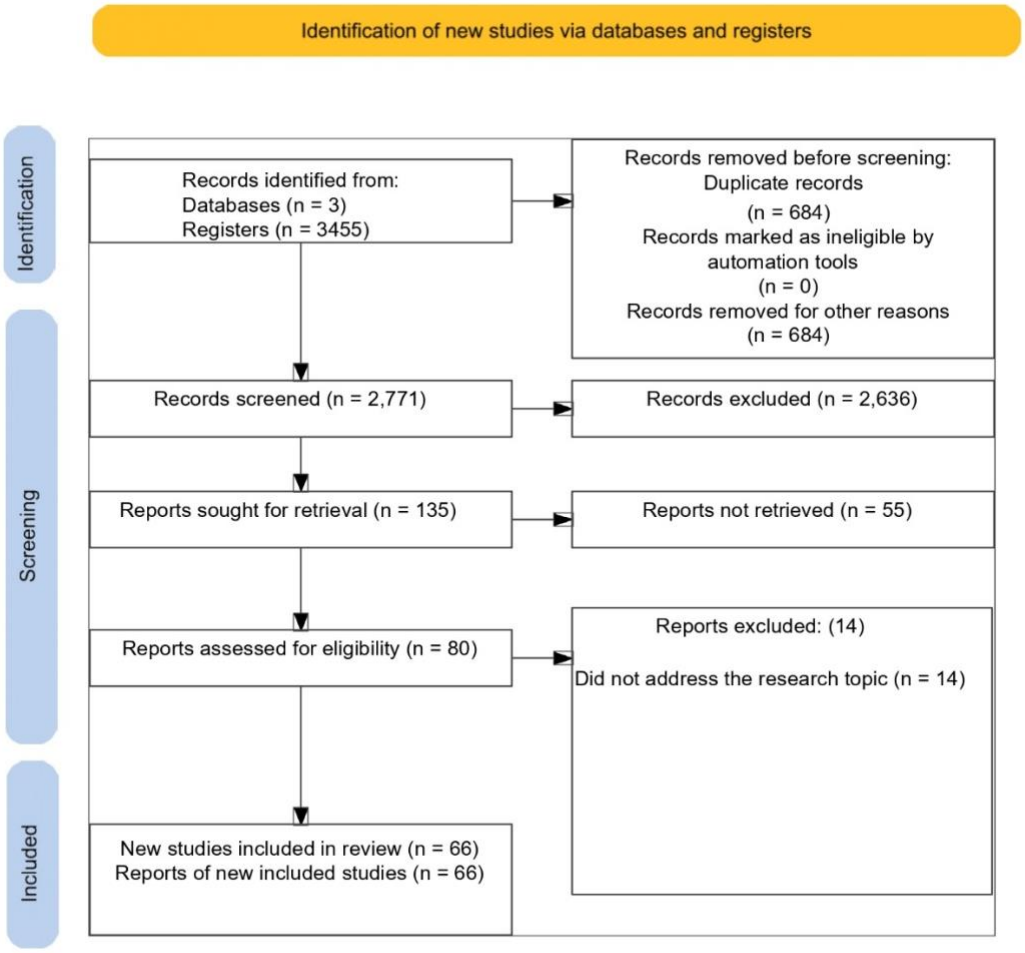
Data Analysis

For the qualitative scoping review analysis, the articles were classified by research nature (case study and literature review), publication year, and the contexts analyzed. The main themes related to university planning were identified. Subsequently, the methods and strategies employed were analyzed. Finally, a detailed analysis was conducted to identify objects, strategic areas, theoretical approaches, and challenges for their implementation. Based on this data, a synthesis of the studies was carried out in a descriptive form, followed by a discussion correlating aspects through content analysis, i.e., by establishing emerging categories from the analyzed content.

Results

We present the results of our research, which include detailed analyses and data visualizations. In this section, we will explore the main findings and evidence identified in the studies. The results will be presented in the form of tables and figures that will aid in understanding the conclusions. We begin by presenting, in Figure 1, the flowchart of the study selection process, followed by tables summarizing the characteristics of the studies included in the analysis, as well as a visual depiction of the geographic distribution of cases across different regions.

Figure 1
Fluxograma PRISMA



The search strategies allowed the identification of 3,455 publications; after removing duplicates, 2,771 remained. Following the screening of titles and abstracts, 135 studies were selected for full-text reading. Of these, 55 articles were unavailable in full text and 14 were excluded. At the end of the process, 66 articles were retained for analysis, as presented in the general characteristics of the studies, profiled by publication year and research type, in Table 2.

