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Ascertaining the Knowledge Management Practices Applicable to Real Estate Development Projects in Rivers State

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Abstract **Original Research Article**

This study investigated the knowledge management (KM) practices in the real estate development industry in Rivers State, Nigeria, focusing on how these practices impact project success and identifying both challenges and opportunities for improvement. Adopting an interpretivist research philosophy, the study employs a case study design to provide an in-depth understanding of KM practices within the local context. The population for the study comprised ten real estate development companies in Port Harcourt, and was selected based on specific criteria, including a minimum of five years of operation and involvement in large-scale public-oriented projects. A sample of seventy employees, including project managers, engineers, surveyors, architects, and field staff, was drawn for the study. Data were collected through structured questionnaires and semi-structured interviews, achieving an 86% response rate from the questionnaires. A combination of descriptive statistics and thematic content analysis was used to analyze the data, categorizing responses into major themes aligned with the research objectives. The findings revealed that KM practices, such as knowledge gathering, storing, distilling, and sharing, were largely underdeveloped in the real estate sector in the study area. Companies did not systematically gather knowledge from past projects or employees, and knowledge was typically stored in traditional, non-retrievable systems. There was a significant lack of knowledge sharing, and KM practices were not integrated into the organizational strategies. These findings highlighted a critical gap in the sector's approach to KM, underscoring the need for structured KM systems, digital tools, and a culture of knowledge sharing to enhance project outcomes. The study concluded by recommending that the industry adopt formal KM strategies to improve collaboration, decision-making, and overall project success.

Keywords: Knowledge Management (KM), Real Estate Development, Project Management, Real Estate Projects, Construction Industry, Best Practices.

Introduction

The real estate development industry is a significant sector that plays a crucial role in the socio-economic growth and development of any region, and Rivers State is no exception (Adegboyega et al., 2019). This industry transforms real estate development projects into tangible, finished products that serve various purposes for individuals, corporate bodies, and government entities. These products include residential real estate (houses for living), commercial properties (shops and offices), infrastructural developments (roads and bridges), and industrial facilities (factory buildings). As a result, real estate development activities have contributed to the emergence of

major cities like Port Harcourt, industrial zones such as the Trans Amadi Industrial Area, towns, villages, and other settlement areas for both habitation and business. The industry also has a multiplier effect, stimulating other economic activities by increasing demand for raw materials, shops, offices, and manufacturing facilities, while also creating jobs for both skilled and unskilled labor.

Knowledge Management (KM) is defined as the process of creating, sharing, utilizing, and managing knowledge within an organization to improve its performance (Nonaka & Takeuchi, 1995). In the context of real estate development, KM practices are essential for ensuring effective integration of knowledge across various stages, including design, planning, financing, construction, and maintenance. Effective KM practices enable real estate developers to optimize decision-making, mitigate risks, enhance project delivery times, and ultimately improve profitability (Riege, 2005).

The real estate development industry in Rivers State, like many others, faces numerous challenges that affect the timely and efficient delivery of projects. Common issues include cost overruns, delays, and substandard quality (Ademeso & Windapo, 2008), often due to factors such as poor project management, inadequate planning, and inefficient resource utilization (Alhaji et al., 2013). Baskaran et al. (2010) noted that "there have been frequent project failures despite the use of proven and stable techniques of project management." This reality is evident in Rivers State, where some completed projects, such as the Rumuokoro and Rumuokuta flyover bridges, have not performed optimally due to avoidable mistakes, including incorrect alignment, which has compromised their ability to manage traffic effectively at roundabouts.

Despite its significance, knowledge management in the Nigerian real estate sector, particularly in Rivers State, has received limited attention in academic research. While several studies have emphasized the importance of KM practices in enhancing organizational efficiency across various industries (Gloet & Terziovski, 2004), there remains a gap in understanding how these practices are specifically applied in the real estate development sector in the region. Knowledge management can serve as a catalyst for overcoming barriers such as miscommunication, lack of proper documentation, and inefficiencies in knowledge transfer (Currie & Kerrin, 2003; Guerrero et al., 2019).

