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Preserving Organizational Memory Through the Externalization Process in Formal Organizations: A Systematic Literature Review

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Abstract
This study examines the contribution of tacit knowledge externalization to the preservation of organizational memory and identifies the mechanisms and barriers that emerge within formal organizational contexts. The study applies a systematic literature review method using PRISMA 2020 as the reporting guideline for the literature selection process. Data were analyzed through a narrative synthesis approach to describe key findings from relevant studies. The results indicate that externalization plays a fundamental role in sustaining organizational memory by mitigating knowledge loss, strengthening collective memory, and developing knowledge repositories. Externalization mechanisms are identified in two main categories, consisting of process-based mechanisms and technology-based mechanisms. The most influential barriers to externalization are concentrated in three main clusters, namely cultural, structural, and technological factors, which simultaneously weaken organizational capacity to build and sustain collective memory in contemporary formal organizational settings. Overall, the findings emphasize that externalization depends on readiness to address barriers.

Keywords: knowledge externalization; knowledge retention; organizational memory

Introduction

Demographic change and increasing labor mobility have created strategic challenges for organizations, particularly concerning the risk of losing critical knowledge embedded in individuals. In Indonesia, the proportion of older workers who remain economically active reached 53.93% in 2023 (Roziq et al., 2024). This condition indicates a growing risk of tacit knowledge and organizational memory loss when senior employees retire, are reassigned, or experience job rotation. This risk becomes increasingly salient as modern organizations rely heavily on intangible assets such as knowledge, collective experience, and innovation as strategic resources that determine competitive advantage. This view is consistent with Luyimbazi and Habinka (2025), who emphasize that knowledge constitutes the most decisive strategic resource for organizations because it serves as the primary foundation for the creation and maintenance of competitive advantage. They position knowledge at the core of organizational goals, processes, and operations.

In this context, organizational memory becomes a critical element that ensures operational continuity and organizational adaptive capacity. Olivera (2000) defines organizational memory as a mechanism encompassing the processes of collecting, storing, and distributing knowledge derived from both individual and collective sources. Walsh and Ungson (1991) reinforce this concept by formulating organizational memory as a set of retention facilities that store information about past decisions through

five internal repositories, namely individuals, culture, procedures and transformation systems, organizational structure, and the physical environment. This perspective highlights that organizational memory encompasses not only storage elements but also knowledge content and the processes of information acquisition and retrieval that are structural, social, and dynamic in nature.

From an intellectual capital perspective, knowledge is regarded as the primary organizational asset. Sveiby (1997, as cited in Rimmel, 2001) emphasizes that knowledge represents a form of intellectual capital that is prospective, unlimited, and grows when shared, making knowledge transfer among individuals a key factor in enhancing organizational competence. Polanyi (1967, as cited in Agrifoglio, 2015), further asserts that tacit knowledge derived from experience, intuition, and practical skills constitutes a vital component of intellectual capital and organizational memory.

Nevertheless, existing research has largely focused on structural and technological aspects of knowledge preservation, while the social cognitive dimension of tacit knowledge retention remains relatively underexplored. Luyimbazi and Habinka (2025) demonstrate that sharing and retaining tacit knowledge is a social process influenced by collaboration, leadership, organizational culture, and personal disposition. Similar findings are reported by Suryadi (2023), who shows that tacit knowledge sharing contributes significantly to employee innovation through social interaction, informal discussion, and collaborative work practices. These findings confirm that the utilization of tacit knowledge is highly dependent on social dynamics that enable the articulation and exchange of experience.

However, systematic understanding of how tacit knowledge is converted into explicit knowledge through externalization and how the outcomes of this conversion contribute to the preservation of organizational memory remains limited. Existing literature more frequently addresses knowledge sharing as a social activity or innovation as an outcome, rather than as part of the mechanism through which organizational memory is formed and sustained. Furthermore, studies that explicitly link tacit knowledge externalization to organizational memory within formal organizational contexts in developing countries are still scarce.

The knowledge conversion model within the SECI (Socialization, Externalization, Combination, Internalization) framework proposed by Nonaka (1994) explains that knowledge is created through a continuous transformation process from tacit knowledge to explicit knowledge, referred to as externalization. Nonaka and Takeuchi (1995, as cited in Agrifoglio, 2015), position externalization as a crucial stage in knowledge conversion, in which tacit knowledge is articulated into explicit knowledge so that it can be documented and reused. From this perspective, externalization plays an important role in ensuring the sustainability of organizational memory, particularly in the face of changes in workforce structure and the turnover of key personnel.

