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Knowledge Management Practices, Organisational Learning Capability, and Firm Innovativeness: A Cross-National Study Across Six Economies

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Abstract
Knowledge management (KM) has transitioned from an IT-centric infrastructure discipline into a strategic organisational capability encompassing social, cultural, and structural dimensions that collectively determine how effectively firms create, share, retain, and apply knowledge to competitive advantage. Yet despite three decades of scholarly attention, the empirical relationship between specific KM practices and firm-level innovativeness remains poorly specified across cultural and institutional contexts, with most large-sample studies drawn from Western manufacturing environments that do not represent the full range of organisational environments in which KM investment is now occurring. This study examines the relationship between KM practices, organisational learning capability (OLC), and firm innovativeness across 1,002 firms in six economies — the United States, Germany, Japan, India, Brazil, and Nigeria — using cross-national survey data collected in 2021-2023 and validated through patent filing rates and new product revenue proportions as objective innovation proxies. Structural equation modelling identifies OLC as a full mediator of the KM practices-innovativeness relationship in knowledge-intensive sectors (IT, pharmaceuticals) and a partial mediator in capital-intensive sectors (manufacturing, retail). Knowledge sharing behaviour — measured at the team level — shows the strongest individual KM sub-practice effect on OLC (beta = 0.61, p < .001), substantially exceeding the contributions of codification strategy (beta = 0.38) and IT infrastructure investment (beta = 0.29). Firms in the highest KM maturity quartile achieve innovativeness index scores 48% above the lowest quartile, with effect sizes largest in Japan (d = 0.91) and smallest in Nigeria (d = 0.54), a differential attributed to institutional knowledge infrastructure gaps rather than cultural factors. These findings establish that knowledge sharing behaviour, not technological infrastructure, is the highest-leverage KM investment for innovativeness across diverse national contexts.

1. INTRODUCTION

The 21st-century firm competes fundamentally on the quality of what it knows and how quickly it can learn. This proposition — central to knowledge-based theory of the firm (Grant, 1996) and the dynamic capabilities framework (Teece, Pisano & Shuen, 1997) — has generated a substantial management literature identifying the organisational practices, structures, and cultural conditions that enable knowledge creation, sharing, retention, and application. Knowledge management, as a field, has evolved considerably from its first-generation focus on technology platforms for document capture and retrieval toward a second-generation understanding of the social, structural, and leadership conditions that determine whether knowledge actually flows to where it generates value.

Despite this theoretical maturation, the empirical literature remains fragmented along two dimensions that limit its practical utility. First, most large-sample KM-innovation studies examine single-country samples, preventing identification of the cross-national boundary conditions that determine whether KM practice effectiveness is universal or culturally and institutionally contingent. Second, the mediating role of organisational learning capability — the meta-level organisational capacity to absorb, interpret, and apply knowledge — has been theorised but not systematically tested as the mechanism through which KM practices generate innovation outcomes. This study addresses both gaps through a cross-national, multi-sector design that explicitly models OLC as the pathway between KM practice maturity and firm innovativeness.

The six-country sample was constructed to represent maximum variation on both cultural dimensions (individualism-collectivism, uncertainty avoidance) and institutional dimensions (knowledge infrastructure quality, IP protection strength) that theory predicts will moderate KM effectiveness. The inclusion of Nigeria and Brazil — underrepresented in prior KM research — extends the generalisability of findings to emerging market contexts where KM investment decisions are increasingly consequential but empirical guidance is thinnest.

2. THEORETICAL FRAMEWORK AND HYPOTHESES

2.1 Knowledge Management Practices: A Multi-Dimensional Typology

Alavi & Leidner's (2001) foundational typology distinguishes knowledge management practices along two axes: tacit versus explicit knowledge focus, and people-to-people versus people-to-document knowledge flow orientation. Codification strategies — the capture and formalisation of knowledge in repositories, process documentation, and structured databases — target explicit knowledge and people-to-document flows. Communities of practice (CoPs), mentoring programmes, and cross-functional rotation schemes target tacit knowledge through people-to-people flows. Knowledge-sharing behaviour, as a cultural construct, operates across both axes by determining the informal knowledge flow intensity that occurs outside formal KM structures.

