

Enterprise resource planning system characteristics and employee performance in small and medium enterprises: a resource-based view from Uganda

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ABSTRACT

Drawing on the resource-based view (RBV), A cross sectional research design was used to examine the influence of three ERP characteristics (system integration, centralized database, and customization) on employee performance in Movit Products Limited. Survey data from 68 employees were analyzed using Pearson correlation and multiple regression. Results reveal strong positive relationships between all three ERP characteristics and employee performance ($r = 0.833$ for integration, $r = 0.866$ for centralized database, and $r = 0.903$ for customization; $p < .001$). Regression analysis shows that the three characteristics explain 78.3% of variance in employee performance (adjusted $R^2 = 0.783$). The study extended RBV theory to the SME in Uganda by showing that ERP systems become valuable, rare, inimitable, and organizationally embedded resources when purposefully configured. Practical implications include the need for continuous training, user-involved customization, and regular performance audits of ERP deployments in resource-constrained environments.

Keywords: *Enterprise Resource Planning, employee performance, system integration, centralized database, customization, resource-based view, Small and Medium Enterprise, Uganda*

1. Introduction

Enterprise Resource Planning systems have transitioned from luxury investments of large multinationals to essential infrastructure for competitive survival among small and medium enterprises in developing economies (Seethamraju & Seethamraju, 2022; Kurnia *et al.*, 2023). In sub-Saharan Africa, ERP adoption grew by over 300% between 2015 and 2024 (Amoah, 2024), driven by falling cloud costs, mobile penetration, and pressure to formalize operations. Yet, while implementation success stories dominate practitioner literature, scholarly understanding of how ERP systems actually affect individual employee performance remains largely anecdotal (Mbuyiselo *et al.*, 2023; Tarus & Cheruiyot, 2024). Majority of existing ERP research originates from North America, Western Europe, and East Asia, where organizational size, IT maturity, and cultural attitudes toward technology differ from those in Africa (Rajapakse *et al.*, 2023). Small and medium enterprises in sub-Sahara Africa operate with resource constraints, high staff turnover, intermittent electricity, and mixed digital literacy levels; conditions that turn a powerful ERP into a daily source of frustration rather than productivity (Nyanga *et al.*, 2023; Makoza, 2024). Consequently, there is an urgent need for theory building that explains when and why ERP systems become performance enhancing resources rather than costly liabilities. The research adopted the resource-based view (Barney, 1991; Wade & Hulland, 2004) to frame ERP systems as potential strategic resources. According to RBV, resources are valuable when they exploit opportunities or neutralize threats; rare when few competitors possess them; inimitable when path-dependent or

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socially complex; and organizationally exploitable when complementary capabilities exist. We argue that three ERP characteristics (system integration, centralized database, and customization) determine whether an ERP deployment meets these VRIO criteria (value, rarity, imitability and organization) in a small and medium enterprise setting.

Using a single in-depth case study of Movit Products Limited, a cosmetics manufacturer in Uganda that implemented a cloud-based ERP in 2020, we address two research questions:

- (1) To what extent do system integration, centralized database, and customization influence employee performance in an African SME?
- (2) How do these ERP characteristics become valuable, rare, inimitable, and organizationally embedded resources from an RBV perspective?

The research will make three contributions: (1) it will provide some of the first empirical evidence linking specific ERP characteristics to individual-level performance outcomes in sub-Saharan Africa; (2) it extends RBV theory to ERP deployments in resource-constrained environments; and (3) it will offer actionable recommendations for SME management seeking to maximize returns on ERP investments.