Based on this background, this study aims to analyze the role of tacit knowledge externalization in the preservation of organizational memory, to identify the externalization mechanisms employed in formal organizations, and to examine the barriers encountered in the externalization process along with their implications for the sustainability of organizational memory. This study adopts a systematic literature review to obtain a comprehensive and structured understanding of tacit knowledge externalization practices in formal organizations, while simultaneously mapping their contributions to the preservation of organizational memory.

Method

Data Collection Methods

This study employs a Systematic Literature Review (SLR) as a methodological approach to compile findings from multiple studies that address the same research questions, with the aim of summarizing the literature to answer specific research issues (Sargeant & O'Connor, 2020). The SLR establishes explicit procedural steps from the outset and functions as a scientific tool to critically synthesize and evaluate a large body of research evidence. This approach enables researchers to obtain a comprehensive overview of the current state of knowledge and to identify existing research gaps (Petticrew & Roberts, 2006).

This SLR is conducted qualitatively using a narrative synthesis approach to interpret, categorize, and synthesize conceptual findings derived from relevant studies. The reporting of the literature selection process follows the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta Analyses) 2020 guidelines, which are used as a reference to document the processes of identification, screening, eligibility assessment, and inclusion of the literature in a transparent and systematic manner, thereby ensuring that the selection process can be clearly traced.

Research Questions

Based on the established topic and research focus, this study is directed to address the following questions:
RQ1: What is the role of tacit knowledge externalization in the preservation of organizational memory?
RQ2: What mechanisms or strategies are used by formal organizations to externalize tacit knowledge?
RQ3: What barriers emerge in the process of tacit knowledge externalization, and what are their implications for the sustainability of organizational memory?

Search Process

The literature search was conducted using the Scopus database, with a focus on journal articles addressing organizational memory preservation, tacit knowledge externalization, and their application within formal organizational contexts. Scopus was selected as the primary database due to its recognized advantages as one of the largest and most reputable scientific literature databases, offering broad and multidisciplinary content coverage.

The search for scholarly articles employed specific boolean operators to ensure comprehensive coverage of the research topic. Given the specificity of the subject and the limited results obtained when restricting the search to titles, abstracts, and keywords, the search was expanded by using the ALL field in the selected database. The use of the AND operator ensured that each selected article contained at least one of the defined key concept groups. These concept groups were then connected using the OR operator to capture synonyms and terminological variations used across disciplines, thereby reducing the risk of overlooking relevant studies. The search string applied was as follows: ALL (("preservation" OR "conservation" OR "knowledge retention") AND ("organizational memory" OR "institutional memory" OR "collective memory") AND ("externalization" OR "knowledge externalization" OR "knowledge creation" OR "information transfer") AND ("formal organizations" OR "organizations" OR "corporation" OR "institutions") AND ("process" OR "procedure" OR "method" OR "system")).

Subsequently, inclusion and exclusion criteria were established during the literature selection process as methodological filters to ensure that the selected journal articles were relevant and aligned with the research questions. This step was undertaken to maintain a focused and systematic research scope. The criteria applied in this study are as follows:

Table 1. Inclusion and Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
Journal articles	Blog articles, books, opinion pieces
Publication year between 2025 and 2025	Publications year before 2015
Articles available in full text with open access	Articles not available in full text or requiring paid access
Articles written in Indonesia or English	Articles written in language other than Indonesian or English
Journal articles related to the research topic (tacit knowledge in organization, knowledge externalization, organizational memory)	Articles not related to the research topic
Application in formal organizations	Application in non-formal organization

Results and Discussion

Results of Data Synthesis

The literature search conducted through the Scopus database yielded 264 articles at the identification stage. Following an initial screening based on publication type, publication year between 2015 and 2025, full text accessibility, and language, 220 articles were excluded, resulting in 44 articles retained for further screening. Of these 44 articles, 2 were not accessible, leaving 42 articles to undergo the eligibility assessment stage.

