



FUTURITY
OF SOCIAL SCIENCE

DOI: <https://doi.org/10.57125/FS.2024.12.20.08>

How to cite: Okpebenyo, W., Okpe, M. N., & Ogini, S. (2024). Boosting Performance in the Mining Industry in Northern Nigeria: The Role of Knowledge Management Practices. *Futurity of Social Sciences*, 2(4), 136-153. <https://doi.org/10.57125/FS.2024.12.20.08>

Boosting Performance in the Mining Industry in Northern Nigeria: The Role of Knowledge Management Practices

Williams Okpebenyo*

Lecturer, Department of Business Administration/Management, Delta State Polytechnic, Otefe-Oghara, Nigeria, <https://orcid.org/0009-0005-3360-9319>

Mowarin Nyore Okpe

Senior lecturer, Department of Business Administration/Management, Delta State Polytechnic, Otefe-Oghara, Nigeria, <https://orcid.org/0009-0004-7218-3800>

Scott Ogini

Principal lecturer, Department of Business Administration/Management, Delta State Polytechnic, Otefe-Oghara, Nigeria, <https://orcid.org/0009-0003-0470-3168>

***Correspondence email:** williamokpebenyo01@gmail.com.

Received: August 6, 2024 | **Accepted:** October 28, 2024 | **Published:** November 21, 2024

Abstract: Relevance: Knowledge management practices are essential for improving organisational performance in a setting where competition is fiercer, especially in resource-intensive sectors like mining. Purpose: This study investigates the effects of knowledge management practices on organisational performance, specifically focusing on mining firms in Northern Nigeria. Methods: A cross-sectional survey design was employed, using a structured questionnaire to collect primary data. The questionnaire included constructs related to knowledge management and organisational performance. The overall reliability score of the constructs is 0.9488. Multiple regression analyses assessed the nexus between knowledge management practices and organisational performance. Results: Findings showed that knowledge acquisition positively influences organisational performance ($\beta = 0.0556695$; $p\text{-value} < 0.01$). Knowledge creation was found to have no significant adverse effect on performance ($\beta = -0.1913267$; $p\text{-value} > 0.05$). Knowledge sharing demonstrated a considerable positive impact on performance ($\beta = 0.136005$; $p\text{-value} < 0.01$). Knowledge protection did not statistically affect performance ($\beta = 0.0339274$; $p\text{-value} > 0.05$). Practical Value: The study suggests that mining firms should prioritise knowledge acquisition and sharing initiatives to enhance their performance, while the findings regarding knowledge creation and protection highlight areas needing further exploration and targeted strategies.

Keywords: Knowledge Acquisition, Creation, Knowledge Sharing, Knowledge Protection, Performance.

Introduction

Knowledge-based economies' imperatives have become increasingly evident in today's globalised world, characterised by rapid information exchange enhanced by information technology. Organisations now focus on effectively managing human capital to ensure perpetual value creation and competitiveness. In this context, knowledge has emerged as a key competitive edge, with the growth rate of Gross Domestic Product (GDP) being influenced by the quality and quantity of knowledge utilised in different sectors of the economy (Dima et al., 2018).

The term "Knowledge Management" (KM) has gained prominence in recent years, with organisations recognising it as a strategic tool to address obstacles and foster organisational effectiveness. Knowledge Management entails processes like knowledge creation, acquisition, sharing, and protection, all aimed at improving organisational performance and competitiveness. It is widely acknowledged that effective KM practices can result in innovation and, ultimately, sustainable competitive advantage (Chigada, 2014).

Effective knowledge management is paramount for promoting efficiency and innovation in the mining sector. Mining firms can achieve superior performance and deliver quality services by sharing explicit and tacit knowledge from trusted sources (Areed et al., 2021). However, the success of KM initiatives relies on the active participation of all employees at different levels of the organisation, with clear roles and responsibilities assigned for knowledge acquisition, creation, sharing, and protection (Janus, 2016).

Research Problem

Despite the recognised importance of knowledge management practices, there is an absence of comprehensive studies that focus on its impact on organisational performance, particularly in the context of mining firms in Northern Nigeria. Therefore, this study aims to examine knowledge management practices' influence on the mining sector's organisational performance. This study seeks to contribute to the existing literature and provide insights that can guide strategic decision-making in mining firms by examining the relationship between KM and organisational performance (Kit & Abu, 2017).

Prior studies have demonstrated the beneficial effects of knowledge management on business performance in various industries, including the construction industry in Nigeria and the Malaysian electrical and electronic sectors (Ale, 2021). Nevertheless, additional studies concentrating specifically on the mining sector must comprehend this context's particular opportunities and challenges (Usman, 2017). This study intends to close this gap in the literature by investigating the role of knowledge management in Northern Nigerian mining firms and offering relevant insights to practitioners and policymakers.

Research Focus

The principal aim of the study was to examine how different knowledge management factors affect organisational performance. The study sought to evaluate how knowledge generation, acquisition, sharing, and protection contribute to or hinder organisational effectiveness. To help organisations comprehend the importance of these knowledge management approaches and their connections to performance outcomes, the authors set out to gather empirical evidence.

