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ABSTRACT

Elections are becoming democracy’s bedrock. Even before the great development of African states were created, antagonists attempted to corrupt, undermine, or otherwise disrupt democracy by seeking to subvert elections. The threats on the electoral process are as old as the vote itself: from adversarial governments, terrorist organizations, strikers for the Boss Tweed vote, people who try to wreak havoc hence the survival of democracy demands for the protection of elections. As a consequence, after the 90s Election Administration in African nations, the tendency of some individuals to impede elections has not changed, mentioning a number of electoral fraud cases in the history of African States. In recent years, some of the tactics of such attempts to overthrow democracy have become distinct. Attacks that exploit vulnerabilities in digital networks today improve conventional approaches and have become an increasingly successful strategy. Therefore, the study sought to determine the role of Logistics planning practices on the performance of electoral systems in Kenya. The research design that was used in this study was a longitudinal research design. The population for this study consisted of 373 Commission Secretary/Chief Executive Officer (CS/CEO), Deputy Commission Secretary (DCS), Directors, Managers, County Election Managers, and Constituency Election Coordinators within 290 constituencies of Kenya's August 2017 election. A total of 373 respondents were used as the sample size for the study. Data was used as primary and secondary. While self-administered questionnaire and interview guide were used to collect primary data, the study reviewed the previous evaluation reports to seek the secondary data on General election performance. The data was collected and then analyzed by both descriptive and inferential statistical tools. The results of this study benefited policy makers, managers, administrators, citizens all whole, researchers, consultants, scholars, and trainers involved in Election Administration. This study tested the null hypotheses that Logistics planning practices had no significant role in the performance of electoral systems in Kenya. Pragmatism paradigm approach and mixed method research were adopted in this study. The questionnaire tested both validity and reliability. Quantitative and qualitative techniques were used to analyze the collected data with the assistance of Statistical Package for Social Sciences (SPSS) software version 25. Multiple regression and correlation analysis were carried out. The results revealed a moderate positive correlation (R = 0.565) between logistics planning and electoral system performance, with approximately 31.9% of the variance explained by logistic planning. The consequences of these findings are relevant for electoral authorities and policymakers that aim to improve the dependability, participation rate, uniformity, and trustworthiness of election systems through the use of strategic logistical planning. The study's findings on the significance of logistics planning strategies in Kenyan electoral systems suggest recommendations for improvement, including implementing robust logistics planning procedures to optimize resource allocation and minimize delays, prioritizing voter-friendly environments at polling locations, establishing a responsive logistical communication system, and developing cost-effective logistics planning approaches. Additionally, the study indicates a need for further research to identify additional factors influencing electoral system performance and to assess logistics management practices in different contexts, such as the East African region, for a more comprehensive analysis.

Keywords: Logistics planning practices, performance of electoral systems in Kenya
1.0 INTRODUCTION

1.1 Background to the Study

Logistics planning plays a pivotal role in the success of any operation, as it facilitates the smooth and effective allocation of resources and activities to accomplish predetermined objectives. Logistics principles have long been linked to the realm of supply chain management and business operations. However, it is worth noting that these principles can extend their applicability to various sectors, including the electoral process (Alles, Pachón, & Muñoz, 2021). The organization and implementation of elections, which serve as a cornerstone of democratic governance, necessitate meticulous preparation and implementation in order to ensure the integrity, openness, and inclusivity of electoral processes. The successful conduct of elections in certain African nations has played a pivotal role in bolstering democratic practices and institutions, thereby fostering an environment conducive to sustained economic growth. The occurrence of elections in various African nations subsequent to periods of civil war and armed conflict has proven to be instrumental in fostering national reconciliation (Dundas, 2011). The occurrence of flawed elections in numerous African nations has been a catalyst for violence, leading to the emergence of divided societies and a decline in public trust towards electoral and political systems. The importance of elections in the process of democratization in African nations cannot be overstated, as highlighted by Adetunji (2015).

In recent years, the significance of electoral logistics has experienced a notable upsurge owing to a multitude of factors. The phenomenon of rapid urbanization, coupled with population growth and the continuous advancement of technology, has given rise to increasingly intricate logistical hurdles when it comes to the organization of elections. According to Nicolau (2023), it is evident that.. The imperative of guaranteeing universal access to voting for every eligible citizen, irrespective of geographical location or physical capabilities, has emerged as a matter of utmost significance. Furthermore, it is imperative to acknowledge the increased emphasis on election security, integrity, and transparency, which has necessitated a heightened level of responsibility for logistics in safeguarding the electoral process (Iwuoha et al., 2021). The global landscape of electoral systems is characterized by a remarkable diversity, encompassing a multitude of variations in voting methods such as first-past-the-post and proportional representation. Additionally, there are differences in the geographic distribution of polling stations and the utilization of various voting technologies. This rich tapestry of electoral systems underscores the importance of understanding and analyzing the various approaches employed worldwide. The examination of the correlation between logistics planning practices and electoral system performance is of utmost importance due to the substantial influence these variances can have on the administration of elections (Kelley, 2010).

