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Impact Factor 2.30

The Impact of Knowledge Management Process on Corporate Innovation: The Moderating Role of Resource Orchestration Capabilities. A Study on Poultry Farms in Egypt

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Abstract

Purpose: This study investigates the impact of Knowledge Management Processes (KMP) on Corporate Innovation, additionally examining the moderating influence of Resource Orchestration Capabilities (ROC) within the context of Egyptian poultry farms.

Design/methodology/ approach: This research used a quantitative approach by surveying a valid sample of 125 poultry farms through a structured questionnaire. The data was collected from experienced poultry farm managers or owners operating poultry firms in Egypt, which is defined as a medium and big size.

Findings: The research revealed a significant positive relationship between both the Knowledge Management Processes (KMP) represented by Acquiring, Sharing and applying and Corporate Innovation within the Egyptian poultry sector. Notably, the moderation effect of ROC was non-significant.

Originality/ value: This research contributes to the knowledge management processes literature and incentivizes to boost Egyptian Poultry farms to stimulate their corporate innovation to accomplish innovative performance and the moderating role of resource orchestration capabilities

Paper type: Research paper.

Keywords: Knowledge Management Processes (KMP), Resource Orchestration, Corporate Innovation, Egyptian Poultry Industry, Emerging Markets

1. Introduction

In the contemporary industrial landscape, the integration of sustainable paradigms has become essential due to the volatile dynamics of global markets. Within the agricultural sectors of emerging economies, there is a strategic pivot toward innovation through the development and deployment of ecologically conscious technologies, refined operational processes, and robust environmental strategies (Baquero, 2024).

The urgent need for modern poultry farming companies, which are moving towards high-intensity production in large and medium-sized farms, is for contemporary poultry companies to adopt a multi-faceted digital infrastructure in which data is acquired, stored, and retrieved easily and quickly within an integrated management framework across functions to help them manage their daily production activities, including logistics, human resources, sales and purchasing 4cycles, inventory, monitoring and control of the environmental climate within poultry houses, the health status of flocks, and to ensure the activation of innovative treatment protocols for the early detection and prediction of poultry diseases and the protection of

security-bio to meet the requirements of future development (FAO, 2023; Zheng et al., 2021; Bassyouni et al., 2021; Abrosimova et al., 2020).

This has led to the emergence of “*knowledge management*” (KM); it is a successful strategic tool in facilitating creating and transferring effective knowledge application to stimulate innovative corporate (Costa & Monteiro, 2016; Wong et al., 2013). Effective knowledge management practices play a major role in improving performance efficiency by stimulating creativity, improving decision-making, and facilitating and coordinating operations, as previous research paper has confirmed (Adoni, 2022; Al-Sa’di et al., 2017). However, the specific mechanisms through which KM influences innovation and the role resource orchestration capabilities are less comprehended.

As proven in many previous studies, knowledge management is a main pillar for organizations seeking to strengthen corporate innovation. Such innovation influences the effectiveness of operations so that they become simpler and costless besides achieving measurable improvements in performance (Byukusenge & Munene, 2017). Moreover, the moderating role of resource coordination capabilities contributes and participates in an influential way that highlights the organization’s ability to align and utilize its resources effectively (Hughes et al., 2018). Organizations successful in resource orchestration are able to better transform knowledge management practices into successful corporate innovative processes; this makes them excel in exploiting their resources strategically to support corporate innovation (Carnes et al., 2016).

This research aims to address this gap by examining the relationship between KMPs and corporate innovation as well as the role of resource orchestration capabilities as a moderator. By investigating all these dynamics, the research seeks to offer valuable insights for organizations aiming to leverage KM effectively to boost performance and competitive advantage through corporate innovation and strategic resource management.

2. Literature Review

2.1 Knowledge Management (KM)

Knowledge management (KM) is the process of retrieving data, information, and knowledge which is the assets of organization. It is an integration, recording or acquiring, and sharing or managing trusted, tested, and proven knowledge. All these practices are a strategically important resource for organizations, which reflect valid and well established knowledge (Idrees et al., 2023).

2.2 The Main Components or Aspects of Knowledge Management Process

2.2.1 knowledge Acquisition

Knowledge acquisition can be viewed as a dynamic process of obtaining and acquiring relevant and valuable knowledge; it contributes to accomplishing organizational strategic success (Adoni, 2022). Additionally, knowledge acquisition can be viewed as a dynamic process of filtering relevant and valuable knowledge internally or externally (e.g. competitors, customers and suppliers) to accomplish strategic objectives of the organization and reinforce strategic decisions (Sulistyo & Ayuni, 2018).

