

Exploring The Role of Management Accounting Information Systems in Enhancing Performance of Small and Medium Sized Enterprises (SMES) in East Africa: A Critical Analysis

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Abstract

This is an exploratory empirical study exploring the use of Management Accounting Information Systems (MAIS) and its impact on the performance of SMEs in East Africa (Kenya, Uganda, Tanzania, and Rwanda). While the use of digital accounting tools to improve financial management is increasingly accepted, original empirical data on this topic remains limited in East African countries.

This paper uses raw data collected in 2025 from a survey of 51 SMEs and analyzes it using descriptive statistics and topic coding. The results show that SMEs adopting MAIS primarily focus on survival-related functions, with approximately 65% of adopters using budgeting functions to adjust cash flow and 53% using budgeting functions to adjust costs. Growth-oriented SMEs are more willing to use this technology, while major barriers to adoption include high costs, unstable infrastructure, and insufficient digital literacy, particularly in rural areas.

The findings reveal contingency benefits arising from firm maturity, complementing contingency theory that emphasizes the survival needs of emerging economies. This article provides policymakers and practitioners with actionable recommendations for modular, cost-effective Management Accounting Information Systems (MAIS) to improve the performance of small and medium-sized enterprises (SMEs).

Keywords: Digital Transformation; East Africa; Financial Performance; MAIS; SMEs.

1. Introduction

1.1. Context and research gap

East African economies are highly dependent on SMEs. However, the numerous challenges SMEs face in addressing long-term financial issues, resource allocation, and technology application negatively impact their performance and development. While Management Accounting Information Systems (MAIS) represent a viable approach to improving operational control and decision-making in East Africa under resource constraints, empirical research on how these systems are applied and their specific impacts in the region is currently lacking. Existing research is largely based on general analyses of the region or theoretical frameworks, lacking context-specific and data-driven studies (Semlambo et al., 2024). To fill this research gap, this study conducted a firsthand survey of 51 SMEs in Kenya, Uganda, Tanzania, and Rwanda, aiming to address the shortcomings in the application of MAIS at critical stages of enterprise survival and development.

1.2. Research objectives and questions

The purpose of this study is to critically analyze how East African SMEs' performance might be enhanced by the implementation of MAIS. The specific research questions are as follows:

Q1: What effect does MAIS have on East African SMEs' operational and financial performance?

Q2: What are the primary obstacles preventing SMEs in the area from implementing MAIS?

Q3: In what ways can MAIS improve managerial decision-making and strategic planning within SMEs?

This paper answers these questions by applying primary data in expanding contingency theory in low-resource settings including a survival-growth approach to technology adoption.

2. Literature Review

2.1. Conceptual framework: distinguishing MAIs and MAIS

This article distinguishes between the concepts of Management Accounting Innovation (MAI) and Management Accounting Information System (MAIS), noting that while they share some similarities in theory and practice, they also have differences.

Management Accounting Innovations (MAIs) refer to new or significantly applied technologies, practices, and concepts in the field of management accounting. These encompass activity-based costing, balanced scorecards, or over-budget models (Nassar, 2018). Primarily adopted as a management and cognitive process, they require adjustments to decision-making philosophies and organizational processes. The latter is particularly relevant for studying how management accounting innovations are promoted in developing countries and what obstacles might hinder their practical application. These obstacles are often related to culture and education (Hariraj, 2021).

Management Accounting Information System (MAIS) is a technology-enhanced digital tool and platform that enables delegation, integration of operations, and support for the execution of management accounting functions (Astuty et al., 2022). Implementing MAIS is not only a management challenge but also a technological/operational one, involving software selection, data integration, user training, and IT... For resource-constrained SMEs, the main challenge in infrastructure development is not necessarily adopting new accounting concepts (management accounting), but rather building a digital environment that enables more efficient and transparent execution of even the most basic accounting processes.

This article specifically explores Management Accounting Information Systems (MAIS) as a digital tool. This is because the primary challenge for most East African SMEs is not integrating advanced accounting frameworks, but rather acquiring cost-effective and powerful systems to overcome core difficulties related to document preservation, cash flow transparency, and regulatory capacity. Literature on MAIS provides valuable background information for discussions of behavioral organizational barriers, and new literature on the application of MAIS in developing economies is directly linked to research on technological and infrastructure constraints.