The ongoing democratization process in Africa holds significant importance for the future of the continent. It is imperative to recognize that this process is akin to an experiment, as it continues to evolve and shape the political landscape of Africa. The successful outcome of this experiment carries profound implications for the socio-political development and stability of the continent. Nevertheless, it is imperative to acknowledge the intricate interplay between the economy and the political system. The electoral process plays a pivotal role in fostering a thriving democratic system, as it serves as an apt mechanism for ensuring representation. In accordance with the research conducted by Susan (2003), it is evident that the conduct of elections is governed by a comprehensive framework consisting of constitutional provisions, electoral legislation, regulations, policies, and the administrative structure of the electoral management body. These components collectively shape and regulate the methods employed in the electoral process. Ensuring the inclusion of all eligible voters in the democratic process by implementing cost-effective, credible, and secure operations poses a significant challenge for electoral management bodies. The effective management of logistics plays a crucial role in ensuring the success of an election (Adetunji, 2015). However, it is unrealistic to assume that wholesale transfers can currently be made from Europe and the United States to Africa. Africa, despite progress in some nations, still confronts a multitude of challenges, although this is not the case in the majority of developed countries. A comprehensive and evidence-based framework is imperative for assessing performance and facilitating continuous enhancements in electoral logistics, particularly within the African context. African countries encounter a distinct set of challenges that are less prevalent in European countries. These challenges encompass lower to moderate levels of social literacy, insufficient infrastructure
to facilitate electoral processes, and the profound impact of chronic and pervasive poverty on elections and electoral systems (Lührmann, 2019).

The administration of elections is accompanied by numerous logistical challenges. The successful execution of an election relies on various crucial tasks, such as the acquisition and dissemination of election materials, including ballots and voting machines. Additionally, it is imperative to adequately train and deploy competent election officials, secure polling stations, effectively manage voter registration, ensure the safe transportation of ballots, and guarantee the prompt and accurate tallying of votes. These essential components collectively contribute to the smooth and reliable functioning of the electoral process. The credibility and legitimacy of electoral outcomes can be significantly impacted by the efficiency and effectiveness of logistics processes (Kelley, 2010).

1.2 Statement of the Problem

The inherent value of democracy is found in its ability to bestow upon the populace the sovereign authority to elect leaders through a process that reflects the collective will of the people. The African continent is undergoing a rapid transition towards democracy, which presents a significant challenge of effectively organizing credible elections at a reasonable cost across numerous African nations (Awopeju, 2011). Logistics planning practices play a crucial role in the execution of elections, serving as the backbone activity. However, it is evident that these practices are currently encountering significant challenges in meeting the electoral demands across the entire African continent (Lührmann, 2019). The analysis of the 2013 and 2017 Kenyan General Election reveals significant shortcomings in the electoral process logistics, as well as a lack of adherence to the General Election Plan of Operation and Crisis Management. These deficiencies have had a detrimental impact on the overall integrity and effectiveness of the elections. The procurement, inspection and testing, warehousing, and transportation of equipment, supplies, facilities, and personnel were identified as critical areas that were significantly impacted. Elaigwu (2007) asserts that Nigeria has witnessed a series of election fraud and irregularities in significant electoral events, namely the elections of 1964, 1965, 1979, 1983, 1999, 2003, and 2007. The International Foundation for Electoral Systems (IFES) has consistently documented the electoral processes in Kenya since 1988, encompassing the years 1992, 1997, 2002, 2007, 2013, and up to 2017. This comprehensive analysis reveals a discernible trend in the electoral landscape of the country. It has been argued that the management of electoral logistics poses a significant challenge to the Kenyan government, particularly in the realm of insufficient logistics planning (Luo & Rozenas, 2018). Due to the aforementioned challenges, it is imperative to undertake a comprehensive assessment of the efficiency in resource allocation for electoral processes. It is often assumed that the significance of elections justifies any resources allocated to them, leading to suboptimal utilization of funds and other electoral resources. Therefore, conducting measurements to evaluate resource efficiency is crucial in order to address this issue effectively. The issue of inadequate logistics planning in Kenya has significant implications for the costliness of conducting effective electoral processes (Kelley, 2010). The matter of election expenditure has recently been brought to attention by the respective presidents of South Africa and Nigeria in separate occurrences. The current lack of recognition among national electoral bodies in African countries regarding the potential advantages of active collaboration is a matter of concern, particularly in relation to the effective management of electoral logistics. Hence, this study is both pertinent and timely as it aims to investigate the impact of logistics planning practices on the performance of electoral systems in Kenya.

