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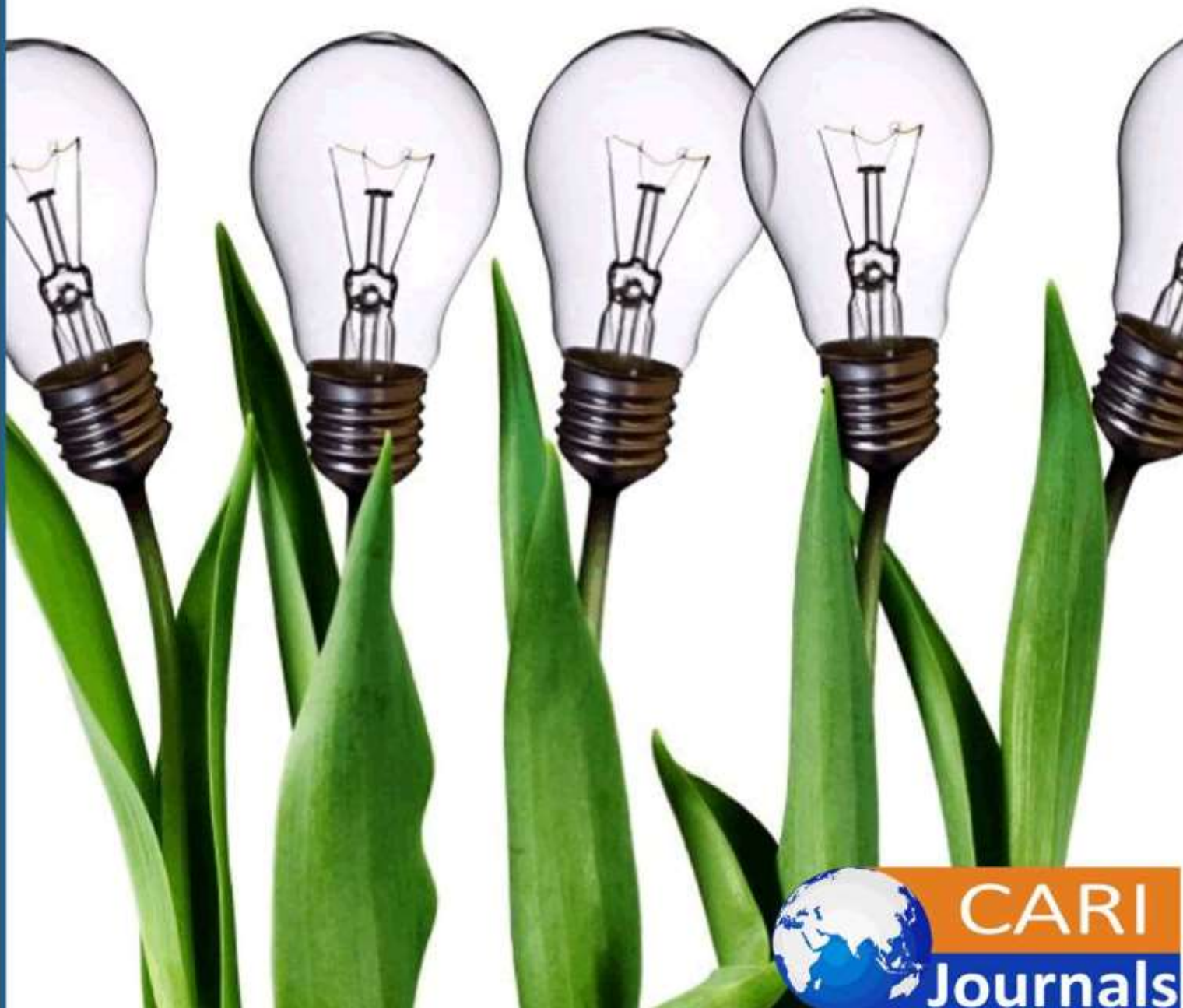

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Influence of Information Technology Adoption on the Effectiveness of Strategic Decision-Making in Small and Medium Enterprises in Nairobi County, Kenya

[1*]Mitchell Gakii, [2]Prof. Allan Kihara
[1,2]Chandaria School of Business, United States International University

ABSTRACT

Purpose: The purpose of this study was to investigate the influence of information technology (IT) adoption on the effectiveness of strategic decision-making among Small and Medium Enterprises (SMEs) in Nairobi County. The specific objectives were, to assess the effect of data analytics on decision-making effectiveness, to evaluate the impact of ERP systems, to analyze the contribution of cloud computing and to examine the role of IT investment in supporting decision effectiveness.

Methodology: A descriptive correlational research design was employed, and data was collected from 89 SME managers through structured questionnaires scored on a five-point Likert scale. Analysis was conducted using SPSS, generating descriptive, correlation, regression, and ANOVA results, presented through tables and figures.

Findings: The findings revealed weak and statistically insignificant relationships between all four IT variables and decision-making effectiveness. Data analytics showed a positive but weak correlation ($r = .0.058$, $p = .918$). ERP adoption demonstrated similarly weak influence ($r = .031$, $p = .705$), and cloud computing exhibited a weak positive correlation ($r = .207$, $p = .194$). IT investment showed virtually no relationship with decision effectiveness ($r = .003$, $p = .702$). The regression models explained only minimal variance, with R^2 values ranging from .001 to .043, confirming that IT adoption, in isolation, does not drive effective strategic decision-making in the sampled SMEs. The study concludes that while IT resources are available within many SMEs, they remain underutilized and insufficiently aligned with strategic objectives. Investments are often directed at infrastructure without ensuring integration, user competence, or strategic governance. As a result, IT adoption has yet to translate into measurable improvements in decision quality.