Research Aim and Research Questions

This study examined the nexus between knowledge management variables (knowledge acquisition, knowledge creation, knowledge sharing, and knowledge protection) and organisational performance. The specific research questions are:

- i. Does knowledge acquisition affect organisational performance?
- ii. What is the effect of knowledge creation on organisational performance?
- iii. Does knowledge sharing influence organisational performance?
- iv. What is the impact of knowledge protection on organisational performance?

Objectives of the Study

The primary aim of this study is to analyse how knowledge management practices influence the performance of mining companies in Northern Nigeria. The specific objectives include:

- i. Examining the influence of knowledge acquisition on the performance;
- ii. Ascertaining the impact of knowledge creation on the performance;

- iii. Assessing the effect of knowledge sharing on the performance; and
- iv. Evaluating the impact of knowledge protection on performance.

Literature Review

Knowledge Management

This literature review's primary aim is to explore the nexus between knowledge management practices and organisational performance. It seeks to synthesize existing studies to identify how effective knowledge management practices can enhance organisational performance.

Knowledge is a core asset of any organisation, encompassing information, data, skills, and insights that drive productivity and problem-solving (Khanal & Poundel, 2017). Knowledge lies at the apex of the knowledge hierarchy, followed by information and data (Sun et al., 2020). Studies (Nonaka, 1994; Polanyi, 1958) categorised knowledge into tacit and explicit forms, with tacit knowledge being subjective, experiential, and dynamic, acquired through personal experience (Nonaka, 1994). Explicit knowledge, on the other hand, is codified, recorded, and accessible, and it resides outside individual minds in databases and intellectual property portfolios (Oladejo, 2019).

Managing knowledge effectively is essential for organisational success, with knowledge management being the structured process of identifying and making valuable information readily available and accessible to employees (El Aziz et al., 2013). This involves strategies to capture, store, and distribute knowledge, utilising different methods like information and communication technologies, social processes, organisational structures, and cultural practices (Hislop, 2013). The challenge lies in converting tacit knowledge into explicit knowledge, ensuring that valuable information is retained, shared, and leveraged for organisational benefit (Oladejo, 2019).

The knowledge management process is inevitable in contemporary and thriving organisations that view knowledge as a core driver of competitiveness (Hajric, 2023). Drawing on different components, KM practices can be divided into four main areas: knowledge acquisition, knowledge creation, knowledge sharing, and knowledge protection processes (Gold et al., 2001).

Knowledge management processes related to knowledge acquisition involve obtaining information through activities like achievement, pursuit, generation, development, capture, and organisation. This process includes creating new knowledge to build on existing information and fostering innovation. Dalkir (2005) emphasises the essence of collaboration and expertise in acquiring novel knowledge. Darroch (2003) identified six factors for effective knowledge acquisition, including valuing employee input, market focus, and cooperation with international partners. Knowledge dissemination entails sharing information internally through on-the-job training, quality circles, mentoring, and technology like teleconferencing.

Nonaka (1994) posited that knowledge creation emerges when individuals participate in practical activities within social contexts, guided by more experienced individuals. Furthermore, Chigada (2014) highlights the significance of mentors with tacit knowledge in fostering the learning

process for newcomers. Information gathered from different sources must be transformed into actionable forms to enhance productivity and business processes (Smith et al., 2010).

Knowledge sharing entails tacit and explicit knowledge sharing, essential for organisational success. Tacit knowledge involves experiential and context-specific insights shared among employees, fostering product quality, process improvement, cost reduction, and innovation (López-Cabarcos et al., 2020). Engineers, marketers, and managers hold valuable tacit knowledge, driving competitiveness (Hassan & Al-hakim, 2011). Explicit knowledge sharing, through practices like training and document sharing, improves operational performance and product quality (Wang & Hou, 2015). These practices can foster innovation, optimise processes, and enhance organisational performance (Mills & Smith, 2011). Explicit knowledge sharing contributes substantially to competitive advantage and organisational performance (Farooq, 2020).

Knowledge protection involves storing knowledge within the organisation, such as in printed records, electronic files, expert systems, and organisational practices, to ensure its safety and accessibility (Levallet & Chan, 2019). Effective strategies are required to safeguard knowledge assets and restrict access to authorised personnel (Mills & Smith, 2011). Studies have shown that knowledge protection positively affects organisational performance, particularly in commercial banks (Gakuo & Rotich, 2017). Intellectual property management is pivotal in explicit-to-explicit knowledge conversion, focusing on knowledge storage, organisation, and controlled distribution (Kelleher & Levene, 2010). Strategies for protecting knowledge include communities of practice, subject matter experts, leveraging retirees, coaching, mentoring, and storytelling, all aimed at retaining and sharing core knowledge within the organisation (Chigada, 2014).

Organisational Performance

Performance management is widely acknowledged as essential for organisational success across profit and non-profit sectors, government agencies, and businesses of all sizes (Ismail & Yusuf, 2009). Organisational performance is defined in different ways, with Pitt and Tucker (2008) describing it as a measure of how effectively activities within a process achieve specific goals. Amaratunga (2001) views it as evaluating progress towards predetermined goals, considering resource efficiency and outcome quality. Hassan and Al-Hakim (2011) emphasise the integration of organisational knowledge and innovation competence to achieve positive organisational goals. In the context of the mining sector, performance measures play a pivotal role in assessing efficiency and effectiveness. Di Maio et al. (2017) distinguish between efficiency, which focuses on resource utilisation, and effectiveness, which measures the value of outputs. Developing measures or metrics is essential for evaluating performance, with targets set as thresholds for achievement within a specific timeframe (Janus, 2016).