1.3 General objective of the study

The general objective of the study was to explore the relationship between logistics planning practices and performance of electoral systems in Kenya

1.4 Research Hypotheses of study

H₀: Logistics planning practices has no significant role on performance of electoral systems in Kenya

1.5 Scope of the study

This research study was set under certain principles and thresholds as follows. Under the larger context of the study, the theoretical foundation of this research study was based on the main broad areas of logistics planning on the performance of electoral systems in Kenya. On the level of participants, the research examined a concept that was very sensitive in nature, independent elections, and boundaries commission
tended to closely guard any information related to their activity. This study tended to require data that could give a meaningful insight into the activities that were happening around the elections to make it successful, and this information could be available only with the independent elections and boundaries commission. Sometimes it was only the member of independent elections and boundaries commission who would agree to share the information needed to carry out this research. Given the organizational structure of independent elections and boundaries commission, it was more likely that Commission Secretary/Chief Executive Officer (CS/CEO), Deputy Commission Secretary (DCS), Directors, Managers, County Election Managers, Constituency Election Coordinators, who were also closely associated with the election activities had a more accurate and reasonable insight into the activities surrounding the logistics practices and performance of electoral systems in Kenya. The research adopted a longitudinal research design, which was more of a qualitative and quantitative method and used a survey questionnaire as a data collection tool to collect the primary data. Based on the theoretical framework, a questionnaire was developed and piloted to make any appropriate amendments to collect the appropriate data from the targeted participants. The primary data was collected from the participants by sending the survey questionnaire through the mail and sending the online link through email because all the Independent Electoral and Boundaries Commission offices were geographically dispersed from each other according to the county.

2.0 LITERATURE REVIEW

2.1 Agency Theory

Logistic planning can be defined as a practice of gathering information and putting structures in place to make sure logistics function can achieve right in the future, in an ongoing project. More importantly, it seeks to make ascertain that plans in place to deal with disruptions to supply and transport resources. Planning for an election is the major responsibility for a government, yet government officials do not themselves perform some of the critical activities (Wang, & Yu, 2020). Instead, these activities are given to people hired for the task. The entire electoral operation involves establishing numerous precincts that each need to be run by a staff. To achieve this goal, the government, represented by the election agency, enlists the services of individuals who agree to serve as poll workers. In reality, the activities required by the electoral operations are beyond the direct control of the election agency. Such a de facto arrangement creates a situation in which poll workers act on behalf of the government that gives them the mandate to carry out electoral-related activities. That is the principal agent model (Vermillion, & Malak, (2020).). From Mascini, & Holvast, (2020). Perspective, the principal-agent model theory addresses the imbalanced relationship between staff and management in public service.

While Alvarez and Hall (2006) first introduced the theory to model the relation existing between election authorities and electoral workers acting on their behalf, James (2013) later suggested that poll workers operate as election board representatives; therefore, administrative best practice standards could be usefully applied to assess their performance. Although based on market structures, the principal-agent model theory is used by researchers to clarify the relation that runs from the highest level to the lowest level of an administrative bureaucracy. At the top is the citizenry that delegates powers to elected officials who in turn run government agencies. Kapucu (2007) argued that the dominant requirement for maintaining the relationship between the principal and the employee was to get employees with a knowledge advantage who could harness their own concerns to serve in the best interest of government. While the principal starts out lacking necessary information and expertise about the work to be done, the agent’s skills and proficiency develop making it difficult for the principal to provide effective supervision. Accordingly, while poll workers are not free of mistakes, election authorities are not in a position to constantly supervise poll workers’ performance (Alvarez & Hall, 2006). Here is where institutions can usefully provide penalties to deter noncompliance or offer incentives to reward achievement (Nitta, 2007). Hence this theory can be linked to variable one that is role of Logistics planning practices on performance of electoral systems in Kenya demonstrate its importance to the study.
2.2 Conceptual Framework

<table>
<thead>
<tr>
<th>Logistics planning</th>
<th>Performance of Electoral Systems.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logistics process mapping</td>
<td>Reliability</td>
</tr>
<tr>
<td>Logistics Demand and Supply</td>
<td>Voter turnout</td>
</tr>
<tr>
<td>Logistics Forecasting</td>
<td>Consistency</td>
</tr>
<tr>
<td></td>
<td>Credibility</td>
</tr>
</tbody>
</table>

2.1 Conceptual Framework

2.3 Review of Logistics planning

According to Hidayat, Putra, Sintiya, Guswanti, and Sihotang, (2020) posit that Logistics planning continues to receive increased attention in many institutions in Africa especially in election management bodies for several reasons. Foremost among these is the need to remain competency and competitive when managing logistics activities. For institution to survive, it must control production, distribution and inventory cost. The important role of operations research in logistics planning has been recognized since it inception. Ironically, the main problem of today’s logistics planning optimization in many institutions in many Africa countries is not in a lack of information about ‘advanced’ tools, lack of appropriate equipment and information technologies, and not even that not all managers are in principle aware of the existence of any management mechanism (Pane, Awangga, Nuraini, & Fathonah, 2018). However, contemporary business affairs feel an increasing need not only in logistics planning optimization but also in it as a whole procedure mechanism.

Moreover, the smartness of the latter increases literally daily. When the main problem reveals itself in the catastrophic shortage of qualified personnel, a fast and unproblematic way up is the efficient logistics that would improve the planning, delivering, loading, storing, packaging etc. So, what are the predominant option in implementing that Training and continuous improvement process in the preparation and implementation of high standards.