Unique Contribution to Theory, Practice and Policy: The study recommends that SMEs emphasize alignment of IT with business priorities, strengthen user training, and adopt structured evaluation frameworks to link IT spending to decision outcomes. Future research should explore mediating factors such as organizational culture, managerial competence, and industry dynamics, which may condition the relationship between IT and decision-making effectiveness.

Key Words: *Data Analytics, ERP Systems, Cloud Computing, IT Investment and Decision-Making Effectiveness*

Background of the Study

Information Technology (IT) encompasses the use of computers, software, and networks for the storage, retrieval, and transmission of information (Laudon & Laudon, 2020). It has become a cornerstone of modern business practices, transforming how organizations operate and make strategic decisions (Bharadwaj et al., 2013). IT enables businesses to process vast amounts of data quickly, improve communication, and enhance overall efficiency. In the context of strategic decision-making, IT provides tools and systems that aid data analysis, forecasting, and scenario planning, thereby enhancing the accuracy and speed of decisions (Turban, Pollard, Wood, & Galliers, 2021). The rapid digitization of business processes has significantly altered how organizations, especially small and medium enterprises (SMEs), make strategic decisions. SMEs form the backbone of many economies, contributing to employment creation and economic growth. However, unlike large corporations that have well-established IT infrastructures, SMEs often struggle with limited resources, making IT adoption a crucial yet challenging aspect of their business operations. As businesses operate in increasingly volatile and competitive environments, IT-driven decision-making tools such as data analytics, artificial intelligence (AI), and enterprise resource planning (ERP) systems have become essential in enabling SMEs to make data-driven and strategic business choices (Mathrani, 2022).

A study by Ochola and Kihara (2024) highlights that strategic technological innovations play a crucial role in enhancing competitive advantage among micro and small enterprises (MSEs) in Nairobi County. The study found that IT adoption significantly influences SMEs' ability to improve operational efficiency, strengthen decision-making processes, and differentiate themselves in the market. Specifically, IT-driven innovations such as technological processes, digital platforms, and enterprise IT capabilities have been instrumental in helping SMEs compete effectively in the evolving digital economy. However, challenges such as limited IT literacy, financial constraints, and a lack of digital infrastructure continue to hinder many SMEs from fully leveraging IT for strategic decision-making. Addressing these barriers through government support, IT training programs, and increased investment in technological infrastructure is essential for enabling SMEs to harness IT for sustainable growth and competitiveness (Ochola & Kihara, 2024). In Kenya, the impact of IT adoption on SMEs is increasingly evident, especially in sectors like agriculture and retail. M-Pesa, the mobile money service, is a prime example of how IT has transformed strategic decision-making in Kenyan businesses. Originally launched as a mobile payment platform, M-Pesa has evolved into a critical tool for SMEs across Kenya, enabling them to manage transactions, access credit, and make strategic decisions based on customer payment patterns. By providing real-time transaction data, M-Pesa helps small business owners make informed decisions about cash flow management, inventory purchases, and expansion plans. This has significantly contributed to the growth and competitiveness of SMEs in Kenya (Njuguna, 2023).

However, the full potential of IT adoption in Kenya is yet to be realized due to challenges such as limited access to technology and inadequate IT skills among the workforces. For example, many

SMEs in rural areas struggle with poor internet connectivity and a lack of affordable IT infrastructure. Despite these challenges, initiatives like the Kenya National ICT Masterplan aim to improve IT access and skills development, thereby enhancing the ability of SMEs to make strategic decisions that drive growth and competitiveness (Ajibade et al., 2019).

Statement of the Problem

Strategic decision-making is vital for SME growth and sustainability, yet many SMEs in Nairobi have continued to face challenges in making effective, high-quality decisions. While IT adoption has the potential to improve decision accuracy, speed, and goal alignment, many SMEs struggled with inadequate technical expertise, financial constraints, and weak organizational strategies for IT integration (Kithembe, 2023). As a result, they often relied on traditional, intuition-based decision-making approaches that were slow, error-prone, and lacked data-driven insights, limiting their competitiveness in the digital economy. Studies consistently show that SMEs that apply structured and data-driven strategic decision-making frameworks perform significantly better in terms of productivity, innovation, and market responsiveness compared to those that rely on intuition or informal decision processes. For instance, research by Mutua (2023) and Aro (2025) found that SMEs integrating analytics and cloud tools into their decision workflows reported higher operational efficiency, profitability, and customer retention. This performance gap underscores the importance of adopting systematic IT-supported decision processes as a threshold for competitiveness and sustainability among SMEs.

Despite growth in Kenya's IT infrastructure, SMEs have lagged behind large corporations in IT adoption. According to the Kenya National Bureau of Statistics (2021), only 32% of SMEs in Nairobi County had fully integrated IT systems into their operations, indicating a significant gap. Additionally, the World Bank (2020) reported that only 25% of SMEs utilized data analytics for strategic decision-making, while 40% cited high IT costs and inadequate digital skills as major barriers. A study by Ochola and Kihara (2024) found that IT adoption among SMEs was primarily concentrated in customer service and marketing rather than in strategic decision-making, thereby limiting its full potential. Regulatory challenges and inconsistent government policies also contributed to the slow adoption of IT among SMEs (Ndung'u, 2021). While initiatives such as the Kenya Digital Economy Blueprint (2019) and the ICT Master Plan (2021–2025) aimed to promote IT integration, implementation gaps persisted, particularly for SMEs (Kenya Ministry of ICT, 2022). Public-private partnerships were identified as a potential avenue to bridge this gap through subsidized IT solutions, digital skills training, and financial incentives (Mwangi & Mutiso, 2023).