2.2.2 Knowledge Sharing

Sharing knowledge is the process of interaction between employees to encourage them to share their intellectual capital. The transferring process encompasses knowledge encoding; knowledge documentation; and effective communication among individuals; this assists in disseminating knowledge and information. (Adoni, 2022; Darroch, 2005). Knowledge transfer can be through infrastructure or process, such as technology purchase (Durmuş & Abdikhoshimov, 2017).

2.2.3 Knowledge Application

knowledge application is ‘the business process through which effective storage and retrieval mechanisms enable a firm to access knowledge easily’ (Durmuş & Abdukhoshimov, 2017). Knowledge application is an important stage as transferring or acquiring knowledge will not necessarily lead to positive organization outcomes as long as it is used. This is known as the knowledge-action gap; it means that transferring and sharing knowledge within an organization is not enough (Asiaei et al., 2021).

2.3 Corporate Innovation

Innovation is seen as important strategic tool organizations consider the essence of in obtaining a competitive advantage. Besides, it is a means to survive in the fierce competition in a world of huge changes. Organizations seek to achieve the best performance of products, processes, and structural arrangements through innovative tools. They also seek to achieve competitive advantage and increase their capabilities and abilities to compete (Oladele, 2021).

2.4 Resource Orchestration Capabilities (ROC)

Sirmon et al. (2007) mentioned that the process of resource management is carried out through a set of operations that aim at structuring and gathering resources to create opportunities and benefit from the organization’s resources. This development, in the resource management system, came to add value to customers and achieve a competitive advantage for the organization (Bittencourt et al., 2021; Andersén & Ljungkvist, 2020).

Resource orchestration capabilities are divided into sub processes in the management framework; it encompasses structuring resources, bundling resources and leveraging resource through utilizing and coordinating resources to compete in the market and improve capabilities to gain competitive edge (Baert et al., 2016; Siregar, 2017).

2.5 Relationship between knowledge acquisition on corporate innovation.

Acquisition knowledge contributes to enhancing: product or process innovation, technical innovation and administrative innovation in addition to different types of innovation; this is what previous research concluded by studying the relationship between acquisition external knowledge and corporate innovation (Byukusenge & Munene, 2017; Asiaei et al., 2021). Thus, this hypothesis is formulated: **H1: There is a positive impact of knowledge acquisition on corporate innovation.**

2.6 Relationship between knowledge sharing on corporate innovation.

From a theoretical and empirical perspective, previous research and literature have consistently stated that knowledge management processes explain and confirm the positive relationship between knowledge sharing, dissemination, and corporate innovation. Enhancing and strengthening knowledge dissemination and sharing leads to the production of different methods and types of innovation, including the innovation of new products, structural innovation, technical and administrative innovation (Costa & Monteiro, 2016 ; Sulistyoy & Ayuni, 2018). Thus, this hypothesis is formulated: **H2: There is a positive impact of knowledge sharing on corporate innovation.**

2.7 Relationship between knowledge applications on corporate innovation.

The application of Knowledge can stimulate and motivate innovative activities in the organization (Byukusenge & Munene, 2017). It can provide organizations with capabilities fostering to accomplish competitive advantages through its: innovative corporate processes, marketing strategies, structural and managerial practices, and new or significantly improved products and services (Valmohammadi, 2019; Costa &

Monteiro, 2016). The application of knowledge is considered as a key pillar which contributes to improve product and process innovations in organizations (Asiaei et al., 2021). Thus, this hypothesis is formulated:

H3: There is a positive impact of knowledge application on corporate innovation.

2.8 The moderating impact of resource orchestration capabilities on the relationship between knowledge acquisition and corporate innovation

There is a positive effect of resource orchestration capabilities on the knowledge acquisition and its relationship with corporate innovation. By effectively coordinating and integrating various resources, organizations can enhance their ability to acquire and assimilate external knowledge, leading to greater innovation. That is to say, research by Tajeddini et al. (2024) suggested that firms which have high orchestration of resource generate capabilities to make better leverage strategic information exchange for supply chain innovation. Similarly, management innovation, a form of resource orchestration, can enhance the positive impact of R&D on product innovation (Heij et al., 2019). Hence this hypothesis is formulated: **H4: There is a moderate impact of resource orchestration capabilities on the knowledge acquisition and its relationship with corporate innovation.**