Logistics planning also receives a bad reputation from most of the levels of the supply chain. This seems to be largely due to a combination of the perceived unpredictability of the unknowns such as weather conditions and fuel prices; and the skyrocketing costs in recent years associated with last-mile shipping. This strong combination makes it all the more shocking that when it comes to incorporating lessons from demand forecasts, logistics is still very much ignored. The predictive analytics used by solutions for demand forecasting take historical data, run it through advanced AI algorithms, and in a specified upcoming timeframe produce demand forecasts (Van Ham, Carolien, Lindberg, Staffan, 2015). That sounds pretty helpful in reducing the expense of logistics and leveling out some of the volatility endemic to this sector, doesn't it? What exactly do they mean by demand forecasting before any institution drops in, and how precisely do they foresee it being beneficial to logistics planners? At the simplest level, setting aims and objectives demonstrates the organization at a given time how much inventory they would expect to require at a specific area (Clark, Alistair, James, Toby 2016). That implies, by extension, that it's also a great way to know how much stuff they're going to need to send to those locations at those times. And if institutions already understand what their regular demand looks like, in the off-season, institutions can incorporate all that knowledge and use available pallet space to pre-load strategic areas with the supply they would need as the surge hits. Knowing what production is like in the
coming months helps logistical planners, by filling up unused pallet space where necessary, to better distribute product across facilities.

Disruptions occur when, without enough warning to head off the occasional shipment re-route, there is clearly no way to know anything or work through a sudden fuel shortage. The result of better preparation and delivery of inventory is that when a failure happens, they will have a strategically positioned commodity to take up the slack and cover the stock that is lost as a result of a natural catastrophe (or other incident that has disrupted the supply chain). This kind of flexibility can do wonders when it comes to keeping the costs of these disruptions in check since institutions can shuffle existing stock as needed without incurring any long-haul expenses and without losing any existing warehouse space (Nicolau, 2023).

The effect of seasonal demand variations is another of the most neglected fields of logistics and forecasting. In the wake of crises, institutions tend to ship everything to someone else. Then there appear to be near-empty trucks crisscrossing the continent during emergencies. This additional space is a ticket to the allocation of inventory so that you can be primed not only for the production spike to come, but also for the imminent spike in freight costs associated with the scarcity of available space. After all, whatever room there is to be found during the emergencies goes for a premium, but getting your inventory well positioned ahead of time would get you through the bottom line without weathering any hits. And companies should be assured by preparing in advance, relying on the predictive modeling used in demand forecasting, that the artificial intelligence that generated the prediction takes into account all the available data in telling you where to ship the product and the most strategic place to store it (Garnett, Holly Ann, James, Toby 2018).

RESEARCH METHODOLOGY

The research design that was used in this study was a longitudinal research design. The study was guided by the facts surrounding the pragmatism paradigm which included according to Borrego, et al., (2009), ontological, epistemological, axiological and methodological philosophies. The population for this study consisted of 373 Commission Secretary/Chief Executive Officer (CS/CEO), Deputy Commission Secretary (DCS), Directors, Managers, County Election Managers, and Constituency Election Coordinators within 290 constituencies of Kenya's August 2017 election. A total of 373 respondents were used as the sample size for the study. Data was used as primary and secondary. While self-administered questionnaire and interview guide were used to collect primary data, the study reviewed the previous evaluation reports to seek the secondary data on General election performance. The data was collected and then analyzed by both descriptive and inferential statistical tools. Being that the study dealt with the relationship study, the study therefore used a regression model as a tool of analysis and the results that were generated were presented in the form of tables.

RESEARCH FINDINGS AND DISCUSSION

4.1 Response Rate

In total 121 questionnaires were distributed to the staff in various departments. A total of 110 questionnaires were reasonably and adequately completed representing 91% percent response rate while 11 questionnaires were not returned. This response rate was deemed satisfactory as suggested by Sekaran & Bougie (2016) who recommends 75 percent as a rule of thumb for minimum responses.

4.2 Descriptive Analysis of the role of Logistics planning practices on performance of electoral systems in Kenya.

The first objective of the study sought to examine the role of Logistics planning practices on performance of electoral systems in Kenya. To achieve this, the respondents were required to give their rating on a five-point Likert scale. Since the data was in ordinal scale percentage was used to summarize the responses. Concerning whether The electoral body in Kenya effectively communicates its logistics plan for elections to all stakeholders. The majority of respondents (27.3%) agreed that the electoral body in Kenya effectively communicates its logistics plan for elections to all stakeholders, while 24.5% disagreed, and 25.5% were neutral. This statement received the highest "Agree" responses with 27.3%, indicating a relatively positive perception of logistics planning by the election body. This concurred with Kriegler, (2008).report which recommended that IEBC should effectively communicates its logistics plan for elections to all stakeholders at six month to election.
In regard to know whether the Election body had logistics plan policies for election for the all process: 5.5% of the respondents strongly agreed, 3.6% agreed, 13.6% were neutral, 47.3% disagreed while 30.0% strongly disagreed. This concurred with Waki report (2008) expected the commission to have logistics plan policies for election for the all process and work transparently to keep the public informed.