Cost remained a significant hindrance to IT adoption, with more than 50% of SMEs in Kenya citing financial constraints as the primary barrier (Ajibade et al., 2019). High upfront costs for software, hardware, and cybersecurity systems made digital transformation difficult (Chouki et al., 2020). Furthermore, limited access to affordable credit facilities restricted SMEs from upgrading to advanced IT systems necessary for strategic decision-making. In the absence of sufficient investment in IT infrastructure, digital literacy, and strategic support, many SMEs risked falling

behind in digital transformation, weakening their competitive positioning in both local and international markets (Mugo et al, 2019). As the global business environment increasingly relied on big data, artificial intelligence (AI), and cloud computing, SMEs that failed to integrate IT into decision-making struggled to remain relevant and scalable.

Previous studies on IT adoption in Kenya largely emphasized operational efficiency and cost reduction, with minimal focus on its influence on decision accuracy, timeliness, and strategic alignment (Mungai & Nyambura, 2021). While research acknowledged the role of IT in financial reporting, marketing automation, and supply chain optimization, there was insufficient empirical evidence regarding how IT-driven data analytics, AI-based decision support systems, and cloud computing enhanced the quality of strategic decisions (Yego & Kimwele, 2025). This gap in literature left many SMEs dependent on incomplete or outdated information, leading to suboptimal decisions. This study therefore examined how IT adoption influenced the effectiveness of strategic decision-making among SMEs in Nairobi. It specifically focused on measurable dimensions such as decision accuracy, timeliness, and alignment with business goals. The findings provided actionable recommendations for SME owners, policymakers, and IT service providers, contributing toward bridging the knowledge gap and improving strategic decision-making capabilities across Nairobi's SME sector.

Objectives of the Study

i. To assess the influence of data analytics tools on the effectiveness of strategic decision-making in small and medium enterprises in Nairobi County, Kenya.
ii. To evaluate the influence of cloud computing solutions on the effectiveness of strategic decision-making in small and medium enterprises in Nairobi County, Kenya
iii. To examine influence of enterprise resource planning (ERP) adoption on the effectiveness of strategic decision-making in small and medium enterprises in Nairobi County, Kenya.
iv. To analyze the influence of IT investment on the effectiveness of strategic decision-making in small and medium enterprises in Nairobi County, Kenya.

Literature Review

Recent studies illustrate how advanced analytics (AA) and related technologies shape strategic decision-making and organizational performance. Ikbal (2025), through a meta-analysis, found that AI analytics tools, particularly when integrated with business intelligence (BI) and machine learning (ML), significantly enhance decision-making accuracy. Lee et al. (2024), in a systematic literature review, emphasized the need for a holistic ERP modernization strategy that aligns technological innovation with business objectives. Nweje & Taiwo (2025), via case studies of three tech SMEs, reported that AI-driven analytics reduced inventory errors by 15–20% and improved supply chain decision-making. Ghafoori et al. (2024) surveyed 317 SMEs, revealing that a strong data-driven culture amplifies the positive effects of analytics on decision quality and innovation. Nethanani et al. (2024) showed that strategically adopted CRM systems enhance operational efficiency, customer satisfaction, and growth. Omotoye et al. (2024) stressed balancing

technological advancement with ethical considerations in AA adoption. Dahbi (2020) highlighted the role of web analytics in automating governance, improving compliance, and boosting decision quality. Finally, Seppanen (2025) found that while automation streamlines operations, it can polarize roles and increase the demand for advanced digital skills.

Empirical evidence underscores the significant role of cloud computing in enhancing the timeliness of strategic decision-making within SMEs. Soori et al. (2024), using survey-based quantitative analysis, demonstrated that real-time data access and processing markedly improve responsiveness. Lee et al. (2024) found that cloud-based tools reduced decision lag by 38%, providing immediate operational data access and expediting strategic planning. Sonderlund (2022), through qualitative case analysis, mapped three decision-making levels, operator, production, and management, and discussed how shifting data expectations influence organizational perceptions and use. Wang & Lin (2022) reported a 40% improvement in strategic response times via IT automation that minimized human intervention. A systematic literature review by Mkhize et al. (2025) revealed that 82% of studies associate cloud adoption with improved efficiency, and 76% with cost savings. Conversely, Guo et al. (2023) cautioned that while digital transformation can raise total factor productivity, it may increase operational costs, reduce asset turnover, and raise management expenses. Frontiers in Sustainability (2025) highlighted how technological, organizational, and environmental factors shape sustainable cloud-based HRM adoption, while Ikbal (2025), through meta-analysis, showed AI integration enhances precision, mitigates cognitive bias, strengthens scenario planning, and supports agile responses in dynamic market conditions.

Empirical research on ERP adoption and strategic decision alignment highlights diverse benefits and challenges. Sonderlund (2022), combining literature review and case analysis, found ERP centralizes data, automates workflows, and enhances cross-functional visibility, boosting strategic alignment. Khayer et al. (2021) used PLS-SEM on SMEs, showing cloud-based ERP improved supply chain coordination, reduced inefficiencies, and strengthened goal alignment. Ikbal (2025) reported, via a survey of 120 firms, that predictive analytics within ERP enhanced alignment with external trends and internal KPIs. Soori et al. (2024) revealed that despite technical and human resistance, modular ERP solutions and training improved decision-making alignment. Lawton-Thesing (2020) found ERP reduced unplanned expenditures and improved transparency in SMEs when cost planning was well aligned. Acar et al. (2017) demonstrated that knowledge management positively affects operational performance and mediates the ERP performance relationship, underscoring ERP's role as both a technical and strategic enabler.