Table 2
Profile of Studies by Year of Publication and Type of Research

Variable	Absolute value	Percentage (%)
Decade		
2000-2009	8	12,12
2010-2019	38	57,58
2020-2023	20	30,30
Study Type		
Case Study	47	71,21
Literature Review	16	24,24
Mixed	1	1,52
Other	2	3,03
Decade		
2000-2009	8	12,12

The majority of the selected studies happened between 2010 and 2019 (57.58%), indicating a significant increase in research output over the past 15 years. Case studies predominated, accounting for 73.44% of the total, focusing on the institutional realities, and 21.88% were literature reviews addressing themes related to university planning and knowledge management with geographical scope, as shown in the distribution of countries in Figure 2.

Figure 2
Distribution of Research by Country

The studies reviewed show a diverse geographic distribution, with most located in Asia and Europe (23.44% or 15 each), South America (14.06%), North America (9.38% or 3), and Africa (4.69% or 3), as illustrated on the map in Table 1 and the diversity of contexts identified in Table 3.

Table 3
Research Contexts and Key References

Variable	Absolute value	Percentage (%)
Context Category		
Changes and Reforms	25	21,55
Globalization and Competition	23	19,83
Technology and Society of the Know.	21	18,10
Management and Strategy	17	14,66
Development	12	10,34
Quality and Evaluation	10	8,62
Financing and Efficiency	8	6,90
Authors cited – Theoretical basis		

Kaplan, R.S. & Norton, D.P.	37	34,26
Nonaka, I. and Takeuchi, H.	26	24,07
Mintzberg, H.	9	8,33
Davenport, T.H.	9	8,33
Senge, P.	6	5,56
Porter, M.E.	6	5,56
Kotter, J.P.	5	4,63
Drucker, P.	4	3,70
Chang, O.H and Chow, C.W	3	2,78
Rowley, J.	3	2,78

The researches reflect contexts marked by educational reforms and systemic changes in their respective countries (21.55%), driven by globalization and competitiveness (19.83%), followed by themes such as technology and the knowledge society (18.10%), management and strategy (14.66%), with a focus on local development (10.34%), quality and assessment (8.62%), and financing and efficiency (6.90%). The topics addressed in the researches highlight the most frequently cited authors, such as Kaplan, R.S. and Norton, D.P. (34.26%), Nonaka, I. and Takeuchi, H. (24.07%), followed by Mintzberg, H. and Davenport, T.H. (8.33% each), which approach strategic management theories, in the mobilization of knowledge, and in the indicators of evaluation and monitoring of development plans shown in Table 4.

Table 4
Conceptual Aspects in University Planning

Variable	Absolute value	Percentage (%)
Related Topics		
Strategic Management and Planning	47	30,13
Knowledge Management	21	13,46
Technology	17	10,90
Innovation	11	7,05
Performance Evaluation	10	6,41
Organizational Learning	9	5,77

Leadership	8	5,13
Quality Management	7	4,49
Change Management	7	4,49
Collaboration	6	3,85
People Management	4	2,56
Project/Process Management	4	2,56
Other	5	3,21

The themes addressed in university planning research are multiple, as seen in Table 4. However, strategic management related to planning and knowledge management stand out, representing 30.13% (47 studies) and 13.46% (21 studies), respectively, and constitute a significant portion of the research focusing on integration approaches. Additional prominent topics include technology (17 studies, 10.90%), innovation (11 studies, 7.05%), performance evaluation (10 studies, 6.41%), and organizational learning, while other areas have less representation. However, their presence in the scope highlights the multidisciplinary nature of university planning, represented through organizations and initiatives within universities, as shown in Table 5.

Table 5
Representative Bodies of Initiatives in University Institutions

Variable	Absolute value	Percentage (%)
Strategic Area		
People Management/HR	32	21,9
Technology/IT Management	23	15,8
Performance Evaluation	21	14,4
Process Management	17	11,6
Strategic Planning and Management	13	8,9
Leadership	10	6,8
Knowledge Management	7	4,8
Project Management	4	2,7
Academic Management	4	2,7

Partnerships	4	2,7
Organizational Structure	3	2,1
Other	8	5,5
Tool		
Digital/Online Platforms	27	34,62
Repositories	11	14,10
Virtual Learning Environments (VLE)	6	7,69
Information/Management Systems	11	14,10
Indicators and Metrics	6	7,69
Balanced Scorecard (BSC)	3	3,85
Institutional Development Plan (PDI)	4	5,13
Collaboration Tools	4	5,13
Other	5	6,41
Artificial intelligence	1	1,28

In Table 6, recurring challenges in university planning are highlighted, particularly those related to strategic areas within institutions, including Implementation of knowledge management (15.93%), Strategic planning and management (14.16%), Human resources (10.62%), Technology and tools for monitoring and evaluation implementation (9.73%), as well as resistance to change and organizational culture (7.08%), which directly affect processes of integration (6.19%), communication and leadership (3.54%), impacting competitiveness and funding in public universities.