At the analysis stage, 32 articles were excluded because they fell outside the organizational context, did not address tacit knowledge, focused on animal behavior studies, discussed cultural issues without relevance to organizational memory, or addressed knowledge management in an overly general manner. Consequently, 10 articles met all inclusion criteria and were included in the final analysis using a narrative synthesis approach to describe and categorize key findings from the relevant literature. These articles formed the analytical basis for mapping tacit knowledge externalization mechanisms and their contributions to the preservation of organizational memory within formal organizational contexts. The selection process is illustrated using a PRISMA flow diagram, as presented in Figure 1.

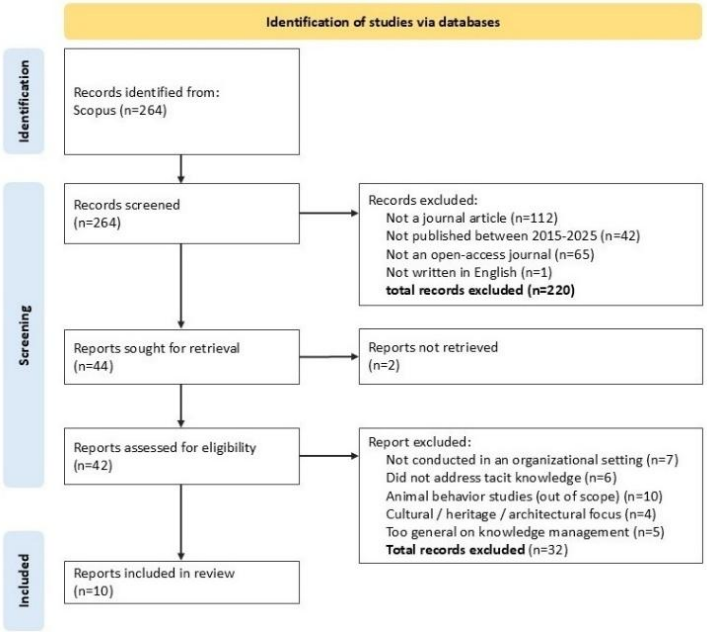

Figure 1. Selection Process Based on PRISMA
Source: Research data, 2025

Based on the selection process, a total of 10 articles were identified as relevant, as presented in Table 2:

Table 2. Articles Included Based on the Criteria

Kode Artikel	Judul	Penulis	Tahun
A1	Knowledge loss and retention in interorganizational projects: evidence from public transportation projects from Pakistan	Iftikhar, R.; Rashid, M.	2025
A2	Impact of knowledge-sharing culture on organizational creativity: integrating explicit and *tacit knowledge* sharing as mediators	Yıldız, T.; Balkan Akan, B.; Siğri, Ü.; Dabić, M.	2025
A3	Enhancing team resilience through team knowledge dynamics: a mediated approach	Yang, H.; Suntrayuth, S.	2025
A4	Knowledge Repositories for Managing Knowledge in Learning Organizations	Dei, D.-G.J.; Kankam, P.K.; Anane-Donkor, L.; Puttick, C.P.; Peasah, T.	2024
A5	Impact of knowledge management capabilities on new product development performance through mediating role of organizational agility and moderating role of business model innovation	Idrees, H.; Hynek, J.; Xu, J.; Akbar, A.; Jabeen, S.	2022
A6	The Impacts of KM-Centred Strategies and Practices on Innovation: A Survey Study ff R&D Firms in Malaysia	Chong, C.W.; Yuen, Y.Y.	2022
A7	Leveraging age diversity for organizational performance: An intellectual capital perspective.	Li, Y.; Gong, Y.; Burmeister, A.; Wang, M.; Alterman, V.; Alonso, A.; Robinson, S.	2021
A8	Learning within local government to promote the scaling-up of low-carbon initiatives: A case study in the City of Copenhagen	van Doren, D.; Driessen, P.P.J.; Runhaar, H.A.C.; Giezen, M.	2020
A9	Knowledge management in sustainable supply chain management: Improving performance through an interpretive structural modelling approach	Lim, M.K.; Tseng, M.-L.; Hua Tan, K.H.; Bui, T.D.	2017
A10	Mixing rich and asynchronous communication for new service development performance	Storey, C.; Perks, H.	2015

Source: Research data, 2025

An initial descriptive analysis was conducted on these 10 articles. The results indicate considerable diversity in publication characteristics in terms of disciplinary background, methodological approach, research location, and year of publication.