2.2. Different approaches to understanding the value and adoption of MAIS

The perception of the value of MAIS (Management Accounting Information System) varies significantly depending on the context, as clearly demonstrated in the literature. Developed markets and large enterprises primarily focus on strategic advantages—using integrated data to predict the future, conduct analysis, and create a competitive advantage (Brilha, Saleh, and Al-Nimer, 2022). Research on resource-constrained SMEs in developing economies focuses on survival value. In this context, the basic assumptions of MAIS translate to fundamental operational stability, visible and controllable cash flow, and compliance with regulations—crucial for micro-enterprises (Hariyati et al., 2023). This fundamental difference highlights the importance of contextualizing MAIS research.

2.3. A comprehensive outlook on barriers and facilitation strategies

Existing obstacles to the development of Management Accounting Information Systems (MAIS), such as cost issues, skills gaps, and infrastructure deficiencies, are well-documented in the literature. A comprehensive analysis reveals a degree of interdependence among these obstacles. Cost barriers are absolute for survival-oriented firms, but relatively more so for growth firms that view investment as a strategic alternative to returns. Skills gaps generally involve accounting knowledge and require other forms of intervention. Recent data from resource-poor environments in Africa demonstrate the significant role MAIS plays in promoting regulatory compliance, which is crucial for business survival. The research by Duve and Schutte (2025) shows that in Zimbabwe, which employs a presumptive tax system, information technology significantly improved tax compliance for small businesses by promoting standardized record keeping and reducing penalties. This aligns with the risk mitigation priorities explicitly stated for SMEs in East Africa. Two common, often conflicting, driving forces exist: top-down, policy-driven approaches (e.g., national and multinational digital strategies, subsidies) and bottom-up, ecosystem-based adaptations (e.g., peer learning, supplier-controlled training, mobile integration). The conflict between these approaches is a focal point of current major policy debates.

2.4. Africa-specific insights and identified gaps

Newly conducted Africa-related research introduces a core dimension: the moderating effect of management capabilities and the quality of existing internal controls on the operational efficiency of digital accounting systems (Napitupulu, Semlambo et al., 2024). In the same year, Ratmono et al. (2023) also highlighted in their article on urban SMEs that competitive pressure is a significant driver of digital accounting system adoption in certain industrial clusters. A significant gap exists: East Africa lacks cross-border survey data that systematically studies the adoption patterns, perceived value, and limitations of Management Accounting Information Systems (MAIS) using a survival-growth contingency theory framework. This study will leverage integrated TOE-RBV- The contingency theory framework was developed, and empirical results were presented to fill this gap.

3. Research Methodology: Exploratory Empirical Design

The design and survey tools will employ a questionnaire format, conducted online. To collect primary data, we used Google Forms to create an online questionnaire consisting of four parts: (A) Respondents' views on the benefits and obstacles of MAIS (using a 5-point Likert scale); (B) MAIS usage patterns (adoption status, usage duration, core functions); (C) Basic company information (industry, size, years of operation); and (D) Open-ended answers regarding experience during implementation and future adoption intentions. The questionnaire design also emphasizes clarity and applicability to the actual situation of SMEs in East Africa.

3.1. Sample relevance, data collection, and ethical considerations

In May 2025, we used purposive sampling to collect data from respondents through the East African Business Forum and the SME Support Network. A total of 51 valid responses were collected from SMEs in Kenya, Uganda, Tanzania, and Rwanda, covering companies of different industries and sizes. Before participating in the study, all participants were informed of the research content and subsequently signed informed consent forms. The study was entirely voluntary and anonymous, and no personally identifiable information was collected,

complying with normal ethical research guidelines. Purposeful sampling may introduce self-selection bias; companies with prior experience with MAIS or a strong interest in digitalization may be more likely to participate.

3.2. Data analysis strategy

This study used Microsoft Excel for data analysis. Descriptive statistics (frequency, percentage, mean) were used to analyze quantitative data from closed-ended questions to identify central trends and trends in adoption, use, and impact. Thematic analysis was conducted on qualitative data collected through open-ended questions to identify recurring themes related to benefits, problems, and contextual elements.

3.3. Methodological positioning and limitations

This study employs an explicit exploratory research design, aiming to make preliminary explorations into the new landscape rather than to test related hypotheses or conduct statistical inductions. The sample size is relatively small and insufficient to conclude that the research results can represent the overall trend of SMEs in East Africa, nor can they be used for general application. This is a preliminary attempt in an area that has not yet been fully studied. Subsequent confirmatory studies should use a larger random sample size to verify and infer these preliminary observations.