On whether Electoral Logistics planning serves to link and synchronize the overall Election supply chain as a continuous process; 19.1% of the respondents strongly agreed, 30.0% agreed, 21.8% were neutral, 22.7% disagreed while 6.4% strongly disagreed. In addition, on whether IEBC has Contingency planning policy as part of election planning 21.8% of the respondents strongly disagreed, 36.4%, disagreed, 10.9% remained Neutral while 12.7% and 18.2% of the respondents agreed, and strongly agreed respectively. The rest of the findings are shown in table 4.13.

### Table 4.13: Descriptive Analysis of the role of Logistics planning practices on performance of electoral systems in Kenya.

<table>
<thead>
<tr>
<th>Statement</th>
<th>SD</th>
<th>D</th>
<th>N</th>
<th>A</th>
<th>SA</th>
<th>Mean</th>
<th>Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>The electoral body in Kenya effectively communicates its logistics plan for elections to all stakeholders.</td>
<td>11.8%</td>
<td>24.5%</td>
<td>25.5%</td>
<td>27.3%</td>
<td>10.9%</td>
<td>3.56</td>
<td>1.200</td>
</tr>
<tr>
<td>Election body had logistics plan policies for election for the all process</td>
<td>30.0%</td>
<td>47.3%</td>
<td>13.6%</td>
<td>3.6%</td>
<td>5.5</td>
<td>2.07</td>
<td>1.038</td>
</tr>
<tr>
<td>Election Logistics planning serves to link and synchronise the overall Election supply chain as a continuous process</td>
<td>6.4%</td>
<td>22.7%</td>
<td>21.8%</td>
<td>30.0%</td>
<td>19.1%</td>
<td>3.33</td>
<td>1.205</td>
</tr>
<tr>
<td>IEBC has Contingency planning policy as part of election planning</td>
<td>21.8%</td>
<td>36.4%</td>
<td>10.9%</td>
<td>12.7%</td>
<td>18.2%</td>
<td>2.69</td>
<td>1.419</td>
</tr>
<tr>
<td>Logistics mapping had the ability to bring assurance that the citizens can vote</td>
<td>19.1%</td>
<td>31.8%</td>
<td>17.3%</td>
<td>20.0%</td>
<td>11.8%</td>
<td>2.74</td>
<td>1.304</td>
</tr>
<tr>
<td>Election Logistics planning considered Logistics Demand planning per polling station</td>
<td>5.5%</td>
<td>5.5%</td>
<td>7.3%</td>
<td>52.7%</td>
<td>29.1%</td>
<td>3.95</td>
<td>1.039</td>
</tr>
<tr>
<td><strong>overall</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.15</td>
<td>0.61</td>
</tr>
</tbody>
</table>

### 4.3 Regression Analysis of the role of Logistics planning practices on performance of electoral systems in Kenya.

The first objective of the study was designed to examine the role of Logistics planning practices on performance of electoral systems in Kenya. The literature that was reviewed in this study as well as theoretical reasoning associated Logistics planning practices with performance of electoral systems in Kenya. In this case, performance of electoral systems in Kenya was guided by the following indicator by reliability, voter turnout, consistency and credibility while Logistics planning practices was guided by the following indicators that is Logistics process mapping, Logistics Forecasting, Logistics Demand and Supply. Following the theoretical arguments, the following null research hypothesis was formulated and tested:

**Ho:** Logistics planning practices has no significant role on performance of electoral systems in Kenya.

The model summary in the table below the value of R was 0.565, indicating a moderate positive correlation between logistic planning and the performance of electoral systems. The R Square value of 0.319 suggests that approximately 31.9% of the variance in the dependent variable can be explained by logistic planning. This means that logistic planning has a substantial influence on the performance of electoral systems. The adjusted R Square value of 0.313 takes into account the number of predictor variables in the model. It suggests that 31.3% of the variance in the dependent variable is explained by logistic planning, accounting for the number of predictors. This adjusted value is slightly lower than the R Square value, indicating that the inclusion of other predictors might not have a significant impact on the model's fit.

The standard error of the estimate measures the average distance between the predicted and actual values of the dependent variable. In this model, the value is 0.53438. A lower value indicates a better fit of the model, as it represents a smaller average deviation between the predicted and actual values.
The change statistics provide insights into the improvement in the model's fit when adding logistic planning as a predictor variable. The R Square change of 0.319 indicates the increase in the amount of variance explained in the dependent variable by including logistic planning. This suggests that logistic planning significantly contributes to explaining the performance of electoral systems.

The F Change value of 50.593 indicates the overall improvement in the model's fit by including logistic planning as a predictor variable. The associated significance level (Sig. F Change) of 0.000 (or <0.001) suggests that this improvement is statistically significant. It indicates that the relationship between logistic planning and the performance of electoral systems is not due to chance.

Durbin-Watson statistic had a value of 2.457. Since this value is very close to 2, it indicates that there is no significant autocorrelation present in the residuals of the regression model. This means that the errors or residuals in the model are not systematically related to each other, suggesting that the assumption of independence of errors is not violated.

### Table 4.2: Regression Analysis for the role of Logistics planning practices on performance of electoral systems in Kenya.