2.9 The moderating impact of resource orchestration capabilities on the relationship between knowledge sharing and corporate innovation

Tikas (2024) highlighted the pivotal role of firm plays in operating, managing, and deploying its assets in facilitating innovative outcomes. Research has shown that effective orchestration of resources not only supports the transfer and absorption of knowledge but also facilitates the execution of innovative initiatives (Sirmon et al., 2007). Thus, resource orchestration capabilities can act as a critical enabler, amplifying the moderating effect on knowledge sharing and its relationship with corporate innovation. Hence this hypothesis is formulated: **H5: There is a moderate impact of resource orchestration capabilities on the knowledge sharing and its relationship with corporate innovation.**

2.10 The moderating impact of resource orchestration capabilities on the relationship between knowledge application and corporate innovation.

Organizations can foster and strengthen the innovative activities by applying the acquired and shared knowledge while resource orchestration capabilities can improve effectiveness and efficiency of all resources and can strength using this knowledge to innovative success (Xie et al., 2024; Taleb et al., 2023). Hence this hypothesis is formulated: **H6: There is a moderate impact of resource orchestration capabilities on the knowledge application and its relationship with corporate innovation.**

3. Research Design and Methodology

3.1 Conceptual Framework

This research proposes that Knowledge Management Processes as an independent variable, composed of three dimensions; Acquisition, Sharing, and Application have a positive effect on the dependent variable Corporate Innovation. Resource Orchestration Capabilities as a moderator variable on the relationship between KMPs and CI.

Figure 1 shows the relationship between research variables based on the previously formulated hypotheses.

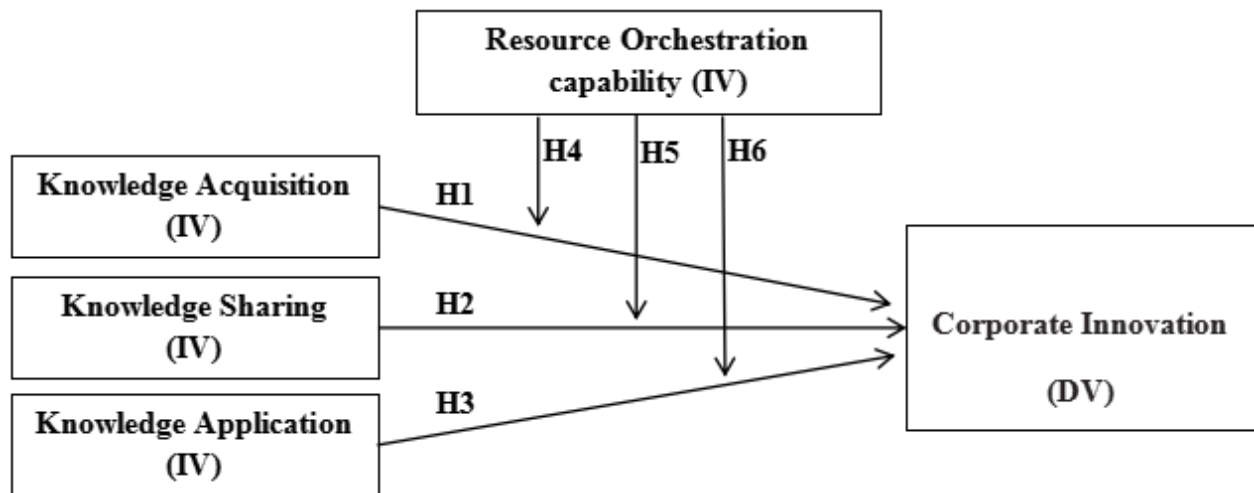


Figure 1: The Conceptual Framework
Source: Developed by researcher (2024)

This research adopts a positivism philosophy to investigate the proposed hypotheses. Also, it adopts a deductive quantitative survey method. Additionally, a descriptive approach is proposed to achieve the research objectives. Cohen et al. (2011) supported that the survey approach is preferable as it provides quantitative data about respondents and their experiences and gives answers to research questions.

3.2 Population and Sampling

According to Egyptian cabinet, Information and Decision Support Center (2021), The target population were 14780 Farms, By focusing on medium and large-sized poultry farms (25,000 birds/year and above) for research. A non-probability approach is adopted by using a convenient sampling technique. The study will involve experienced poultry farm managers or owners operating poultry firms in Egypt, which is defined as a medium and big size.