4. Results and Findings

This chapter reveals the results of a survey of 51 SMEs in Kenya, Uganda, Tanzania and Rwanda. The report provides a comprehensive explanation of the design elements, covering six core issues: cognitive acceptance, actual application performance, perceived results, difficulties in the adoption process, qualitative observations and research boundaries.

4.1. MAIS awareness and adoption

Statistical results show that the adoption trend of new technologies by enterprises is related to their own development maturity. The adoption rate among growing SMEs (n=12) is as high as 91.7%, mainly due to strategic expansion. The adoption rate among struggling SMEs (n=16) is only 50%, primarily driven by urgent needs such as cash flow crises. Regarding the adoption rate of MAIS (Market Assessment Information System), a high percentage (60.8%) of adopters have not used the system within a year. Adoption rates vary across countries, with Tanzania (72.7%) and Kenya (68.4%) showing higher adoption rates, perhaps due to the underdeveloped agricultural digital infrastructure in these countries.

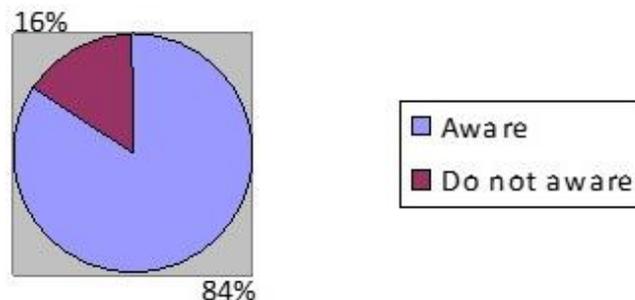


Fig. 1: MAIS Awareness among 51 SMEs.

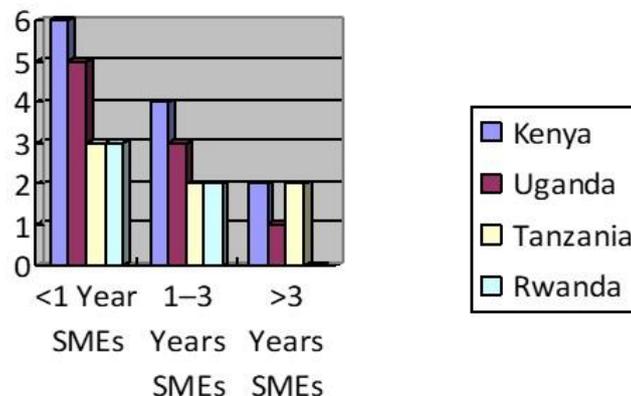


Fig. 2: MAIS Adoption Rates by Country and Duration of Usage.

4.2. Functional usage: aligned to survival needs

The use of MAIS aligns closely with the continuity of a company's survival and growth. As shown in Table 1, among the core functions encompassing short-term operational risks, budgeting is the most prevalent. Compliance management adoption is 19.6%, primarily used by companies in regulated industries. Significant differences exist in high-level functions: 54.5% of growing SMEs use decision support tools, while survival-oriented companies almost entirely focus on basic financial control, with only 37.5% adopting performance measurement functions.

Table 1: Functions Are Ranked by Alignment with SME Survival Risks

Table 1 Functional Usage: Prioritizing Survival Needs			
Function	% of Adopters	Critical for Survival?	Example from Survey
Budgeting	64.70%	Yes (cash flow management)	“MAIS alerts us when monthly expenses exceed 80% of revenue” (Rwandan retail SME).
Cost Control	52.90%	Yes (margin preservation)	“Reduced unplanned spending by 30% in 6 months” (Ugandan agro-processing firm).
Compliance Management	19.60%	Yes (avoiding penalties)	“Avoided a \$2,000 tax fine due to automated record-keeping” (Tanzanian manufacturer).
Decision Support	27.50%	No (resource-intensive; growth-focused)	Used by 54.5% of growth SMEs for market expansion.

Note: Descriptive statistics from survey data; no inferential testing was conducted due to the exploratory design and sample size.

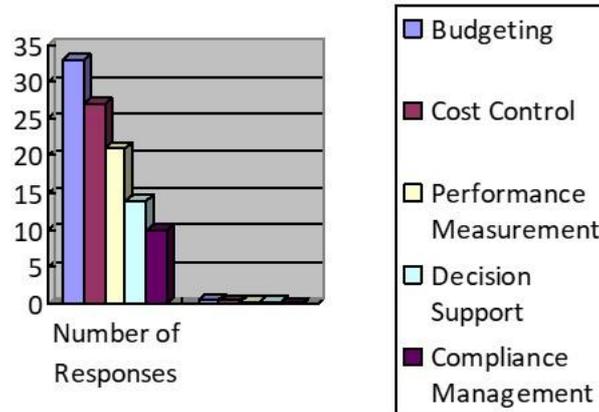


Fig. 3: Frequency of MAIS Functional Usage (by Function and Enterprise Size).