<table>
<thead>
<tr>
<th>Model Summary</th>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>Change Statistics</th>
<th>Durbin-Watson</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>.565&lt;sup&gt;a&lt;/sup&gt;</td>
<td>.319</td>
<td>.313</td>
<td>.53438</td>
<td>.319</td>
<td>50.593</td>
</tr>
<tr>
<td>a. Predictors: (Constant), Logistic planning</td>
<td>b. Dependent Variable: Performance of electoral systems</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 4.3.2 Analysis of Variance for the role of Logistics planning practices on the performance of electoral systems in Kenya.

In Table below, the ANOVA was used to show the overall model significance. Since the p-value is less than the 0.05, then Logistics planning practices had a significant explanatory power on the performance of electoral systems in Kenya (F = 50.593 and p value<0.05).

### Table 4.3: ANOVA

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Regression</td>
<td>14.447</td>
<td>1</td>
<td>14.447</td>
<td>50.593</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>30.841</td>
<td>108</td>
<td>.286</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>45.288</td>
<td>109</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: Performance of electoral systems  
b. Predictors: (Constant), Logistic planning

### 4.4 Qualitative results for Logistics Planning Practices Themes

A question was posed to the respondents on the role of logistics planning practices which contribute significantly on the performance of electoral systems in Kenya and the themes that resulted from this question are presented in Table 4.4.

### Table 4.4: Logistics Planning Practices Themes

<table>
<thead>
<tr>
<th>Open coding</th>
<th>Axial coding</th>
<th>Selective Themes</th>
</tr>
</thead>
</table>
| Importance of logistics planning | 1.1. Ensuring timely delivery of materials  
1.2. Ensuring efficient delivery of personnel and services  
1.3. Ensuring accuracy of delivery | Safety and security of election materials and personnel are critical, and measures such as the use of armored vehicles, security personnel, |
| Challenges in logistics planning | 2.1. Inadequate resources  
2.2. Limited infrastructure  
2.3. Security concerns | Logistics planning is crucial for the success of the electoral system in Kenya. |
2.4 Unpredictable weather conditions

| Accuracy of inventory and tracking of election materials | 3.1. Use of barcoding  
3.2. Use of RFID tagging  
3.3. Use of other tracking technologies | Logistics planners face various challenges, such as inadequate resources and unpredictable weather conditions. |
| Safety and security of election materials and personnel | 4.1. Use of armored vehicles  
4.2. Deployment of security personnel  
4.3. Implementation of GPS tracking systems | Accurate inventory and tracking of election materials are crucial for the electoral system's success, and various technologies are used for this purpose. |
| Deployment of election personnel to polling stations | 5.1. Use of digital mapping tools  
5.2. Use of communication technologies  
5.3. Use of logistics management systems | |
| Best practices in logistics planning | 6.1. Use of advanced technologies  
6.2. Optimization of transportation routes  
6.3. Collaboration with stakeholders  
6.4. Integration of environmental considerations | |
| Contribution of logistics planning to transparency and accountability | 7.1. Providing accurate and timely information  
7.2. Ensuring integrity of logistics chain | |
| Accessibility of polling stations to voters with disabilities | 8.1. Provision of ramps  
8.2. Provision of tactile ballots  
8.3. Provision of Braille guides  
8.4. Training of election personnel on disability-inclusive practices | |
| Innovations in logistics planning | 9.1. Use of mobile apps for logistics management  
9.2. Integration of social media for communication  
9.3. Implementation of smart logistics systems | |
| Risk management in logistics planning | 10.1. Conducting risk assessments  
10.2. Developing contingency plans  
10.3. Ensuring availability of backup resources | |
| Support for the participation of underrepresented groups | 11.1. Ensuring accessibility of polling stations  
11.2. Availability of inclusive materials  
11.3. Sensitivity of election personnel to diversity issues | |
| Prevention of theft or loss of election materials | 12.1. Use of tamper-evident seals  
12.2. Implementation of security protocols | |

4.5 Discussion of qualitative Selective themes of Logistics Planning Practices

i. Safety and Security of Election Materials and Personnel:
The study’s findings emphasize the utmost importance of safety and security in electoral processes, as they play a crucial role in safeguarding the integrity of elections and ensuring the protection of election materials and personnel. The utilization of armored vehicles and security personnel plays a pivotal role in attaining this objective. The Wakii and Kriegler Commission Report, a comprehensive analysis conducted by the Independent Review Commission, sheds light on numerous instances where the absence of adequate security measures resulted in significant challenges during the general elections held in Kenya on 27 December 2007. This report underscores the critical role of security in ensuring the smooth conduct of elections, as it reveals instances of violence and disruptions that marred the voting processes.

