East African Journal of Business and Economics
eajbe.eanso.org
Volume 8, Issue 2, 2025
Print ISSN: 2707-4250 | Online ISSN: 2707-4269
Title DOI: https://doi.org/10.37284/2707-4269

EAST AFRICAN NATURE & SCIENCE ORGANIZATION

Original Article

Influence of ERP-DRIVEN Data Analytics on Strategic Decision-Making in Public Universities in Kenya

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Article DOI: https://doi.org/10.37284/eajbe.8.2.3325

Date Published: *16 July 2025*

Keywords:

Enterprise Resource Planning (ERP), ERP Data Analytics, Data Accessibility, Data Quality, Analytical Capabilities, User Competency, Strategic Decision-Making, Public Universities.

ABSTRACT

This study investigates the influence of Enterprise Resource Planning (ERP) systems on strategic decision-making in public universities, focusing on four key factors: ERP data accessibility, ERP data quality, ERP analytical capabilities, and user competency in ERP data analytics. Using a sample of 167 respondents from public universities in Nairobi County, Kenya, the study employed a quantitative research design with correlational and regression analyses to explore the relationships between these variables and their impact on strategic decision-making. The findings reveal that ERP data quality, user competency, and ERP analytical capabilities significantly influence strategic decision-making, while ERP data accessibility showed a weaker effect. The study concludes that improving ERP data quality, enhancing user competency, and investing in advanced ERP analytical capabilities are crucial for better strategic decision-making. Recommendations are provided for university administrators to optimise ERP usage and improve decision-making processes for long-term institutional success.

APA CITATION

Kibor, J. (2025). Influence of ERP-DRIVEN Data Analytics on Strategic Decision-Making in Public Universities in Kenya. *East African Journal of Business and Economics*, *8*(1), 122-144. https://doi.org/10.37284/eajbe.8.2.3325

CHICAGO CITATION

Kibor, Joy. 2025. "Influence of ERP-DRIVEN Data Analytics on Strategic Decision-Making in Public Universities in Kenya" *East African Journal of Business and Economics* 8 (2), 122-144. https://doi.org/10.37284/eajbe.8.2.3325.

HARVARD CITATION

Kibor, J. (2025), "Influence of ERP-DRIVEN Data Analytics on Strategic Decision-Making in Public Universities in Kenya", *East African Journal of Business and Economics*, 8(2), pp. 122-144. doi: 10.37284/eajbe.8.2.3325.

IEEE CITATION

J., Kibor "Influence of ERP-DRIVEN Data Analytics on Strategic Decision-Making in Public Universities in Kenya", *EAJBE*, vol. 8, no. 2, pp. 122-144, Jul. 2025.

MLA CITATION

Kibor, Joy. "Influence of ERP-DRIVEN Data Analytics on Strategic Decision-Making in Public Universities in Kenya". *East African Journal of Business and Economics*, Vol. 8, no. 2, Jul. 2025, pp. 122-144, doi:10.37284/eajbe.8.2.3325

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Article DOI: https://doi.org/10.37284/eajbe.8.2.3325

INTRODUCTION

In today's knowledge-driven global economy, organisations are increasingly leveraging digital systems to enhance operational effectiveness and improve strategic decision-making. Among such systems, Enterprise Resource Planning (ERP) platforms have become central to organisational management by integrating core business processes and providing timely and reliable information (Almajali et al., 2019). ERP systems consolidate data from various functions such as finance, human resource management, procurement, and student information into unified databases, supporting informed and agile strategic decision-making processes in both private and public institutions, including institutions of higher learning.

Globally, ERP systems are widely adopted in higher education institutions to enhance resource planning, academic administration, and governance (Nawaz et al., 2021). In the United States, over 90% of higher education institutions use ERP solutions to support administrative functions (Educause, 2020). Institutions like Harvard and MIT have heavily invested in ERP systems such as SAP and Oracle to manage data efficiently and support strategic decisions in enrollment, finance, and faculty management (Abugabah & Sanzogni, 2019). In China, the Ministry of Education has strongly encouraged public universities to digitise their processes, and ERP adoption has been growing, though many institutions still face challenges in data accessibility and integration (Li & Sun, 2022). Similarly, in Pakistan, universities adopting ERP systems have reported improved transparency and faster decision-making, although poor data quality and low user competency have been recurring issues (Hassan & Rehman, 2020).

A key determinant of ERP success in strategic decision-making is data accessibility, the ease with which relevant stakeholders can retrieve accurate and timely data for strategic use (Teka & Chaka, 2023). Equally critical is the quality of ERP data, which encompasses accuracy, consistency, completeness, and timeliness (Choi & Lee, 2019). Additionally, analytical capabilities embedded in ERP systems allow institutions to derive actionable insights from complex datasets, enhancing planning and forecasting (Ibrahim et al., 2020). However, the competency of users in utilising ERP-generated analytics significantly influences how well these systems support strategic decision-making (Järvinen et al., 2020).

From a regional perspective, many universities in Sub-Saharan Africa have adopted ERP systems as part of education sector reforms, but implementation success varies. In Ghana, for example, Osei and Boakye (2021) found that ERP utilisation was closely linked to user training and organisational support. Despite efforts to modernise higher education systems, the region continues to face challenges related to low data quality, limited system integration, and insufficient staff capacity for data analysis (Asiedu & Agyemang, 2022). In Nigeria, ERP adoption is on the rise, particularly in federal universities; however, studies indicate that the potential of ERP systems is undermined by weak user competency and unreliable data systems, leading to suboptimal strategic outcomes (Okiki et al., 2022).

In Kenya, the government has made considerable investments in ERP systems for public universities, aiming to improve transparency, efficiency, and strategic planning (Ministry of Education, 2021). Universities such as the University of Nairobi, Kenyatta University, and Moi University have implemented various ERP modules to support academic and administrative functions. Nonetheless, the effectiveness of these systems remains inconsistent due to fragmented implementation, poor data management practices, and inadequate user training (Kainoet at., 2015). For instance, a 2022 internal audit at a leading Kenyan university revealed that over 60% of departmental heads lacked confidence in using ERP analytics for budgeting and strategic planning (Commission for University Education, 2022). Moreover, recent

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Article DOI: https://doi.org/10.37284/eajbe.8.2.3325

studies suggest that while ERP systems enhance operational efficiency, their influence on strategic decision-making is constrained by gaps in data accessibility, low data quality, underutilised analytical tools, and limited user competency (Mugambi & Muthomi, 2023).

These challenges underscore the need for empirical research that examines the influence of ERP data accessibility, data quality, analytical capabilities, and user competency on strategic decision-making in the context of Kenyan public universities. This study seeks to fill this gap by employing a correlational research design and quantitative methodology to assess these variables and provide data-driven recommendations for enhancing ERP-based decision-making frameworks in higher education.