In Indonesia, Tifani et al. employed a systematic literature review to show that integrating the Resource-Based View (RBV) with external factors and technological change can yield a more robust competitive advantage. In China, Zhang and Ma, through a survey of enterprises, found that digital transformation strategy fully mediates the link between IT infrastructure and overall digital transformation. Italian scholars Kazemargi & Spagnoletti demonstrated via empirical analysis that aligning IT investments with business strategy requires strong internal IT skills and access to

external knowledge, especially for SMEs. In Nigeria, Mesttica's action research highlighted the critical role of enterprise systems, while stressing that budget constraints create major challenges for SMEs during implementation. Similarly, Aro in Finland, using case studies, found that cloud-based solutions enhance financial decision-making through real-time data and analytics. From Ghana, Ashiedu et al. applied the PRISMA method to reveal that ERP and CRM systems bolster resilience and operational insight during market shocks. Al Maruf in Bangladesh emphasized ERP–DSS integration as a driver of enterprise intelligence in modern retail. Momani in Jordan underscored the need for secure, well-aligned IT systems to meet strategic goals. Sayginer & Ercan in Pakistan argued that digital policies must acknowledge ICT's limits in solving SME and regional development issues. Finally, Molete et al. in South Africa found that IT–business alignment can cut operational costs by 20% and increase customer satisfaction by 15%.

Research Methodology

This study adopted a descriptive correlational research design. The target population for this study comprised key decision-makers in small and medium-sized enterprises (SMEs) operating within Nairobi County, specifically those directly involved in IT adoption and strategic decision-making processes. These included Business Owners or Managing Directors, Operations Managers, IT Managers, and Finance Managers. The study targeted an average of four decision-makers per SME, resulting in a total population of 240 respondents. The sample size of 89 respondents was determined using Yamane sampling formula. Primary data was collected using structured questionnaires. The study utilized both descriptive and inferential statistics to analyze the collected data. The statistics were generated through Statistical Package for Social Sciences.

Data Analytic Tools on the Effectiveness of Strategic Decision-Making

Descriptive Statistics

A majority, 50.7%, agreed or strongly agreed that data analytics tools support informed decisions. This indicates a generally positive perception of the potential of data-driven strategies. However, 31% disagreed. A mean score of 3.28 (SD = 1.456) suggested relative optimism about this aspect. Majority of respondents, 55.0% disagreed or strongly disagreed that data analytics enhanced decision accuracy. Only 25.4% expressed agreement. The mean score of 2.55 (SD = 1.361) falls well below the neutral midpoint, signaling widespread skepticism or difficulties in effectively utilizing analytics for precise strategic decisions. This sentiment may stem from challenges such as poor data quality, limited analytical skills, or ineffective tool deployment. Many SMEs may struggle with data fluency, making it difficult to interpret and apply complex analytical outputs. Additionally, gaps in training and system integration likely hinder the translation of insights into actionable decisions. While data analytics tools are available, their potential remains underutilized due to insufficient user competence and weak alignment between analytical outputs and business strategy. These findings suggest that building internal capacity is critical to realizing the full value of analytics in decision-making. Only 32.4% agreed or strongly agreed that data analytics help predict trends, while 45.1% disagreed or strongly disagreed, indicating low adoption levels.

Table 1: Responses on Data Analytics

statement	mean	Std D
Data analytics tools support informed decisions	3.28	1.456
Data analytics improve decision accuracy	2.55	1.361
Data analytics help predict trends and behaviors	2.87	1.372

Correlation Analysis on Data Analytics and Strategic Decision Effectiveness

The correlation between Data Analytics and Decision Effectiveness was weak and positive (r = 0.058) but statistically insignificant (p = 0.918). This suggests that while firms adopting data analytics may show a slight tendency toward improved decision-making, the effect is too small to be meaningful in this context. The insignificance implies that Nairobi SMEs may not yet be leveraging analytics tools strategically; instead, they may be confined to operational or reporting purposes. Without proper integration, skills, and alignment with organizational strategy, analytics investments do not translate into tangible decision-making benefits, reflecting underutilization and immature digital adoption.

Table 2: Correlation between Data Analytics and Decision Effectiveness

	Data Analytics	Decision Effectiveness
Data Analytics	1	.001
Decision Effectiveness	.058	1
Sig.		0.918
N	71	71

Note**.** Correlation is not statistically significant at the 0.05 level (2-tailed).

Regression Analysis on Data Analytics and Strategic Decision Effectiveness

The regression analysis shows a very weak and statistically insignificant relationship between Data Analytics and Decision Effectiveness (R = 0.058). The R Square value of 0.003 indicates that Data Analytics explains only 0.3% of the variance in Decision Effectiveness, which is negligible. The negative adjusted R^2 (-0.011) further confirms that the model does not improve predictive power beyond chance. This suggests that while Data Analytics may exist within SMEs, it is not currently being leveraged as a meaningful driver of strategic decision-making effectiveness. Possible reasons could include poor integration into workflows, limited staff skills in interpreting analytics, or reliance on analytics for operational rather than strategic decisions. In short, Data Analytics is not a significant predictor of strategic decision-making effectiveness in this dataset, highlighting a gap between tool adoption and its actual strategic utilization.

Table 3: Regression Analysis between Data Analytics and Decision Effectiveness

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.058	0.003	-0.011	0.6838

a. Predictors: (Constant), Data Analytics

ANOVA for Data Analytic Tools

The ANOVA results indicate that the regression model using Data Analytics as a predictor for Decision Effectiveness is not statistically significant ($F = 0.235$, $p = 0.630$). This means that variations in Data Analytics adoption do not meaningfully explain differences in Decision Effectiveness among the SMEs in this study. The large residual sum of squares compared to the regression sum of squares highlights that most of the variation in decision-making effectiveness arises from factors outside the model. Thus, while Data Analytics may contribute operational value, its direct influence on strategic decision effectiveness appears limited in this context.