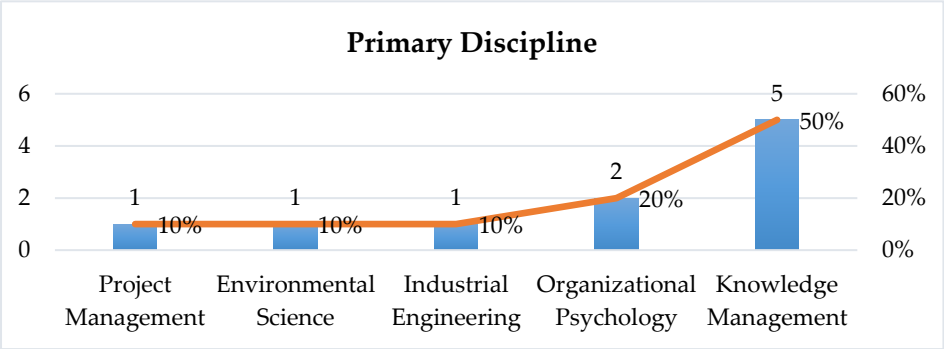

Figure 2. Distribution of Publications by Primary Discipline
Source: Data analysis, October 2025

The distribution of publications by discipline shows that 5 articles originate from the field of Knowledge Management, followed by 2 articles from Organizational Psychology, and 1 article each from Project Management, Environmental Science, and Engineering or Industrial Studies. The dominance of Knowledge Management reflects a strong research focus on knowledge dynamics, while contributions from organizational psychology underscore the relevance of cognitive, behavioral, and cultural dimensions in processes of knowledge sharing and retention.

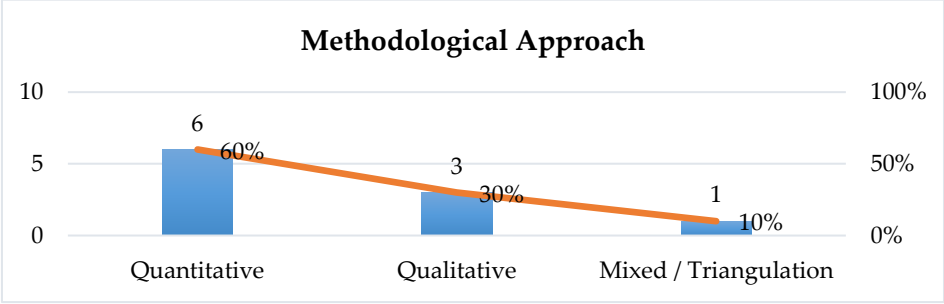

Figure 3. Distribution of Publication by Methodological Approach
Source: Data analysis, October 2025

In terms of methodology, the majority of studies employed quantitative approaches, with 6 articles relying primarily on survey methods and SEM or PLS SEM modeling. Qualitative approaches were used in 3 articles, mainly through case studies and document analysis, while 1 article adopted a mixed methods design combining surveys and interviews. These findings indicate that knowledge management issues are predominantly explored through relationships among constructs, while in depth qualitative investigations into social processes and internal mechanisms remain limited, thereby supporting the identified research gap in studies of tacit knowledge externalization.

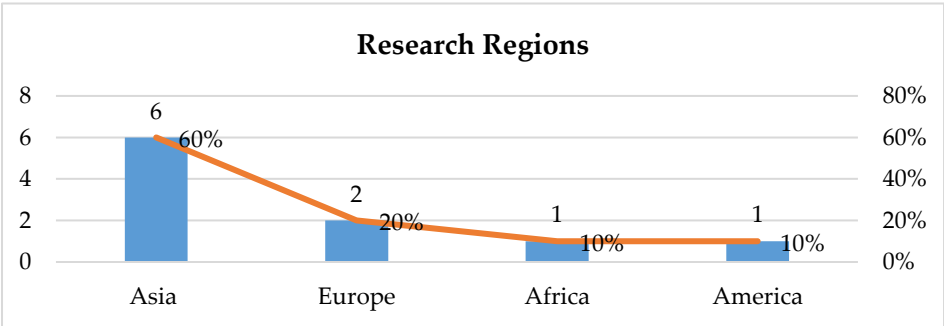

Figure 4. Distribution of Publications by Research Regions
Source: Data analysis, Oktober 2025

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From a geographical perspective, the studies were conducted across multiple countries, including Pakistan, Turkey, China, Ghana, Malaysia, Thailand, the United States, Denmark, Taiwan, and the United Kingdom. Regionally, Asia accounted for 6 articles, followed by Europe with 2 articles, and Africa and the Americas with 1 article each. This distribution reflects growing attention to knowledge dynamics in developing countries, particularly in Asia, in line with demographic changes, the expansion of knowledge-based industries, and high labor mobility in the region.

