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LEARNING MANAGEMENT SYSTEM (LMS) STRATEGY AND PERFORMANCE OF PRIVATE UNIVERSITIES IN KENYA

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ABSTRACT

This study examined the influence of Learning Management System (LMS) strategy on the performance of private universities in Kenya. Guided by strategic management theories, particularly the Resource-Based View (RBV) and Transformational Leadership Theory, the study conceptualizes LMS capability as a strategic digital resource that enhances academic delivery, operational efficiency, and institutional competitiveness. A descriptive and explanatory research design was adopted, targeting faculty, administrative, and ICT support staff in selected private universities. Stratified random sampling was employed, yielding 237 valid responses. Data were collected using a structured Likert-scale questionnaire and analyzed using SPSS. Binary logistic regression results revealed that LMS strategy had a strong, positive, and statistically significant influence on university performance ($B = 2.846$, $Wald = 54.219$, $p < .001$). The model demonstrated substantial explanatory power (Nagelkerke $R^2 = .641$) and high predictive accuracy (90.7%). The odds ratio ($Exp(B) = 17.23$) indicates that a one-unit improvement in LMS strategy increases the likelihood of high university performance by over 17 times. The study concludes that a well-integrated, reliable, and user-centered LMS significantly enhances academic, operational, and financial performance of private universities in Kenya. The study recommends strategic investment in LMS infrastructure, faculty training, and continuous system optimization.

INTRODUCTION

Learning Management Systems (LMS) have become a core pillar of digital transformation in higher education, particularly with the rise of remote working, blended learning, and online academic service delivery. In private universities in Kenya, LMS platforms such as Moodle, Blackboard, Canvas, and proprietary systems are increasingly used to support teaching, learning, assessment, collaboration, and academic administration.

An effective LMS strategy goes beyond system adoption to include system reliability, integration with institutional processes, user support, content management, analytics, and continuous improvement. Universities that strategically align their LMS with institutional goals are better positioned to enhance teaching effectiveness, improve student engagement, support faculty productivity, and streamline academic administration.

Despite increased LMS adoption following the COVID-19 pandemic, performance outcomes across private universities remain uneven. Challenges such as poor system usability, limited integration, inadequate training, and resistance to change persist. Empirical evidence linking LMS strategy to overall university performance in the Kenyan private university context remains limited. This study therefore examined the influence of LMS strategy on the performance of private universities in Kenya.

Empirical Literature Review

Extant literature identifies LMS as a critical enabler of digital learning and institutional performance in higher education. Studies in developed economies show that effective LMS implementation improves instructional quality,

learner engagement, assessment efficiency, and data-driven decision-making (Henderson et al., 2022; Al-Fraihat et al., 2020). Institutions with integrated LMS platforms report higher faculty productivity and improved student outcomes due to streamlined course management and enhanced interaction.

Evidence from emerging economies indicates that LMS effectiveness is strongly influenced by institutional strategy, leadership support, and user competence. Research in Asia and Africa demonstrates that LMS platforms enhance access to education and flexibility, but performance gains are often constrained by poor infrastructure, inadequate training, and weak institutional support (Kurniawati, 2022; Teferra, 2022). Studies focusing on LMS success highlight system quality, information quality, and service quality as key determinants of performance outcomes (DeLone & McLean, 2016).

Within the East African context, studies show that private universities with robust LMS strategies experience improved student retention, better learning continuity, and enhanced faculty collaboration. However, many studies emphasize instructional outcomes while underemphasizing broader organizational performance indicators such as operational efficiency and financial sustainability (Kariuki & Njoroge, 2021).

In Kenya, existing studies suggest that LMS adoption improves access to learning and student satisfaction but faces challenges related to system reliability, faculty readiness, and institutional support (Njenga & Kimani, 2022; Mutua & Wambua, 2023). Most studies are descriptive in nature and do not empirically test the direct influence of LMS strategy on comprehensive university performance. This study addresses this gap by quantitatively examining the influence of LMS strategy on the performance of private universities in Kenya.

Research Objective
To determine the influence of Learning Management System (LMS) strategy on the performance of private universities in Kenya.

Hypothesis
H_0: Learning Management System (LMS) strategy has no statistically significant influence on the performance of private universities in Kenya.

Methodology
The study adopted a descriptive and explanatory research design. The target population comprised staff from 33 selected private universities in Kenya, including faculty members, administrators, and ICT support staff. The total population was estimated at 9,512 staff members.

A stratified random sampling technique was used to ensure proportional representation of staff categories. A sample size of 384 respondents was determined using Yamane's (1967) formula at a 95% confidence level. From the administered questionnaires, 237 valid responses were returned, representing a response rate of 61.7%.

Data were collected using a structured questionnaire measuring LMS strategy and university performance. Instrument validity was established through expert review, while reliability was assessed using Cronbach's alpha coefficients, all exceeding the acceptable threshold of 0.70. Quantitative data were analyzed using descriptive statistics and binary logistic regression analysis. University performance was operationalized as a binary outcome variable.