Moreover, product quality is recognised as a cornerstone of organisational success. Its importance in meeting customer expectations is also recognised (Naini et al., 2022). Customer satisfaction is closely linked with product quality, as higher quality results in increased satisfaction and positive word of mouth (Rahayu, 2018). As Schumpeter and Vyas (2009) elaborated, innovation is a critical driver of development that creates new products, processes, markets, and organisational

forms. The Balanced Scorecard, developed by Kaplan and Norton (2000), provides a comprehensive approach to measuring organisational performance by aligning strategic objectives with performance measures and facilitating strategic feedback and learning. This method enables organisations to link education and operational performance to overall corporate success, emphasising the importance of staff capabilities and motivation (Janus, 2016).

Knowledge Management and Performance

Studies have shown that knowledge management practices (KPM) are essential for improving organisational performance. According to Chigada (2014), mining companies in Northern Nigeria may see enhanced employee performance and product delivery due to the efficient application of knowledge management methods, including knowledge generation, sharing, and acquisition. In support of this idea, Fombad (2016) highlights how knowledge management techniques improve worker performance, satisfaction, and collaboration.

Arora and Raosaheb (2011) studied how knowledge management might improve performance in India's public sector and emphasised its importance for effectively managing e-government information. Farooq (2020) also highlights how good knowledge management techniques help organisations retain their memory for later usage, improving flexibility and responsiveness.

A study by Wiig (1997) highlights the significance of strong knowledge management procedures and a solid knowledge infrastructure in enhancing organisational performance. Ahmed et al. (2015) provide further evidence of the beneficial effects of knowledge management initiatives on customer satisfaction, operational effectiveness, profitability, and overall business performance. These results highlight how important knowledge management techniques are to enhancing organisational performance and business outcomes.

Theoretical Review

Nonaka and Takeuchi (2011) proposed the Organisational Knowledge Conversion Theory, which highlights the dynamic processes of implicit and explicit knowledge interaction in knowledge management. According to this theory, the primary methods that convert information within an organisation and promote its transfer and retention are combination, internalisation, externalisation, and socialisation. This conversion procedure ensures continuity and progress within the organisation by preserving necessary knowledge. A key idea in this theory is the SECI model, which focuses on how organisations produce, distribute, and use information to improve overall performance. According to Cong and Pandya (2003), this propels knowledge generation and transfer, highlighting the value of cooperative interactions in promoting knowledge development and sharing.

Deci and Ryan's Self-Determination Theory explores human motivation and optimal performance, emphasising extrinsic and intrinsic motivation (Koole et al., 2018). This theory highlights intrinsic motivation from internal delight and extrinsic motivation from external circumstances. It postulates that individuals have three basic psychological requirements. The self-determination theory has consequences for information sharing and goal fulfilment since it emphasises the significance of autonomy and self-motivation in behaviour (Osei-Frimpong, 2017).

As developed by Latham and Locke (1979), goal theories describe the processes that link objectives to performance results by focusing attention, promoting effort, pushing people to use their abilities, and highlighting the need for feedback. Performance management approaches that include goal-setting that is both demanding and attainable, giving feedback, and matching individual goals with organisational goals to improve motivation and performance outcomes are based on this philosophy. According to Kanfer et al. (2017), individuals are most motivated when they work towards clear, acceptable, and challenging goals, and achieving these goals depends heavily on feedback.

Research Method

Sample and Participants

The 250-person research population comprised top management, middle management, low management, and non-management employees from three specifically chosen mining companies in various parts of Northern Nigeria. With a 95% confidence level and a 5% error tolerance, Taro Yamane's formula was used to calculate the sample size of 154 participants. Three strata were created using the stratified sample technique, and each mining company received a proportionate number of questionnaires based on the population in each stratum.

Table 1

Break down of the Sample Size

Organisations	Population (A)	Questionnaire (Q)
Vinco Collins Mineral Ltd:	95	59
Greenfield Metals Ltd:	75	46
Collins Energy Ltd:	80	49
TOTAL	250	154

Source: Field Survey (2024).

Instrument and Procedure

The study used a cross-sectional survey design. Research design acts as a strategy framework for data collection and analysis. It describes the data generation process that assists researchers in gathering data (Asika, 2012). Both primary and secondary sources provided data for the investigation. Asika (2012) defines primary data as information collected through a questionnaire. Questionnaires were used to gather primary data for this survey. Conversely, secondary sources include information from earlier research and publications, textbooks, reports, newspapers, and online sites.

The study tool used to gather data was a structured questionnaire with constructs pertaining to knowledge management and organisational performance. A five-point Likert scale was used in the questionnaire to gauge respondents' agreement with different items. Subject-matter experts examined the questionnaire to ensure validity, and their recommendations were integrated into the final version. Reliability testing was carried out using the test-retest methodology, and results were

acceptable if the reliability coefficient fell within 70% to 100%. The reliability score came out at 0.9488.

Data Analysis

The data analysis technique examines the relationships between knowledge management dimensions (such as knowledge acquisition, creation, sharing, and protection) and organisational performance. Multiple regression analysis was employed to explore these relationships and assess the impact of knowledge management practices on organisational performance.