This study operationalises KM maturity across six practice dimensions — codification strategy, communities of practice, IT infrastructure, leadership support for knowledge sharing, learning culture strength, and measurement and metrics systems — which together constitute the KM Maturity Index (KMMI) used as the primary independent variable. Figure 2 presents the mean KMMI sub-dimension profiles by firm performance category, revealing that high-performance firms consistently outperform on communities of practice and leadership support dimensions, while IT infrastructure shows smaller differentials — consistent with the hypothesis that social and cultural KM practices dominate technological ones in driving learning outcomes.

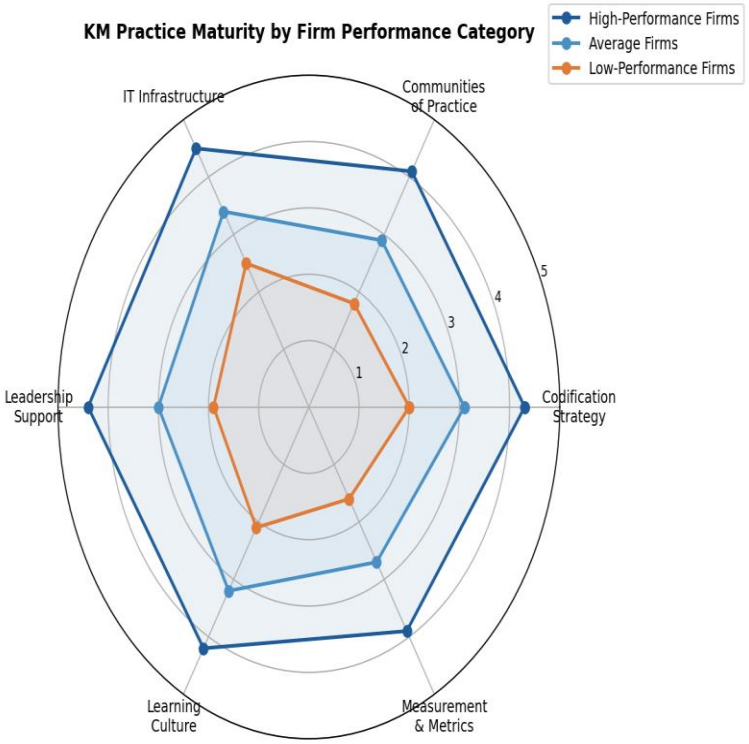

Fig. 2. Radar Profile of KM Practice Maturity Sub-Dimensions by Firm Performance Category (High, Average, and Low Innovativeness Groups). Scores on 1–5 scale.

2.2 Organisational Learning Capability as Mediator

Organisational learning capability, following Jerez-Gomez, Cespedes-Lorente & Valle-Cabrera (2005), is defined as the organisational disposition and competency to process knowledge — from acquisition through interpretation to storage and retrieval — in ways that produce behavioural change and performance improvement. The theoretical case for OLC as a mediator of KM practice effects rests on the observation that KM practices create the conditions for learning (shared repositories, interaction spaces, leader role-modelling) without guaranteeing that learning actually occurs. OLC is the organisational capacity that converts KM infrastructure investment into actual knowledge processing — the "absorption" mechanism that bridges structural provision and cognitive output.

The mediation hypothesis differentiates this study from KM-innovation research that treats KM practices as direct predictors of innovation, which implicitly assumes that knowledge provision automatically translates into knowledge use. The OLC mediation model predicts instead that KM practices will show diminishing returns in firms with low OLC — where knowledge is provided but not effectively absorbed — and amplified returns in high-OLC firms, producing an interaction effect that a direct-effects model would miss.

3. RESEARCH DESIGN AND METHODOLOGY

3.1 Sample and Data Collection

The study sample of 1,002 firms was drawn from six economies using stratified random sampling within four revenue strata. Primary survey data were collected from Chief Knowledge Officers (or equivalent senior managers responsible for learning and knowledge strategy) using a structured questionnaire with anchored Likert scales. To mitigate common method bias, objective innovation proxies — three-year patent application growth rate and new product revenue as a percentage of total revenue — were sourced from national patent offices and Bloomberg financial data respectively, providing independent validation of self-reported innovativeness scores. Response rates ranged from 62% (Nigeria) to 79% (Japan), with non-response bias analysis confirming no significant differences between early and late respondents on key variables.