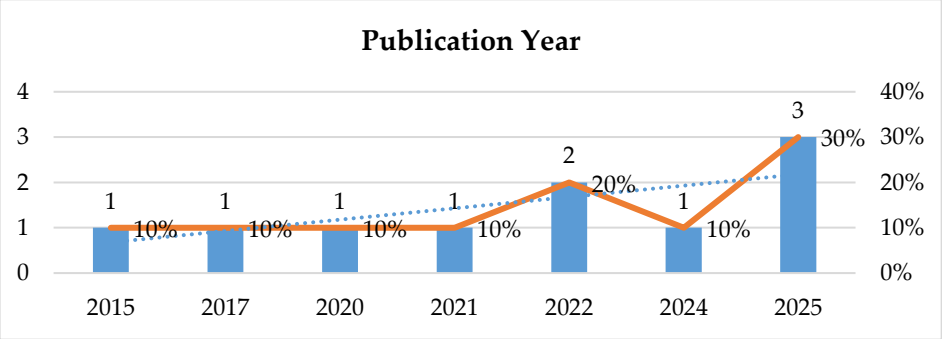

Figure 5. Distribution of Publication Years
Source: Data analysis, October 2025

The distribution of publication years reveals an increasing research trend over the past decade. 1 article was published in each of the years 2015, 2017, 2020, 2021, and 2024, followed by an increase in 2022 with 2 articles, and a peak in 2025 with 3 articles. The prevalence of recent publications indicates that issues related to knowledge loss, tacit knowledge externalization, and organizational memory management have become prominent topics in contemporary research.

Overall, the analysis shows that publications over the past decade have tended to focus on exploring the relationships between knowledge management practices, tacit to explicit knowledge dynamics, and organizational capabilities. However, relatively few studies explicitly evaluate tacit knowledge externalization as a systematic mechanism for preserving organizational memory, thereby reinforcing the relevance and originality of the present SLR study.

RQ 1: The Role of Tacit Knowledge Externalization in the Preservation of Organizational Memory

The results of the literature analysis indicate that tacit knowledge externalization functions as a core mechanism in sustaining organizational memory. The synthesis of the reviewed literature shows that tacit knowledge externalization plays a fundamental role in preserving organizational memory through three main contributions, namely as a mechanism for mitigating knowledge loss, strengthening collective organizational memory, and building knowledge repositories and formal documentation. The main findings related to the role of externalization discussed in the ten articles included in this analysis are presented in table 3.

Table 3. The Role of Externalization of Tacit Knowledge

Main Roles of Externalization	Article Code	Description
1. Preventing Knowledge Loss	A1	Demonstrate that the absence of externalization leads to knowledge loss in public sector projects.
	A7	Highlights the importance of intergenerational tacit knowledge conversion to prevent knowledge loss due to retirement or staff turnover.

	A8	Emphasizes the need for documenting tacit knowledge to ensure the sustainability of organizational learning in the public sector.
2. Strengthening Collective Organizational Memory	A2	Affirms that sharing tacit knowledge enhances creativity, which constitutes an element of collective memory.
	A3	Shows that tacit knowledge dynamics enhance team resilience through implicit experiential learning.
	A9	Illustrates a positive relationship between tacit knowledge flows and the strengthening of operational memory.
	A10	Adds that the use of rich media in communication increases the effectiveness of externalization, resulting in more comprehensive innovation memory.
3. Building Knowledge Repositories and Formal Documentation	A4	States that repositories are effective only when tacit knowledge has been externalized.
	A5	Finds that knowledge management capabilities drive the conversion of tacit knowledge into documentation for sustainable innovation.
	A6	Confirms that formal knowledge management strategies create systematic mechanisms for capturing and storing tacit knowledge as part of organizational memory.

