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INFLUENCE OF DATA ANALYTICS ADOPTION ON THE EFFECTIVENESS OF STRATEGIC DECISION-MAKING IN SMALL AND MEDIUM ENTERPRISES IN NAIROBI COUNTY, KENYA

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ABSTRACT

Purpose: This study investigated the influence of data analytics adoption on the effectiveness of strategic decision-making among Small and Medium Enterprises (SMEs) in Nairobi County.

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.

Findings: Data analytics showed a positive but weak correlation (r = .0.058, p = .918). The regression models explained only minimal variance, with R^2 values ranging from .001 to .043, confirming that data analytics adoption, in isolation, does not drive effective strategic decision-making in the sampled SMEs. The study concludes that while data analytics adoption 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, data analytics adoption has yet to translate into measurable improvements in decision quality.

Unique Contribution to Theory, Policy and Practice: The study recommends that SMEs emphasize alignment of data analytics adoption with business priorities, strengthen user training, and adopt structured evaluation frameworks to link data analytics adoption 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 data analytics adoption and decision-making effectiveness.

Key Words: *Data Analytics Adoption, Strategic Decision-Making, and Small and Medium Enterprises*

BACKGROUND OF THE STUDY

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 data analytics 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 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).

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 data analytics 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 data analytics 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 data analytics 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 data analytics 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 data analytics 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 data analytics 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 data analytics 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.

LITERATURE REVIEW

Data Analytics Tools on the Effectiveness of Strategic Decision-making

The accuracy and effectiveness of strategic decision-making in SMEs have significantly improved with the integration of data analytics tools, which enable business leaders to base decisions on objective insights rather than intuition. Increasing reliance on business intelligence (BI), artificial intelligence (AI), and machine learning (ML) has transformed how SMEs process data, minimize risk, and enhance strategic outcomes (Ikbal, 2025). This section reviews empirical evidence on the adoption of data analytics, its influence on decision accuracy, predictive capabilities, risk reduction, and the cultural and operational conditions necessary for its success.

Decision Accuracy

Data analytics refers to the systematic application of statistical and computational techniques to examine raw data, identify patterns, and generate actionable insights. Unlike traditional decision-making approaches that rely on historical records or managerial experience, data-driven decision-making (DDDM) uses real-time insights, historical trend analysis, and AI-based forecasting models to improve the accuracy of strategic choices. SMEs that integrate data analytics platforms such as Tableau, Power BI, and Google Analytics experience an increase in decision precision and risk mitigation, as these tools allow for structured data visualization and in-depth analytics (Sonderlund, 2022). Research by Lee et al. (2024) indicates that over 60% of SMEs adopting data-driven decision-making frameworks achieve 30% greater accuracy in their strategic planning compared to those relying on conventional approaches. However, adoption of data analytics among SMEs remains limited by cost constraints and inadequate technical expertise. Many SME managers lack the necessary analytical and IT skills to effectively utilize available tools, which restricts the perceived usefulness and return on investment of analytics systems. Seppanen (2025), notes that SMEs that successfully build data analytics capabilities can gain a competitive edge, as analytics tools function as valuable strategic assets when effectively implemented. Nonetheless, Mungai and Nyambura (2021) observe that data quality issues such as missing, incomplete, or inaccurate records further reduce the effectiveness of analytics in Kenyan SMEs. These challenges underscore the need to strengthen data management and governance practices to fully realize the potential of analytics in supporting strategic decision-making.

Predictive Analytics and Machine Learning in Decision Accuracy

Predictive analytics and machine learning (ML) algorithms have revolutionized SME decision-making by enabling firms to forecast market trends, anticipate customer behavior, and minimize strategic errors (Ikbal, 2025). Unlike traditional methods that rely on static historical data, predictive analytics utilizes dynamic statistical models to detect trends, evaluate risks, and optimize decision-making processes (Khayer et al., 2021). According to Kim et al. (2023), SMEs

that incorporate predictive analytics tools such as Python-based forecasting models, R-statistical computing, and AI-powered simulations experience a 42% increase in strategic decision accuracy. These tools allow SMEs to develop highly refined demand forecasts, optimize pricing strategies, and streamline resource allocation. Moreover, ML algorithms can detect anomalies in financial and operational data, preventing decision errors that could lead to financial losses. A case study by Nweje & Taiwo (2025) demonstrated that SMEs using AI-driven analytics software reduced inventory mismanagement by 27% through precise demand forecasting. Such predictive modeling ensures that SMEs maintain optimal stock levels, reducing overstocking and understocking risks that often stem from inaccurate decision-making.