A sample size of 125 farms targeted by using the guideline recognized and accepted in regression analysis is 10 (EPV) or greater which is 10 events per variable. Besides, previous research papers have confirmed that no errors occurred as the error points rate did not exceed 0.05%, and the confidence interval was more than 95% (Hair et al., 1995; Peduzzi et al., 1996).

3.3 Data Collection Instrument

The questionnaire includes a total of 45 Questions after adding (4) questions about the size of the organization, the position of the respondents, and the tenure of the respondent in the same organization (control variables). The questionnaire distributed via online platforms and in-person visits. A bilingual questionnaire (Arabic and English) distributed. A structured questionnaire developed to collect data on KM processes, Corporate Innovation, and Resource orchestration capabilities by using survey tool based on a five-point Likert Scale. The scale commences from 1: strongly disagree to 5: strongly agree, this survey is utilized to collect data from the top poultry farms in Egypt. According to previous studies and by using closed-ended questions, the questionnaire consists of the first construct, represented in KM processes; it encompass three pillars: Acquisition, Sharing and Application of knowledge measures (Adoni, 2022). Each of these pillars is rated using

four items. The second construct is Corporate Innovation variable; it encompasses: product, process, marketing, and organizational innovation, the measure adapted from Kafetzopoulos et al. (2019). Finally, the third construct is Resource orchestration, it encompasses: resource structuring, resource bundling, and resource leveraging, the measure adapted from Sirmon et al. (2007).

4. Statistical Analysis and Findings

The questionnaire was distributed 294 and delivered to 125 from Egyptian poultry farms. The researcher obtained 125 valid responses showing a response rate of 42.5%.

Data analyzed using IBM. SPSS Statistics (Version 27) employed the research in testing the research hypothesis and the relationships among the knowledge management processes and corporate innovation and resource orchestration capabilities. This method allowed the simultaneous examination of multiple relationships and the mediation and moderation effects. Normality, correlation, and reliability tests are conducted on the valid sample to gain beneficial insights

4.1 Reliability Test

The reliability test shows that Cronbach's Alpha coefficient exceeded the cutoff point of 0.7 for all five variables: Knowledge Acquisition, Knowledge Sharing, Knowledge Application, Corporate Innovation and Resource orchestration Capabilities indicating a high consistency, interrelated, and high reliability.

4.2 Correlation Test

The Spearman's rho correlation matrix reveals a consistent pattern of strong, positive, and statistically significant relationships among all study variables ($p < .001$), indicating that the constructs are closely interrelated within the organizational context of the Egyptian poultry industry. All three knowledge-management dimensions knowledge acquisition, sharing, and application show moderate-to-strong correlations with each other (Coefficient = .472 .709), suggesting that firms that excel in one aspect of knowledge handling tend to perform well in the others. These knowledge processes also correlate positively with overall innovation (Coefficient = .442 .674), indicating that stronger knowledge capabilities support higher levels of organizational innovativeness. Resource orchestration exhibits strong correlations with both knowledge application (Coefficient = .693) and innovation (Coefficient = .720), reinforcing its central role in converting knowledge into actionable outcomes. Collectively, these results provide robust empirical support for the study's theoretical model: firms with stronger knowledge-related capabilities and more effective resource orchestration consistently demonstrate higher levels of innovation.

Table 2: The Spearman's Rho correlation test

Correlations

	Knowledge Acquisition	Knowledge Sharing	Knowledge Application	Innovation	Resource Orchestration
Spearman's rho	1.000	.519**	.472**	.442**	.529**
Knowledge Acquisition Coefficient					
Sig. (2-tailed)	.	.000	.000	.000	.000
N	125	125	125	125	125
Knowledge Sharing Coefficient	.519**	1.000	.709**	.571**	.615**

	Sig. (2-tailed)	.000	.	.000	.000	.000
	N	125	125	125	125	125
Knowledge Application	Correlation Coefficient	.472**	.709**	1.000	.674**	.693**
	Sig. (2-tailed)	.000	.000	.	.000	.000
	N	125	125	125	125	125
Innovation	Correlation Coefficient	.442**	.571**	.674**	1.000	.720**
	Sig. (2-tailed)	.000	.000	.000	.	.000
	N	125	125	125	125	125
Resource Orchestration	Correlation Coefficient	.529**	.615**	.693**	.720**	1.000
	Sig. (2-tailed)	.000	.000	.000	.000	.
	N	125	125	125	125	125

** . Correlation is significant at the 0.01 level (2-tailed).

4.3 Regression Test

A regression test was conducted between each of the three independent variables, and one dependent variable by Model Summary and Anova. As shown in Tables 3, 4, and 5.