Source: Data analysis, October 2025

Based on the analysis, tacit knowledge externalization is identified as having a strategic role in maintaining organizational memory, particularly when organizations face human resource dynamics and increasing work complexity. Several studies report that the absence of externalization processes leads to the loss of critical knowledge after the completion of public projects (Iftikar & Rashid, 2025). Other studies emphasize that intergenerational conversion of tacit knowledge is a crucial step in preventing the decline of institutional capacity, especially when senior employees transfer positions or retire (Li et al., 2021), while research in the public sector shows that documenting implicit experience is a prerequisite for the sustainability of organizational learning (Van Doren et al., 2020). Overall, these findings confirm that externalization represents a primary preventive mechanism for addressing the inherent risk of knowledge loss in formal organizations.

In addition, externalization has been shown to strengthen collective organizational memory through the accumulation and formalization of shared experiences. Studies in organizational behavior demonstrate that tacit knowledge sharing fosters creativity and enriches collective memory (Yıldız et al., 2025). Other findings indicate that tacit knowledge dynamics within teams enhance resilience through implicit learning processes that are subsequently converted into explicit knowledge (Yang & Suntrayuth, 2025). Documented flows of tacit knowledge have also been found to contribute to the strengthening of operational memory across various organizational contexts (Lim et al., 2017). Meanwhile, research on new service development shows that communication media with high levels of richness increase the effectiveness of externalization and deepen organizational innovation memory (Storey and Perks, 2015). Thus, externalization functions not only as a knowledge transfer process but also as a mechanism for consolidating collective experience that shapes organizational adaptive capacity.

Externalization also serves as a primary foundation for the development and maintenance of organizational knowledge repositories. Studies on repository systems indicate that repositories are effective only when tacit knowledge is first converted into explicit form through externalization processes (Dei et al., 2024). Other research confirms that knowledge management capabilities support this conversion, enabling the resulting documentation to be used for continuous innovation (Idrees et al., 2022). Furthermore, formal knowledge management strategies have been shown to create systematic mechanisms through policies, documentation standards, and internal procedures to capture, store, and maintain tacit knowledge as part of long term institutional memory (Chong & Yuen, 2022). The

consistency of these findings suggests that the development of an organizational knowledge base depends on the success of externalization as an initial step that enables structured knowledge reuse.

Overall, the findings of this systematic literature review indicate that tacit knowledge externalization constitutes a central pillar of organizational memory preservation, as it functions to prevent knowledge loss, strengthen collective memory, and build knowledge repositories that can be sustainably utilized. This discussion also emphasizes that the success of externalization is inseparable from the interaction of structural, social, and technological factors. Therefore, formal organizations need to design externalization processes as integrated and continuous practices to ensure that organizational memory is maintained and remains capable of supporting future innovation.

RQ 2: Mechanisms of Tacit Knowledge Externalization in Formal Organizations

The synthesis results show that the mechanisms of tacit knowledge externalization in formal organizations are divided into two main categories, namely process-based mechanisms and technology-based mechanisms, which complement each other in the externalization process to strengthen organizational memory. The main findings in this section are presented in table 4.

Table 4. Mechanism of Externalization

Mechanism Category	Mechanism	Article Code	Description
1. Process-based mechanism	Codification routines	A5, A8	Transform work experience into formal documents on a routine basis
	After action reviews	A1, A8	Structured evaluations conducted to capture lessons learned
	Structured documentation	A8, A10	Technical reports, project reports, and evaluation records
	Standard Operating Procedures (SOP)	A4, A5	Standardization of tacit knowledge into formal procedures
2. Technology-based mechanism	Knowledge repositories and databases	A4, A9	Centralized storage of explicit organizational memory
	Digital platforms	A10, A3	Digital media enabling the expression of tacit knowledge

Source: Data analysis, October 2025

In process-based mechanisms, four dominant forms are identified:

1. Codification routines play a role in transforming professional experience into formal guidelines, reports, or work templates. This practice has been proven to strengthen knowledge transfer and integration in organizations with high knowledge management capabilities (Idrees et al., 2022) and is also used in local government to document experience-based policy practices (van Doren et al., 2020).
2. After Action Reviews (AAR) emerge as highly effective post project reflection mechanisms in capturing implicit experience, professional intuition, and lessons learned. Formal post project evaluations have been shown to enrich policy and practice memory (van Doren et al., 2020), while their absence leads to the loss of critical knowledge in public infrastructure projects (Iftikhar & Rashid, 2025). Team knowledge dynamics also indicate that structured reflection is important in strengthening collective learning (Yang & Suntrayuth, 2025).
3. Structured documentation such as project reports or service documentation functions as a medium to articulate contextual insights that are not recorded in administrative data (van Doren et al., 2020) and to capture tacit insights in service development processes (Storey & Perks, 2015).