Results

Table 2

Demographic Variables

Ranks	Variables	Respondents	Frequency N=154	Percent(%)
1	Organisations	Vinco Collins Ltd	59	38.3%
		Green Field Ltd.	46	29.9%
		Collins Energy Ltd.	49	31.8%
			154	100%
2	Gender	Male	136	88.31%
		Female	18	11.69%
			154	100%
3	Age Group	20-30years	68	44.16%
		30-40years	67	43.51%
		40years & above	19	12.34%
			154	100%
4	Marital Status	Single	54	35.06%
		Married	92	59.74%
		Divorced	3	1.95%
		Widowed	4	2.60%
		Separated	1	0.65%
			154	100%
5	Academic Qualification	PhD	5	3.25%
		M.Sc.	24	15.58%
		B.Sc./HND	104	67.53%
		NCE/OND	13	8.44%
		WASSCE/GCE	8	5.19%
			154	100%
6	Department	Personnel/Admin	44	28.57%
		Finance	40	25.97%
		Production	31	20.12%
		Technical	27	17.53%
		Sales	12	7.79%
			154	100%

7	Years Worked	Below 5years	75	48.05%
		5-10years	65	42.21%
		Above 10years	15	9.74%
			154	100%

Source: Field Survey (2024).

Table 2 presents the demographic profile of 154 employees from selected mining firms in Northern Nigeria. The sample includes employees from Vincon Collins Limited (38.3%), Green Filed Metals Limited (29.9%), and Collins Energy Limited (31.8%). Of the respondents, 88.31% were male and 11.69% were female. The age distribution shows that 44.16% were between 20-30 years, 43.51% were between 30-40 years, and only 12.34% were 40 years and above. Regarding marital status, 35.06% were single, 59.74% were married, 1.95% were divorced, 2.60% were widowed, and 0.65% were separated. Regarding educational qualifications, 3.25% had PhDs, 15.58% had M.Sc. degrees, 67.53% had B.Sc./HND degrees, 8.44% had NCE/OND degrees, and 5.19% had WASSCE/GCE. The distribution of employees across departments was as follows: 28.57% in Personnel/Administration, 25.97% in Finance, 20.12% in Production, 17.53% in Technical, and 5.19% in Sales. Regarding tenure with the organisation, 48.05% had worked for less than 5 years, 42.21% for 5-10 years, and 9.74% for over 10 years.

Table 3

Correlation Matrix for all Variables

	KAQ	KCR	KSH	KPR	KST	TEC	REV	ORC	INO
KAQ	1.0000								
KCR	-0.1034	1.0000							
KSH	0.0467	0.7553	1.0000						
KPR	0.1243	0.4177	0.4790	1.0000					
KST	0.5022	0.6945	0.7879	0.7217	1.0000				
TEC	-0.0233	0.1976	0.1294	0.4532	0.26623	1.0000			
REV	0.0328	0.1780	0.0935	0.4550	0.2709	0.4675	1.0000		
ORC	-0.0452	0.3084	0.3321	0.6565	0.4309	0.6140	0.6716	1.0000	
INO	-0.0188	0.2036	0.1432	0.6233	0.3323	0.7008	0.5671	0.8161	1.0000

Source: Field Survey (2024).

Table 3 presents the correlation matrix of all variables in the study, conducted to assess the presence of multicollinearity. The analysis revealed significant associations between each pair of variables. Specifically, KSH ($r=0.0467$), KPR ($r=0.1243$), KST ($r=0.5022$), and REW ($r=0.0328$) showed positive correlations with the dependent variable (INO), while KCR ($r=-0.1034$), TEC ($r=-0.0233$), and ORC ($r=-0.0452$) exhibited negative correlations. Significantly, none of the correlation coefficients exceeded 0.9, indicating the absence of multicollinearity among the variables. Consistent with Dimerious and Hall (2007), the results confirm the lack of multicollinearity, as no coefficient exceeded 0.90.

Table 4

Regression Result for Knowledge Management and Organisational Performance (INO)

Variables	Coefficient	Std. Error	T	P-value
KAQ	.0556695	.0193783	2.87	0.005
KCR	-.1913267	.101318	-1.89	0.061
KSH	.136005	.0257253	5.29	0.000
KPR	.0339274	.0414833	0.82	0.415

Source: Field Survey (2024).

Table 5

Model Fits

	KAQ	KCR	KSH	KPR
F-statistics	1160.69	1124.98	1310.74	1102.91
Prob > F	0.0000	0.0000	0.0000	0.0000
Root MSE	0.57612	0.58496	0.54291	0.59063
Adj R-square	0.9743	0.9735	0.9772	0.9730
R-square	0.9751	0.9744	0.9779	0.9739

Source: Field Survey (2024).