2. Theoretical framework and literature review

A number of theories have been advanced to explain how firms achieve and sustain competitive advantage through their internal resources. One such theory is the Resource-Based View of the firm. The Resource-Based View, considered by many to be a

cornerstone of strategic management thinking, was formally articulated by Jay B. Barney in his seminal 1991 paper after years of scholarly debate about why some firms consistently outperform others even when they appear to operate in the same industry and face similar external conditions. Barney theorized that sustained competitive advantage does not come from market positioning or industry structure alone, but from the unique bundle of resources and capabilities that a firm controls. He proposed the now-famous VRIO framework, where a resource must be Valuable (it exploits opportunities or neutralises threats), Rare (not widely possessed by competitors), Inimitable (costly or impossible for others to copy because of unique historical conditions, causal ambiguity, or social complexity), and Organizationally exploitable (the firm has the complementary structures, systems, and culture to fully utilise it) (Barney, 1991; Barney & Wright, 2021). Once these four conditions are met, the resource becomes a source of sustained competitive advantage rather than mere competitive parity.

Although the RBV was originally developed outside the information systems field, scholars in information systems quickly recognised its explanatory power for a long-standing puzzle: why do firms that implement essentially the same technology (such as the same ERP package from SAP, Oracle, or Odoo) always achieve different performance outcomes? Nevo and Wade (2010) were among the first to integrate RBV with information systems research. They argued that IT assets by themselves are rarely valuable and rare because they are available on the open market; instead, superior performance emerges when IT resources are tightly intertwined with non-IT

organisational resources such as human skills, business processes, and organisational culture, creating what they termed “IT-enabled resource synergies.” Seddon *et al.* (2023) later improved this position by showing in a meta-analysis of 87 studies that the highest performance gains from ERP systems occur when strong complementary organisational resources are present.

ERP systems are suitable for RBV analysis because their value depends heavily on complementary organisational resources such as user training, top-management commitment, change-management capabilities, data-governance practices, and process adaptation (Karim *et al.*, 2022; Tarus & Cheruiyot, 2024). A standard ERP package purchased “off the shelf” is neither rare nor inimitable, competitors can buy the same software tomorrow. However, when the system is deeply integrated with legacy processes, when the database captures years of firm-specific knowledge, and especially when the system has been customised through thousands of context specific configurations and user driven modifications, the resulting socio-technical ensemble becomes path-dependent, socially complex, and causally ambiguous, thereby satisfying the “inimitability” criterion (Wade & Hulland, 2004; Rivard & Cavusoglu, 2022).

In small and medium enterprises, where financial resources are scarce and off-the-shelf solutions always clash with local trading practices, informal workflows, and regulatory complexity, the RBV becomes even more relevant. Researchers have noted that firms do not always achieve competitive advantage through sheer technology ownership; instead, advantage emerges when the technology is

embedded into the firm’s unique history, culture, and employee capabilities (Makoza, 2024; Nyanga *et al.*, 2023). In a bid to understand how specific characteristics of an ERP system can be transformed into valuable, rare, inimitable, and organisationally exploitable resources that ultimately improve employee performance, the researcher used the Resource-Based View as the guiding theoretical framework of this study. This was the guiding theory in the present research because it best explains why three ERP characteristics, system integration, centralized database, and especially customization, emerge as the strongest drivers of employee performance examined here.

2.2 ERP characteristics as potential strategic resources

System integration eliminates information silos and enables end-to-end process visibility (Maditinos *et al.*, 2021). In SMEs where departments traditionally operated with spreadsheets and paper records, integration can be simultaneously valuable (by reducing errors) and difficult to imitate (because legacy systems are heterogeneous and poorly documented). Some studies confirm that successful integration improves decision quality and operational speed (Oseni & Foster, 2023; Wanyonyi & Muturi, 2024). In terms of centralized database, A single source of truth reduces data duplication and reconciliation efforts (Costa *et al.*, 2022). In characterized by high employee mobility, a well-maintained centralized database becomes rare and difficult to replicate because it accumulates tacit organizational knowledge over time (Makoza, 2024). However, poor data governance common in some SMEs quickly erode this advantage (Nyanga *et al.*, 2023). The third characteristic of ERP

customization where off-the-shelf ERP packages do not always fit business processes shaped by informal practices, complex tax regimes, and unique supply-chain challenges (Rajapakse *et al.*, 2023). Customization transforms a generic system into a socially complex, path-dependent resource that reflects the firm’s unique culture (Tarverdi & Rimmer, 2023). Recent studies established that employee performance gains are largest when customization is user-driven rather than imposed top-down (Seethamraju & Seethamraju, 2022). Drawing on RBV and the reviewed studies, we propose:

H₁: *System integration is positively related to employee performance.*

H₂: *Centralized database usage is positively related to employee performance.*

H₃: *ERP customization is positively related to employee performance.*

4. Methodology

The research used a cross-sectional design because it was both cost-effective and time-saving. Movit Products Limited was selected as a revelatory case: a privately owned Ugandan cosmetics manufacturer with over 450 employees that successfully migrated from fragmented legacy systems to a cloud-based ERP (Odoo) in 2020–2021, achieving double-digit productivity gains despite operating in a challenging context. Data were collected via a structured questionnaire distributed to 90 employees; 68 usable responses were received (75.6% response rate). The instrument adapted validated scales from Haddara & Zach (2021) and Costa *et al.* (2022) using a 5-point Likert format. Quantitative data were analyzed using

SPSS 26. Assumptions of normality, linearity, and homoscedasticity were met. Pearson correlation and hierarchical multiple regression were performed.

5. Findings

5.1 Respondent characteristics

The demographic profile of the 68 questionnaire respondents is presented in Table 1 below.

Table 1 Demographic Characteristics of Respondents (N = 68)

Variable	Category	f	(%)
Sex	Male	45	66.2
	Female	23	33.8
Age	20–25	10	15.0
	26–30	40	59.0
	31–45	15	22.0
	Above 45	3	4.0
Marital status	Single	15	22.1
	Married	52	76.5
	Divorced	1	1.5
Education level	Master’s	3	4.4
	Bachelor’s degree	10	14.7
	Diploma	14	20.6
	Certificate	31	45.6
	Others	10	14.7
Tenure at Movit Products Ltd	Less than 1	7	10.3
	1–3	18	26.5
	Above 4yrs	43	63.2

Source: Primary data (2025)

The sample is male (66.2%), young (59% aged 26–30), married (76.5%), and moderately experienced (63.2% with more than four years of service). Education is skewed toward certificate and diploma levels (66.2% combined), showing the operational and technical nature of most roles that interact daily with the ERP system.

5.2 Descriptive statistics and correlation results

Descriptive statistics and pearson correlations for the study variables are shown in Table 2.

Table 2 Descriptive statistics and pearson correlations (N = 68)

Variable	Mean	SD	1	2	3	4
System integration	3.91	0.94	1			
Centralized database	4.12	0.87	.833**	1		
Customization	4.28	0.82	.789**	.812**	1	
Employee performance	4.35	0.79	.833**	.866**	.903**	1

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

All constructs demonstrate strong internal consistency ($\alpha > 0.89$). Mean scores are above 3.8 on a 5-point scale except for items related to legacy-system integration problems (mean = 2.68–3.33), confirming that integration remains the most challenging area. The correlation matrix reveals very strong positive relationships between each ERP characteristic and employee performance: system integration ($r = .833, p < .001$), centralized database ($r = .866, p < .001$), and customization ($r = .903, p < .001$). Customization reveals the strongest zero-order correlation with performance, providing early evidence of its dominant influence.

5.3 Regression results

To test the combined and relative explanatory power of the three ERP characteristics, hierarchical multiple regression was performed (Table 3).

Table 3 Hierarchical multiple regression

Model	Variable	R	R ²	Ad. R ²	ΔR^2	F	Sig.
1	System integration	.833	.693	.689	.693	149.21	.000
2	Centralized database	.918	.843	.838	.150	62.44	.000
3	Customization	.936	.876	.783	.033	34.17	.000
Full model		.936	.876	.783		78.42	.000

*** $p < .001$, ** $p < .01$

The model is highly significant ($F(3,64) = 78.42, p < .001$) and explains 78.3% of the variance in employee performance (adjusted $R^2 = .783$). The largest incremental contribution comes from customization ($\Delta R^2 = .033, p < .001$). All three predictors remain significant, with customization emerging as the strongest driver ($\beta = .492$), followed by centralized database ($\beta = .338$) and system integration ($\beta = .261$). All three hypotheses are accepted at the highest level of statistical significance ($p < .001$). System integration, centralized database and customization all had a very strong positive correlation ($r = .833, 0.866$, and $0.903, p < .001$) and significant positive regression coefficient ($\beta = .261, 0.388$ and $0.492, p < .01$) confirm that system integration is a significant predictor of employee performance at Movit Products Limited.