4.3. Barriers and qualitative insights

The obstacles mentioned in the report exhibit systemic variations based on company maturity, illustrating the perspective of contingency theory. Cost is the biggest challenge facing SMEs; one business owner stated that annual subscription fees amount to a quarter of quarterly profits. The second biggest challenge is the lack of local training. Growing SMEs have a significant skills gap (58.3% of respondents said they need analysts, not just software), and integration with existing systems is problematic.

A thematic analysis of the open-ended responses yielded two key conclusions: MAIS was initially positioned as a lifeline for business survival, rather than a means of strategic upgrading; a Kenyan businessman claimed that MAIS reduced the time spent on monthly reports from five days to one day, allowing them to focus on sales; specific policy assistance was considered a necessary trigger; and over 90% of survival-oriented businesses that had not yet adopted MAIS stated they would adopt it if subsidies were available, highlighting a gap between the perceived value and actual availability.

Likert Ratings for Decision-Making and Profitability (by Sector)

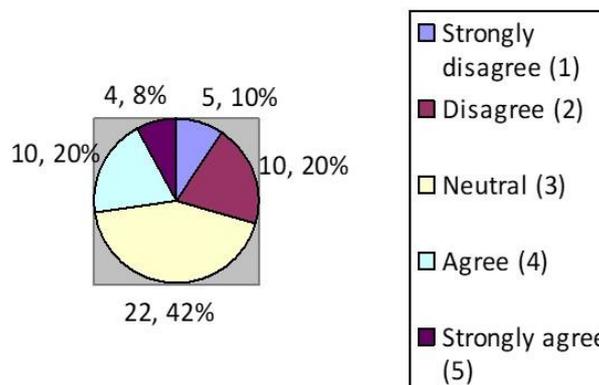


Fig. 4: Likert Ratings for Decision-Making and Profitability (by Sector).

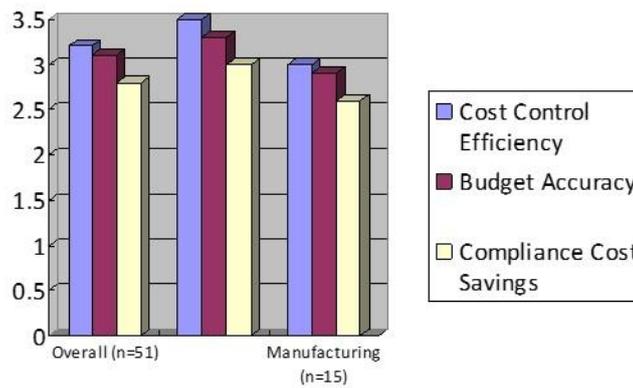


Fig. 5: Perceived Impact on Financial Management.

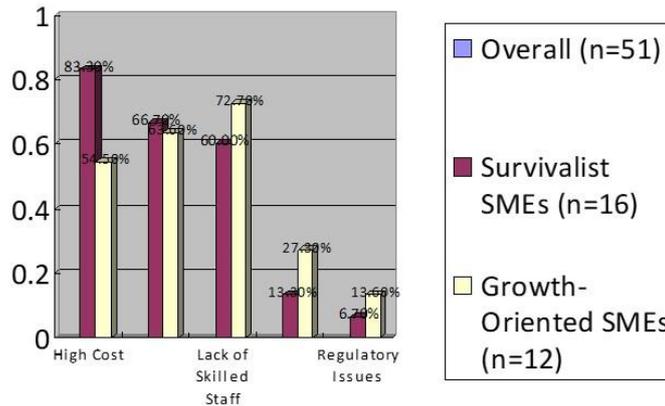


Fig. 6: Main Barriers to MAIS Adoption (by Enterprise Size).

4.4. Perceived effectiveness at different maturity stages

Following the Likert scale (1 = strongly disagree, 5 = strongly agree), the perceived effectiveness differed significantly among firms at different maturity stages. Growth-oriented SMEs rated higher than survival-oriented firms across all measurement dimensions (including decision-making efficiency, profitability improvement, and financial management). This trend is related to differences in resource utilization and availability.