Table 4: ANOVA Results

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	0.110	1	0.110	0.235	0.630
	Residual	32.262	69	0.468		
	Total	32.372	70			

a. Predictors: (Constant), Data Analytics
b. Dependent Variable: Decision Effectiveness

Regression Coefficients for Data Analytics predicting Decision Effectiveness:

The regression coefficients indicate that for each one-unit increase in Data Analytics, Decision Effectiveness is predicted to increase by 0.062 units. However, this effect is not statistically significant ($p = 0.629$), suggesting that Data Analytics alone does not meaningfully explain variation in decision-making effectiveness among SMEs. The constant (2.795) shows that even when Data Analytics use is zero, baseline decision-making effectiveness remains relatively high. The wide confidence interval crossing zero reinforces the lack of significance, implying that improvements in decision-making likely depend on additional organizational factors such as integration, training, and cultural alignment.

Table 5: Regression Coefficients for Data Analytics predicting Decision Effectiveness

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.795	0.446		6.27	<.001
	Data Analytics	.062	0.127	.06	0.48	.629

Decision Effectiveness (Y)= 2.795+0.062**X** (Data Analytics)

Descriptive Statistics

There is a perfect split in opinion regarding ERP integration capabilities. Exactly 39.4% disagreed or strongly disagreed, while an identical 39.4% agreed or strongly agreed. The mean score of 2.94 (SD = 1.413) is very close to neutral, reflecting this stark division, potentially due to varying levels of ERP implementation maturity or suitability for specific business processes. Responses reveal a clear divide. While 42.3% agreed or strongly agreed that ERP systems support alignment between decisions and objectives, nearly equal 46.4% disagreed. The mean score of 2.99 (SD = 1.563) reflects a near-neutral stance, highlighting mixed experiences among SMEs regarding ERP's contribution to strategic alignment. This variation suggests that although ERP systems are widely adopted, many SMEs struggle to fully align them with their strategic goals. Contributing factors may include poor system customization, limited user training, or weak integration across departments. Such challenges limit the ability of ERP systems to deliver the expected strategic benefits. These findings emphasize the need for better alignment between ERP capabilities and business strategy, alongside improved implementation practices and user engagement to unlock ERP's full potential. More respondents lean towards disagreement regarding ERP providing real-time data. A total of 45.1% disagreed or strongly disagreed, compared to 38.1% who agreed or strongly agreed. The mean score of 2.85 (SD = 1.327) falls slightly below neutral, suggesting challenges in achieving real-time data access through ERP, possibly due to implementation complexities, integration issues, or system limitations.

Table 6: Responses on ERP Adoption

Statement	mean	Std. Dev
ERP systems integrate business functions	2.94	1.413
ERP helps align decisions with objectives	2.99	1.563
ERP provides real-time data for timely decisions	2.85	1.327

Correlation Analysis on ERP Adoption and Strategic Decision Effectiveness

The correlation analysis between ERP Systems and Decision Effectiveness produced a Pearson correlation coefficient of r = .031 with a p-value of 0.705 at N = 71. This indicates a positive but weak association, suggesting that improvements in ERP usage may be modestly linked to better decision-making effectiveness. However, the relationship is not statistically significant at the 0.05 level, meaning we cannot confidently conclude that ERP systems have a meaningful effect on decision effectiveness. While there is some indication of alignment, the weak correlation highlights the need for further investigation with larger samples or additional variables.

Table 7: Correlation analysis between ERP Systems and Decision Effectiveness

	ERP Systems	Decision Effectiveness
ERP Systems	1	.05
Decision Effectiveness	.031	1
Sig.		0.705
N	71	71

Note**.** Correlation is not statistically significant at the 0.05 level (2-tailed).

a. Predictors: ERP

b. Dependent Variable: Decision Effectiveness

Regression Analysis

The regression analysis produced an R value of 0.031, indicating a very weak positive relationship between ERP and decision effectiveness. The R Square value is 0.001, meaning that ERP explains only 0.1% of the variance in decision effectiveness. After adjusting for sample size, the Adjusted R Square is -0.013, which suggests that the model does not improve predictive power and may perform worse than a simple mean-based model. The Standard Error of the Estimate (0.685) is relatively large compared to the scale of the data, further showing that the model's predictions are imprecise. Overall, this regression suggests that ERP is not a significant predictor of decision effectiveness in this dataset, and other variables may play a more substantial role.

Table 8: Regression analysis between ERP Systems and Decision Effectiveness

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.031	0.001	-0.013	0.685

a. Predictors: (Constant), ERP

b. Dependent Variable: Decision Effectiveness

ANOVA

The ANOVA results show that ERP has no statistically significant effect on Decision Effectiveness ($F = 0.068$, $p = 0.794$). The p-value is far above the 0.05 threshold, indicating that variations in ERP do not significantly explain variations in Decision Effectiveness. The regression model explains almost none of the variance, as reflected by the very small sum of squares attributable to regression compared to residual. This suggests that in this dataset, ERP adoption or use does not meaningfully contribute to improving decision-making effectiveness, and other factors may be more influential.

Table 9: ANOVA Results

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	0.032	1	0.032	0.068	0.794
	Residual	32.339	69	0.469		
	Total	32.371	70			

Regression Coefficients for ERP

The regression analysis revealed that ERP systems had a weak and statistically insignificant effect on decision-making effectiveness. The coefficient for ERP (B = 0.034, p = 0.794) indicates only a slight positive relationship, suggesting that increased ERP adoption does not meaningfully enhance strategic decision-making among SMEs. The wide confidence interval, crossing zero, further confirms this lack of significance. Conversely, the constant value (2.907) shows that even without ERP, decision-making effectiveness remains moderately strong. Overall, this implies that ERP systems, while present, are not being strategically leveraged, reinforcing the view that technical adoption alone is insufficient for performance gains.