Statement of the Problem

Despite substantial investment in Enterprise Resource Planning (ERP) systems by public universities in Kenya, the full potential of ERP-driven data analytics remains underutilised in strategic decision-making processes. While ERP systems are designed to enhance efficiency and generate actionable insights, many institutions struggle to convert this data into timely, evidence-based decisions. Studies conducted locally have primarily focused on ERP system adoption, implementation challenges, and compliance, but little has been done to assess how ERP-generated data influences strategic-level decisions in university management. Moreover, key dimensions such as ERP data accessibility, data quality, user competency, and analytical capabilities are rarely examined collectively, leaving a critical gap in understanding the holistic influence of ERP data analytics. The potential moderating role of top management support, which may enhance or constrain the effective use of ERP data, has also been overlooked. This study, therefore, seeks to fill this gap by assessing the influence of ERP-driven data analytics on strategic decision-making in public universities in Kenya.

Research Objectives

- To determine the influence of ERP data accessibility on strategic decision-making in public universities.
- To assess the influence of ERP data quality on strategic decision-making in public universities.
- To examine the influence of ERP analytical capabilities on strategic decision-making in public universities.
- To evaluate the influence of user competency in ERP data analytics on strategic decision-making in public universities.

Research Hypothesis

H_{o1}: ERP data accessibility does not significantly influence strategic decision-making in public universities in Kenya.

H_{o2}: ERP data quality does not significantly influence strategic decision-making in public universities in Kenya.

H_{o3}: ERP analytical capability does not significantly influence strategic decision-making in public universities in Kenya.

H_{o4}: User competency in ERP data analytics does not significantly influence strategic decision-making in public universities in Kenya.

LITERATURE REVIEW

The theoretical, empirical, and conceptual frameworks are presented in this section.

Theoretical Review

This study was anchored on the Technology-Organization-Environment (TOE) framework, originally conceptualised by Tornatzky and Fleischer (1990). The TOE framework provided a comprehensive theoretical lens for examining the adoption and utilisation of ERP-driven data analytics in strategic decision-making processes within public universities. According to the

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framework, the implementation and strategic impact of technological innovations are shaped by three interrelated dimensions: the technological, organisational, and environmental contexts.

Within the technological context, the study focused on ERP data accessibility, data quality, and analytical capabilities as critical system attributes that influence the effectiveness of strategic decision-making. The organisational context encompassed internal institutional factors such as human capital, leadership structures, and specifically user competency in ERP data analytics, which was identified as a central determinant in translating data insights into strategic actions. The environmental context included regulatory frameworks, funding policies, and competitive pressures that may compel universities to enhance their decision-making infrastructure.

The TOE framework was particularly instrumental in allowing the study to analyze how both internal and external factors moderated the relationship between ERP system capabilities and strategic outcomes. It enabled the researcher to go beyond the technological features of ERP systems and examine the synergistic influence of organizational readiness and environmental dynamics. By adopting this framework, the study was able to offer a holistic assessment of how public universities in Kenya could leverage ERP-driven data analytics as a strategic resource for institutional governance and performance enhancement.

Empirical Review

Past studies on the relationship between ERP-Driven Data Analytics and Strategic Decision-Making from scholarly research, journals, and articles were reviewed.

ERP Data Accessibility and Strategic Decision-making

ERP data accessibility has become a foundational enabler of strategic decision-making in public universities, where administrative and academic planning depend heavily on real-time information. Defined as the degree to which users can easily and efficiently retrieve relevant, accurate, and timely data from ERP systems, data accessibility plays a central role in supporting evidence-based decision-making processes (Ali & Miller, 2020). It involves several dimensions, including system responsiveness, user authorisation protocols, and the integration of information across departments (Mwangi & Odhiambo, 2021). In the context of public universities, ERP systems typically consolidate data from finance, human resources, procurement, and academic functions, making accessibility essential for long-term strategic planning and performance monitoring (Abubakar & Bala, 2020).

Recent studies indicate that limited data accessibility caused by issues such as rigid user hierarchies, inadequate training, and poor system design often impedes timely and informed decisions in higher education institutions (Obiero & Muturi, 2022; Teka & Chaka, 2023). Without reliable access to cross-functional data, university administrators are more likely to rely on intuition or incomplete information, compromising the quality and speed of strategic responses. Consequently, understanding the influence of ERP data accessibility on strategic decision-making is essential for enhancing institutional governance, resource optimisation, and responsiveness to stakeholder needs in Kenya's public universities.

Ali and Miller (2020) explored the role of ERP systems in enhancing data accessibility for managerial decision-making in public sector organisations in the UK. Using a mixed-methods approach, they surveyed and interviewed IT managers and department heads from 18 institutions. Their findings revealed that improved data accessibility through ERP systems led to faster, more accurate decisions, particularly in budgeting and reporting. Critical enablers included user training, dashboard customisation, and data standardisation. However, the study mainly focused

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on operational and mid-level decisions, not strategic decision-making. It also lacked context for developing countries, where technological and infrastructural limitations may hinder ERP benefits. Moreover, it did not consider higher education institutions or the role of leadership support. The current study addresses these gaps by focusing on strategic decision-making in Kenyan public universities, incorporating multiple ERP analytics dimensions.

Althunibat et al. (2021) examined ERP system acceptance in Jordanian higher education institutions using a model based on UTAUT and additional constructs. The study employed a quantitative design and used SEM to analyse survey data from academic and administrative staff. Findings showed that system quality, including data accessibility, significantly influenced ERP system usage and acceptance. Accessible and reliable ERP data were key enablers of informed decision-making at the operational level. However, the study focused more on user behaviour than strategic decision-making. It also did not directly link ERP data accessibility to strategic outcomes. The current study addresses this gap by exploring how ERP data accessibility influences strategic decision-making in Kenyan public universities. This contributes context-specific insights from a developing country perspective.

A study by Kalim and Bibi (2023) investigated the impact of ERP data accessibility on strategic decision-making in Chinese public universities. Using a mixed-methods approach, the researchers surveyed 300 university administrators and conducted interviews with 15 senior decision-makers. They applied structural equation modeling (SEM) to analyse the relationship between data accessibility and decision-making processes. The findings revealed that accessible, timely, and accurate data significantly enhanced strategic decisions, particularly in resource allocation and academic planning. However, challenges such as data silos and poor system integration were identified, limiting the full utilisation of ERP systems. The study's research gap lies in exploring how different management layers interact with ERP systems and examining ERP data quality and analytical capabilities. This calls for further investigation into how these aspects influence decision-making in public universities.