Business Intelligence (BI) Dashboards and Decision Accuracy

Business Intelligence (BI) dashboards, such as Microsoft Power BI, Google Data Studio, and Qlik Sense, enhance decision-making accuracy by providing real-time, interactive data visualizations that allow SMEs to track performance metrics effectively (Ikbal, 2025). BI dashboards help businesses integrate data from multiple sources, making it easier to identify key performance indicators (KPIs), detect operational inefficiencies, and monitor financial trends (Khayer et al., 2021). SMEs leveraging BI dashboards experience a 35% improvement in decision accuracy, as automated alerts and real-time performance tracking minimize the risk of outdated or incomplete data influencing decisions (Sonderlund, 2022). For example, retail SMEs utilizing Google Analytics and Power BI dashboards report higher precision in customer segmentation and targeted marketing strategies, leading to higher conversion rates and optimized marketing expenditures.

Furthermore, BI dashboards enhance transparency in decision-making by reducing data silos and enabling cross-functional teams to access and interpret data cohesively. Research by Kim et al. (2023) found that SMEs integrating BI dashboards reduced reporting errors by 41%, allowing decision-makers to make strategic choices based on consistent, structured, and validated data.

IT-Driven Risk Management and Error Reduction

One of the significant advantages of data analytics tools is their ability to minimize human errors and enhance risk management capabilities in SMEs. Traditional risk assessment models rely on manual evaluation, historical precedent, and subjective judgment, which often lead to inconsistencies and inaccuracies. However, AI-powered fraud detection, automated risk assessment software, and anomaly detection algorithms now allow SMEs to mitigate financial and operational risks more effectively. A study by Lee et al. (2024) revealed that SMEs implementing AI-driven fraud detection and financial risk analysis software saw a 28% reduction in financial inaccuracies and a 37% improvement in operational risk management. Tools such as IBM Watson Risk Management and SAS Analytics utilize predictive modeling and machine learning algorithms to detect potential threats before they materialize, improving the accuracy of decision-making (Sonderlund, 2022). Moreover, automated accounting software such as QuickBooks, Xero, and FreshBooks helps SMEs enhance financial accuracy by identifying transaction discrepancies and

ensuring regulatory compliance. These solutions significantly reduce human-induced accounting errors, which can lead to flawed decision-making.

Cloud-Based Data Analytics and Decision Accuracy

Cloud-based data analytics platforms, including Amazon Web Services (AWS), Microsoft Azure, and Google Cloud Analytics, have become essential tools for SMEs seeking to improve decision accuracy through real-time data accessibility and integration. Unlike traditional on-premise IT systems, cloud-based solutions enable SMEs to store, retrieve, and analyze data instantly, ensuring that decision-makers operate with up-to-date insights (Sonderlund, 2022). A study by Wang and Lin (2022) found that SMEs leveraging cloud-based business intelligence solutions reported a 47% improvement in decision accuracy, as cloud platforms allow businesses to analyze vast amounts of structured and unstructured data without major IT infrastructure investments. Additionally, cloud computing enables SMEs to integrate artificial intelligence-driven analytics, providing real-time performance monitoring and forecasting capabilities. Cloud solutions also improve collaboration and cross-functional decision-making, as stakeholders can access and analyze data from any location (Khayer et al., 2021). This enhances strategic alignment and ensures that SMEs avoid delays and inconsistencies that may arise from reliance on outdated or incomplete data.