Table 10: Regression Coefficients for ERP

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.907	0.392		7.415	<0.001
	ERP	0.034	0.130	.030	0.262	0.794

Decision Effectiveness (Y)= 2.907+0.0634**X**(ERP)

Cloud Computing on the Effectiveness of Strategic Decision Making

Descriptive Statistics

Opinions on whether cloud computing enhances decision timelines are divided. A total of 39.4% agreed or strongly agreed, while 40.8% disagreed or strongly disagreed. Nearly 20% remained neutral. The mean score of 3.04 (SD = 1.449) sits just above the neutral point, highlighting this split. While cloud computing is widely acknowledged for improving operational efficiency, its impact on decision-making speed remains debatable among SMEs. These inconsistencies suggest that not all SMEs are fully leveraging cloud capabilities to improve strategic responsiveness. Perceptions regarding the effectiveness of cloud computing in enhancing data access and analysis are similarly divided. A combined 42.2% of respondents agreed or strongly agreed, while 39.4% disagreed or strongly disagreed. With a mean score of 3.00 (SD = 1.454), responses centered at the neutral point, reflecting a lack of clear consensus among SMEs. This mixed sentiment suggests that while cloud computing holds promise for improving data accessibility and analytical capabilities, its impact varies depending on how well the technology is implemented and

integrated. A slightly more positive view emerges regarding scalability and flexibility, with 49.3% agreeing or strongly agreeing. However, a significant proportion, 39.4%, still expressed disagreement. Fewer respondents were neutral, 11.3%. The mean score of 3.10 (SD = 1.504) is slightly above neutral, suggesting a tendency towards agreement but highlighting considerable dissent. SMEs in Nairobi County exhibit varied experiences and perceptions regarding cloud computing benefits. While nearly half recognize its potential for scalability, there is a significant division on its impact on decision timeliness and data accessibility/analysis. This suggests inconsistent adoption levels, implementation success, or understanding of cloud capabilities.

Table 11: Responses on Cloud Computing

Statement	Mean	Std Dev
Cloud computing enhances timeliness of decision-making	3.04	1.449
Cloud computing improves data access and analysis	3.00	1.454
Cloud computing offers scalability and flexibility	3.10	1.504

Correlation Analysis on Cloud Computing and Strategic Decision Effectiveness

The correlation coefficient between cloud computing and Decision Effectiveness is 0.207, suggesting a weak positive relationship. This implies that as IT infrastructure increases, there is a slight tendency for decision effectiveness to also increase, although the effect is minimal. The p-value of 0.156 exceeds the conventional threshold of 0.05, meaning the correlation is not statistically significant. In practical terms, this indicates that variations in IT infrastructure are not reliably associated with changes in decision-making effectiveness in the studied SMEs. This finding could suggest that cloud computing, while essential for operations, may not directly influence the strategic quality of decisions. Instead, its impact might be mediated by other factors such as employee skills, organizational alignment, or integration with decision-support systems. It also aligns with literature emphasizing that infrastructure alone is insufficient, without proper training, adoption, and alignment with strategic goals, investments in IT infrastructure may fail to translate into better decision-making outcomes.

Table 12: Correlation between cloud computing and Decision Effectiveness

	Cloud	Decision Effectiveness
Cloud	1	
Decision Effectiveness	0.207	1
Sig.	0.156	
N	71	71

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

Regression Analysis on Cloud Computing and Strategic Decision Effectiveness

The regression model evaluating the effect of Cloud Computing on strategic decision-making effectiveness produced an R value of 0.207, indicating a weak positive correlation between the

cloud-related predictors and the dependent variable. The R^2 value of 0.043 shows that only 4.3% of the variance in decision-making effectiveness is explained by Cloud Computing, while the remaining 95.7% is attributed to other factors not considered in this study. This suggests that although Cloud Computing contributes to decision-making effectiveness, its influence is limited and likely moderated or supported by other organizational elements such as leadership competence, employee digital skills, data-driven culture, or integration with other IT systems. The adjusted R^2 value of 0.02 further indicates minimal improvement in explanatory power after accounting for the number of predictors, reinforcing that Cloud Computing alone does not sufficiently explain variations in decision-making effectiveness among SMEs.

Table 13: Cloud Computing Regression Results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.207	0.043	0.02	0.676

a. Predictors :(Constant), Cloud Computing

b. Dependent Variable: Decision Effectiveness

ANOVA on Cloud Computing and Strategic Decision Effectiveness

The ANOVA results indicate that Cloud computing does not have a statistically significant effect on Decision Effectiveness ($F = 2.666$, $p = 0.107$). Since the p-value is greater than the 0.05 threshold, we fail to reject the null hypothesis, suggesting that IT Infrastructure alone is not a strong predictor of Decision Effectiveness in this dataset. This implies that while infrastructure may be necessary, its direct impact on decision-making effectiveness is limited without complementary factors like alignment, skills, or analytics.

Table 14: ANOVA Results - Cloud computing

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.204	1	1.204	2.666	0.107
	Residual	31.167	69	0.452		
	Total	32.371	70			

4.6.7 Regression Coefficients on Cloud Computing and Strategic Decision Effectiveness

The regression results show that Cloud Computing has a weak positive but non-significant effect ($B = 0.194$, $p = 0.082$) on Decision Effectiveness. This suggests that higher levels of Cloud Computing adoption tend to slightly improve decision effectiveness, although the effect is not statistically significant. The constant (2.457, $p < 0.001$) indicates the baseline level of decision effectiveness when Cloud Computing is not considered.