Teka and Chaka (2023) examined the impact of ERP data accessibility on strategic decision-making in East African higher education institutions. The study found that timely access to accurate ERP data significantly enhances decision-making effectiveness. Using a mixed-methods approach, the research identified challenges such as poor system integration and limited digital infrastructure. It emphasised the need for improved ERP systems to ensure real-time data access. The study underscores the strategic value of accessible data in higher education management. However, it does not explore other ERP aspects like data quality or analytical capabilities. This creates a gap for further research. The study provides a strong foundation for examining ERP data accessibility in Kenyan public universities.

Bula and Ndung'u (2019) explored the implementation of ERP systems and their influence on strategic decision-making in selected public universities in Kenya. Using a descriptive research design and structured questionnaires, the study gathered data from ICT personnel across three major universities. Findings revealed that ERP systems enhance strategic decision-making by improving data accessibility, operational efficiency, and institutional responsiveness. However, challenges such as poor system integration, limited user training, and infrastructural weaknesses constrained ERP effectiveness. The study emphasised the importance of accessible data for timely and informed decisions. Despite its relevance, the research did not extensively examine other ERP dimensions such as data quality, analytical capabilities, or user competency. This omission presents a knowledge gap. The study

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forms a foundational basis for further investigation into ERP data accessibility and its strategic impact in Kenyan public universities.

ERP Data Quality and Strategic Decision-making

The quality of data within Enterprise Resource Planning (ERP) systems is pivotal for effective strategic decision-making. High-quality data characterised by accuracy, completeness, timeliness, and consistency ensures that organisational decisions are well-informed and aligned with real-time operational realities. In contrast, poor data quality can lead to misinformed strategies, operational inefficiencies, and diminished organisational performance.

A pertinent study by Ouiddad et al. (2021) assessed the impact of ERP systems on decision-making quality in large Moroccan companies. Utilising the DeLone and McLean Information Systems Success Model, the researchers conducted a quantitative analysis involving 104 decision-makers. Their findings indicated that both information and system quality positively influence users' experiences with ERP systems, thereby enhancing the quality of strategic decisions. The study also found that service quality had a negative impact on decision-making, suggesting that the way services are delivered within ERP systems can affect user perceptions and outcomes. However, while the study demonstrates the impact of ERP data quality on decision-making, it is limited by its focus on private sector enterprises in Morocco, with little contextual relevance to public universities or the education sector. In addition, does not explore how user roles, organisational structure, or sector-specific requirements may influence the relationship between data quality and decision outcomes.

A study by Velcu (2007) explored the impact of Enterprise Resource Planning (ERP) systems on organisational performance in Finnish companies, including higher education institutions. The research adopted an "inside the black-box" approach to analyse the economic benefits of ERP systems by examining business process changes resulting from ERP implementation. The findings indicated that improvements in data quality, such as accuracy, timeliness, and consistency, enhanced strategic decision-making capabilities within organisations. However, the study also highlighted challenges related to data integration and user adaptation, which can impede the effective utilisation of ERP systems. The research underscores the importance of aligning ERP systems with organisational processes to maximise their benefits for strategic decision-making.

A study by Matyokurehwa et al. (2018) examined the causes of ERP system failures in higher education institutions, focusing on the integration of ERP technology and stakeholder requirements. The study utilised thematic synthesis to analyse primary studies and identified key factors contributing to ERP failures, including inadequate stakeholder involvement and misalignment between system design and institutional needs. The findings highlighted the importance of considering stakeholder requirements in ERP system development to enhance productivity and integration within higher education settings. However, the study did not specifically address the impact of ERP data quality on strategic decision-making, indicating a gap in understanding how data quality influences decision-making processes in higher education institutions.

Aremu (2015) investigated the factors influencing the adoption of Enterprise Resource Planning (ERP) systems for decision-making in Nigerian higher education institutions. Utilising a quantitative methodology, the study surveyed 73 academic staff members from various Nigerian universities, employing structured questionnaires and analysing the data using SPSS and Partial Least Squares (PLS) techniques. The research identified that perceptions of ERP usefulness, ease of use, and information quality significantly impacted the intention to use ERP systems for decision-making. However,

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challenges such as inadequate internet connectivity, data security concerns, and limited user training were noted as barriers to effective ERP utilisation. A notable research gap is the lack of focus on how specific data quality dimensions like accuracy, completeness, and timeliness directly affect strategic decision-making processes within these institutions.

A study by Kyalo (2015) evaluated the implementation experiences of Enterprise Resource Planning (ERP) systems in selected Kenyan public universities, focusing on system quality, communication, and service delivery. Employing the Diffusion of Innovations Theory and the Information Systems Success Model, the research utilised a descriptive survey design, collecting data through structured questionnaires from various departments involved in ERP implementation. The findings indicated that while ERP systems have the potential to enhance data quality and support strategic decision-making, challenges such as limited institutional connectivity and insufficient skilled expertise hinder effective utilisation. The study highlighted the need for increased investment in infrastructure and capacity building to improve ERP system effectiveness. However, it did not specifically analyse how distinct data quality dimensions such as accuracy, completeness, and timeliness directly influence strategic decision-making processes. This gap suggests the necessity for further research to explore the impact of ERP data quality on decision-making in Kenyan public universities.

ERP Analytical Capabilities and Strategic Decision-making

Enterprise Resource Planning (ERP) analytical capabilities encompass the tools and processes that transform vast amounts of organisational data into actionable insights, thereby enhancing strategic decision-making (Kumar & Ayedee, 2021). Modern ERP systems integrate advanced analytics such as descriptive, diagnostic, predictive, and prescriptive analytics to provide real-time visibility into business operations, identify trends, and forecast future scenarios (Nguyen et al., 2020). By leveraging these capabilities, organisations can make informed decisions that align with their strategic objectives, optimize resource allocation, and improve overall performance.

For instance, predictive analytics within ERP systems can forecast demand, enabling proactive inventory management and reducing operational costs (Alhazmi & Rahman, 2022). Moreover, the integration of analytics into ERP systems facilitates a data-driven culture, where decisions are based on empirical evidence rather than intuition. This analytical approach not only enhances the accuracy and efficiency of strategic decisions but also fosters agility and competitiveness in dynamic business environments. As public universities increasingly adopt digital tools, leveraging ERP analytical capabilities becomes crucial for optimising performance, resource allocation, and long-term planning.

A study by Al-Kahtani et al. (2024) examined the impact of Enterprise Resource Planning (ERP) systems on strategic decision-making and organisational performance in large industrial companies in Saudi Arabia. Utilising a quantitative research design, data were collected from 358 participants and analysed using Structural Equation Modeling (SEM) via SmartPLS 4. The findings revealed that ERP systems positively influence both strategic decision-making and organisational performance. Additionally, the study identified strategic decision-making as a significant mediator between ERP systems and organisational performance, highlighting the importance of ERP analytical capabilities in enhancing strategic decisions. However, the research did not delve into the specific analytical tools within ERP systems that contribute to strategic decision-making, indicating a gap for future studies to explore the particular functionalities that drive these improvements.

