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STRUCTURAL AND TECHNOLOGICAL CHANGE MANAGEMENT AND ORGANIZATIONAL PERFORMANCE IN THE ENERGY SECTOR IN KENYA: A CASE OF KENYA POWER AND LIGHTING COMPANY

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ABSTRACT

Public energy utilities face rapid technological change, sector liberalization and pressure to improve efficiency and service delivery, making strategic change management increasingly important. However, the extent to which structural and technological change influence performance at Kenya Power and Lighting Company (KPLC) had not been established empirically. This study examined the effect of structural change management and technological change management on the organizational performance of KPLC. The study was anchored on Lewin's Change Management Theory and supported by the Resource-Based View. A descriptive research design was adopted, and a census of 77 management and supervisory staff across six functional areas was undertaken. Data were collected using a structured questionnaire, yielding 75 usable responses (97.4 per cent), and were analysed using descriptive statistics, Pearson correlation and multiple linear regression in SPSS version 29. Respondents strongly agreed that both structural change (mean = 4.540) and technological change (mean = 4.590) had been implemented, and rated organizational performance highly (mean = 4.731). Structural change management had a moderate, positive and significant correlation with performance ($r = 0.399$, $p < 0.001$) and a significant positive effect in the regression model ($\beta = 0.300$, $p = 0.013$). Technological change management had a weak, positive but non-significant correlation ($r = 0.203$, $p = 0.081$) and no significant effect in the regression model ($\beta = 0.134$, $p = 0.227$). The study concludes that structural change is a key driver of performance at KPLC, while technology acts as an enabler whose benefits depend on full integration, staff capability and time. It recommends greater delegation of decisions to regional and departmental managers, regular process redesign, integration of smart metering, grid automation, customer platforms and ERP systems, and clear performance indicators for each technology investment.

KEYWORDS: *Strategic Change Management, Structural Change, Technological Change, Organizational Performance, Energy Sector, Kenya Power*

1. INTRODUCTION

Organizations no longer operate in stable environments; they must continuously reconfigure their structures, technologies, cultures and leadership approaches to remain competitive (Hussain et al., 2018). Strategic change management is the deliberate process of planning, implementing and institutionalizing organizational transformations that align internal capabilities with external demands (Al-Haddad & Kotnour, 2015). Organizational performance captures how well a firm performs against its financial and non-financial targets, including efficiency, profitability, service delivery and customer satisfaction (Rusly, Sun, & Corner, 2021).

Energy utilities are under particular pressure to change. Utilities in mature economies have pursued digital transformation, grid modernization and process automation to improve efficiency and customer experience (International Energy Agency, 2017). Parra, Gomez-Luna and Fernandez (2024) found that process automation in a Latin American utility improved decision-making efficiency, while Hassan, Zubair and Iqbal (2023) noted that the benefits of digital transformation in energy depend on the quality of change leadership and the pace of cultural adaptation. In Africa, state-owned utilities have undertaken restructuring programmes to improve governance and reduce system losses, with mixed results (World Bank, 2023).

Kenya Power and Lighting Company (KPLC) is Kenya's principal electricity distribution and retail utility, serving more than ten million customers, with the Government holding a 50.1 per cent stake (Kenya Power, 2025b). Under its 2023/24–2027/28 Corporate Strategy, the company has pursued structural realignment and technological initiatives such as transformer metering (Kenya Power, 2025c). In the 2024/2025 financial year, total system losses fell from 23.16 to 21.21 per cent and distribution and transmission efficiency rose from 76.84 to 78.79 per cent (Kenya Power, 2025d; African Financials, 2025).