Table 15: Regression Coefficients - Cloud Computing

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.457	0.345		7.11	0.000
	Cloud Computing	0.194	0.110	0.207	1.76	0.082

Decision Effectiveness (Y)=2.457 + 0.194**X**(Cloud)

Information Technology Investment on the Effectiveness of Strategic Decision-Making

Descriptive Statistics

This sub-section assesses perceptions related to IT investment and its strategic implications. A notable proportion 40.8% agreed or strongly agreed that IT infrastructure investment supports decision-making. However, 31.0% disagreed, and a substantial 28.2% remained neutral. The mean score of 3.20 (SD = 1.294) is moderately positive, but the large neutral group suggests uncertainty about the direct impact or return on investment (ROI) of infrastructure spending. More respondents disagreed than agreed that IT investments align with strategic priorities. A combined 43.6% disagreed or strongly disagreed, while only 32.4% agreed or strongly agreed. The significant neutral group 23.9% further emphasizes the uncertainty. The mean score of 2.80 (SD = 1.327) is below neutral, highlighting potential weaknesses in strategic IT planning and alignment within these SMEs. A majority of respondents, 52.2% disagreed or strongly disagreed that IT investments enhance decision-making, compared to only 32.4% who agreed. The mean score of 2.68 (SD = 1.412) falls below the neutral point, indicating skepticism about the impact of IT spending on strategic decision quality. This perception may stem from suboptimal investment choices, poor implementation, or a lack of user training. The findings suggest that simply increasing IT budgets does not guarantee better decisions; instead, success depends on aligning IT investments with organizational goals and building user competence. The results underscore the need for improved training, system integration, and strategic clarity to ensure that IT tools meaningfully contribute to decision-making processes. Views are mixed regarding the regular evaluation of IT spending against strategic goals. While 39.5% agreed or strongly agreed, almost equal 39.4% disagreed or strongly disagreed. A significant neutral group, 21.1% exists. The mean score of 2.90 (SD = 1.333) is close to neutral, indicating inconsistent practices or effectiveness in IT financial governance and strategic alignment checks. SMEs express considerable skepticism about the strategic alignment and decision-making impact of their IT investments. While infrastructure investment is viewed somewhat positively, there are clear concerns about whether investments align with priorities, demonstrably improve decisions, or are regularly evaluated against goals. This points to potential issues in strategic IT planning, benefits realization, and governance.

Table 16: Responses on IT Investment

Statement	Mean	Std Dev
Investment in IT infrastructure supports decisions	3.20	1.294
IT investment aligns with strategic priorities	2.80	1.327
IT investments improve decision-making	2.68	1.412
Regular IT spending evaluation aligns with goals	2.90	1.333

Correlation Analysis on IT Investment and Strategic Decision Effectiveness

The correlation analysis between IT Investment and Decision Effectiveness produced a coefficient of 0.003 with a significance value of 0.702. This result indicates that there is virtually no linear relationship between the level of IT investment and the effectiveness of decision-making among SMEs in Nairobi County. The coefficient, although negligible, suggests that increased IT spending does not automatically translate into improvements in decision effectiveness. The very high p-value further confirms that the relationship is not statistically significant, meaning that the observed correlation could easily have occurred by chance. This finding highlights a critical issue: investing in IT resources without proper alignment, training, and integration into strategic processes may not yield meaningful benefits. It suggests that SMEs may be focusing more on the size of investment rather than ensuring that IT systems are fully utilized to support decision-making. Hence, effectiveness depends more on utilization than on expenditure.

Table 17: Correlation IT Investment Vs. Decision Effectiveness

	IT Investment	Decision Effectiveness
IT Investment	1	
Decision Effectiveness	0.003	1
Sig.	.702	
N	71	71

** Correlation is not significant at the 0.05 level (2-tailed).

Regression Analysis on IT Investment and Strategic Decision Effectiveness

The regression analysis examining the influence of IT Investment on Strategic Decision Effectiveness produced an R value of 0.003, indicating an almost nonexistent correlation between the two variables. The R^2 value of 0.000 shows that IT Investment explains virtually none of the variance in decision-making effectiveness among SMEs in Nairobi County. Furthermore, the Adjusted R^2 of -0.014 confirms that the model offers no explanatory improvement after accounting for the number of predictors. The Standard Error of 0.685 reflects a relatively large prediction error, reinforcing the weak model fit. These findings demonstrate that IT Investment does not significantly predict or influence Strategic Decision Effectiveness. This suggests that simply

increasing IT spending does not automatically enhance decision-making performance. Rather, the effectiveness of decisions likely depends on how well IT resources are strategically aligned, integrated into organizational processes, and supported through user training and capacity development.

Table 18: IT Investment Regression Results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.003	0.000	-0.014	0.685

ANOVA on IT Investment and Strategic Decision Effectiveness

The ANOVA results corroborate the regression findings, confirming that IT Investment does not have a statistically significant effect on Strategic Decision Effectiveness. The model yielded an F-statistic of 0.001 with a significance value (p) of 0.971, which is far above the 0.05 threshold for statistical significance. This indicates that the regression model does not perform better than a model without predictors. The regression sum of squares (0.001) is negligible when compared to the residual sum of squares (32.371), showing that almost all variation in decision-making effectiveness is explained by factors other than IT Investment. These results reinforce the conclusion that IT expenditure alone is insufficient to drive improvements in strategic decision-making among SMEs in Nairobi County. Instead, the benefits of IT depend on effective utilization, alignment with organizational goals, and the presence of supporting capabilities such as training and integration.

Table 19: IT Investment ANOVA Results

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	0.001	1	0.001	0.001	.9718
	Residual	32.371	69	0.469		
	Total	32.372	70			

Regression Coefficients

The regression results reveal that IT Investment does not have a significant influence on Decision Effectiveness. The constant value ($B = 3.022$, $p < 0.001$) indicates that when IT Investment is zero, Decision Effectiveness remains at a baseline level of 3.022. However, the coefficient for IT Investment ($B = -0.005$, $\beta = -0.004$, $p = 0.971$) is negative, very close to zero, and statistically insignificant. This suggests that changes in IT Investment neither meaningfully increase nor decrease Decision Effectiveness in this dataset. The very small, standardized coefficient (Beta = -0.004) further confirms the absence of practical significance. Overall, while IT infrastructure and resources are often critical for organizational performance, these results imply that investment alone, without effective integration or strategic alignment, does not automatically enhance decision-making effectiveness.