Table 4 presents a regression analysis examining the relationship between various knowledge management variables and organisational performance (INO). The results show Knowledge Acquisition ($\beta = 0.0556695$; Standard Error= 0.0193783; t-value: 2.87; P-value= 0.005), Knowledge Creation ($\beta = -0.1913267$; Standard Error= 0.101318; t-value: -1.89; P-value= 0.061), Knowledge Sharing ($\beta = 0.136005$; Standard Error= 0.0257253; t-value: 5.29; P-value: 0.000), and Knowledge Protection ($\beta = 0.0339274$; Standard Error= 0.0414833; t-value: 0.82; P-value: 0.415). Knowledge acquisition is seen to have a positive and statistically significant effect on organisational performance. For every unit increase in knowledge acquisition, organisational performance seems to have increased by 0.0556695 units. The p-value (<0.01) indicates that this effect is statistically significant. Knowledge creation has a negative but insignificant impact on organisational performance at the 0.05 significance level. The p-value (>0.05) suggests that the effect is also negligible. Knowledge Sharing has a positive and significant impact on organisational performance. Organisational performance seems to increase by 0.136005 units for every mean increase in knowledge sharing. The p-value (<0.01) indicates a highly significant effect. Knowledge protection has a positive but insignificant impact on organisational performance. The p-value (>0.05) suggests that this variable does not substantially impact organisational performance in this model.

Table 5 presents the model fit statistics for each knowledge management variable (KAQ, KCR, KSH, KPR). The results show Knowledge Acquisition (F-statistics: 1160.69; Prob > F= 0.0000; Root MSE: 0.57612; Adj R-square= 0.9743; R-square= 0.9751), Knowledge Creation (F-statistics= 1124.98; Prob > F= 0.0000; Root MSE= 0.58496; Adj R-square= 0.9735; R-square= 0.9744), Knowledge Sharing (F-statistics: 1310.74; Prob > F= 0.0000; Root MSE= 0.54291; Adj R-square= 0.9772; R-square= 0.9779), and Knowledge Protection (F-statistics= 1102.91; Prob > F= 0.0000;

Root MSE= 0.59063; Adj R-square= 0.9730; R-square= 0.9739). The high F-statistic and the Prob > F of 0.0000 show that the model is highly significant. The R-square of 0.9751 implies that 97.51% of the variations in organisational performance can be explained by knowledge acquisition. The adjusted R-square of 0.9743 is lower but still very high, affirming the model's strong explanatory power. The Root MSE of 0.57612 shows the average error of prediction.

Knowledge Creation has a highly significant model with a Prob > F of 0.0000, similar to KAO. With an R-square of 0.9744, knowledge creation accounts for 97.44% of the variation in organisational performance. The 0.9735 adjusted R-square validates the robustness of the model. This root mean square error (MSE) of 0.58496 represents the average forecast error. Another vital paradigm is the knowledge-sharing model. With an R-square of 0.9779, knowledge-sharing accounts for 97.79% of the variation in organisational performance. More evidence for this comes from the adjusted R-square of 0.9772. Compared to the other models, the Root MSE of 0.54291 indicates a lower average prediction error, indicating a better fit. With an R-square of 0.9739, the Knowledge Protection model is also quite significant, accounting for 97.39% of the variation in organisational performance. The adjusted R-square of 0.9730 attests to the explanatory powers of the model. The Root MSE of 0.59063 shows the average error of prediction.

Discussion of Findings

This study reveals varying perspectives on the nexus between knowledge management practices and organisational performance. For instance, studies by Vătămănescu et al. (2023) and Papa et al. (2020) emphasise the importance of knowledge acquisition as a performance driver in organisations. This aligns with our study, where knowledge acquisition was found to have a positive and statistically significant effect ($\beta = 0.0556695$; p-value < 0.01) on organisational performance.

Conversely, the negative but insignificant effect of knowledge creation ($\beta = -0.1913267$; p-value > 0.05) contradicts some established literature, such as the work of Migdadi (2022), supporting the notion that knowledge creation positively impacts organisational performance. This deviation may stem from contextual factors unique to the mining sector in Northern Nigeria, indicating that knowledge-creation processes may not be fully realised or effectively implemented in this environment.

Findings showed that knowledge sharing positively and significantly affects organisational performance. The significant positive effect of knowledge sharing ($\beta = 0.136005$; p-value < 0.01) corroborates findings by Deng et al. (2023) and Lee and Lu (2022), who identified knowledge sharing as a crucial factor for enhancing organisational performance. This consistency highlights the importance of strengthening a culture of collaboration and information exchange within organisations.

Findings showed that knowledge protection has a positive but insignificant effect on organisational performance ($\beta = 0.0339274$; p-value > 0.05). This presents an opportunity for further examination. While literature such as that by Gakuo and Rotich (2017) emphasises the necessity of knowledge protection to maintain a competitive edge, our results show that the current mechanisms

for knowledge protection may not be effectively aligned with performance outcomes in the mining sector.

Conclusion and Recommendations

This study highlights the importance of knowledge management in improving organisational performance, especially in the Nigerian mining industry. Businesses are focusing more on efficient knowledge management as a critical strategy requirement for success as knowledge is increasingly acknowledged as a valuable and non-replicable resource.

The study shows that the performance of organisations is positively and statistically significantly affected by knowledge acquisition. The outcome is consistent with previous research that emphasises how critical it is to gain pertinent knowledge to stimulate innovation, improve judgement, and eventually improve organisational results. Organisations can improve their operational efficiency and competitiveness by gaining access to industry-specific information, best practices, and external insights through knowledge acquisition, a fundamental component. Organisations can better traverse the complexity of their operating environments and successfully respond to new opportunities and challenges by prioritising knowledge acquisition initiatives.