1.1 Statement of the Problem

Despite KPLC's structural and digital reforms, system losses remained at 21.21 per cent at the close of the 2024/2025 financial year, and revenue from contracts with customers declined from KShs 231.12 billion to KShs 219.3 billion, with profitability sustained largely through cost containment (Kenya Power, 2025d; African Financials, 2025). This raises the question of which dimensions of the company's change agenda contribute meaningfully to performance. Kenyan studies have examined commercial parastatals in aggregate or single change

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dimensions in isolation (Lerai, Rintari, & Moguche, 2023; Mohamed, Munga, & Kithinji, 2025). The only study located at KPLC examined restructuring alone, using the managing director as the unit of observation (Warigia & Kising'u, 2024). Evidence on how structural and technological change management relate to KPLC's performance, drawn from management and supervisory staff across its functions, is therefore lacking. This study addressed that gap.

1.2 Literature Review

Lewin's Change Management Theory. Lewin (1947) conceptualized organizational change as three stages: unfreezing, changing and refreezing. In the changing stage, new structures, processes and technologies are implemented, and in the refreezing stage they are institutionalized so that employees do not revert to old practices (Hussain et al., 2018). The theory anchors this study because both structural and technological change management fall within the changing stage. It has been criticized for assuming a linear process that may not capture the iterative nature of change in complex organizations (Hussain et al., 2018).

Resource-Based View. Barney (1991) argued that sustained competitive advantage comes from resources that are valuable, rare, inimitable and non-substitutable. Structural change can be seen as the reorganization of decision rights and reporting structures to deploy existing capabilities more efficiently (Mathu, Wanjiru, & Otieno, 2024), while technological change involves acquiring technological resources that become sources of efficiency once embedded in organizational routines (Parra et al., 2024). The view has been criticized for treating resources statically and paying limited attention to context (Mathu et al., 2024).

Structural change management and performance. Mohamed et al. (2025) found that restructuring had a significant positive effect on the performance of ten Kenyan commercial parastatals, especially where the rationale for change was communicated and stakeholders were engaged. At KPLC, Warigia and Kising'u (2024) found that process restructuring had a strong positive relationship with performance. Kinyua and Kihara (2021) found that departmental consolidation and redesigned reporting lines improved the performance of Kenyan media firms, but warned that restructuring without adequate change support can cause short-term productivity losses.

Technological change management and performance. Hassan et al. (2023) reported that energy organizations implementing digital technologies achieved operating cost reductions of 20 to 30 per cent and productivity gains of 5 to 15 per cent, but cautioned that legacy systems, high implementation costs and workforce resistance often constrain these gains. MaxBill (2025) similarly ranked utilities among the weakest sectors on digital customer experience because legacy systems complicate integration. No published study has isolated the contribution of technological change management to KPLC's performance.

1.3 Conceptual Framework

Figure 1 presents the hypothesised relationships. Structural change management and technological change management are the independent variables, and organizational performance is the dependent variable.