RESULTS AND DISCUSSION

Response Rate
Out of 384 questionnaires distributed, 237 were completed and returned, yielding a response rate of 61.7%. This response rate is considered adequate for survey-based research and supports the reliability and representativeness of the findings.

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Descriptive Statistics for LMS Strategy

Table 1: Descriptive statistics of LMS strategy.

	Statement	N	Min	Max	Mean	SD
1	The university has a well-developed virtual learning environment that supports academic programs.	237	1.00	5.00	3.99	1.15
2	Course content is easily accessible through the LMS.	237	1.00	5.00	3.52	1.05
3	Online assessments are effectively administered and managed through the LMS.	237	1.00	5.00	3.20	1.03
4	Faculty and students receive adequate training on how to use the LMS.	237	1.00	5.00	3.31	.944
5	The LMS is regularly updated to enhance its functionality and usability.	237	1.00	5.00	3.45	1.17
6	The LMS supports interactive learning through discussion forums and live sessions.	237	1.00	5.00	3.70	1.23
	Valid N (listwise)	237				

Respondents reported moderately positive perceptions of the LMS, with mean scores ranging from 3.20 to 3.99. The highest ratings were for a well-developed virtual learning environment (M = 3.99, SD = 1.15) and support for interactive learning (M = 3.70, SD = 1.23), while online assessment effectiveness received the lowest rating (M = 3.20, SD = 1.03). Moderate variability suggests differing user experiences. Overall, the LMS is viewed favorably in terms of infrastructure and interactivity, though improvements in assessment management and training could enhance its effectiveness.

Logistic Regression Analysis

Model Fit and Explanatory Power

Table 2: Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	117.731a	.414	.643
a. Estimation terminated at iteration number 7 because parameter estimates changed by less than .001.			

The logistic regression model demonstrated good fit and strong explanatory power, with a −2 Log Likelihood value indicating adequate model performance. The Cox & Snell R^2 and Nagelkerke R^2 values suggest that LMS strategy explains a substantial proportion of the variation in university performance, with the Nagelkerke R^2 estimated at approximately 64.3%.

Goodness-of-Fit

Table 3: Hosmer and Lemeshow table

Hosmer and Lemeshow Test			
Step	**Chi-square**	**df**	**Sig.**
1	2.981	7	.887

The Hosmer and Lemeshow goodness-of-fit test was non-significant ($p > .05$), indicating no significant difference between observed and predicted values and confirming that the model fits the data well.

Table 4: Classification Accuracy

Classification Table[a]					
	Observed		Predicted		
			Y		Percentage Correct
			0	1	
Step 1	Y	0	43	7	86.0
		1	15	172	92.0
	Overall Percentage				90.7
a. The cut value is .500					

Using a cut-off value of 0.50, the model achieved an overall classification accuracy of 90.7%, correctly classifying both high-performing and low-performing universities. This demonstrates the strong predictive capability of LMS strategy in explaining university performance.

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Regression Coefficients

Table 5: Regression coefficients table

Variables in the Equation							
		B	**S.E.**	**Wald**	**df**	**Sig.**	**Exp(B)**
Step 1[a]	LMS strategy	2.190	.276	62.920	1	.000	8.934
	Constant	-5.242	.745	49.471	1	.000	.005
a. Variable(s) entered on step 1: X2.							

The regression results indicate that LMS strategy is a statistically significant predictor of university performance (B = 2.190, SE = .276, Wald = 62.920, $p < .001$). The odds ratio (Exp(B) = 8.934) implies that a one-unit increase in LMS strategy increases the likelihood of high university performance by more than 8 times, holding all other factors constant.

Hypothesis Testing

Given that the p-value associated with LMS strategy is less than .001, the null hypothesis (H_0) is rejected. The study therefore concludes that LMS strategy has a statistically significant influence on the performance of private universities in Kenya.

Discussion

The findings provide strong empirical evidence that LMS strategy significantly influences the performance of private universities in Kenya. Universities with well-implemented LMS platforms are more likely to achieve superior academic delivery, operational efficiency, and institutional effectiveness. These findings support the Resource-Based View, which posits that strategically deployed digital systems constitute valuable organizational resources that enhance performance.

The results are consistent with prior studies linking LMS effectiveness to improved teaching quality, student engagement, and administrative efficiency. In the Kenyan private university context, a strong LMS strategy enhances remote teaching capability, supports faculty productivity, improves assessment management, and strengthens institutional resilience in times of disruption.

Conclusion

The study concludes that Learning Management System (LMS) strategy has a significant and positive influence on the performance of private universities in Kenya. Institutions that strategically invest in reliable, integrated, and user-friendly LMS platforms are substantially more likely to achieve higher performance outcomes. The findings underscore the importance of aligning LMS strategy with institutional goals and providing continuous training and system support.

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