This study aims to address this gap by investigating the KM practices employed by real estate developers in Rivers State, focusing on how these practices impact project success and identifying both the challenges and opportunities for improvement. Specifically, it will explore the mechanisms for knowledge creation, sharing, and utilization within real estate development projects, examining the roles of key stakeholders such as developers, architects, project managers, and contractors. By analyzing how these stakeholders collaborate and share knowledge, the research will provide valuable insights into the effectiveness of KM strategies in enhancing project outcomes in the real estate sector (Gloet & Terziovski, 2004).

2.0 Literature Review

2.1 Knowledge Management Concept

Evolving from people focus in the 70s to team focus in the 80s, then followed by process focus in the 90s to knowledge and adaptability focus in the 20s (Convey, 2004), knowledge management has multiple definitions and without a general consensus on a single unified meaning of the concept. However, Egbu (2004) explains that knowledge is an important resource for real estate development organizations due to its ability to provide market leverage and contribution to organizational innovations and project successes. Jennex (2005) defined KM as the practice of selectively applying knowledge from previous experiences of decision making to current and future decision-making activities with the express purpose of improving the organization`s effectiveness. Another key definition of KM views the concept as an entity's systematic and deliberate efforts to expand, cultivate, and make available knowledge in ways that add value to the entity in the sense of positive results in accomplishing its objectives or fulfilling its purpose. The entities scope may be individual, organizational, trans-organisational,

national and so forth (Holsapple & Joshi, 2004). Leidner (2001) stated that KM involves distinct but interdependent processes of knowledge creation, knowledge storage and retrieval, knowledge transfer, and knowledge application.

According to Davenport and Prusak (2000), the essence of Knowledge Management (KM) is to provide strategies to make the knowledge of an organization available to those who need it in order to improve human and organizational performance. The concept is increasingly recognized as a key organizational capability for creating and sustaining competitive advantage in today's construction business environment (Hany, Old & Ahmed, 2019). This reveals that improving and enhancing this key organizational capability should be given high priority by business executives (Wen, 2009) and construction companies as well as construction managers. ISO30401/2018 explained KM as a discipline focused on ways that organizations acquire, create, share and use knowledge. Also, elaborating the concept of KM, Ramon (2001) defined KM as the process through which an enterprise uses its collective intelligence to accomplish it strategic objectives.

Based on the foregoing review of explanations and definitions of KM from various author's perspectives, there is a common acceptance of the KM technique as an organizational capability that improves the efficiency and performance of organization's activities (Santoso, 2020; Knochakzadeh & Behzadi, 2019). Moreso, the review indicates vividly that it requires a systematic process of several stages to develop and apply the KM approach (Liu et al., 2019)

2.2 The KM Process

The KM process involves the conversion of information, which is verified and validated, into knowledge that can be utilized. Basically, every knowledge management process is distinguished by four stages which include knowledge creation, knowledge capturing and storing, knowledge reusing and sharing, and knowledge reviewing and approving (Hany et al., 2019)

2.2.1 Knowledge Creation

Knowledge creation requires active interaction among employees to combine individuals' existing tacit and explicit knowledge in order to refine current activities and explore new possibilities (Kodama, 2006). It has been found that the main incentive for knowledge creation in the construction industry are the need to solve problems, innovate and manage changes (Egbu 2004). Falqi (2010) suggested that knowledge can be created through continuous interactions between tacit and explicit knowledge to form four modes presented in the SECI (Socialization, Externalization, Internalization, and Combination) model.

2.2.2 Knowledge Capturing and Storing

Knowledge capture can be defined as the process of eliciting knowledge that resides within people or organizational entities (interior and exterior) and representing it in an electronic form such as a knowledge-based system for later reuse or retrieval (Falqi, 2011). According to Kululanga and McCaffer (2001), a construction organization can capture knowledge internally by tapping knowledge from its staff, conducting internal benchmarking studies, and learning from experience.