4. Standard Operating Procedures (SOP) act as formal containers that crystallize tacit practices into standardized and replicable procedures. SOPs have been shown to strengthen repository functions in learning organizations (Dei et al., 2024) and to improve process consistency and organizational agility (Idrees et al., 2022).

Meanwhile, technology-based mechanisms strengthen the externalization process by providing storage facilities and digital media for knowledge documentation. Based on the analysis results, two dominant forms are identified, namely:

1. Knowledge repositories and databases function as organizational memory centers that store lessons learned, best practices, and formal documentation in a structured manner (Dei et al., 2024). The role of repositories as core enablers of knowledge retention and flow has also been identified in supply chain management through an interpretive structural modelling approach (Lim et al., 2017).
2. Digital platforms play a role in enriching the articulation process of tacit knowledge through the use of rich media and digital documents that enable clearer and more documented expression of insights (Storey & Perks, 2015). Collaborative platforms have also been shown to facilitate the exchange of team understanding, strengthen tacit to explicit conversion processes, and maintain the sustainability of learning contexts (Yang & Suntrayuth, 2025).

Overall, these findings indicate that externalization is not limited to a single mechanism but depends on the integration of process and technology practices. When both mechanisms operate synergistically, organizations are able to maintain the sustainability of institutional memory, reduce the risk of knowledge loss due to personnel turnover, and strengthen adaptive and innovative capabilities. Thus, tacit knowledge externalization becomes a strategic pillar in the formation of resilient and sustainable organizational memory.

RQ 3: Barriers to the Externalization of Tacit Knowledge and Their Implications for the Sustainability of Organizational Memory

Based on the analysis conducted, the most influential barriers to the success of the tacit knowledge externalization process emerge across three main clusters, cultural, structural, and technological factors, which simultaneously weaken organizational capacity to build and sustain collective memory, as presented in Table 5.

Table 5. Barriers to Externalization

Barrier Category	Article Code	Identified Barrier	Implications for Organizational Memory
1. Cultural	A2	A weak knowledge sharing culture leads members to be reluctant to externalize experience due to resistance and low sharing norms.	Tacit knowledge remains undocumented, preventing the development of collective memory and constraining organizational creativity.
	A3	Low psychological safety and weak team cohesion cause members to hesitate in expressing intuition, experience, or tacit ideas.	Team memory weakens because experiences are not transformed into explicit knowledge to sustain performance.
	A6	Inconsistent knowledge management leadership and organizational culture fail to support sharing practices, as strategies are not translated into action.	Organizational memory mechanisms are not institutionalized, leaving repositories and standard operating procedures with limited content.

	A7	Age stereotypes and intergenerational communication barriers reduce tacit knowledge transfer between senior and junior employees.	Long term organizational memory and historical knowledge are at risk of loss due to ineffective transfer.
2. Structural	A1	The absence of formal documentation procedures and strong reliance on individuals cause learning to disappear when staff move or projects end.	Project memory is lost and organizations fail to accumulate cross project experience.
	A4	Inconsistent documentation standards and underutilized repositories result in uncodified or incomplete knowledge.	Explicit memory becomes difficult to retrieve or reuse, weakening the repository's role as organizational memory.
	A5	Organizational silos and fragmented knowledge management capabilities hinder documentation routines and knowledge flows.	Organizational memory becomes fragmented, weakening knowledge retention for innovation and new product development.
	A8	The lack of cross project learning mechanisms prevents knowledge from low carbon initiatives from being documented and transferred.	Policy memory is not formed, limiting the contribution of experience to program scaling.
3. Technological	A4	Repositories exist but are not used consistently, reflecting a gap between systems and user behavior.	Explicit memory fails to develop and becomes obsolete due to insufficient updating and uploading of content.
	A9	Knowledge management systems are not integrated, and technology does not support knowledge flows within the supply chain.	Tacit knowledge externalization slows, and operational memory is poorly documented.
	A10	Mismatched communication media, such as rich versus asynchronous channels, lead to the loss of tacit context and nuance.	Documentation becomes superficial, and innovation memory loses depth and reusability.