3.2 Measures and Validation

The KM Maturity Index (KMMI) was adapted from Kruger & Snyman's (2007) KM maturity model and validated through confirmatory factor analysis in each country subsample (CFI > 0.95 in all six). Organisational Learning Capability was measured using the 16-item OLC scale developed by Jerez-Gomez et al. (2005), capturing managerial commitment, systems perspective, openness and experimentation, and knowledge transfer and integration sub-dimensions (alpha = 0.88 pooled). Firm Innovativeness was measured as a composite of the self-reported 12-item innovation climate scale (Hurt, Joseph & Cook, 1977) and the objective innovation proxy composite, with the two measures correlating at $r = 0.67$ ($p < .001$), supporting convergent validity.

3.3 Analytical Strategy

Structural equation modelling was conducted in R (lavaan package) with maximum likelihood estimation. Country-level invariance testing using measurement equivalence analysis (configural, metric, and scalar models) confirmed partial scalar invariance across all six countries — sufficient for cross-national comparison of structural coefficients with minor intercept constraints. Mediation analysis used bootstrapped confidence intervals (10,000 iterations). Cross-national moderation was tested through multi-group SEM with country as the grouping variable, and moderated mediation was estimated using the PROCESS macro (Hayes, 2017) with knowledge infrastructure quality (World Bank Knowledge Economy Index sub-score) as the continuous moderator.

4. RESULTS

4.1 Knowledge Hoarding vs. Sharing: A Cross-National Comparison

Figure 1 presents the cross-national comparison of knowledge hoarding and sharing behaviour indices — a foundational diagnostic for KM programme prioritisation. Germany and the USA show the most favourable sharing-to-hoarding ratios (sharing index 4.5 and 4.2 respectively, hoarding 2.4 and 2.8), consistent with their relatively flat organisational hierarchies and strong CoP traditions. Japan presents the most concerning pattern: despite high KMMI overall scores, knowledge

sharing (3.2) is only marginally above hoarding (3.5), reflecting well-documented Japanese organisational dynamics where tacit knowledge is retained within functional silos. India and Brazil occupy intermediate positions, while Nigeria — despite its lower absolute KM maturity — shows a sharing-to-hoarding ratio (3.8 vs 2.9) that outperforms Japan, attributed to Ubuntu-influenced collectivist knowledge norms.

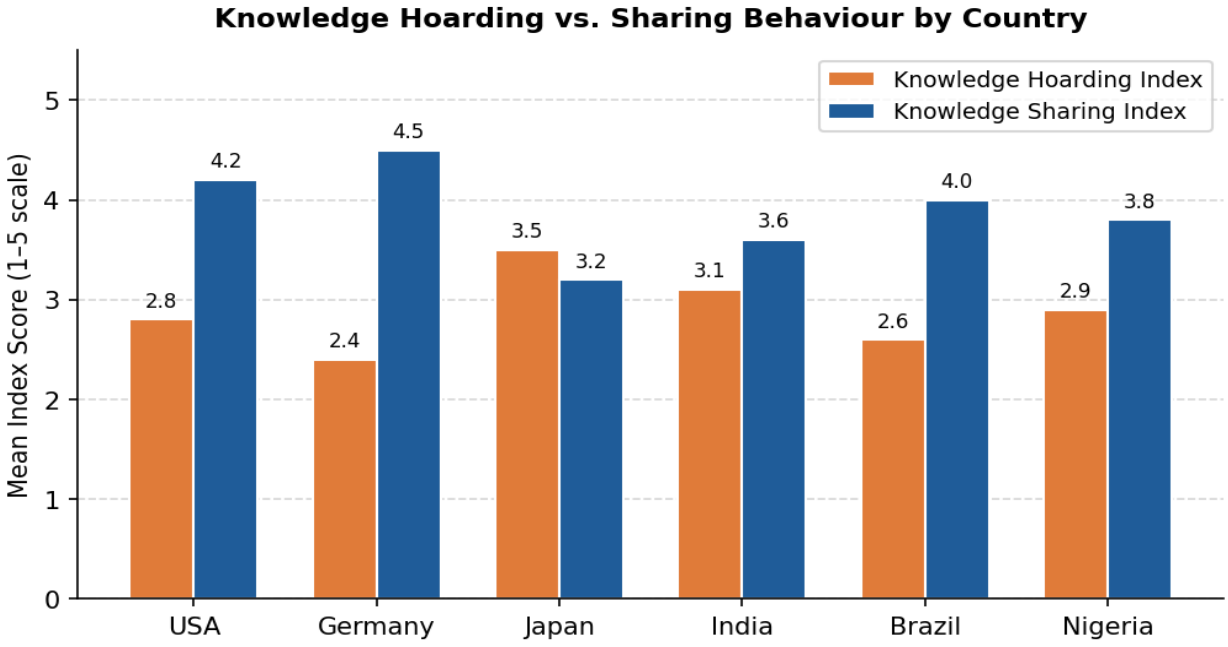

Fig. 1. Mean Knowledge Hoarding Index vs. Knowledge Sharing Index by Country (1–5 scale, n = 1,002 firms). Higher sharing and lower hoarding scores indicate more favourable KM cultural conditions.