Table 3 : Multiple Regression Analysis - Combined Knowledge Management Model
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.709 ^a	.502	.490	.43205

a. Predictors: (Constant), KnowledgeApplication, KnowledgeAcquisition, KnowledgeSharing

Table 4: Anova table

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	22.805	3	7.602	40.724	.000 ^b
	Residual	22.587	121	.187		
	Total	45.392	124			

a. Dependent Variable: Innovation

b. Predictors: (Constant), KnowledgeApplication, KnowledgeAcquisition, KnowledgeSharing

Table 5: Coefficient table

Coefficients^a

Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.
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	B	Std. Error	Beta		
1 (Constant)	.827	.330		2.509	.013
KnowledgeAcquisition	.247	.081	.230	3.045	.003
KnowledgeSharing	.174	.085	.191	2.041	.043
KnowledgeApplication	.367	.082	.411	4.462	.000

a. Dependent Variable: Innovation

Hypothesis 1 (H1): There is a positive relationship between Knowledge Acquisition and Corporate Innovation.

Based on the simple linear regression results, Hypothesis 1 (H1) is accepted. The analysis shows a positive relationship between Knowledge Acquisition and Corporate Innovation, with a standardized coefficient (β) (.230) indicating that higher levels of knowledge acquisition are associated with higher innovation scores and a statistically significant p-value below the 0.05 threshold (p-value = .003). This confirms that farms that more actively acquire external knowledge, market information, and technical insights tend to exhibit stronger innovation performance across product, process, organizational, and marketing dimensions.

Hypothesis 2 (H2): There is a positive relationship between Knowledge Sharing and Corporate Innovation.

The simple linear regression test supports Hypothesis 2 (H2). The standardized coefficient (β) (.191) for Knowledge Sharing is positive and statistically significant at $p < 0.05$ (p-value = .043), indicating that increasing levels of knowledge sharing are associated with higher levels of Corporate Innovation. This suggests that when knowledge is more effectively disseminated across departments and employees, poultry farms are better able to generate and implement innovative ideas, leading to improvements in products, processes, organizational practices, and marketing activities.

Hypothesis 3 (H3): There is a positive relationship between Knowledge Application and Corporate Innovation.

Hypothesis 3 (H3) is strongly supported by the regression analysis. Knowledge Application shows a positive and statistically significant standardized coefficient (β) (.411) with a p-value well below 0.05 (p-value = .000), and its model explains the largest proportion of variance in Corporate Innovation among the three individual knowledge management dimensions. This indicates that farms that systematically translate available knowledge into concrete operational decisions, process improvements, and strategic initiatives achieve the highest innovation performance, underscoring the critical role of effectively applying knowledge rather than merely acquiring or sharing it.

Hypothesis 4 (H4): Resource Orchestration Capabilities positively moderate the relationship between Knowledge Acquisition and Corporate Innovation.

Based on the hierarchical regression results, Hypothesis 4 (H4) is not supported. While Knowledge Acquisition and Resource Orchestration together explain a substantial share of the variance in Corporate Innovation, the interaction term (KA \times ROC) yields a very small, non-significant standardized coefficient ($\beta = -0.225$, $p = 0.655$) and produces only a trivial and non-significant change in explained variance ($\Delta R^2 = 0.001$). This indicates that the positive effect of Knowledge Acquisition on Corporate Innovation does not become stronger or weaker at different levels of Resource Orchestration Capabilities, suggesting that these capabilities operate in parallel rather than combining multiplicatively in this relationship.

Hypothesis 5 (H5): Resource Orchestration Capabilities positively moderate the relationship between Knowledge Sharing and Corporate Innovation.

The findings do not support Hypothesis 5 (H5). In the hierarchical regression model, Knowledge Sharing and Resource Orchestration account for a high proportion of the variance in Corporate Innovation, but adding the

interaction term ($KS \times ROC$) does not produce a meaningful increase in R^2 and the interaction coefficient is statistically non-significant ($\Delta R^2 \approx 0.000$, $p = 0.863$). This means that the positive influence of Knowledge Sharing on Corporate Innovation is relatively stable across different levels of Resource Orchestration Capabilities, and there is no empirical evidence that orchestrating resources more effectively amplifies the benefits of knowledge sharing for innovation outcomes.