Despite the evident benefits, many SMEs struggle to adopt data analytics tools due to high implementation costs, limited technical expertise, and data privacy concerns (Sonderlund, 2022). Research shows that over 40% of SMEs in developing economies cite financial constraints as the primary barrier to investing in advanced analytics solutions (Ikbal, 2025). Moreover, data security and compliance risks deter SMEs from fully embracing cloud-based analytics and AI-driven decision support systems (Soori et al., 2024). Data analytics adoption in SMEs is not solely a technological process but is also shaped by organizational culture and leadership commitment. Empirical studies highlight that when leaders actively promote a culture of experimentation, accountability, and continuous learning, analytics initiatives tend to yield significantly better strategic outcomes (Ghafoori et al., 2024). For instance, firms that cultivate strong data-driven cultures demonstrate markedly improved operational and financial performance due to more effective utilization of analytics capabilities. Ghafoori et al. (2024) further note that embedding data-driven practices into daily routines enhances the acceptance and consistent use of analytics tools, enabling organizations to leverage insights more effectively in strategic decision-making.

Furthermore, the integration of data analytics with Customer Relationship Management (CRM) systems creates a strategic synergy enhancing customer-centric decision-making. CRM-embedded analytics enable SMEs to monitor customer journeys, segment markets dynamically, and forecast churn with greater accuracy (Nethanani et al., 2024). Studies from the retail sector show that SMEs incorporating behavioral data into CRM systems achieved higher customer retention rates and more targeted product strategies outcomes linked to improved performance and market responsiveness.

A cutting-edge trend is the uptake of augmented analytics, which leverages machine learning, artificial intelligence, and natural language processing (NLP) to automate complex analytical tasks (Omotoye et al., 2024). Such tools democratize data insights by enabling non-technical users to generate reports, detect anomalies, and uncover predictive trends via conversational interfaces and smart dashboards. Augmented analytics thus addresses key SME constraints, such as limited IT expertise and resource constraints, by shifting technical burdens onto the platform itself. Moreover, augmented analytics enhances data governance and transparency. Automated data cleaning, lineage tracking, and standardized visualizations provide verifiable audit trails, helping SMEs comply with data quality standards and regulatory requirements (Dahbi, 2020). This systematic governance fosters trust in analytics outputs among internal stakeholders, further improving decision quality. In summary, the combination of a supportive data-driven culture, CRM integration, and augmented analytics tools fosters an environment where SMEs can achieve substantial gains in strategic decision accuracy, agility, and innovation even when technical resources are limited.

Summary of Empirical Studies on Data Analytics Tools and Strategic Decision-Making

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.

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 data analytic adoption and strategic decision-making processes. These included Business Owners or Managing Directors, Operations Managers, IT Managers, and Finance Managers. A total of 60 SMEs were selected. The study targeted an average of four decision-makers per SME, resulting in a total population of 240

respondents. This study employed stratified random sampling to ensure proportionate representation of different groups within the population. The sample size 89 respondents was determined using Yamane's (1967) formula. Primary data was collected using structured questionnaires. Descriptive statistics was used to summarize and present the data collected. Inferential statistics was applied to test the hypotheses and examine the relationship between data analytics adoption and strategic decision-making effectiveness. Additionally, multiple linear regression analysis was conducted to determine the impact of various data analytics adoption on decision-making. The following regression model was used:

$Y = \beta_0 + \beta_1 X_1 + \varepsilon$

Where: Y=Strategic Decision-Making Effectiveness (Dependent Variable), β_0=Constant, β_1= Regression coefficient, X_1= Data analytics adoption and ε = Error term. The analyzed data was presented using tables, charts, and graphs.

RESULTS

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 Dev
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+0.062X (Data Analytics)

Summary of the Key Findings

Descriptively, respondents moderately agreed that these tools assist in informed decision-making (Mean = 3.28) but showed skepticism regarding their impact on decision accuracy (Mean = 2.55) and market predictability (Mean = 2.87). Correlation results revealed a weak positive relationship between data analytics capabilities and decision effectiveness (r = 0.058). However, in the regression model, IT skills which encapsulated both data analytics and ERP systems, had no statistically significant effect on decision-making effectiveness. These results suggest that although SMEs conceptually acknowledge the value of data analytics, practical implementation remains underdeveloped or inconsistently applied to yield strategic benefits.