Table 2: Survival Stage vs. Perceived Effectiveness

Survival Stage vs. Perceived Effectiveness Outcome	Survivalist SMEs (Mean)	Growth SMEs (Mean)	Descriptive Note
Decision-making efficiency	2.8	3.7	Notable difference in means observed
Profitability improvement	2.6	3.4	Notable difference in means observed
Financial management	2.7	3.6	Notable difference in means observed

Note: Based on questionnaire scores (1-5). Differences are presented as observed descriptive patterns; statistical significance was not tested due to the exploratory design.

5. Discussion: Analyzing The East African Evidence and its Broader Implications

The purpose of this chapter is to clarify and integrate the empirical results from Chapter 4, placing them within a broader theoretical and policy context, rather than simply restating the results.

5.1. Theoretical framework of the alleged key findings

The findings primarily illustrate, from a resource-based perspective and a technology-organization-... From an environmental framework perspective, East African SMEs exhibit significant consistency in adopting MAIS.

In situations of extreme resource scarcity, companies (especially those striving for survival) should prioritize basic functions such as budgeting and cost control. This confirms that strategic interests should not be the primary consideration in such circumstances; instead, investment in technology should be prioritized to address survival issues. The adoption rate of advanced analytics functions is low because they exceed the current adoption levels of most companies.

As companies develop, barriers to technology adoption are systematically evolving, and organizational readiness and maturity moderate the technology absorption process. This brings new insights to the organizational level within the TOE framework, demonstrating that organizations are not static but dynamically evolving.

Repeatedly focusing on external infrastructure and the policy environment as effective determinants confirms the importance of institutional theory in digital transformation research, demonstrating that informal support systems and reactive solutions (encompassing offline functionality and mobile training) have a crucial corrective effect on low-formalization institutional environments.

5.2. Based on experience and comparative intuition, comparing East African evidence with relevant literature yields two comprehensive perspectives on the east

The value propositions held are regionally specific, differing from the efficiency and innovation values valued in developed economies. East African SMEs primarily excel at risk aversion and survival through compliance. The indicators for evaluating MAIS success need to be localized, encompassing survival strategies such as avoiding penalties and maintaining business license status.

Appropriate intervention pathways must align with the development stage of the ecosystem. East African experience suggests that, unlike Southeast Asia's model of strong high-level promotion and reliance on mature markets, a demand-driven, community-based, public-private partnership-driven, gradual empowerment model may be more sustainable and scalable in a decentralized and informally dominant ecosystem. This provides a valuable African case study for global digital development theory.

5.3. Impact on policy and management

Based on the findings, this paper offers the following tiered and actionable recommendations to key stakeholders in the East African SME ecosystem.

5.3.1. Insights from SME management

SME executives need to adopt a pragmatic integration path that aligns with their own resources and development level.

Implement survival-oriented pilot projects. These pilot projects should be implemented quickly, immediately adopting a core MAIS module applied to the most pressing pain points in operations. Utilize concrete application tools (such as shortening financial settlement time) to make them feasible in the short term, thereby building internal confidence and managing early risks.

Shift investment focus from software procurement to internal capability building. Management should invest in continuous application-oriented training, especially emphasizing free resources and peer-to-peer learning. Ensure that at least one core employee possesses the practical skills to create key management reports.

Adopt a pragmatic expansion approach that matches business growth. MAIS operation and development should follow a gradual path, evolving from a simple and low-cost state to one with high-level analytical and decision support capabilities. Its functions and equipment should be continuously adjusted according to business development, becoming a strategically significant business resource.

5.3.2. How do policies and support institutions influence this?

A crucial foundation is whether policymakers can create an environment conducive to widespread adoption, thereby systematically minimizing major barriers to implementation.

The primary intervention is the development of tiered fiscal incentive programs. For survival-oriented businesses, direct subsidies in the form of basic MAIS font subscriptions could be provided; for growth-oriented businesses, tax breaks related to training or software upgrades could be offered, precisely supporting them in addressing cost challenges at different levels.

A key initiative is building a localized capacity-building system. This must be achieved through subsidized practice centers and the internationalization of software interfaces. This will involve local skills training to remove usage barriers and technophobia in one fell swoop. The long-term strategy is built on improving infrastructure and the market environment through innovative collaborations. This involves promoting SME data packages through public-private partnerships (PPPs), establishing community digital centers, and rewarding data that meets MAIS reporting regulatory requirements, thereby enhancing the data's practical value and attractiveness.