A study by Soliman and Noorliza (2020) investigated the adoption of Enterprise Resource

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Planning (ERP) systems in Egyptian higher education institutions (HEIs), focusing on their potential to enhance strategic decision-making. Utilising a survey of 112 HEIs, the researchers employed a SWOT analysis to assess the strengths, weaknesses, opportunities, and threats associated with ERP implementation. The findings revealed that while many HEIs recognised the strategic value of ERP systems, adoption levels remained low due to barriers such as limited technological infrastructure and resistance to change. The study highlighted the need for HEIs to address these challenges to fully leverage ERP analytical capabilities for informed strategic decisions. However, the research did not delve deeply into specific analytical tools within ERP systems that directly impact strategic decision-making, indicating a gap for future studies to explore the functionalities that drive these improvements.

Fattah-Weil (2024) examined the critical success factors influencing Enterprise Resource Planning (ERP) system implementation in higher education institutions across Africa. The research employed a qualitative case study approach, conducting in-depth interviews with IT decision-makers and administrators from five universities in Kenya, Nigeria, and South Africa. The findings highlighted that while ERP systems are increasingly adopted to enhance operational efficiency, their analytical capabilities, such as data integration, real-time reporting, and predictive analytics, are underutilised due to challenges like inadequate data governance, limited technical expertise, and resistance to change among staff. The study emphasised the need for comprehensive training programs and robust data management frameworks to fully leverage ERP systems for strategic decision-making. However, it did not specifically quantify the impact of ERP analytical capabilities on decision-making outcomes, suggesting a gap for future research to explore this relationship empirically.

A study by Nzama (2023) analysed the pros and cons of Enterprise Resource Planning (ERP) system upgrades in South African higher education institutions, focusing on financial reporting and auditing. The research utilised survey data from internal stakeholders and external auditors to assess the impact of ERP upgrades on institutional operations. Findings indicated that while ERP systems offer benefits such as improved financial reporting, challenges like operational readiness and the appropriateness of upgrades were noted. The study highlighted the need for careful consideration of these factors to ensure the effective utilisation of ERP systems in enhancing strategic decision-making. However, the research did not specifically address the analytical capabilities of ERP systems and their direct influence on strategic decision-making processes, suggesting a gap for future studies to explore this relationship.

A study by Mauye (2023) assessed the role of Enterprise Resource Planning (ERP) implementation on user performance at Machakos University in Kenya. Utilising a quantitative approach, the research employed structured questionnaires to collect data from university staff, analysing the relationships between ERP system technology utilisation, system quality, information quality, and user performance. The findings revealed statistically significant positive correlations between these variables, indicating that enhanced ERP system features and data quality contribute to improved user performance. While the study focused on user-level performance, it did not specifically examine how ERP analytical capabilities, such as predictive analytics and real-time reporting, directly influence strategic decision-making processes at the institutional level. This gap suggested the need for further research to explore the impact of ERP analytical capabilities on strategic decision-making in Kenyan public universities.

User Competence in ERP Data Analytics and Strategic Decision-making

User competency in ERP data analytics refers to the skills, knowledge, and expertise required by

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individuals to effectively interact with and leverage the data analytics capabilities embedded within ERP systems. It encompasses the ability to analyse, interpret, and utilise the insights provided by ERP systems to support informed decision-making (Järvinen et al., 2020). In the context of public universities, user competency is critical, as decision-makers rely on accurate data to guide strategies in areas such as resource allocation, academic planning, and financial management (Osei & Boakye, 2021). Research indicates that well-developed user competencies not only enhance the effective utilisation of ERP systems but also directly contribute to better strategic outcomes (Mohammad & Raza, 2022). Therefore, universities must invest in training and development to ensure that staff are equipped with the necessary skills to maximise the potential of ERP systems in the decision-making process.

Järvinen et al. (2020) explored the impact of user competency on the success of ERP systems through a longitudinal study published in the *Journal of Information Technology*. Using a mixed-methods approach, the study found a strong correlation between user competency and ERP system success, with competent users leveraging ERP functionalities for improved decision-making and organisational efficiency. The findings revealed that skilled users were more likely to fully utilise the system's capabilities, leading to higher success rates. The research highlighted the need for continuous training and user support to enhance system utilisation. However, the study did not explore how specific ERP analytical capabilities influence strategic decision-making, suggesting a gap for further research in contexts such as public universities, where data-driven decisions are crucial.

Osei and Boakye (2021) explored how user competency enhanced ERP system utilisation in Ghanaian universities, focusing on both academic and administrative staff. The study adopted a mixed-methods design, surveying 120 employees across five public universities and conducting interviews with IT managers and staff. The findings showed that higher user competency significantly improved ERP system utilisation, leading to better decision-making and operational efficiency. The study emphasised the need for continuous training to enhance ERP utilisation. However, it did not explore the specific impact of user competency in ERP data analytics on strategic decision-making in universities. This gap suggested an opportunity for further research into how ERP competencies influenced broader strategic outcomes in higher education institutions. Additionally, while the study utilised a mixed-methods design, the current study adopted a correlational research design, which was more appropriate for examining the relationships between user competency, ERP data analytics, and strategic decision-making.

Kadzeya (2020) conducted a study to examine the impact of Enterprise Resource Planning (ERP) systems on strategic decision-making in small and medium-sized enterprises (SMEs) in Malawi. The research employed a qualitative approach, utilising in-depth interviews with key personnel from SMEs that had implemented ERP systems. The findings indicated that while ERP systems facilitated operational efficiencies, their influence on strategic decision-making was limited due to challenges such as inadequate user competency, lack of training, and resistance to change. The study highlighted the need for enhancing user competencies in ERP data analytics to fully leverage the strategic potential of ERP systems. However, the research did not explore the quantitative aspect of how user competency in ERP data analytics correlates with strategic decision-making. This gap suggests an opportunity for future research to incorporate both qualitative and quantitative techniques, which would allow a more comprehensive understanding of the relationships between user competency and strategic decision-making outcomes.

Kaino et al. (2015) examined the effectiveness of ERP systems in enhancing the performance of

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accounting information systems in Kenyan public universities. The study focused on the perceptions of ERP users regarding the reliability, accuracy, and timeliness of information generated by the system. Using a survey research design, the study employed multinomial ordinal logistic regression to analyse the data. The findings revealed that ERP systems positively impacted the performance of accounting information systems, improving both accuracy and timeliness. However, the study did not explicitly explore the influence of user competency in ERP data analytics on strategic decision-making. Despite this, the study highlighted the importance of proper ERP utilisation in decision-making. A gap in the research exists, which future studies could address by directly linking user competency in ERP data analytics with strategic decision-making. This gap presents a potential avenue for further research. The study's contribution lies in highlighting the effectiveness of ERP systems in improving institutional performance.