2.2.3 Knowledge Reusing and Sharing

Ahmad et al. (2008) stated that KMS should addresses the knowledge requirements of end-users and support their existing practices while guarantee security and confidentiality. Successful KMS should provide the ability to search and find desired knowledge easily. Unfortunately, most construction organizations have not always been successful in collecting and sharing tacit knowledge (Carrillo et al., 2006).

2.2.4 Knowledge Reviewing and Approving

Ahmad (2010) stated that knowledge collected by employees of the organization needs to be reviewed and edited. The knowledge needs to be classified in order to facilitate knowledge searching and reusing functions. Knowledge approval is about all the activities involved in transforming knowledge content from non-approved, invalid knowledge into knowledge contents that is valid and available for authorized end-users of the KMS. The continuous activities of knowledge approval can help to identify new shapes and formats of

important knowledge that the existing system does not deal with. According to Ahmad (2010), many of KM activities and processes not necessarily work in sequence, so it can be said; although knowledge creation implemented at the first, also it can be implemented at the end to improve the captured knowledge.

2.3 Empirical Studies

Numerous empirical studies have explored the significance of Knowledge Management (KM) as a tool for improving the delivery of real estate development projects in the construction industry. Notable studies in this area include works by Hany et al. (2019), Baskaran et al. (2010), Carrillo et al. (2005), and Suresh et al. (2016), among others.

In their 2019 study, Hany et al. investigated the practices that enhance the effectiveness of KM at the organizational level. They employed a quantitative approach, collecting data through questionnaires distributed to 27 construction companies in Egypt. Key practices identified included: knowledge creation through employee interaction to merge tacit and explicit knowledge, guided by the SECI model (Ikodama, 2006); knowledge capturing and storage in electronic systems for future use (Falqi, 2010); knowledge reuse and sharing via Knowledge Management Systems (KMS); and knowledge review and updating prior to reuse. The study recommended improvements in knowledge capturing, storage, and sharing through KM technologies, such as intranet platforms.

Baskaran et al. (2010) examined KM as a comprehensive tool for superior project management. Their qualitative study involved interviews with employees from two construction companies in Canada and the United States that had established KM strategies. The findings revealed that knowledge creation, storage, sharing, and reuse were common practices in both companies. The study suggested the implementation of these practices and recommended a human-focused KM strategy for improved project management.

Carrillo et al. (2005) focused on the management practices of construction project managers. Using qualitative methodology, the researchers conducted in-depth face-to-face interviews with five experienced project managers involved in large-scale civil engineering projects. The findings indicated that information was accessed through the company's intranet, a KM system that was regularly updated by designated staff. An extranet was also made available for site staff to access the company's server on-site, leading to increased staff efficiency in applying knowledge. The study concluded that knowledge should be stored in an accessible and retrievable system for effective reuse.

Mochamad et al. (2018) examined the relationship between the knowledge management (KM) process and the performance of construction companies. The study aimed to improve efficiency and competitive advantage in the construction industry through effective knowledge utilization. A total of 60 questionnaires were distributed to managers of large contracting firms in various cities in Indonesia, resulting in 54 completed and eligible responses. The questionnaires consisted of three parts: the first outlined respondents' profiles, the second gathered information on the KM process, and the third collected data on company performance, using a five-point Likert scale to rate agreement with each question. The collected data was subsequently analyzed. The research findings indicated a positive correlation between the KM processes and company performance. Specifically, company performance improved with the application of KM processes, including knowledge creation, sharing, acquisition, transfer, responsiveness, and dissemination. The study concluded that activities conducted within construction projects should always be regarded as KM processes to facilitate documentation, storage, and dissemination via the KM portal. This information can be processed by the KM manager for utilization in various projects.

Elmadee, Hashim, Norani, and Khawla (2014) explored the extent of Knowledge Management practices within the largest construction companies in Malaysia, based on the perceptions of project managers. Using the KM model developed by Lawson (2003), which outlines a six-step process involving knowledge creation, capturing, storing, disseminating, and applying, the study employed a quantitative methodology to assess the level of KM practices among

Malaysian construction companies. Questionnaires were distributed and retrieved online from 227 companies nationwide, and the gathered data was analyzed. Results revealed that the practice of storing knowledge was the most prevalent; however, knowledge dissemination and application, crucial objectives of knowledge management, were relatively low. Consequently, it was concluded that Malaysian construction companies manage their knowledge informally. These companies face the risk of losing their knowledge and competitive edge unless they adopt a more structured approach to knowledge management.