Source: Data analysis, October 2025

The following outlines each barrier based on the analysis undertaken:

1. Cultural Barriers

Cultural barriers arise when organizational norms and values do not encourage openness in articulating intuition and work-related experience. Weak knowledge-sharing cultures lead members to be reluctant to express their tacit knowledge due to interpersonal resistance and a lack of collaborative norms, thereby preventing the sustainable accumulation of collective knowledge (Yıldız et al., 2025). Low levels of psychological safety further weaken team dynamics, causing members to hesitate in sharing ideas or implicit experiences that are essential for collective learning, resulting in fragile team memory that fails to support performance continuity (Yang & Suntrayuth, 2025).

Inconsistent managerial behavior within knowledge management (KM) strategies further exacerbates this condition. Although organizational directives may exist, leaders often fail to model knowledge-sharing practices, preventing externalization from being internalized into daily work routines (Chong & Yuen, 2022). Additionally, age-related bias and intergenerational communication barriers reduce the transfer of tacit knowledge, rendering historical organizational knowledge vulnerable to loss due to ineffective transmission to subsequent generations (Li et al., 2021).

2. Structural Barriers

Structural barriers refer to the absence of mechanisms, procedures, and internal systems that support knowledge storage and transformation. The lack of formal documentation procedures causes organizations to rely heavily on individuals, leading to the loss of project learning when staff transition or projects conclude (Iftikhar & Rashid, 2025).

Inconsistent documentation standards also result in incomplete repositories that are difficult to reuse, diminishing the function of explicit memory as a basis for decision-making (Dei et al., 2024). Structural fragmentation in the form of inter-unit silos leads to unintegrated documentation routines and fragmented organizational memory, weakening innovation and learning capabilities (Idrees et al., 2022). In the public sector, the absence of cross-project learning mechanisms prevents experiences from strategic programs from being converted into policy memory (van Doren et al., 2020).

3. Technological Barriers

Technological barriers emerge when digital infrastructure fails to support the recording, storage, and dissemination of knowledge. Available repositories are often not updated or consistently populated, causing explicit memory to become obsolete and misaligned with the organization's actual experiential dynamics (Dei et al., 2024). In supply chain environments, non-integrated KM systems hinder the flow of operational knowledge, making tacit knowledge difficult to document and consolidate into organizational operational memory (Lim et al., 2017). Inappropriate communication media for example the use of asynchronous channels for knowledge requiring rich contextual depth lead to the loss of tacit context, resulting in superficial documentation and the erosion of innovation memory elements necessary for reusability and service quality improvement (Storey & Perks, 2015).

The analysis indicates that the externalization of tacit knowledge is not influenced solely by individual factors, but rather by the interaction of cultural, structural, and technological barriers. Cultural barriers limit individuals' willingness to express implicit experience; structural barriers constrain organizational capacity to capture and store knowledge; and technological barriers restrict the supporting facilities required for effective externalization. The combination of these factors hinders the conversion of tacit knowledge into documented explicit knowledge, thereby weakening organizational memory and disrupting long-term learning capacity. These findings underscore the importance of an integrated approach that encompasses collaborative culture, supportive documentation-oriented structural design, and technologies aligned with knowledge characteristics, enabling organizations to build strong and sustainable memory systems.

Conclusion

This systematic literature review confirms that the externalization process constitutes a strategic component in the preservation of organizational memory through three primary roles, namely preventing knowledge loss resulting from human resource dynamics, strengthening collective memory through the consolidation of implicit experience, and building knowledge repositories that sustain the continuity of information management. Externalization mechanisms are identified in two complementary categories, consisting of process-based mechanisms such as codification routines, after action reviews, and structured documentation procedures, and technology-based mechanisms implemented through digital repositories and knowledge platforms that expand the scope of documentation and information dissemination. However, the effectiveness of these mechanisms

remains constrained by cultural, structural, and technological barriers that may undermine the consistency, openness, and completeness of knowledge articulation processes.

Overall, these findings underscore that the success of externalization depends on organizational readiness to address such barriers in a systematic manner, and future research should develop and empirically examine integrated intervention models capable of strengthening externalization processes in order to enhance the quality of organizational memory and long-term learning capacity.

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