Conceptual Framework

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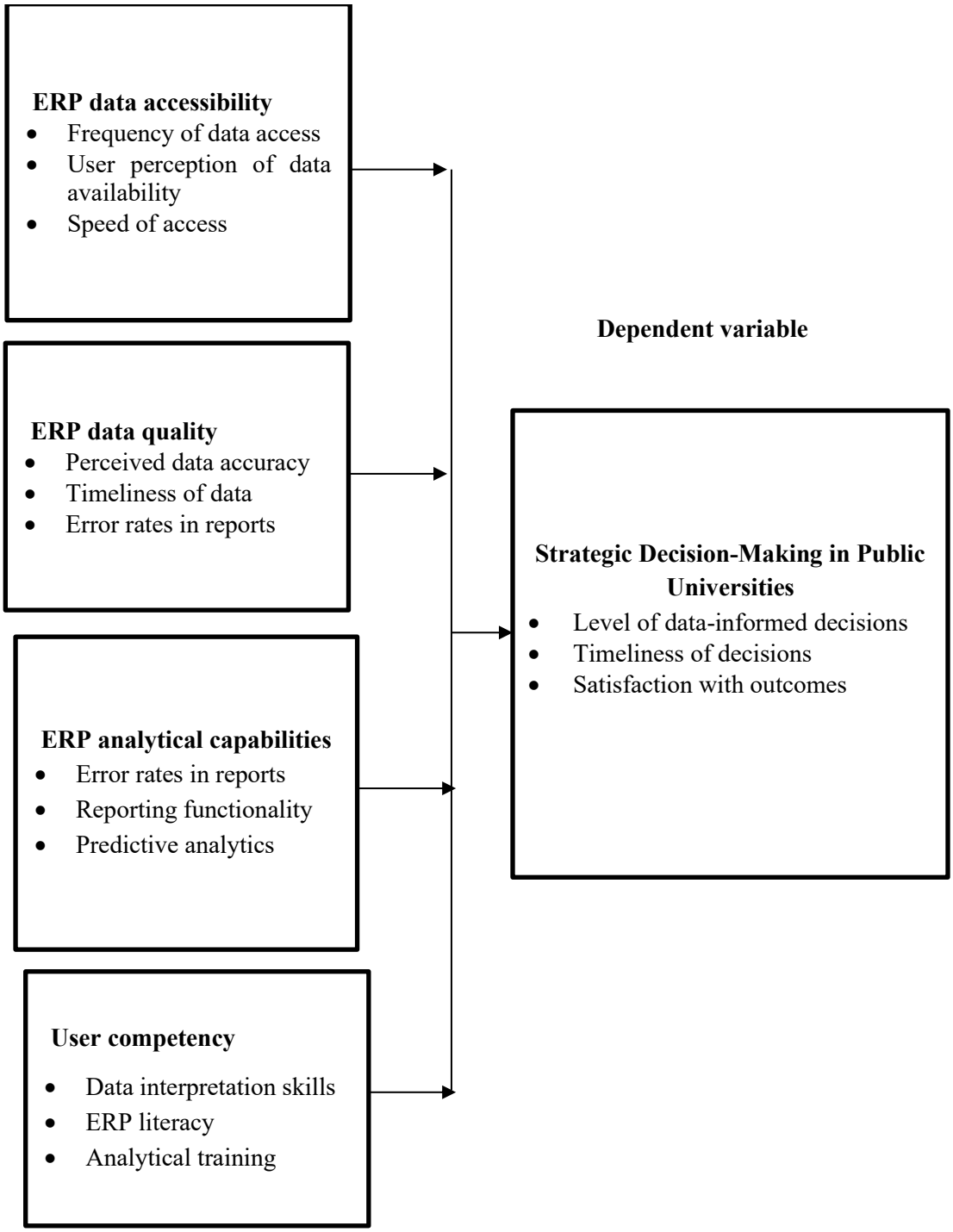
Figure 1: Conceptual Framework

Independent Variables

Figure 1: ERP-Driven Data Analytics



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METHODOLOGY

This study adopted a correlational research design to examine the influence of ERP-driven data analytics on strategic decision-making in public universities. The design was considered appropriate given the study's objective of determining the strength and nature of relationships among the key variables: ERP data accessibility, data quality, analytical capabilities, and user competency, without manipulating any of them. The positivist philosophical orientation that underpinned the study aligns with the use of quantitative methods, enabling objective measurement and analysis of observable phenomena.

The target population comprised six public universities located within Nairobi County, Kenya. Within these institutions, the study focused on administrative and ICT personnel, departmental heads, and senior managers engaged in ERP system use and strategic decision-making, yielding an estimated population of 300 individuals. A stratified random sampling technique was employed to ensure proportional representation from relevant functional departments. Using Yamane's formula, a sample of 169 respondents was drawn. Data were collected using a structured questionnaire designed around the study objectives, with items measured on a Likert scale. A pilot test was conducted with 10% of the sample in a different university to enhance instrument reliability, and Cronbach's alpha coefficients exceeded 0.7 across all constructs.

Quantitative data were analysed using SPSS Version 27. Descriptive statistics, including means and standard deviations, were used to summarise data, while Pearson correlation and multiple linear regression analyses were employed to determine associations and predictive relationships among variables. Results were presented using tables and figures, and interpretations were tied directly to the study's hypotheses. Ethical approval was obtained from the university's ethics committee, and research authorisation was secured from NACOSTI. All participants gave informed consent, were assured of confidentiality, and were made aware of their voluntary participation and the right to withdraw without consequence. Data security and anonymity were maintained throughout the research process.

RESULTS AND DISCUSSION

Descriptive Statistics

This section presents the descriptive statistical analysis of the data collected from respondents across the selected public universities in Nairobi County. Descriptive statistics provide a summary of the respondents' demographic characteristics and their responses to the study variables, including ERP data accessibility, ERP data quality, ERP analytical capabilities, user competency in ERP data analytics, and strategic decision-making.

Table 1: ERP Data Accessibility and Strategic Decision-making in Public Universities.