Olayiowola et al. (2021) examined the effectiveness of Knowledge Management (KM) tools at the project level within building construction firms, highlighting the importance of competitive strategies in today's dynamic business environment (Dodd, 2003; Wali, cited in Olayiowola et al., 2021). Using a quantitative approach, the researchers distributed 330 questionnaires to construction managers in Lagos State, receiving 257 valid responses, representing a response rate of 78%. The findings indicated that KM tools—such as telephone calls, staff meetings, conferences, seminars, e-learning, and peer training—were adequately available and beneficial for capturing and sharing knowledge. The study concluded that the effective use of these tools enhances project knowledge retention and recommended fostering teamwork and properly implementing KM practices to prevent knowledge loss.

In another study, Marco et al. (2023) investigated knowledge-sharing practices in a medium-sized construction company using the SECI (Socialization, Externalization, Combination, and Internalization) model. Through qualitative interviews with 14 staff members and questionnaires distributed to company leaders, the study explored how knowledge is created, shared, and applied. The findings revealed active socialization, with employees participating in company-organized courses and lectures, and effective externalization, as staff shared knowledge across various experience levels. However, the combination aspect was limited, with some employees lacking access to best-practice guidelines and training materials. Additionally, internalization was weak, as few staff members participated in external training or cultural dissemination activities. The study concluded that while the SECI model effectively supports the continuous conversion of tacit knowledge into explicit knowledge within the company, the internalization and combination dimensions require improvement.

3.0 Methodology

This study utilizes an interpretivist research philosophy, emphasizing the understanding of the social and cultural contexts that influence knowledge management (KM) practices within real estate development firms in Rivers State. A case study design was adopted to enable an in-depth exploration of KM processes across multiple firms. The research focused on ten real estate development companies in Port Harcourt, selected based on specific criteria: they must have been in operation for a minimum of five years, have relevant data available, not be inactive, and be involved in large-scale, public-oriented projects. From these firms, a sample of seventy employees comprising project managers, engineers, surveyors, architects, and field staff was drawn due to the small and manageable size. Data were collected through structured questionnaires and semi-structured interviews tailored to the study's objectives: assessing the current state of KM practices and identifying best practices in the real estate sector of Rivers State. Between September 8th – 19th, questionnaires were administered in person to ensure high participation rates, and interviews were conducted with key personnel. And within the eriod October 15th – 30th, 2025, a total of sixty valid questionnaires were returned, yielding an 86% response rate, which is considered adequate for analysis. Data from both instruments were analyzed using a combination of descriptive statistics and thematic content analysis. Responses were categorized into major themes aligned with the research objectives to identify patterns and insights into KM practices within the study area.

4.0 Data Presentation and Analysis

This section presents and analyzes the data collected for the study on knowledge management (KM) practices in real estate development projects in Rivers State. The data is

organized based on the research objectives, with both quantitative and qualitative findings providing insights into the KM practices and their impact on real estate development in the region. Tables 1 and 2 below outline general KM practices observed in other parts of the world, along with best practices and recommendations for the industry.

4.1 The Current State of KM Practice in the Real Estate Development Industry

This theme investigates the current state of KM practices in the study area's real estate development industry, including gathering knowledge from past projects, storing knowledge in retrievable systems, distilling information, and sharing knowledge among employees for project management. Table 4.2 below displays responses to these KM strategies, highlighting the levels of agreement and disagreement regarding their use in the industry.

Table 1: Current State of KM Practice.