6. Limitations and Future Research Directions

6.1. Limitations of the study

This study obtained valuable data on the adoption of Management Accounting Information Systems (MAIS) by SMEs in East Africa. However, interpreting the results requires consideration of several methodological shortcomings. Although the sample was carefully selected, industry differences still exist. The number of service sector enterprises is excessive, while the number of agricultural enterprises, one of the region's main industries, is far too small. This limits the applicability of the research results to specific operating environments and problems. Agricultural SMEs generally face unique challenges such as seasonal cash flow and remote operation.

This study relies primarily on self-reported data from SME owners or managers. While their use of terms such as strengthening decision-making intervention or cost control may be valuable, limitations remain. The absence of opportunities for social expectation bias or post-investment optimism, coupled with a lack of triangulation with objective performance indicators (such as audited financial reports and operational data), suggests that while reported returns may have some indicative value, they are actually the result of subjective perception rather than objective measurement.

Cross-sectional studies only record the situation at a single point in time, thus failing to explore causal relationships. They can reveal the relationship between MAIS usage and reported returns, but cannot definitively track the long-term impact of MAIS usage on the growth, survival, and profitability of SMEs. Given the constantly evolving adoption of digital tools, we must adopt longitudinal research methods to grasp their maturation process and enduring value.

6.2. Recommendations for future research

This study, by addressing the aforementioned shortcomings and building upon the same exploratory foundation, aims to further expand upon the MAIS framework in East Africa, hoping to gain a deeper understanding of MAIS. The following research directions are recommended:

Industry and Longitudinal Research: Research should be conducted targeting specific industries (such as agriculture, manufacturing, and retail) to understand the unique adoption factors, usage paradigms, and value propositions of each industry. Referring to Fintan and Mburu's (2024) recent study on resource utilization and innovation capabilities of SMEs in Tanzania's agricultural processing sector, future research

could analyze the relationship between the Market Application Innovation System (MAIS) and resource constraints in this industry. Longitudinal research is also needed to track the causes and impacts of MAIS over the long term, clarifying the actual societal impact of SME outcomes, such as income scale, job creation, and market competitiveness.

Integration of Mixed Methods and Objective Data: A mixed method approach combining questionnaires, in-depth interviews, and case studies should be employed. By calculating, more background information can be obtained. Future research should strive to achieve a balance between self-provided information and business records or system logs to verify perceived benefits and quantify objective efficiency increases.

Strengthen the analysis of barriers and facilitators: Research must move beyond the barrier identification stage and construct models of the relationships and relative weights between barriers during modeling. It is particularly worthwhile to examine the effectiveness of specific intervention strategies, such as the impact of various subsidies or local language training programs on adoption rates and levels.

Explore ecosystem and behavioral dynamics: Future researchers should explore the broader digital ecosystem, such as mobile payment integration, fintech collaborations, and digital platform ecosystem architectures, and how they affect the utility of Mobile Application Information Systems (MAIS). Understanding the differences in cognitive biases, trust building, and change management practices among resource-constrained SMEs from a behavioral economics perspective may help in further exploring how to improve implementation success rates.

7. Conclusion

This study empirically investigated the adoption of Management Accounting Information Systems (MAIS) by SMEs in East Africa and their perceived effectiveness. The study surveyed 51 companies from four countries. While MAIS showed significant benefits in improving financial management, operational efficiency, and compliance, particularly for companies in the startup/survival stage, its effectiveness was largely correlated with the company's development level.

The main theoretical support came from using and extending the contingency/survival/growth perspective to examine technology adoption in resource-scarce environments. This perspective demonstrates that the drivers, barriers, and perceived value of MAIS are not structural, as they are primarily influenced by the company's current stage of development. Driven by pressing needs for survival or growth, the research findings advocate abandoning a normative support model in favor of a differentiated, tiered intervention approach. For survival-oriented SMEs, this means focusing on affordable, user-friendly core functional tools and simple digital literacy training, while for growth-oriented enterprises, the focus should shift to advanced analytics and systems integration.

For deeper integration of Market Application Information Systems (MAIS) in East Africa, key is to coordinate adaptive technology solutions, conduct capacity building tailored to local conditions, and create a supportive policy framework. Modular MAIS intervention approaches can enhance the resilience of SMEs in East Africa and other emerging economies.

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Conflict of Interest Statement

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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