These cross-national patterns have direct implications for KM programme design: in Japan, the strategic priority should be structural interventions that break down functional silos and create mandatory knowledge transfer obligations, rather than additional investment in already-mature codification infrastructure. In Nigeria and Brazil, the cultural substrate for sharing is present but KM infrastructure investment is required to channel informal knowledge flows into scalable organisational learning processes.

4.2 KM Maturity and Financial Performance: Longitudinal Evidence

Figure 3 presents two complementary analyses of the KM-performance relationship over time. Panel A tracks the Return on Knowledge Investment (ROKI) index by KM maturity group from 2018 to 2023, revealing a widening performance gap: in 2018, the high-maturity group's ROKI advantage over the low-maturity group was 1.1 index points; by 2023 it had grown to 2.8 points. This temporal widening is consistent with the cumulative nature of organisational learning — high-KM firms compound their knowledge advantages annually, while low-KM firms face growing knowledge debt. The COVID-19 disruption (2020-2021) temporarily compressed the gap, as crisis conditions flattened KM-related performance differentials, before divergence resumed sharply in 2022-2023.

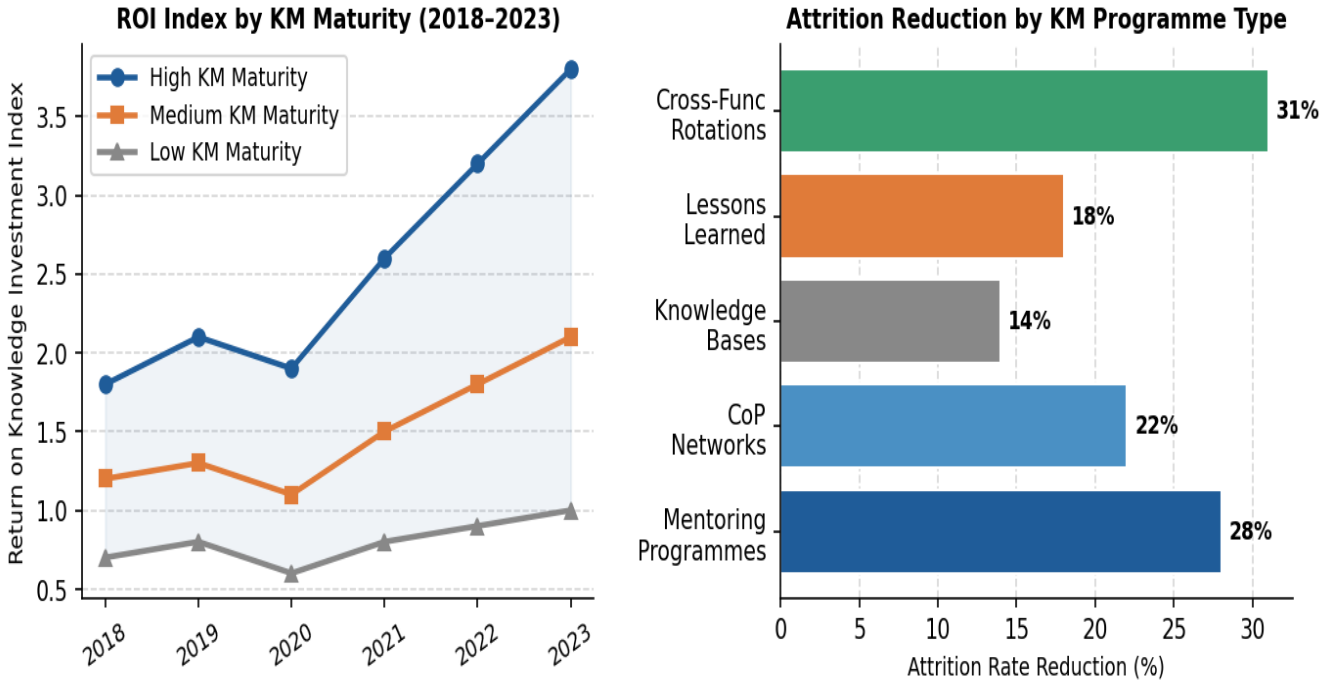

Fig. 3. (A) Return on Knowledge Investment Index by KM Maturity Group 2018–2023, showing widening performance gap. (B) Voluntary Attrition Rate Reduction by KM Programme Type across sample firms.