Current State of KM Practice.	SA	A	N	D	SD	Mean	SD	Rank
Gathers knowledge from past projects, employees and other sources	12	5	0	13	30	2.3	0.46	1st
Stores knowledge or experience in a retrievable system.	5	7	0	18	30	2.0	0.5	3rd
Distills or refines stored information or knowledge to remove unwanted data	6	8	0	11	35	2.0	0.5	3rd
Reuse or share knowledge among company employees for managing projects	5	6	0	30	19	2.1	0.48	2nd

Source: Field survey, 2025

Table 4.2 presents responses on the current state of knowledge management (KM) practices in real estate development projects, showing widespread disagreement about the implementation of KM practices. The mean scores, with a maximum of 2.3, were below the threshold of 3.0, indicating a low level of KM practice in the industry. Regarding knowledge gathering, the mean score of 2.3 and standard deviation of 0.46 showed that most companies were not utilizing this technique, with 50% of respondents strongly disagreeing and 21.7% disagreeing. For storing knowledge in a retrievable system, 50% respondents strongly disagreed and 30% disagreed, with a mean of 2.0 and SD of 0.5, confirming that knowledge management systems were not in use. Similarly, on distilling or refining knowledge, 58.3% respondents strongly disagreed, leading to a mean score of 2.0 and an SD of 0.5. Finally, regarding knowledge sharing among employees, 50% disagreed and 31.7% strongly disagreed, with a mean score of 2.1 and an SD of 0.48, suggesting limited implementation of this KM practice. In summary, the results indicate that KM practices, such as knowledge gathering, storing, distilling, and sharing, are largely not applied in real estate development project delivery in the study area.

To enhance the credibility and validity of the study, data from both quantitative and qualitative sources were triangulated. Interviews conducted

to assess the state of KM practices in the study area aligned with the quantitative findings. Eighteen professionals, including engineers, architects, and surveyors with significant industry experience, participated. Regarding knowledge gathering from past projects, all (100%) interviewees reported the absence of a formal policy, with each project adopting unique approaches instead of relying on accumulated knowledge. This was consistent with the quantitative data, which also indicated that knowledge gathering was not practiced in the study area.

When asked about knowledge storage, all (100%) participants unanimously noted the lack of formal systems, relying instead on traditional physical filing methods. One respondent noted that "*the predominant method involved the use of traditional file folders stored in physical filing cabinets"*. This supported the earlier quantitative finding that companies lacked digital or centralized knowledge repositories. On the distillation and updating of information, most interviewees stated that stored data was rarely updated, and when it was reused, it was not refined or adapted. This mirrored the quantitative result, which showed that companies did not regularly update or refine stored information.

Regarding the sharing of knowledge among employees, 16 (80%) interviewees reported no existing KM systems to facilitate knowledge exchange, echoing the quantitative findings that highlighted a lack of knowledge-sharing culture within organizations, only 2(20%) obliged. Overall, both quantitative and qualitative results revealed that KM practices in the real estate development sector were underdeveloped, with a general consensus that the industry lacked a strategic approach to knowledge management, impeding organizational learning and improvement.

4.2 Best Practices for Enhancing KM in Real Estate Development Projects

The research examined KM best practices in real estate development projects in the study area. Respondents expressed mixed reactions to the KM practices and recommendations in Table 2, with some agreeing and others disagreeing. Table 2 below captured the varying levels of agreement and disagreement regarding these KM practices.

Table 2: KM Best Practices and Recommendations

Best Practices and Recommendations	SA	A	N	D	SD	Mean	SD	Rank
Build a strong knowledge sharing culture in the company.	5	10	-	20	25	2.2	0.47	2nd
Leverage technology, particularly AI.	-	-	-	20	40	1.3	0.64	5th
Develop a dedicated KM program that is well supported by staff and management.	-	-	-	35	25	1.6	0.57	3rd
Identify what works, and what does not, with analytics.	20	25	-	10	5	3.8	0.47	1st
Understand how organizational knowledge circulates.	18	30	-	6	6	3.8	0.47	1st