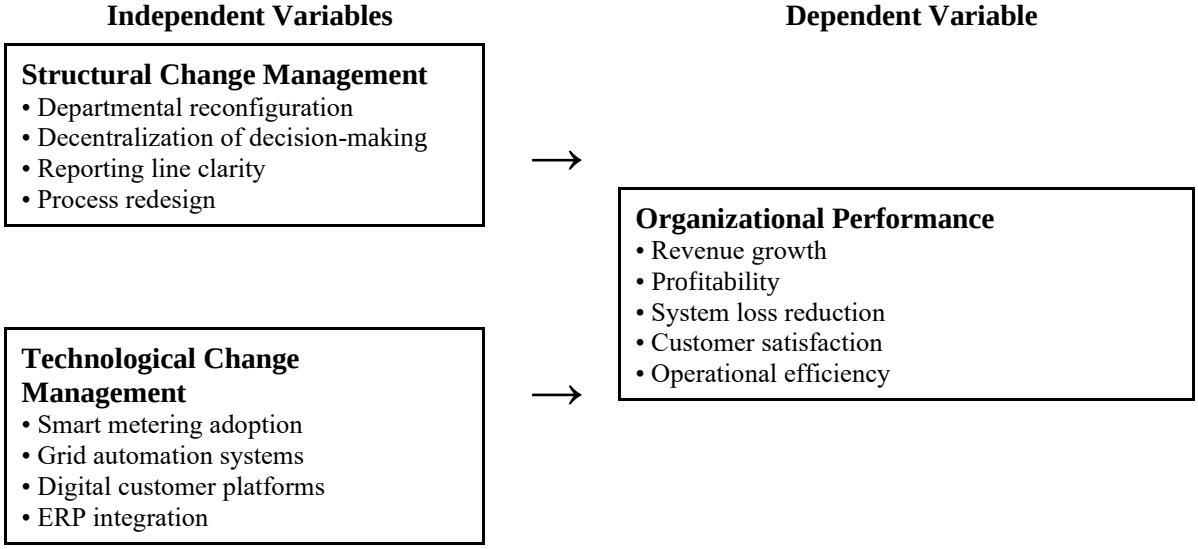


Figure 1: Conceptual Framework

2. OBJECTIVES OF THE STUDY

The general objective was to investigate the effect of strategic change management on organizational performance in the energy sector in Kenya, with reference to Kenya Power and Lighting Company. The specific objectives were:

i. To establish the effect of structural change management on organizational performance at Kenya Power and Lighting Company.
ii. To determine the effect of technological change management on organizational performance at Kenya Power and Lighting Company.

The study tested the following null hypotheses:

H01: Structural change management has no significant effect on organizational performance at Kenya Power and Lighting Company.

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H02: Technological change management has no significant effect on organizational performance at Kenya Power and Lighting Company.

3. METHODOLOGY

The study adopted a descriptive research design, which captures the features of a population at a point in time and allows associations between variables to be tested without manipulation (Creswell & Creswell, 2018). Primary data were collected using a structured questionnaire. Structural change management and technological change management were each measured with four statements, and organizational performance with five, on a five-point Likert scale (1 = strongly disagree; 5 = strongly agree). The questionnaire was pilot-tested on eight respondents at the Kenya Electricity Generating Company (KenGen), a public energy organization outside the study. Content validity was established by deriving items from the literature, and face validity through review by the supervisor and two strategic management specialists. Cronbach's alpha exceeded the 0.70 threshold (Saunders, Lewis, & Thornhill, 2019) for structural change management (0.872), technological change management (0.989) and organizational performance (0.993). Data were collected through the drop-and-pick method after obtaining a NACOSTI research permit and permission from KPLC management.

4. SAMPLING DESIGN

The target population comprised 77 management and supervisory staff at KPLC whose work involved strategic planning, change implementation or performance monitoring. Because the population was small and fully accessible, a census was conducted and all 77 staff were included (Field, 2018). Table 1 shows the distribution of the population.

Table 1: Target Population

Category	Senior Mgmt	Middle Mgmt	Supervisory	Total
Network and Distribution Operations	2	4	5	11
Technical and Engineering Services	3	9	7	19
Customer Service and Commercial	3	8	4	15
Information Communication Technology	2	6	3	11
Finance and Strategy	2	7	3	12
Human Resources and Administration	2	5	2	9
Total	**14**	**39**	**24**	**77**

Source: Kenya Power (2025b)

5. STATISTICAL DESIGN

Data were coded and analysed using IBM SPSS Statistics version 29. Frequencies, percentages, means and standard deviations described the responses. Pearson correlation measured the direction and strength of relationships. Multiple linear regression was estimated using the model $Y = \beta0 + \beta1X1 + \beta2X2 + \beta3X3 + \beta4X4 + \varepsilon$, where Y is organizational performance, X1 is structural change management, X2 is technological change management, and X3 (cultural change management) and X4 (strategic leadership in change management) are the other change dimensions measured in the wider study. Multicollinearity and independence of residuals were checked using the variance inflation factor and the Durbin-Watson statistic (Field, 2018). All tests were conducted at the 5 per cent significance level.