	N	Minimum	Maximum	Mean	Std. Deviation
The ERP system allows timely access to relevant data for decision-making.	167	1.00	5.00	3.7665	1.06955
ERP data is readily accessible across various departments.	167	1.00	5.00	3.4731	1.17614
I can easily retrieve historical data when needed for strategic analysis.	167	1.00	5.00	3.8563	1.18360

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	N	Minimum	Maximum	Mean	Std. Deviation
The ERP interface is user-friendly and supports efficient data access.	167	1.00	5.00	3.5150	1.43475
Restrictions on data access do not hinder strategic decisions.	167	1.00	5.00	3.7365	1.17813
Valid N (listwise)	167				

The descriptive statistics for ERP data accessibility reveal that, overall, respondents moderately agreed that their ERP systems support timely and effective data access. The ability to retrieve historical data scored highest (M = 3.86, SD = 1.18), closely followed by timely access to relevant data (M = 3.77, SD = 1.07) and the perception that access restrictions do not hinder strategic decisions (M = 3.74, SD = 1.18). These findings suggest that the archival and retrieval functionalities of the ERP platforms are well-developed, enabling administrators to draw upon past data when making strategic plans, an outcome consistent with Teka and Chaka's (2023) observation that robust data retrieval underpins responsive decision-making in higher education.

In contrast, respondents were less positive about cross-departmental data accessibility (M = 3.47, SD = 1.18) and the user-friendliness of the ERP interface (M = 3.52, SD = 1.43), indicating challenges in system integration and usability. Bula and Ndung'u (2019) similarly reported that limited system integration and infrastructural constraints can impede seamless data sharing across university units, thereby reducing the strategic value of ERP data Moreover, Ouiddad et al. (2021) emphasize that while system and information quality are critical for effective data access, poor interface design can undermine user engagement and data-driven decision-making Together, these results underscore the need for continued investment in both technical integration and user-centered design to fully leverage ERP data accessibility for strategic decision-making in public universities.

Table 2: ERP Data Quality and Strategic Decision-making in Public Universities.

	N	Minimum	Maximum	Mean	Std. Deviation
The ERP system provides accurate data for strategic decisions.	167	1.00	5.00	3.9940	.92161
Data in the ERP system is consistently updated and reliable.	167	1.00	5.00	3.7006	1.26355
There are minimal data entry errors in the ERP system.	167	1.00	5.00	3.7246	1.13893
The data output from ERP is complete and comprehensive.	167	1.00	5.00	4.1377	1.10811
I trust the integrity of ERP data when making long-term decisions.	167	1.00	5.00	3.9940	1.09488
Valid N (listwise)	167				

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The descriptive statistics related to ERP data quality indicate a generally positive perception among respondents regarding the reliability, accuracy, and integrity of ERP data in public universities. The highest-rated item was the completeness and comprehensiveness of ERP data output (M = 4.14, SD = 1.11), suggesting that users found the system to provide well-rounded and thorough datasets necessary for strategic planning. Equally high mean scores were recorded for the accuracy of data for strategic decisions (M = 3.99, SD = 0.92) and the trust in ERP data for long-term decisions (M = 3.99, SD = 1.09), indicating a strong level of confidence in the system's decision-support functionality.

These findings align with the study by Liu and Liu (2020), who reported that data quality, including accuracy, reliability, and completeness, significantly enhances strategic decision-making in Chinese public institutions. Similarly, Jabeen et al. (2022) observed in a study across Pakistani universities that when ERP data is accurate and consistently updated, it increases managerial trust and reliance on data-driven decisions. While slightly lower mean values were reported for consistent data updates (M = 3.70) and minimal data entry errors (M = 3.72), the overall responses suggest that most institutions have established quality control measures within their ERP frameworks.

These insights reflect the growing recognition that data quality is a pivotal element in strategic decision environments (Olajide & Adebayo, 2021). However, the standard deviations, especially in the areas of data updates and errors, also reveal some variability in experience, implying that further standardisation and training across departments may enhance overall data reliability.

Table 3: ERP Analytical Capabilities and Strategic Decision-making in Public Universities.

	N	Minimum	Maximum	Mean	Std. Deviation
The ERP system supports advanced data analytics (e.g., trend analysis, forecasting).	167	1.00	5.00	3.5389	1.13408
Visual dashboards and reports are available and insightful.	167	1.00	5.00	3.9701	1.23905
ERP data analytics enable predictive insights for planning.	167	1.00	5.00	3.6826	1.26629
The analytical tools integrated with ERP meet decision-making needs.	167	1.00	5.00	4.0479	.98058
ERP analytics improve the quality of strategic discussions and reviews.	167	1.00	5.00	3.6826	1.24228
Valid N (listwise)	167				

The descriptive statistics for ERP analytical capabilities demonstrate that respondents perceived their systems to be moderately effective in supporting data-driven strategic decision-making. The highest-rated item was the alignment of analytical tools with decision-making needs (M = 4.05, SD = 0.98), suggesting that respondents found the analytical features integrated within ERP systems to be relevant and helpful for strategic purposes. Similarly, the availability and usefulness of visual dashboards and reports received a high mean score (M = 3.97, SD = 1.24), reflecting a strong appreciation for visually intuitive outputs that support decision clarity.

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Respondents also expressed moderate agreement on the system's support for predictive insights (M = 3.68) and its role in improving the quality of strategic discussions (M = 3.68), aligning with the findings of Masood and Daud (2021), who concluded that ERP-enabled predictive analytics significantly contribute to institutional agility in Malaysian universities. However, the relatively lower mean score for advanced analytics such as trend analysis and forecasting (M = 3.54, SD = 1.13) indicates that while foundational analytics capabilities are present, more sophisticated tools may not be fully utilised or available across all institutions.

These results support the literature suggesting that while ERP systems are increasingly incorporating analytical features, disparities remain in their adoption and utilisation levels (Mutua & Otieno, 2020). Therefore, to maximise ERP's strategic value, universities should prioritise enhancing user proficiency in advanced analytics and ensure the integration of powerful analytical modules tailored to higher education decision environments.

Table 4: User Competency in ERP Data Analytics and Strategic Decision-making in Public Universities.

	N	Minimum	Maximum	Mean	Std. Deviation
I have the skills to analyse data extracted from the ERP system.	167	1.00	5.00	3.7186	1.14537
I have received adequate training on ERP data analytics.	167	1.00	5.00	3.8144	1.37807
My department promotes continuous learning in ERP analytics.	167	1.00	5.00	4.0359	1.18165
I can independently interpret ERP reports for strategic use.	167	1.00	5.00	3.9760	1.12449
My competency in ERP analytics has enhanced my decision-making ability.	167	1.00	5.00	3.7485	1.18076
Valid N (listwise)	167				

The descriptive statistics on user competency in ERP data analytics reveal a generally positive perception among respondents regarding their skills and preparedness for leveraging ERP data in strategic decision-making. The highest mean score was recorded for departmental support for continuous learning (M = 4.04, SD = 1.18), underscoring the importance of organisational culture in sustaining ERP competency development. This was followed closely by respondents' confidence in interpreting ERP reports for strategic purposes (M = 3.98, SD = 1.12), suggesting that many users are not only trained but also able to apply their knowledge effectively in real-world decision scenarios.