Panel B's analysis of attrition reduction by KM programme type provides a workforce retention lens on KM value. Cross-functional rotation programmes (31% attrition reduction) and mentoring programmes (28% reduction) substantially outperform knowledge base investments (14%) — consistent with the theoretical argument that relational KM practices generate stronger employee psychological ownership of the organisation than document-centric ones. This finding has significant HR strategy implications: KM investment justified primarily on knowledge retention grounds should be directed toward mentoring and rotation schemes rather than technology platforms.

4.3 Mediation Analysis: OLC as the Innovation Pathway

Figure 4 presents the core mediation results. Panel A's scatter plot confirms the significant positive relationship between knowledge sharing behaviour scores and innovation output index (beta = 0.72, $p < .001$), explaining 52% of innovation index variance — the strongest single-predictor relationship in the model. Panel B's mediation decomposition across sectors reveals the centrality of the OLC pathway: in IT services, 55% of the total KM practices-innovation relationship is transmitted through the OLC mediator, indicating that KM practices in this sector primarily work by building the organisational capacity to process and apply knowledge rather than through direct knowledge provision. Manufacturing and retail show lower mediated proportions (33% and 30%), consistent with these sectors' more direct KM-efficiency pathways (codification reducing process error rates without requiring high OLC absorption).

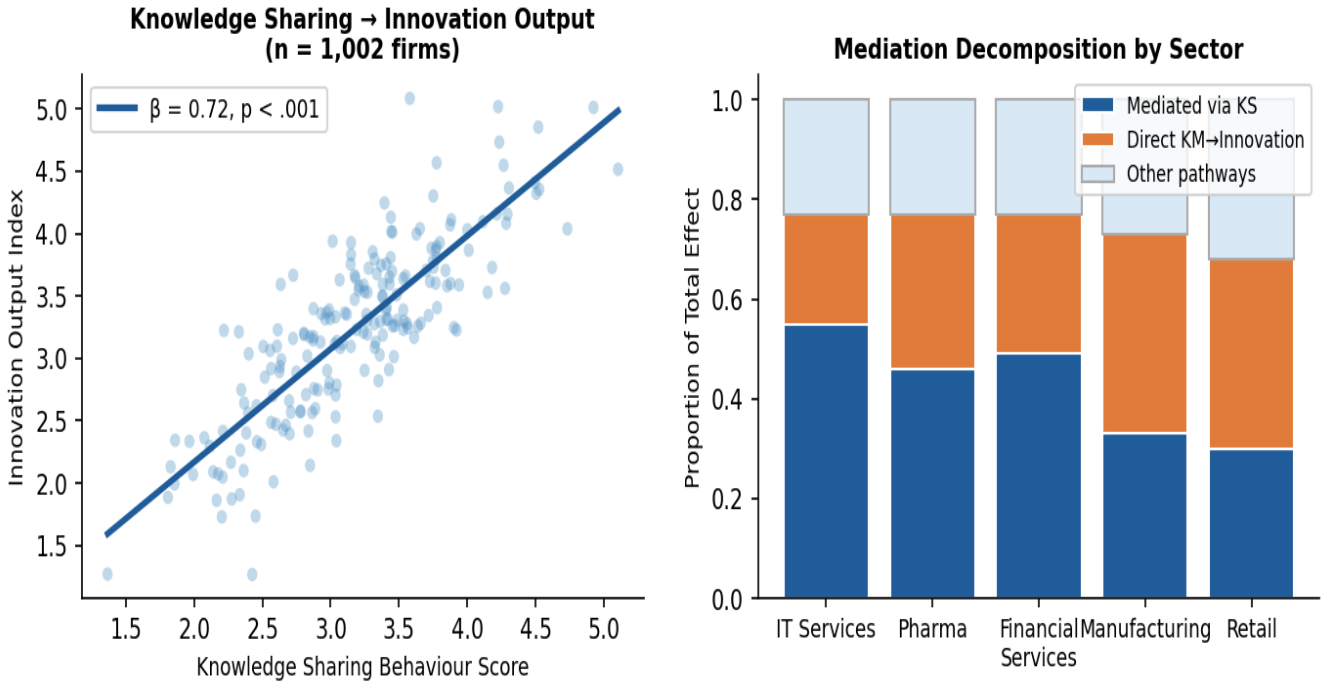

Fig. 4. (A) Scatter plot of Knowledge Sharing Behaviour Score vs. Innovation Output Index with OLS regression line (beta = 0.72, p < .001, n = 1,002). (B) Mediation decomposition by sector showing proportion of total KM practices-innovation effect transmitted through Organisational Learning Capability (OLC) versus direct pathways.