Table 6
Challenges in University Planning

Variable	Absolute value	Percentage (%)
Challenge		
Knowledge Management (KM) Implementation	18	15,93
Strategic Planning and Management	16	14,16
Human resources	12	10,62

Technology	11	9,73
Evaluation and Metrics	11	9,73
Other	9	7,96
Resistance to Change	8	7,08
Organizational Culture	8	7,08
Integration	7	6,19
Communication	4	3,54
Leadership	4	3,54
Globalization and Competition	3	2,65
Financing	2	1,77

Discussion

The literature reviewed highlights the multifaceted use of the SECI model in various educational and organizational contexts. Each study contributes to understanding the process of knowledge creation, diffusion, and transformation, which requires highly advanced digital environments. The integration of these insights with the SECI model, supported by technologies, proves adaptable and relevant amid evolving paradigms (Cheng, 2020; Mazorodze & Mkhize, 2022; Reisch et al., 2023; Roys et al., 2023).

Broad definitions of knowledge emphasize its diverse forms—tacit, explicit, implicit, and systemic—at the individual, group, and organizational levels (Nonaka & Takeuchi, 1995, 1997, 2008). Knowledge Management (KM) is defined as a process focused on identifying, collecting, storing, sharing, and utilizing an organization's knowledge and experience to improve its effectiveness and efficiency in achieving its goals (Khatun et al., 2021; Roys et al., 2023). It is also seen as a method for the purposeful integration of human resources, processes, and technology dedicated to developing, capturing, and executing an organization's creative infrastructure (Galgotia & Lakshmi, 2022), and as a multidisciplinary approach used to achieve institutional objectives by enhancing the use of knowledge possessed by individuals (Mazorodze & Mkhize, 2022).

This aspect is reflected in the role of KM in strategy formulation and development within the planning cycle. The results highlight how KM practices can enhance quality and performance excellence (Khatun et al., 2021).

These elements contribute to an analysis of the implications and challenges of strategic planning and knowledge management, demystifying strategy theories in the university context. The study results are related to the positive or negative effects of implementing strategic planning in university institutions, including whether strategic objectives are achieved and whether other strategy formulation methods are adopted or maintained. As a

theoretical contribution, the insights generated may support further investigations into the dynamics of implementing and maintaining strategic planning, through externalization of tacit knowledge via documentation and knowledge sharing, combination of knowledge from different sources and perspectives to create new knowledge, and internalization of explicit knowledge through learning and training.

As highlighted by Santos et al. (2020), the main challenges of the planning process include lack of participation from strategically relevant individuals in the team, demands that hinder planning execution, and conflicts of interest. As a recommendation, the study emphasizes the need to address personal and professional attitudes, fostering greater commitment and co-responsibility among professionals, with an emphasis on interpersonal relationships and team communication.

In the analyzed studies, we synthesized the main practices that public universities apply in knowledge management strategies to achieve the objectives of institutional development plans. Here are the most frequent strategies: 1. Development of information systems**:** Investment in information systems to manage and share knowledge, such as library management systems, digital repositories, and collaboration platforms. 2. Creation of knowledge networks**:** Development of networks to connect faculty, researchers, students, and administrative staff from different areas and institutions, fostering collaboration and knowledge sharing. 3. Development of training programs**:** Offering training programs for faculty and administrative staff, aimed at developing skills in knowledge management, information and communication technologies, and other related areas. 4. Creation of innovation and entrepreneurship centers: Establishment of centers to promote the creation of innovative companies and products based on knowledge generated within institutions. 5. Development of partnerships with other institutions: Establishment of partnerships with other higher education institutions, companies, and government organizations to share knowledge, resources, and experience (Campbell et al., 2017; Pascucci & Meyer, 2013; Pérez & Pino, 2017).