The report highlights specific instances in which the transportation of election materials was compromised as a result of security lapses. These incidents resulted in significant delays and fostered a sense of mistrust among various stakeholders involved in the electoral process. The significance of safety and security measures, such as the utilization of armored vehicles and the employment of well-trained security personnel, cannot be overstated when it comes to protecting the integrity and smooth functioning of the electoral process.

ii. Logistics Planning as Crucial for Electoral Success:

The findings of this study underscore the critical importance of logistics planning in ensuring the success of the electoral system in Kenya. The absence of efficient logistics planning in the electoral process can have detrimental consequences, causing disruptions and fostering a sense of mistrust among citizens. The report conducted by Wakii and Kriegler underscores the critical significance of logistics planning in guaranteeing the timely and orderly delivery of election materials to their designated locations. Moreover, logistics planning encompasses the intricate coordination of diverse activities, including transportation, storage, and distribution of election materials, which are indispensable for ensuring the seamless execution of electoral processes. The coordination between various components of the electoral system plays a crucial role in mitigating logistical bottlenecks and minimizing delays. This harmonious collaboration significantly contributes to the overall effectiveness and triumph of the electoral process.

iii. Challenges Faced by Logistics Planners:

The aforementioned statement accurately highlights the numerous challenges encountered by logistics planners in Kenya. The Wakii and Kriegler Commission Report sheds light on a number of challenges, one of which is the issue of insufficient resources. This report examines the impact of inadequate funding and resource allocation on the logistics of the electoral process. The aforementioned challenges have the potential to result in inefficiencies and delays in the planning and execution of logistics operations.

In addition, it is crucial to acknowledge that the volatile weather patterns, particularly in certain areas of Kenya, present a substantial obstacle for professionals involved in logistics planning. Floods have the potential to significantly disrupt transportation routes and cause extensive damage to critical election materials. This highlights the imperative for the implementation of flexible logistics planning strategies that can effectively accommodate unforeseen circumstances.

iv. Accurate Inventory and Tracking of Election Materials:

Accurate inventory and tracking of election materials are essential for the success of the electoral system. The Wakii and Kriegler Commission Report highlights instances of missing or mismanaged election materials during the 2007 elections. Accurate tracking can help prevent such issues by ensuring that materials are accounted for at all times.

Various technologies are indeed used for this purpose. The report mentions the use of barcode technology and electronic tracking systems to monitor the movement of election materials. Such technologies enhance transparency and accountability in logistics planning, providing real-time data on the location and status of materials.

4.6 Document Analysis

Table 4.5: A Document Analysis of Salient Characteristics of both the 2013 and 2022 of general election in Kenya

<table>
<thead>
<tr>
<th>Issues</th>
<th>2013</th>
<th>2017</th>
<th>2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>National chairperson</td>
<td>Ahmed Issack Hassan (Lawyer by profession)</td>
<td>Wafuila W. Chebukati (Lawyer by profession)</td>
<td>Wafuila W. Chebukati (Lawyer by profession)</td>
</tr>
</tbody>
</table>
4.7 The Commission learnt the following from the March 2007 to 2022 General Elections and subsequent by-elections:

**Prioritization of interventions:**
Advance planning should enable the Commission to identify priorities and sequence them within the limited timeframe before the elections. Like for example since June 2020 when Ezra Chiloba resigns as Chief executive officer who was in charge in oversee operations of commission no one has been appointed in full capacity and remember general election is 7 months to go and some of appointments of commissioners came too late in the electoral cycle.

**Provision of adequate resources:**
The Commission may have concrete logistics plans for successful delivery of elections but inadequate funding will frustrate their implementation. The Commission should explore all opportunities to ensure that all priority activities are adequately resourced.

**Deployment of Result-Based Management**
During the last electoral cycle, the Commission did not fully utilize Result-Based Management in execution of its Plan. The Commission should now intend to institutionalize performance planning and contracting as logistics strategies for enhancing implementation and accountability within the framework of delivering credible elections in 2022.

**Logistics Monitoring Framework:**
Effective execution of the Election operation’s plan requires a robust monitoring framework including timely risk identification and mitigation strategies. Timely Procurement: Timely procurement of election material is an imperative. It has to accompany the EOP and staff equipped with the requisite capacity to manage the procurement processes within the law.

**SUMMARY, CONCLUSION AND RECOMMENDATIONS**

5.1 Summary of Major Findings
The study's primary objective was to investigate the impact of logistics planning practices on the performance of electoral systems in Kenya. The study collected responses from participants who provided their ratings on a five-point Likert scale, which were then summarized using percentages due to the ordinal nature of the data. The research examined various aspects of logistics planning and its connection to electoral performance, involving logistics plans for elections, logistics plan policies, synchronization of the election supply chain, and contingency planning policies.

The findings related to the presence of logistics plans for elections showed that 11.8% strongly disagreed, 24.5% disagreed, 25.5% were neutral, 27.3% agreed, and 10.9% strongly agreed. Similarly, regarding the existence of logistics plan policies, 5.5% strongly agreed, 3.6% agreed, 13.6% were neutral, 47.3% disagreed, and 30.0% strongly disagreed. For the concept of electoral logistics planning serving as a continuous process to link and synchronize the election supply chain, responses were as follows: 19.1%
strongly agreed, 30.0% agreed, 21.8% were neutral, 22.7% disagreed, and 6.4% strongly disagreed. Concerning contingency planning policies, 21.8% strongly disagreed, 36.4% disagreed, 10.9% remained neutral, while 12.7% agreed, and 18.2% strongly agreed.