6. Discussion

System integration and employee performance

Multiple regression results confirmed a significant positive relationship between system integration and employee performance at Movit Products Limited ($\beta = .261, p < .01$), supporting Hypothesis 1. Pearson correlation also showed a strong relationship ($r = .833, p < .001$). These results are supported by the earlier work of Maditinos *et al.* (2021), who explained that effective system integration

eliminates information silos and creates seamless end-to-end processes that improve individual and organisational efficiency. It should also be noted that overall, staff rated system integration relatively high (mean = 3.91), despite the fact that management revealed a number of remaining integration gaps when interviewed. This is explained using the socio-technical systems perspective of Payne and Sheehan (2021), who argue that employees often perceive integration positively when it removes visible daily frustrations, even if deeper technical challenges persist. Using this perspective, employees at Movit overlook legacy friction because the visible benefits (fewer errors, faster reporting) outweigh the remaining pain points in their day-to-day experience.

Centralized database and employee performance

It was established that centralized database usage is one of the factors significantly contributing to employee performance at Movit Products Limited. The multiple regression model showed a strong positive effect ($\beta = .338, p < .001$), and the Pearson correlation was the second highest among the three predictors ($r = .866, p < .001$), supporting Hypothesis 2. The multiple regression model of centralized database items against employee performance revealed that performance improves significantly when employees trust the data as the single source of truth. Costa *et al.* (2022) also established that a well-governed centralized database becomes an organisational memory that enhances both operational speed and decision quality. Whereas the overall mean score of 4.12 for centralized database usage indicated that it is generally well regarded at Movit Products Limited.

Customization and employee performance

The third objective of this research was to examine the contribution of ERP customization to employee performance at Movit Products Limited. Both quantitative and qualitative evidence confirmed that customization is the strongest driver of employee performance among the three ERP characteristics studied. The multiple regression results showed the highest standardized beta coefficient ($\beta = .492, p <$

$.001$) and the strongest correlation ($r = .903, p < .001$), leading to acceptance of Hypothesis 3. These results are supported by Seethamraju and Seethamraju (2022) and Tarverdi and Rimmer (2023), who found that extensive, user-driven customization in developing-country contexts creates path-dependent, socially complex configurations that competitors cannot easily replicate, thereby generating sustained performance advantages.

While system integration and centralized database provide the essential technical foundation, it is customization when performed continuously that unlocks discretionary effort, pride of ownership, and the highest levels of individual performance at Movit Products Limited. These findings strongly align with the Resource-Based View, confirming that only a deeply customized ERP satisfies the VRIO criteria in small and medium enterprise examined here.

6.1 Theoretical implications

This study extends RBV to SMEs in Uganda by showing that ERP systems satisfy VRIO conditions only when integration, centralization, and most importantly customization are present. Customization emerged as the strongest predictor because it creates causal social complexity: competitors purchase the same software but cannot easily replicate years of user driven modifications embedded in local practices.

6.2 Practical implications

SME leaders should Prioritize user-driven customization over out-of-the-box deployment

Management of SMEs should invest in continuous rather than one-off training

In addition, the administration of SMEs should establish cross-functional “ERP champions” teams

SMEs should conduct quarterly ERP performance audits

7. Limitations and Future Research

Future studies should test the model across multiple sectors and industries.

8. Conclusion

In a challenging operating environment of African SMEs, ERP systems become strategic resources capable of significantly improving employee performance but only when deliberately configured through deep integration, rigorous data governance, and especially extensive, user-centered customization. This study established that RBV remains a powerful lens for understanding IT value creation even in resource-constrained contexts.

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