Respondents also showed a favourable view regarding their training on ERP analytics (M = 3.81) and their ability to analyse ERP-extracted data (M = 3.72), supporting findings from Osei and Boakye (2021) who observed that user training in Ghanaian universities significantly contributed to better ERP utilisation and strategic insight generation. Furthermore, the competency of users was perceived to enhance decision-making ability (M = 3.75, SD = 1.18), in line with Järvinen et al. (2020), who found that ERP success is highly contingent upon the analytical proficiency of end users.

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While the overall results are encouraging, the relatively wide standard deviations across items suggest variability in training and skill levels across departments. This highlights the need for standardised capacity-building programs and role-based analytics training, especially as public universities increasingly rely on ERP-driven insights for institutional governance and policy formulation.

Table 5: Strategic Decision-Making in Public Universities.

	N	Minimum	Maximum	Mean	Std. Deviation
ERP data supports setting long-term institutional goals.	167	1.00	5.00	3.6766	1.24315
ERP data enhances the institution's ability to respond to environmental changes.	167	1.00	5.00	4.0299	1.12702
Decisions based on ERP insights are more strategic and data-driven.	167	1.00	5.00	3.8623	1.12430
ERP data is regularly used during strategic planning meetings.	167	1.00	5.00	4.1617	1.11570
Strategic decisions informed by ERP data have improved institutional performance.	167	1.00	5.00	3.8323	.93559
Valid N (listwise)	167				

The descriptive statistics on strategic decision-making informed by ERP data reflect a strong reliance on ERP systems in shaping long-term and adaptive strategies in public universities. The item with the highest mean score was the regular use of ERP data during strategic planning meetings (M = 4.16, SD = 1.12), indicating that ERP data plays a central role in formal strategic forums. Similarly, respondents agreed that ERP enhances institutional responsiveness to environmental changes (M = 4.03), aligning with global findings such as those by Chen et al. (2021), who asserted that ERP systems improve organisational agility and foresight.

The mean scores also show that ERP insights are perceived to make decisions more strategic and data-driven (M = 3.86), and that such data has improved institutional performance (M = 3.83), consistent with Osei and Boakye (2021), who highlighted the role of ERP in strengthening decision quality in Ghanaian universities. The support of ERP data for setting long-term institutional goals also received a favourable mean (M = 3.68), indicating that ERP systems are not only tactical tools but strategic assets within higher education governance.

Overall, the findings illustrate that ERP systems have moved beyond back-office functions to become integral tools in strategic leadership, enabling data-informed planning and institutional transformation across public universities. This underscores the importance of continuously improving ERP systems and user capabilities to maintain and enhance strategic value.

Inferential Statistics

This section presents the results of correlation and regression analyses used to examine the relationships between ERP-related variables and strategic decision-making in public universities. Correlation analysis assessed the strength and direction of the associations, while regression analysis determined the predictive influence of ERP

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data accessibility, data quality, analytical capabilities, and user competency on strategic decision-making. These analyses supported hypothesis testing and helped draw conclusions applicable to the broader university context.

Table 6: Correlation Analysis

		ERP Data Accessibility	ERP Data Quality	ERP Analytical Capabilities	User Competency	Strategic Decision Making
ERP Data Accessibility	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	167				
ERP Data Quality	Pearson Correlation	.642**	1			
	Sig. (2-tailed)	.000				
	N	167	167			
ERP Analytical Capabilities	Pearson Correlation	.479**	.479**	1		
	Sig. (2-tailed)	.000	.000			
	N	167	167	167		
User Competency	Pearson Correlation	.537**	.611**	.472**	1	
	Sig. (2-tailed)	.000	.000	.000		
	N	167	167	167	167	
Strategic Decision Making	Pearson Correlation	.377**	.526**	.355**	.500**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	167	167	167	167	167

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

The correlation analysis revealed that all four independent variables, ERP data accessibility, ERP data quality, ERP analytical capabilities, and user competency, had statistically significant and positive relationships with the dependent variable, strategic decision-making, in public universities.

ERP data accessibility demonstrated a moderate positive correlation with strategic decision-making ($r = 0.377$, $p < 0.01$), suggesting that timely and easy access to ERP data enhances the decision-making process. This supports findings by Sharma and Kumar (2020), who observed that decision-makers rely on readily accessible data to respond swiftly and effectively to strategic demands within institutions.

ERP data quality had a stronger positive correlation with strategic decision-making ($r = 0.526$, $p < 0.01$), indicating that accurate, consistent, and reliable ERP data significantly improves the quality of strategic decisions. This outcome resonates with the conclusions of Järvinen et al. (2020), who found that the reliability and comprehensiveness of ERP data are critical for effective long-term planning and institutional performance.

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ERP analytical capabilities were also positively correlated with strategic decision-making ($r = 0.355$, $p < 0.01$), albeit to a lesser degree. This finding implies that while the ability to conduct advanced analytics such as forecasting and trend analysis contributes to better decisions, its impact may be limited without corresponding improvements in other ERP functionalities. Nonetheless, the result aligns with previous studies by Osei and Boakye (2021) that emphasised the value of integrated analytics in improving strategic foresight and planning.

User competency in ERP data analytics showed a strong positive correlation with strategic decision-making ($r = 0.500$, $p < 0.01$). This finding confirms that users who are well-trained and skilled in ERP systems are more capable of extracting insights and making informed decisions. As noted by Järvinen et al. (2020), user proficiency in interpreting and leveraging ERP outputs plays a vital role in translating data into strategic actions.

These results collectively underscore the importance of enhancing ERP capabilities and user skills to improve strategic decision-making outcomes in public universities. The statistically significant correlations affirm that improvements in each independent variable positively influence the quality and effectiveness of strategic decisions.

Table 7: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.0.782[a]	0.611	0.610	.69391

a. Predictors: (Constant), ERP Data Accessibility, ERP Data Quality, ERP Analytical Capabilities, User Competency

The model summary table demonstrates that the four independent variables, ERP data accessibility, ERP data quality, ERP analytical capabilities, and user competency, collectively explain 61.0% of the variance in strategic decision-making in public universities, as reflected by an adjusted R Square value of 0.610. This indicates a substantial level of explanatory power, suggesting that these ERP-related factors are critical determinants of strategic decision-making processes within these institutions.

The coefficient of multiple correlation ($R = 0.782$) further reveals a strong positive relationship between the combined predictor variables and the dependent variable. This implies that improvements in ERP data accessibility and quality, enhanced analytical capabilities, and increased user competency are associated with more effective, evidence-based strategic decision-making. The standard error of the estimate (0.69391) is relatively low, indicating that the regression model provides predictions of strategic decision-making outcomes that closely align with the actual observations.