6. GEOGRAPHICAL AREA OF THE STUDY

The study was conducted at Kenya Power and Lighting Company Plc, Kenya's principal electricity distribution and retail utility, which is listed on the Nairobi Securities Exchange and serves customers nationwide (Kenya Power, 2025b). Respondents were drawn from six functional areas: network and distribution operations, technical and engineering services, customer service and commercial, information communication technology, finance and strategy, and human resources and administration.

7. RESULTS AND DISCUSSION

7.1 Response Rate and Respondent Profile

Of the 77 questionnaires issued, 75 were returned in usable form, a response rate of 97.4 per cent, which Mugenda and Mugenda (2019) classify as excellent. Women made up 57.3 per cent of respondents. In all, 97.4 per cent held a bachelor's degree or higher, 50.7 per cent were middle managers, 30.7 per cent supervisory staff and 18.7 per cent senior managers, and 57.3 per cent had served KPLC for more than five years. All six functional areas were represented.

7.2 Descriptive Results

Table 2: Descriptive Statistics for Structural and Technological Change Management (n = 75)

Statement	Agree (%)	Mean	Std. Dev.
KPLC has reconfigured its departmental structures to improve efficiency	100.0	4.587	0.496
Decision-making authority has been decentralized to lower management levels	97.3	4.453	0.759
Reporting lines within my department are clear and well defined	100.0	4.587	0.496
Business processes have been redesigned to eliminate unnecessary bureaucracy	98.7	4.533	0.528
Structural change management (overall)	99.0	4.540	0.493

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KPLC has adopted smart metering systems to improve service delivery	100.0	4.600	0.493
Grid automation systems have improved monitoring of electricity distribution	100.0	4.587	0.496
Digital platforms have improved customer service and engagement	100.0	4.587	0.496
ERP systems have improved internal coordination	100.0	4.587	0.496
Technological change management (overall)	100.0	4.590	0.487

Agree (%) combines agree and strongly agree. Source: Field data (2026)

Structural change management recorded an overall mean of 4.540, with 99.0 per cent average agreement. Departmental reconfiguration and clarity of reporting lines scored highest (4.587 each), while decentralization of decision-making scored lowest (4.453) and was the only item with any disagreement. This suggests that a regulated, state-owned utility may keep certain decisions at the centre even while restructuring (Mathu et al., 2024). The results are consistent with Warigia and Kising'u (2024), who linked process restructuring at KPLC to performance. Technological change management recorded an overall mean of 4.590, and every respondent agreed with all four statements. Smart metering scored highest (4.600). These ratings are consistent with KPLC's own reports, which attribute part of the fall in system losses to transformer metering and related projects (African Financials, 2025).

Table 3: Descriptive Statistics for Organizational Performance (n = 75)

Statement	Agree (%)	Mean	Std. Dev.
KPLC has experienced consistent revenue growth over the past three years	100.0	4.747	0.438
The company's profitability has improved in recent years	100.0	4.720	0.452
System losses have reduced as a result of recent change initiatives	100.0	4.720	0.452
Customer satisfaction with service delivery has improved	100.0	4.733	0.445
Overall operational efficiency at KPLC has improved	100.0	4.733	0.445
Organizational performance (overall)	**100.0**	**4.731**	**0.441**

Source: Field data (2026)

Organizational performance recorded the highest mean of all variables (4.731), and every respondent agreed with each statement. Consistent revenue growth was rated highest (4.747). These perceptions broadly match KPLC's published improvements in system losses and efficiency (Kenya Power, 2025a), although the uniformly high ratings leave little variation in the dependent variable.