Hypothesis 6 (H6): Resource Orchestration Capabilities positively moderate the relationship between Knowledge Application and Corporate Innovation.

Hypothesis 6 (H6) is also not supported. Although the base model including Knowledge Application and Resource Orchestration explains a substantial proportion of the variance in Corporate Innovation, the addition of the interaction term ($KApp \times ROC$) yields only a negligible and non-significant improvement in R^2 ($\Delta R^2 = 0.001$, $p = 0.704$), with a small, non-significant interaction coefficient whose confidence interval includes zero. This indicates that the positive effect of Knowledge Application on Corporate Innovation does not vary systematically with the level of Resource Orchestration Capabilities, reinforcing the conclusion that knowledge management and resource orchestration act as independent, additive drivers of innovation rather than interacting synergistically in this context.

5. Discussion

After screening the 125 usable responses, assumption testing showed that the Likert-scale variables deviated from normality, so Spearman's rho correlations were used and regression diagnostics were checked to confirm acceptable linearity, homoscedasticity, and multicollinearity levels. Reliability was strong for all constructs, with Cronbach's alpha values above .70, indicating internally consistent measures of knowledge management, resource orchestration, and innovation.

Correlations revealed consistently positive and significant relationships: knowledge acquisition, sharing, and application were all associated with higher levels of corporate innovation and with each innovation dimension, while resource orchestration was also strongly linked to innovation and to the knowledge processes. Regression analyses confirmed that each knowledge dimension individually has a significant positive effect on innovation (supporting H1–H3), and that together they explain just over 50% of the variance in innovation, with knowledge application contributing the most. Resource orchestration also showed a strong direct effect on innovation, but the interaction terms in the moderation tests (H4–H6) were non-significant, indicating that it does not alter the strength of the relationships between knowledge processes and innovation.

These findings support the knowledge-based view by showing that farms that actively acquire, share, and especially apply knowledge are more innovative in their products, processes, structures, and marketing practices (Costa & Monteiro, 2016 ; Migdadi, 2022). That is to say, research by Tajeddini et al. (2024) The prominence of knowledge application underscores that moving from “knowing” to “doing” is crucial—translating information into operational changes and strategic initiatives is what ultimately drives innovation performance.

At the same time, the strong direct link between resource orchestration and innovation confirms that effectively securing, recombining, and deploying resources creates a flexible platform for innovation, consistent with resource orchestration theory (Sirmon et al., 2010). However, the lack of significant moderation effects suggests that knowledge management and resource orchestration operate as parallel, additive capabilities rather than amplifying each other's impact.

For managers, this implies that building innovation capacity in the Egyptian poultry sector requires intentional investment in both robust knowledge processes and agile resource orchestration, supported by a broader organizational culture that values learning, experimentation, and change.

6. Conclusion and Recommendation

This research investigated the critical drivers of corporate innovation in the Egyptian poultry sector, examining the interplay between Knowledge Management Processes (KMP), Resource Orchestration Capabilities (ROC) and Corporate Innovation.

The empirical findings established that all three dimensions of KMP are significant predictors of innovation. Knowledge Acquisition ($R^2 = .271$) and Knowledge Sharing ($R^2 = .353$) both demonstrated substantial positive effects. However, Knowledge Application emerged as the most potent driver, explaining 42.9% of the variance in innovation. This underscores the "knowledge-to-action gap," suggesting that top-performing farms differentiate themselves by their organizational discipline in operationalizing insights rather than merely acquiring or discussing them.

7. Limitations and Recommendations for Future Study

This study concentrated on the geographical and industrial focus which presents a boundary to its application. The data was collected exclusively from the Egyptian poultry sector, meaning the results may reflect specific regional economic conditions or industry-standard practices that do not necessarily apply to other countries or different sectors. Researchers should exercise caution when extrapolating these findings to vastly different institutional environments.

Finally, while this study explores the dynamics between Knowledge Management Practices (KMP) and corporate innovation, there is a recognized need for further methodological refinement. Future research should incorporate a dedicated post-test phase to more accurately validate the role of (ROC) as a moderator. Specifically, a post-test would help confirm how ROC serves as a catalyst that amplifies the positive impact of KMP on an organization's innovative output, ensuring that the measurement scales used are robust enough to capture this complex relationship.

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