Furthermore, the dynamics of knowledge creation are based on the critical premise that human knowledge is generated and expanded through social interaction between **tacit** and explicit knowledge. This theory, developed by Nonaka and Takeuchi (1995), is founded on the description of how the knowledge spiral emerges, which the authors call the conversion of knowledge, created when tacit and explicit knowledge interact. Through the four modes—socialization, externalization, combination, and internalization—the entire process of knowledge creation is driven. These modes reflect individual experiences. The mechanisms by which individual knowledge is articulated and "amplified" to and through the organization are the same.

Knowledge management is essential for the strategic planning of higher education institutions, as it strengthens their ability to adapt to change and identify new knowledge needs. By integrating knowledge management into planning, universities can align their institutional goals with effective organizational practices, promoting innovation and improving efficiency in all aspects of institutional planning. Thus, strategic planning, enriched by knowledge management, becomes a driving force for transforming institutional practices and responding to the demands for innovation in university performance.

Strategic planning is a process in which an organization defines its strategy and makes decisions about the allocation of resources to execute it. It involves understanding the

institution's vision, mission, values, and strategies and continuous monitoring throughout the cycle, with the participation of those involved at all stages (Inga, 2021; Mendonça et al., 2017; Williams, 2021).

Among the main difficulties of the planning process, Santos et al. (2020) identified the lack of participation of strategically relevant individuals in the team, demands that hinder the implementation of planning, and conflicts of interest. The study suggests the need to address issues related to personal and professional attitudes, especially promoting greater commitment and co-responsibility among professionals, with an emphasis on interpersonal relationships and communication within teams.

Kaplan and Norton (1996, 2006) state that organizations use the *Balanced Scorecard* (BSC) to: Clarify and update the vision and strategic direction; communicate strategic objectives and metrics throughout the organization; align departmental and individual goals with the vision and organizational strategy; link strategic objectives to long-term goals and annual budgets; identify and align strategic initiatives; conduct periodic performance evaluations to learn and improve the strategy; and obtain feedback to learn and refine the strategy.

Umashankar and Dutta (2007) reinforce that the BSC is a comprehensive framework that transforms an organization's strategic objectives into performance measures, fundamentally altering assumptions and helping to focus the strategic vision. The business theory underpins the strategy, and a well-designed BSC is a combination of results and performance drivers.

The observation of the temporal, geographic, and disciplinary distribution of the studies showed that the scope of university planning is extensive and challenging, crossing disciplinary fields with their methods, theories, and concepts, so that the objectives span transversal contexts, whose interrelations and multidisciplinarity are also marked by each country's regulations, regional economic and technological development.

However, beyond the phenomenon of Information and Communication Technologies (ICTs) having a central role in transforming access to information, in the dynamics of knowledge creation, and in innovation processes, the conclusions of the studies point to the need to strengthen ties between the various social segments involved in university planning. This would promote the circulation of information and the development of strategies at various hierarchical levels, issues that directly involve digital knowledge not only in the technological field but also in collaboration, participation, and organizational learning.

The consolidation of this vision in university management will bring a broader understanding of KM, recognizing the importance of tacit and explicit knowledge and its application within the organization. Over this period, institutions have begun to integrate KM into their strategies, recognizing that knowledge is not merely a resource to be managed, but an asset that can generate competitive advantage and sustainability for development in university institutions.

This review has some limitations. Although the selected platforms are significant references for research and the CAPES periodicals portal is an accessible platform, not all journals are included in the Brazilian Ministry of Education's subscription. Therefore, some articles were excluded due to the lack of access to full texts. The substantial number of unavailable articles for analysis at the inclusion stage could, to some extent, alter the results presented here. The scope of the studies covered diverse areas within the evaluation framework, due to the fact

that specific studies on KM and strategic planning in public universities are scattered and not quantitatively representative in each context.

Conclusion

It is concluded that the integration of technologies, planning, and knowledge management strategies is essential for transforming institutional practices, aligning them with the demands for innovation in university performance.

Knowledge management contributed to the generation of new knowledge in university planning, based on strategies for human capital development, information management, and the integration of models adopted within institutions—linking university management with academic management. The relationship between performance outcomes and knowledge management is evident in various contexts and effective practices, such as information transfer and staff training, which contribute to enhanced performance. This is crucial for organizational innovation, emphasizing the importance of systematic information sharing and continuous learning.

By doing so, institutions can not only monitor their performance but also adjust their knowledge management strategies to better meet planning needs, identifying knowledge gaps in functional and strategic areas for institutional development.

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