7.3 Correlation Analysis

Table 4: Pearson Correlation Matrix (N = 75)

Variable	1	2	3
1. Structural change management	1		
2. Technological change management	.125	1	
3. Organizational performance	.399**	.203	1

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

Structural change management had a moderate, positive and significant correlation with organizational performance ($r = 0.399$, $p < 0.001$), consistent with Mohamed et al. (2025) and Warigia and Kising'u (2024). Technological change management had a weak, positive but non-significant correlation ($r = 0.203$, $p = 0.081$). The two dimensions were only weakly related to each other ($r = 0.125$), indicating that they measured distinct aspects of change.

7.4 Regression Analysis

Table 5: Multiple Regression Results

Model	B	Std. Error	Beta	t	Sig.
(Constant)	2.043	0.656		3.115	.003
Structural change management	0.268	0.105	0.300	2.560	.013
Technological change management	0.121	0.099	0.134	1.220	.227

Dependent variable: Organizational performance. Model: $R = .482$; $R^2 = .232$; Adjusted $R^2 = .188$; $F(4, 70) = 5.295$; $p < .001$; Durbin-Watson = 2.095. The model also controlled for cultural change management and strategic leadership in change management. VIF 1.099 to 1.252.

The regression model was significant, $F(4, 70) = 5.295$, $p < 0.001$, and the change dimensions together explained 23.2 per cent of the variation in performance ($R^2 = 0.232$). Structural change management had a positive and significant effect ($\beta = 0.300$, $t = 2.560$, $p = 0.013$): a one-unit increase was associated with a 0.268-unit increase in performance, holding the other dimensions constant. It was the strongest predictor in the model, so H01 was rejected. This supports the changing stage of Lewin's (1947) model and the Resource-Based View, under which reorganizing decision rights and reporting lines allows a

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firm to make better use of its existing capabilities (Barney, 1991). It agrees with Mohamed et al. (2025) and Warigia and Kising'u (2024).

Technological change management had a positive but non-significant effect ($\beta = 0.134$, $t = 1.220$, $p = 0.227$), so H02 was not rejected. This departs from Parra et al. (2024) but is consistent with Hassan et al. (2023) and MaxBill (2025), who found that the benefits of digital transformation in utilities are not automatic and depend on replacing legacy systems and overcoming implementation constraints. Two further explanations are likely. First, every respondent agreed with every technology statement, so the variable had very little variation, which limits the relationship that can be detected. Second, technology may influence performance indirectly, through structural and cultural change, rather than directly (Parra et al., 2024). The study relied on self-reported perceptions with strong ceiling effects, so these results should be interpreted with caution.

8. SUGGESTIONS

- KPLC should review its organizational structure periodically so that roles, responsibilities and reporting lines remain clear and duplication between units is removed.
- Management should delegate more operational decisions to regional and departmental managers, backed by clear accountability, since decentralization was the weakest structural indicator.
- Business processes should be mapped and redesigned regularly to eliminate unnecessary approval steps, and any further restructuring should be sequenced and explained to staff in advance.
- KPLC should move beyond adopting new technologies to integrating smart metering, grid automation, customer platforms and the ERP system, and plan the phased retirement of legacy systems.
- Clear performance indicators, such as reductions in system losses, outage duration and billing errors, should be set for each technology investment and reviewed regularly.

9. CONCLUSION

Structural change management is a key driver of organizational performance at KPLC. Clear departmental structures, defined reporting lines and streamlined processes improve coordination, accountability and efficiency, and should be treated as a continuing management process rather than a one-off exercise. Although KPLC has made substantial progress in adopting modern technologies, technological change management does not have a statistically significant effect of its own on performance. Technology is best understood as an enabler whose benefits depend on how fully systems are integrated, how well staff are equipped to use them and how long they have been in operation.

10. AREA FOR FURTHER RESEARCH

This study covered management and supervisory staff of a single utility and relied on perceptual, cross-sectional data with strong ceiling effects. Future studies could use audited financial and operational data, adopt longitudinal designs to capture how the effects of change develop over time, include non-managerial employees, compare other energy utilities such as KenGen, and test whether technological change influences performance through structural and cultural change.

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