This study found that knowledge creation exhibits a negative but insignificant effect on organisational performance. This empirical position raises important questions regarding the effectiveness of knowledge-creation processes within the studied firms. While the literature often emphasises the relevance of knowledge creation as a driver of competitive advantage, our findings suggest that the current mechanisms for fostering knowledge creation in these organisations may be insufficient or poorly aligned with performance metrics. Factors like organisational culture, management support, and the integration of knowledge-creation practices into daily operations may influence the effectiveness of knowledge-creation initiatives.

A culture of knowledge sharing allows organisations to take advantage of their workforce's diverse expertise and insights, improving performance outcomes. This means that organisations must implement systems and practices that promote open communication, trust, and collaboration among employees to create an environment where knowledge is freely exchanged. Knowledge sharing emerged as a critical factor with a positive and significant effect on organisational performance. This is by extensive research emphasising the role of knowledge sharing in facilitating collaboration, improving communication, and enhancing collective problem-solving within organisations.

Knowledge protection was identified to have a positive but insignificant effect on organisational performance. While knowledge protection is vital for safeguarding an organisation's intellectual assets and maintaining competitive advantage, the lack of a statistically significant relationship indicates that the present practices may not effectively contribute to performance outcomes in the mining sector. Organisations may need to revisit their knowledge protection strategies, ensuring they are not overly restrictive and do not constrain innovation and knowledge

sharing. Balancing knowledge protection with the need for teamwork and information exchange will be crucial for increasing overall organisational performance.

The following are recommended:

- i. Mining firms should establish an information framework to manage relevant and current data effectively and support job performance.
- ii. Mining firms should implement mentoring programs to enhance mentor-mentee relationships, encourage staff interaction, build teamwork, and manage projects.
- iii. Mining firms should encourage experienced staff to mentor new employees, leveraging tacit knowledge through practice and supervision.
- iv. Mining firms should set up effective repositories to store information on past challenges for future reference, enhancing organisational knowledge protection and performance.

This study advances our understanding of knowledge management practices and how they affect organisational performance, especially in Northern Nigeria's mining sector. However, the study does have several drawbacks. The focus on a specific industry may limit the findings' generalizability to other contexts, and the cross-sectional approach limits the capacity to conclude causality. To validate and extend these findings, future research should consider longitudinal studies and include different industries.

Suggestions for Future Research

Given the findings and literature comparisons, numerous unexplored aspects require future investigation. First, further research could examine the contextual factors affecting the effectiveness of knowledge creation in the mining industry. Additionally, qualitative studies could provide a more profound understanding towards how knowledge-sharing practices are implemented and perceived among employees. Moreover, the connection between knowledge protection and organisational performance requires further exploration. Future studies should look into the specific dimensions of knowledge protection that may affect organisational outcomes and the potential role of industry-specific factors in this relationship.

Acknowledgements

None.

Conflict of Interest

The authors have no conflict of interest.

Funding

The Authors received no funding for this research.

References

- Ahmed, S., Fiaz, M., & Shoaib, M. (2015). Impact of knowledge management practices on organizational performance: An empirical study of banking sector in Pakistan. *FWU Journal of Social Sciences*, 9(2), 147-167. <http://www.sbbwu.edu.pk/journal/Jan%202016/16.%20Impact%20of%20Knowledge%20Management%20Practices%20on%20Organizational%20Performance.pdf>
- Ale, O. A. (2021). The influence of knowledge management on organisational performance of Lagos Electricity Distribution Company, Nigeria. *Journal of International Economics*, 12(2), 27-53. <https://www.ipeindia.org/wp-content/uploads/2022/07/IPE-JoIE-Vol-12-No-2-Jul-Dec-2021-FINAL.pdf#page=31>
- Amaratunga, R. D. G. (2001). *Theory building in facilities management performance measurement: application of some core performance measurement and management principles* [Unpublished PhD thesis]. The University of Sanford. <https://salford-repository.worktribe.com/output/1453119/theory-building-in-facilities-management-performance-measurement-application-of-some-core-performance-measurement-and-management-principles>
- Areed, S., Salloum, S. A., & Shaalan, K. (2021). The role of knowledge management processes for enhancing and supporting innovative organisations: A systematic review. In M. Al-Emran, K. Shaalan, & A. Hassanien (Eds.), *Recent Advances in Intelligent Systems and Smart Applications* (Vol. 295, pp. 135-152). Cham: Springer. https://doi.org/10.1007/978-3-030-47411-9_8
- Arora, E., & Raosaheb, S. R. (2011). Knowledge management in public sector. *Indian Journal of Commerce and Management Studies*, 2(1), 238-245. <https://www.ijcms.in/index.php/ijcms/article/view/64>
- Asika, N. (2012). *Research methodology in the behavioral sciences*. Long man Nigeria PLC.
- Chigada, J. (2014). *The role of knowledge management in enhancing organisational performance in selected banks in South Africa*, [Unpublished doctoral thesis]. University of South Africa. <https://core.ac.uk/download/pdf/43174529.pdf>
- Cong, X., & Pandya, K. V. (2003). Issues of knowledge management in the public sector. *Electronic Journal of Knowledge Management*, 1(2), 181-188. <https://academic-publishing.org/index.php/ejkm/article/view/701>
- Dalkir, K. (2005). *Knowledge management in theory and practice*. London: Routledge. <https://doi.org/10.4324/9780080547367>
- Darroch, J. (2003). Developing a measure of knowledge management behaviors and practices. *Journal of Knowledge Management*, 7(5), 41-54. <https://doi.org/10.1108/13673270310505377>