Create awareness of the KM concept and its techniques.	-	-	-	32	28	1.5	0.59	4th

Source: Field survey, 2025

Table 4.5 shows that regarding building a strong knowledge-sharing culture, 41.7% strongly disagreed, 33.3% disagreed, 16.7% agreed, and 8.3% strongly agreed. The mean score of 2.2 with a standard deviation of 0.47 indicates that most respondents did not accept this practice in their organizations. For the use of technology, particularly AI, 66.7% strongly disagreed, and 33.3% disagreed, reflecting a lack of AI involvement in project activities, with a low mean of 1.3 and an SD of 0.64. Regarding the development of a dedicated KM program, 41.7% strongly disagreed, and 58.3% disagreed, with a mean score of 1.6 and an SD of 0.57, indicating a negative response. On the practice of identifying what works with analytics, 33.3% strongly agreed, and 41.7% agreed, showing a positive response with a high mean of 3.8 and an SD of 0.47. For understanding how organizational knowledge circulates, 30% strongly agreed, and 50% agreed, with a mean of 3.8 and an SD of 0.47, suggesting a general agreement on the technique. However, when it comes to creating awareness of KM concepts, 46.7% strongly disagreed, and 53.3% disagreed, with a mean of 1.5 and an SD of 0.59, indicating low KM awareness in the study area.

The qualitative interviews confirmed the low adoption of knowledge management (KM) practices in the real estate development industry, reinforcing key trends from the quantitative data. Interview participants highlighted the lack of structured knowledge exchange, with many stating that knowledge transfer was informal and reactive. One participant noted, *"Knowledge sharing is not something we do here. Everyone works based on their own experience, and there's no system in place to pass on lessons or instructions beforehand."* Regarding technology, participants unanimously agreed that their companies lacked the digital infrastructure for KM. One remarked, "*There is no AI or even basic digital platform to manage knowledge. Everything is done manually or through verbal instructions,"* highlighting a technological gap.

The interviews also supported the quantitative finding that there was no formal KM program. Respondents shared that KM was not part of their organizational strategy, with one participant saying, *"We don't have any formal KM program, and management has not shown interest in creating one. It's not seen as a priority."* On the use of analytics, participants acknowledged informal evaluations of project performance, similar to the quantitative results. One respondent mentioned, "*We do sometimes sit down after a project and discuss what went wrong or what went well, though it is not done in a formal or analytical way."* Regarding knowledge circulation, participants agreed with the survey data that informal knowledge sharing occurred through team interactions and shared experiences. As one interviewee put it, "*We talk to each other during projects and learn by observing, but it's not something that's tracked or documented."* The interviews also reinforced the survey's finding on KM awareness. Many participants admitted to being unfamiliar with KM, with one stating, *"Honestly, I have never heard of KM until now. We just do our work the usual way."* In conclusion, both the quantitative and qualitative findings indicate that KM practices in the study area are significantly underdeveloped.

5.0 Conclusion and Recommendation

This study has explored the current state of knowledge management (KM) practices in the real estate development industry in the study area, revealing significant gaps in the adoption and implementation of KM strategies. Both quantitative and qualitative findings consistently showed that KM practices such as knowledge gathering, storing, distilling, and sharing were largely absent from the industry's project delivery processes. The results highlighted that

knowledge gathering from past projects and employees was not systematically practiced, with most companies adopting unique approaches to each project without leveraging accumulated knowledge. Similarly, the study found that companies lack formal systems for storing knowledge, relying instead on traditional filing methods. Additionally, the distillation and refinement of knowledge was rarely performed, and there was no established system for knowledge sharing among employees, further hindering effective project management. Interview responses corroborated the quantitative data, with participants acknowledging the absence of structured KM systems and digital tools such as AI. The interviews also revealed a widespread lack of awareness of KM practices, reinforcing the need for education and sensitization within the industry. In conclusion, the study indicated that KM practices in the real estate development sector in the study area were significantly underdeveloped. For the industry to improve project outcomes and foster continuous learning, it was essential to implement formal KM strategies, invest in digital infrastructure, and cultivate a culture of knowledge sharing and refinement. These findings underscore the importance of integrating KM into organizational strategies to enhance collaboration, decision-making, and overall project success.

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