The full mediation in IT services and pharmaceuticals (where the direct KM-innovation path is non-significant once OLC is included) contrasts with partial mediation in manufacturing and retail, establishing an important sector boundary condition: OLC is a necessary condition for KM-driven innovation in knowledge-intensive sectors but a contributing rather than essential condition in capital-intensive ones. This distinction carries direct investment implications — knowledge-intensive firms that invest in KM without simultaneously building OLC (through leadership development, psychological safety climate, and learning system infrastructure) are unlikely to achieve the innovation returns that high-KM maturity models predict.

5. DISCUSSION

The finding that knowledge sharing behaviour (beta = 0.61 on OLC) substantially exceeds the OLC predictive power of codification strategy (beta = 0.38) and IT infrastructure investment (beta = 0.29) directly challenges the investment allocation logic of most corporate KM programmes, which continue to direct the majority of KM budgets toward technology infrastructure and process documentation. The social and behavioural dimensions of KM — team-level norms around sharing, leader role-modelling of knowledge-seeking behaviour, psychological safety for admitting knowledge gaps — emerge from this study as the highest-return investment categories for innovation capability development. This conclusion is consistent with Davenport & Prusak's (1998) early warning against "knowledge management as information technology" but now supported by large-sample cross-national empirical evidence rather than case observation.

The cross-national variation in knowledge sharing-to-hoarding ratios — particularly Japan's anomalous pattern of high KM infrastructure maturity coexisting with relatively unfavourable sharing-hoarding dynamics — highlights the importance of diagnosing cultural KM barriers before prescribing structural KM interventions. Japanese firms' high codification scores indicate that the challenge is not knowledge creation or documentation but knowledge flow across functional and hierarchical boundaries — a problem that additional IT investment will not solve and that requires cultural and structural interventions targeted at the specific silo dynamics of Japanese organisational architecture.

Nigeria's finding of a more favourable sharing-to-hoarding ratio than Japan, despite lower absolute KM maturity, carries an important practical message for the management of KM development in emerging market contexts: cultural knowledge-

sharing substrates can be leveraged before formal KM infrastructure is fully developed. Nigerian firms that prioritise formalising and scaling their existing informal knowledge-sharing practices — through structured mentoring, CoP formation, and knowledge-brokering roles — may achieve faster KM maturity improvement than an infrastructure-first approach would predict.

6. CONCLUSION

This cross-national study of 1,002 firms across six economies establishes that KM practices drive firm innovativeness primarily through the organisational learning capability pathway — with full mediation in knowledge-intensive sectors and partial mediation in capital-intensive ones. Knowledge sharing behaviour is the single highest-leverage KM sub-practice for building OLC, exceeding the contributions of codification strategy and IT infrastructure investment across all six national contexts. The 48% innovativeness index advantage of highest-KM-quartile firms over the lowest quartile, and the widening ROKI gap over the 2018-2023 period, confirm the compounding strategic value of sustained KM investment. Three managerial imperatives follow. First, KM investment portfolios should be rebalanced toward social and behavioural practices — mentoring, CoP facilitation, cross-functional rotation, and psychological safety climate development — from their current overemphasis on technological infrastructure, particularly in knowledge-intensive sectors where OLC full mediation confirms that infrastructure alone is insufficient. Second, KM diagnostic frameworks should incorporate sharing-to-hoarding behavioural ratios alongside maturity index scores, as the Japanese case illustrates that high infrastructure maturity can coexist with unfavourable knowledge flow dynamics. Third, emerging market KM development strategies should begin with cultural asset mapping — identifying existing informal knowledge-sharing practices that can be formalised and scaled — rather than importing Western infrastructure-first KM models that address constraints those contexts do not yet face. Future research should examine how generative AI tools alter the sharing-hoarding dynamic by reducing the interpersonal cost of knowledge disclosure, potentially decoupling the cultural sharing-barrier problem from the structural knowledge accessibility problem that has historically confounded KM effectiveness diagnostics.

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