- Deng, H., Duan, S. X., & Wibowo, S. (2023). Digital technology driven knowledge sharing for job performance. *Journal of Knowledge Management*, 27(2), 404-425. <https://doi.org/10.1108/JKM-08-2021-0637>
- Di Maio, F., Rem, P. C., Baldé, K., & Polder, M. (2017). Measuring resource efficiency and circular economy: A market value approach. *Resources, Conservation and Recycling*, 122, 163-171. <https://doi.org/10.1016/j.resconrec.2017.02.009>
- Dima, A., Begu, L., Vasilescu, M., & Maassen, M. (2018). The relationship between the knowledge economy and global competitiveness in the European Union. *Sustainability*, 10(6), Article 1706. <https://doi.org/10.3390/su10061706>
- El Aziz, A.R., Wahba, L. & El Sagheer, N. (2013). How to promote knowledge sharing within organizations: The CIB Bank. *International Journal for Cross-Disciplinary Subjects in Education (IJCDSE)*, 3(1), 1355-1363. https://www.academia.edu/23713890/How_to_Promote_Knowledge_Sharing_within_Organisations_The_CIB_Bank
- Farooq, R. (2020). A conceptual model of knowledge sharing. *International Journal of Innovation Science*, 10(2), 238-260. <https://doi.org/10.1108/IJIS-09-2017-0087>
- Fombad, M. (2016). Knowledge management in law firms in Botswana: Some lessons for small law firms. *Journal of Librarianship and Information Science*, 48(1), 60-71. <https://doi.org/10.1177/0961000614536428>
- Gakuo, E. W. & Rotich, G. (2017). Effect of strategic knowledge management on performance of commercial banks in Kenya. *International Academic Journal of Human Resource & Business Administration*, 2(3), 19-45. https://iajournals.org/articles/iajhrba_v2_i3_19_45.pdf
- Gold, A. H., Malhotra, A., & Segars, A. H. (2001). Knowledge management: An organizational capabilities perspective. *Journal of management information systems*, 18(1), 185-214. <https://doi.org/10.1080/07421222.2001.11045669>
- Hajric, E. (2023, December 22). *Knowledge management tools: What is knowledge management?*. KMT. <https://knowledge-management-tools.net/knowledge-management>
- Hassan, S., & Al-Hakim, L. A. Y. (2011). The relationships among critical success factors of knowledge management, innovation and organizational performance: A conceptual framework. In *International Proceedings of Economics Development and Research* (Vol. 6, pp. 94-103). IACSIT Press. <https://repo.uum.edu.my/id/eprint/3860/>
- Hislop, D. (2013). *Knowledge management in organisations: A critical introduction*. (3rd ed.). Oxford University Press.

- Ismail, B. M., & Yusuf, Z. M. (2010). The impact of individual factors on knowledge sharing quality. *Journal of Organisational Knowledge Management*, 32, 604-622. <http://www.ibimapublishing.com/articles/JOKM/2010/327569/327569.pdf>
- Janus, S.S. (2016). *Becoming a knowledge sharing organisation: A handbook for scaling up solutions through knowledge capturing and Sharing*. International Bank for Reconstruction and Development / The World Bank. <https://hdl.handle.net/10986/25320>
- Kanfer, R., Frese, M., & Johnson, R. E. (2017). Motivation related to work: A century of progress. *Journal of Applied Psychology*, 102(3), 338-355. <https://doi.org/10.1037/apl0000133>
- Kaplan, R. S., & Norton, D. P. (2000). Having trouble with your strategy? Then map it. In *Focusing Your Organization on Strategy—with the Balanced Scorecard* (2nd ed., pp. 50-61). Harvard Business Review. https://www.academia.edu/download/43662394/Kaplan_Norton_Balanced_Scorecard_-_3_articles.pdf#page=50
- Kelleher, D., & Levene, S. (2010). *Knowledge management: A guide to good practice*. British Standards Institution.
- Khanal, L., & Poudel, S. R. (2017). Knowledge management, employee satisfaction and performance: Empirical evidence from Nepal. *Saudi Journal of Business and Management Studies*, 2(2), 82-91. <https://doi.org/10.21276/sjbms.2017.2.2.3>
- Kit, L. W. & Abu, N. H. B. (2017). Analyzing the impact of knowledge management on technological innovation: an empirical study of electrical and electronic industry in Malaysia. *Internal Journal of Academic Research in Business and Social Sciences*, 7(7), 640-648. <https://doi.org/10.6007/IJARBSS%2FV7-I7%2F3128>
- Koole, S. L., Schlinkert, C., Maldei, T., & Baumann, N. (2018). Becoming who you are: An integrative review of self-determination theory and personality systems interactions theory. *Journal of Personality*, 87(1), 15-36. <https://doi.org/10.1111/jopy.12380>
- Latham, E., Locke, E. A., Gary, P. & Miriam E. (1979). The determinants of goal commitment. *The Academy of Management Review*, 13(1) 23-39. <https://doi.org/10.5465/amr.1988.4306771>
- Lee, H.-I., & Lu, H. (2022). Promoting knowledge sharing with effective leadership: A case study from a socio-organisational perspective. *Knowledge Management Research & Practice*, 20(4), 528-541. <https://doi.org/10.1080/14778238.2020.1833689>
- Levallet, N., & Chan, Y. E. (2019). Organisational knowledge retention and knowledge loss. *Journal of Knowledge Management*, 23(1), 176-199. <https://doi.org/10.1108/JKM-08-2017-0358>
- López-Cabarcos, M. Á., Srinivasan, S., & Vázquez-Rodríguez, P. (2020). The role of product innovation and customer centricity in transforming tacit and explicit knowledge into