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

Discussion

Data analytics tools showed a notable inconsistency. While they were most highly regarded for supporting informed decision-making, they were rated lowest in terms of improving decision accuracy. Only a few respondents perceived an enhancement in accuracy, whereas many disagreed with this assessment. This paradox suggests a significant gap between access to data and the ability to translate that data into precise, reliable decisions. Literature provides ample support for this dilemma. Ikbal (2025) noted that SMEs often lack the internal capabilities to interpret and act upon analytical findings. Likewise, Kim et al. (2023) emphasized that technical literacy, data governance, and skills gaps are primary constraints limiting the effectiveness of analytics tools. While tools such as Power BI, Tableau, and Google Analytics offer robust dashboards, their strategic value is realized only when users can make sense of the output. Studies by Wang and Lin (2022) report that Kenyan SMEs who effectively used analytics increased decision accuracy. However, such improvements were contingent on the availability of clean data, specialized staff, and structured analytical workflows.

The Spearman correlation matrix reveals that Analytics has a moderate positive correlation (p = 0.32) with Decision Effectiveness, indicating that respondents who believe analytics improve accuracy also perceive greater strategic decision value. However, this contrasts with the descriptive findings where over half disagreed that analytics enhance decision accuracy. This disconnect suggests that while some SMEs leverage analytics effectively, most lack the capabilities to interpret data outputs meaningfully. Without adequate analytical literacy, even robust tools like Power BI or Google Analytics fall short in driving accurate strategic decisions. This reinforces the importance of investing not just in tools but also in human capacity, training, and structured data workflows to unlock the full value of analytics in SME environments. Furthermore, the regression analysis showed that data analytics variables did not significantly contribute to predicting decision-making effectiveness when incorporated into the model. This may reflect broader systemic issues such as poor data quality, fragmented datasets, and inadequate analytical training. The Resource-Based View (RBV) theory supports this interpretation by

asserting that competitive advantage from IT depends not just on the tools, but on a firm's ability to deploy them effectively (Seppanen, 2025).

Ochola and Kihara (2024) found similar trends in Nairobi SMEs, where analytics tools were widely available but underutilized in strategic contexts. Their use was often limited to sales forecasting and customer engagement, with minimal application to high-stakes decision-making. This selective adoption suggests that analytics in many SMEs remains at a superficial operational level. To fully leverage analytics, Nairobi SMEs should focus not only on acquiring tools but also on embedding analytical thinking across all managerial levels. This entails investing in staff training, restructuring processes to integrate data-driven insights, and aligning analytics projects with core business objectives. Only through such holistic integration can analytics meaningfully enhance decision accuracy and contribute to sustained competitive advantage.

Conclusion

Data Analytics and Effectiveness of Strategic Decisions

While data analytics tools are acknowledged by Nairobi SMEs as valuable for generating insights and informing decisions, they currently do not translate into improved decision accuracy. This disconnect is largely attributed to gaps in data literacy, poor data quality, and the lack of integration between analytics outputs and strategic decision-making processes. 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. To bridge this gap, SMEs must move beyond tool acquisition and focus on embedding analytics into their decision-making culture through targeted staff training, improved data governance, and alignment of analytics efforts with strategic business objectives. Only through this comprehensive approach can data analytics contribute meaningfully to accurate, data-driven strategic decisions and sustainable competitive advantage.

Recommendations

Improve Data Analytics Capability

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. Integrating user-friendly Business Intelligence (BI) tools such as Google Data Studio or Microsoft Power BI can ease initial adoption, allowing staff to build confidence and competence before transitioning to more advanced systems. Additionally, embedding regular data review into management routines and strategic planning sessions will help cultivate a data-driven culture where insights are consistently applied. Finally, improving data collection methods and implementing strong data governance practices is essential to address data quality issues and ensure reliable inputs for analysis.

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