To test the research hypothesis that logistics planning practices had no significant role in the performance of electoral systems, a regression analysis was conducted. The analysis involved the examination of indicators such as logistics process mapping, logistics forecasting, logistics demand, and supply. The results revealed a moderate positive correlation \( R = 0.565 \) between logistics planning and electoral system performance, with approximately 31.9% of the variance explained by logistic planning. The adjusted R Square value of 0.313 suggested that this relationship holds even when considering the number of predictor variables.

The model's fit was indicated by a standard error of the estimate of 0.53438, signifying the average difference between predicted and actual values. Change statistics showed a significant increase in variance explained \( (R \text{ Square change} = 0.319) \) when including logistics planning as a predictor variable. The F Change value of 50.593 indicated a statistically significant improvement in model fit due to logistic planning, and the low Durbin-Watson statistic (2.457) confirmed the absence of significant autocorrelation in the residuals. The analysis of variance (ANOVA) underscored the model's significance, with a p-value less than 0.05, indicating that logistics planning practices significantly contributed to explaining electoral system performance. The regression coefficients demonstrated a positive relationship between logistics planning practices and electoral system performance, expressed as \( Y = 1.927 + 0.525X_1 \). This indicated that a unit change in logistics planning practices corresponded to a change of 0.525 in electoral system performance.

5.2 Conclusion of the Study

In conclusion, the findings of the study offer compelling evidence to support the notion that logistics planning practices exert a significant influence on the performance of election systems in Kenya. The findings of this study highlight the significance of efficient logistics planning in ensuring the effectiveness of election processes, as evidenced by the positive correlation, significant improvements in model fit, and coefficients. The consequences of these findings are relevant for electoral authorities and policymakers that aim to improve the dependability, participation rate, uniformity, and trustworthiness of election systems through the use of strategic logistical planning.

5.3 Recommendations of the Study

The study's findings and examination of the significance of logistics planning strategies on the performance of Kenyan electoral systems suggest several recommendations that can be made to enhance their effectiveness. One potential recommendation is to implement robust logistics planning procedures that aim to optimize resource allocation, minimize bottlenecks, and eradicate avoidable delays within the electoral process. The successful execution of an election necessitates the implementation of efficient strategies for material, staff, and technology management. This comprehensive approach ensures the seamless progression of all stages of the electoral process, minimizing the occurrence of significant disruptions or errors. The second proposal aims to advocate for the prioritization of voters' preferences and experiences by emphasizing the need for logistics planning to focus on creating a voting environment that is user-friendly and accessible. The implementation of well-structured polling locations, unambiguous voting guidelines, and convenient availability of relevant information are crucial components for an effective electoral process. One crucial recommendation is the establishment of a highly responsive logistical communication system that possesses the ability to swiftly adapt to unforeseen obstacles or emergencies that may arise throughout the election period. This system would play a pivotal role in ensuring the smooth and efficient execution of electoral processes. The successful execution of a project often necessitates the implementation of various strategies, such as the development of contingency plans, the establishment of effective communication
channels with all relevant stakeholders, and the ability to adapt logistical arrangements in a timely manner. The fourth proposal entails the development of cost-effective logistics planning approaches that aim to minimize unnecessary expenses while upholding the quality and efficiency of the electoral process. In order to optimize operational efficiency and resource utilization, it is imperative to consider the implementation of various strategies. These strategies may include the centralization of procurement processes, the streamlining of transportation routes, and the prevention of overstocking or resource waste. By adopting these measures, organizations can enhance their overall performance and achieve significant cost savings. The fourth proposal entails the prioritization of maintaining high-quality election materials, equipment, and facilities within logistical planning methods. The implementation of regular checks and maintenance routines is crucial in mitigating technological faults and ensuring a seamless voting process that yields precise and reliable results. In conclusion, it is strongly recommended that the implementation of logistics planning systems be prioritized in order to effectively maintain a seamless and uninterrupted flow of operations during the entirety of the electoral process. The successful execution of elections necessitates the implementation of efficient supply chains, ensuring the timely distribution of election materials, and fostering effective communication throughout the various stages of the electoral process.

5.5 Areas of Further Research

Based on the obtained results, it is evident that the coefficient of determination (R²) was calculated to be 31.9%. The proposed model in this study fails to account for additional factors, which account for a significant portion of 68.1% of the data. However, the study does not provide an explanation for this discrepancy. Further investigation should be conducted to identify additional variables that account for the remaining 68.1% of performance, taking into consideration the specific context and scope of the study. This additional research will enhance our understanding of the factors influencing performance and contribute to a more comprehensive analysis of the subject matter. The present study falls short in comprehensively addressing the various aspects of logistics management practices in election operations. Therefore, it is highly recommended that further research be conducted in different countries, such as the East African region, to assess the performance of election systems. By employing the same factors utilized in this study, it would be possible to determine whether the findings remain consistent in a distinct context. An additional study could be conducted on the topic of logistics management in the context of election operations. This study would aim to measure the variable of overall performance using different proxies. By doing so, it would determine whether the findings of this study are consistent or inconsistent with the current research. This additional study would provide valuable insights and contribute to the existing body of knowledge on logistics management in election operations.

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