Table 20: Regression Coefficients – IT Investment

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.022	0.416		7.266	0.000
	It Investment	-0.005	0.136	-0.004	-0.037	0.97

Decision Effectiveness (Y)= 3.022-0.005**X** (IT Investment)

Strategic Decision-Making Effectiveness

This final sub-section examined perceptions of IT's overall contribution to the quality, timeliness, and goal alignment of strategic decisions. Respondents were divided on whether IT improves the quality of strategic decisions. While 35.2% agreed or strongly agreed, a larger proportion, 40.9% disagreed or strongly disagreed. A substantial neutral group 23.9% exists. The mean score of 2.89 (SD = 1.459) is slightly below neutral, suggesting that the perceived impact of IT on decision quality is limited or inconsistent among the surveyed SMEs. A slightly more positive view is seen regarding IT enabling timely strategic decisions. A combined 43.6% agreed or strongly agreed, compared to 39.5% who disagreed or strongly disagreed. The mean score of 3.11 (SD = 1.347) is just above neutral, indicating a moderately positive perception of IT's contribution to the speed of strategic decision-making. A clear majority, 50.7% disagreed or strongly disagreed that IT enhances the alignment of decisions with strategic goals. Only 25.4% agreed. The mean score of 2.59 (SD = 1.390) is significantly below neutral, indicating a strong perception that IT systems are not effectively contributing to ensuring strategic decisions align with overarching business objectives. When asked about the overall effectiveness of IT in strategic decision-making, respondents were generally skeptical. Nearly 47.9% disagreed or strongly disagreed, while only 35.2% agreed. The mean score of 2.83 (SD = 1.341) sits below neutral, reflecting mixed perceptions and a prevailing sense of uncertainty regarding IT's strategic value among SMEs. The responses suggest that while IT offers potential for supporting strategic decisions, many SMEs have yet to realize these benefits fully. This gap may result from insufficient training, weak alignment between IT systems and business strategy, and difficulty demonstrating clear return on investment (ROI). These findings highlight the need for stronger integration of IT with strategic objectives and a focus on building internal capabilities to extract meaningful decision support from technology investments.

Table 21: Responses on Decision-Making Effectiveness

Strategic Decision-Making Effectiveness	Mean	Std Dev
IT improves the quality of strategic decisions	2.89	1.459
IT enables timely strategic decisions	3.11	1.347
IT enhances decision alignment with goals	2.59	1.390
Overall effectiveness of IT in decision-making	2.83	1.341

Correlation Results: Strategic Decision-Making and Decision Effectiveness

The correlation analysis between Strategic Decision-Making and Decision Effectiveness reveals a strong, positive, and statistically significant relationship ($r = 0.716$, $p < 0.01$). This indicates that as overall decision-making practices improve, decision effectiveness also increases substantially. The strength of the relationship suggests that Strategic Decision-Making accounts for a meaningful portion of the variation in decision outcomes, highlighting its importance as a predictor of decision success. Practically, this implies that organizations investing in structured, comprehensive, and inclusive decision-making frameworks are more likely to achieve higher levels of effective decision outcomes. The findings emphasize the critical role of integrated decision processes, such as systematic evaluation, collaboration, and strategic alignment, in driving organizational effectiveness. By strengthening overall decision-making systems, organizations can enhance consistency, reduce errors, and achieve competitive advantages through better-informed, timely, and effective decisions.

Table 22: Correlation Strategic Decision-Making Effectiveness Variables

	Strategic Decision-Making	Decision Effectiveness
Strategic Decision-Making	1	.716
Decision Effectiveness	.716	1
Sig. (2-tailed)		.001
N	71	71

** Correlation is significant at the 0.05 level (2-tailed).

Conclusion

The study concluded that while cloud computing infrastructure is present among many SMEs in Nairobi County, its application moderately supports the timeliness of strategic decision-making but remains largely operational rather than strategic. The findings highlight that the mere presence of analytics tools is insufficient without a parallel investment in human capital, analytical thinking, and supportive organizational structures. ERP systems, while intended to facilitate business integration and effective strategic decision making are currently underutilized or ineffectively implemented by many Nairobi SMEs. IT investment, counter-intuitively, shows a negative relationship with strategic decision-making effectiveness in this sample. Higher IT spending alone does not guarantee improved strategic decision-making; in fact, without proper strategic alignment, needs assessment, and complementary investments in skills and change management, increased IT spending may be associated with diminished effectiveness.

Recommendations

To fully leverage the strategic potential of cloud computing, SMEs should move beyond using cloud platforms solely for basic storage and communication and begin exploring advanced functionalities such as cloud-based analytics platforms, business intelligence dashboards, and collaborative decision-support systems tailored to their industry needs. To improve the

effectiveness of data analytics tools in strategic decision-making, SMEs should prioritize enhancing data literacy across the organization through targeted workshops and training that focus on data interpretation, dashboard utilization, and foundational analytical techniques. To enhance the strategic impact of ERP systems, SMEs should focus on customizing ERP solutions to align with their unique business processes and strategic objectives, working closely with vendors to tailor functionalities beyond generic off-the-shelf options. To optimize the strategic value of IT investment, SMEs should ensure that all technology expenditures are directly aligned with clearly defined, measurable business objectives. Rather than acquiring tools based on market trends or external pressures, investments should be driven by specific organizational needs and anticipated strategic outcomes.

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