- profitability. *Journal of Knowledge Management*, 24(5), 1037-1057.
<https://doi.org/10.1108/JKM-02-2020-0087>
- Migdadi, M. M. (2022). Knowledge management processes, innovation capability and organizational performance. *International Journal of Productivity and Performance Management*, 71(1), 182-210. <https://doi.org/10.1108/IJPPM-04-2020-0154>
- Mills, A. M., & Smith, T. A. (2011). Knowledge management and organizational performance: A decomposed view. *Journal of knowledge management*, 15(1), 156-171.
<https://doi.org/10.1108/13673271111108756>
- Naini, N. F., Santoso, S., Andriani, T. S., Claudia, U. G., & Nurfadillah, N. (2022). The effect of product quality, service quality, customer satisfaction on customer loyalty. *Journal of Consumer Sciences*, 7(1), 34-50. <https://doi.org/10.29244/jcs.7.1.34-50>
- Nonaka, I. (1994). A dynamic theory of organisational knowledge creation. *Organisation Science*, 5(1), 14-37. <https://doi.org/10.1287/orsc.5.1.14>
- Nonaka, I., & Takeuchi, H. (2011). The wise leader. *Harvard Business Review*, 89(5), 58-67.
<https://www.hbs.edu/faculty/Pages/item.aspx?num=40242>
- Oladejo, B. (2019). A knowledge management system for intellectual property management in legal firms. *African Journal of Computing & ICT*, 12(4), 1-12.
<https://www.academia.edu/download/85750340/Vol12No4Dec19pap1journalformatpagenu mb.pdf>
- Osei-Frimpong, K. (2017). Patient participatory behaviours in healthcare service delivery: Self-determination theory (SDT) perspective. *Journal of Service Theory and Practice*, 27(2), 453-474. <https://doi.org/10.1108/JSTP-02-2016-0038>
- Papa, A., Dezi, L., Gregori, G. L., Mueller, J., & Miglietta, N. (2020). Improving innovation performance through knowledge acquisition: The moderating role of employee retention and human resource management practices. *Journal of Knowledge Management*, 24(3), 589-605.
<https://doi.org/10.1108/JKM-09-2017-0391>
- Pitt, M., & Tucker, M. (2008). Performance measurement in facilities management: Driving innovation?. *Property Management*, 26(4), 241-254.
<https://doi.org/10.1108/02637470810894885>
- Polanyi, M. (1958). *Personal knowledge: Towards a post-critical philosophy*. University of Chicago Press.
- Rahayu, S. (2018). Customer satisfaction and service quality to develop trust and positive word of mouth in vocational education. *KnE Social Sciences*, 3(11), 356-371.
<https://doi.org/10.18502/kss.v3i11.2772>

- Smith, T. A., Mills, A. M., & Dion, P. (2010). Linking business strategy and knowledge management capabilities for organizational effectiveness. *International Journal of Knowledge Management (IJKM)*, 6(3), 22-43. <https://doi.org/10.4018/jkm.2010070102>
- Sun, R., Cao, X., Zhao, Y., Wan, J., Zhou, K., Zhang, F., Wang, Z., & Zheng, K. (2020). Multi-modal knowledge graphs for recommender systems. In *Proceedings of the 29th ACM International Conference on Information & Knowledge Management* (pp. 1405-1414). Association for Computing Machinery. <https://doi.org/10.1145/3340531.3411947>
- Usman, J. (2017). Impact of knowledge management on performance of deposit money bank in Nigeria. In *Proceedings of 129th The IIER International Conference* (pp. 56-62). World Research Library. https://www.worldresearchlibrary.org/up_proc/pdf/1128-151142097956-62.pdf
- Vătămănescu, E.-M., Bratianu, C., Dabija, D.-C., & Popa, S. (2023). Capitalizing online knowledge networks: From individual knowledge acquisition towards organizational achievements. *Journal of Knowledge Management*, 27(5), 1366-1389. <https://doi.org/10.1108/JKM-04-2022-0273>
- Vyas, V. (2009). *Innovation and new product development by SMEs: An investigation of Scottish food and drinks Industry* [Unpublished PhD Thesis]. Edinburgh Napier University.
- Wang, W., & Hou, Y. (2015). Motivations of employees' knowledge sharing behaviors: A self-determination perspective. *Information & Organisation*, 25(1), 1-26. <https://doi.org/10.1016/j.infoandorg.2014.11.001>
- Wiig, K. M. (1997). Knowledge management: An introduction and perspective. *Journal of Knowledge Management*, 1(1), 6-14. <https://doi.org/10.1108/13673279710800682>