These findings are consistent with prior empirical research. For instance, Järvinen et al. (2020) demonstrated the importance of user competency in ensuring ERP system success and its influence on institutional performance. Similarly, Osei and Boakye (2021) found that capacity-building in ERP usage significantly enhances decision-making quality in higher education. Studies such as those by Yin et al. (2020) and Alharthi et al. (2021) also corroborate the positive influence of ERP data quality and analytical capabilities on organisational strategic planning.

Overall, the results affirm the relevance of the Technology-Organization-Environment (TOE) framework, which posits that technological capabilities, organisational resources, and competencies are integral to successful innovation adoption and strategic outcomes. In this context, the findings underscore the importance of aligning ERP system functionalities with user skills and institutional goals to optimise strategic decision-making in public universities.

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Table 8: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.157	.334		3.466	.001
	ERP Data Accessibility	-.024	.096	-.022	-.250	.803
	ERP Data Quality	.407	.112	.339	3.645	.000
	ERP Analytical Capabilities	.078	.080	.076	.987	.325
	User Competency	.248	.079	.269	3.141	.002

a. Dependent Variable: Strategic Decision Making

The multiple regression analysis conducted in this study sought to determine the influence of ERP-driven data analytics components, namely ERP data accessibility, data quality, analytical capabilities, and user competency, on strategic decision-making within public universities in Nairobi County. The hypotheses tested in this analysis included the null hypothesis (H_0) that there is no significant relationship between each of the independent variables (ERP data accessibility, ERP data quality, ERP analytical capabilities, and user competency) and strategic decision-making.

The findings showed that ERP data quality and user competency were statistically significant predictors of strategic decision-making, supporting the rejection of the null hypothesis for these two variables. Specifically, ERP data quality demonstrated a strong positive effect on strategic decision-making ($B = 0.407$, $p < 0.001$), indicating that high-quality data significantly enhances the quality of decisions made at the strategic level. These results align with previous studies, such as Osei and Boakye (2021), which emphasised the role of accurate and reliable data in facilitating informed decision-making in institutions. Similarly, user competency was found to be a significant predictor ($B = 0.248$, $p = 0.002$), supporting the rejection of the null hypothesis for this variable as well. This underscores the importance of skilled users who can effectively interpret and apply ERP data for strategic purposes, reinforcing the findings of Järvinen et al. (2020), who highlighted the crucial role of user competency in translating ERP data into valuable insights.

In contrast, ERP data accessibility ($B = -0.024$, $p = 0.803$) and ERP analytical capabilities ($B = 0.078$, $p = 0.325$) were not found to significantly affect strategic decision-making, leading to the acceptance of the null hypothesis for these two variables. While ERP data may be accessible and analytical tools may be available, these factors alone do not appear to influence strategic decision-making unless accompanied by high data quality and user competency. This result challenges earlier research, such as Dalu and Chikodzi (2022), which suggested that technological infrastructure, including data accessibility and analytical capabilities, is key to decision-making. The present study, however, indicates that without the appropriate human capacity and data integrity, these technological features do not have a direct impact on strategic decision-making.

Overall, the study highlights the importance of ERP data quality and user competency in driving strategic decision-making in public universities. The findings suggest that university management should prioritise investments in improving both data governance and user training to ensure that ERP systems are utilised effectively for strategic outcomes. These results contribute to the growing body of literature on ERP systems and their impact on institutional decision-making.

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CONCLUSION AND RECOMMENDATION

Conclusion

The study found that ERP data quality and user competency in ERP data analytics have a significant positive impact on strategic decision-making in public universities. High-quality, reliable data supports more accurate and data-driven decisions, and users with higher levels of competency are better able to leverage this data for informed decision-making. The objective of determining the influence of ERP data accessibility was not supported as strongly, as data accessibility did not show a significant relationship with strategic decision-making in the study. Similarly, ERP analytical capabilities were also found to have a less direct effect, indicating that while analytical tools are essential, their direct impact on decision-making processes may be contingent on other factors like user competency and data quality.

Overall, the study underscores the importance of ERP data quality and user competency in enhancing strategic decision-making, suggesting that universities should focus on improving these areas through training and better data governance practices. This will not only improve the strategic decision-making process but also contribute to institutional performance and growth.

Recommendations

Based on the findings and conclusions of this study, several recommendations are proposed to enhance the effectiveness of ERP systems and their contribution to strategic decision-making in public universities. These recommendations are directed at university administrators, policymakers, and stakeholders involved in the management and optimisation of ERP systems.

First, improving ERP data quality is critical. Since the study identified the significant role of high-quality data in supporting strategic decision-making, universities should prioritise enhancing the accuracy, consistency, and reliability of the data within their ERP systems. This can be achieved through regular data audits, validation processes, and timely updates to ensure that the data used for decision-making is both accurate and current. This would ultimately improve the decision-making process and enhance the university's overall performance.

Second, user competency in ERP data analytics was found to significantly influence strategic decision-making. Therefore, it is essential for universities to invest in continuous training programs for staff involved in using the ERP system. These training programs should focus on both the technical aspects of the ERP system and the analytical skills required to effectively interpret and utilise the data. By improving user competency, universities will empower their staff to make more informed decisions, thereby enhancing the overall quality of strategic planning.

Although ERP data accessibility did not show a strong impact on decision-making in this study, improving the user interface and ensuring that data can be accessed quickly and efficiently should still be a priority. A more accessible system would streamline the decision-making process, allowing decision-makers to obtain the necessary data in a timely manner. This could reduce time spent navigating the system and improve the overall responsiveness of the institution to strategic challenges.

In line with this, universities should also focus on enhancing ERP analytical capabilities. The study indicates that although these capabilities are important, they have not had as significant an impact as other factors. Universities should invest in integrating advanced analytics tools such as predictive modelling, trend analysis, and scenario planning into their ERP systems. These tools will provide more actionable insights for decision-makers, supporting more informed, data-driven decisions that align with the university's long-term goals.

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Fostering a data-driven culture within the university is another crucial recommendation. By integrating ERP data into regular strategic discussions and decision-making processes, universities can ensure that decisions are informed by the most relevant data. Encouraging the use of ERP data at all levels of decision-making will promote a deeper understanding of its value and lead to better outcomes in terms of institutional performance and long-term success.

Finally, universities should facilitate collaboration and knowledge sharing regarding ERP system usage. Creating platforms for sharing best practices and lessons learned about ERP systems and decision-making can enhance the overall effectiveness of these systems across different institutions. By learning from each other, universities can optimise their use of ERP data, making the decision-making process more efficient and effective.

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