

Adaptability Challenges in Implementing Big Data Analytics in Tanzanian Small and Medium Enterprises

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- Journal of Product and Brand Management
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- Journal of the International Council for Small Business



Introduction and Research Objectives of the pilot study

INTRODUCTION

Economic Role of SMEs

SMEs make up over 95% of Tanzanian firms and contribute about 35% to the national GDP, highlighting their economic importance.

Big Data Analytics Benefits

BDA can improve supply chain management, customer engagement, and cost efficiency through actionable insights from big data.

Challenges in BDA Adoption

Tanzanian SMEs face infrastructural, financial, and skills shortages that limit successful Big Data Analytics implementation.

Research Gap and Objective

There is limited research on BDA use in Tanzanian SMEs, with this study aiming to explore adaptability challenges and solutions.

RESEARCH OBJECTIVES

Adaptability Challenges in SMEs

Identify technological and organizational barriers
Tanzanian SMEs face in adopting Big Data
Analytics for operations.

Strategic Decision-Making Difficulties

Explore how SME managers struggle to integrate
data-driven insights into long-term business
strategies effectively.

Research Contribution

Provide understanding of barriers to Big Data
Analytics use and develop targeted support
mechanisms for SMEs.

Framework and Methodology

THEORETICAL FRAMEWORK

Technology Acceptance Model

TAM focuses on perceived usefulness and ease of use as key factors driving technology acceptance, especially in resource-limited contexts.

Diffusion of Innovations Theory

DOI categorizes adopters like innovators and laggards, explaining how new technologies spread among organizations.

TOE Framework

The TOE framework examines technological, organizational, and environmental factors influencing technology adoption decisions.

METHODOLOGY

Qualitative Abductive Approach

The study uses a qualitative abductive method to explore emerging phenomena like BDA adoption in SMEs.

Data Collection and Sampling

Data were gathered via semi-structured interviews with five SME managers from various sectors in major Tanzanian cities.

Thematic Analysis Using NVivo

NVivo software supported thematic analysis to identify patterns and themes aligned with the TOE framework.

Practical Insights for Stakeholders

The approach grounds findings in real experiences, offering insights for practitioners and policymakers.



FINDINGS

OPERATIONAL CHALLENGES

Digital Infrastructure Deficiency

Many SMEs lack digital infrastructure, causing fragmented data and reliance on manual records, risking data loss.

Cost and Accessibility Barriers

High costs and limited scalable Big Data Analytics tools prevent SMEs from fully adopting advanced technologies.

Integration and Efficiency Issues

Difficulty integrating data from multiple sources limits supply chain optimization and resource management.

STRATEGIC CHALLENGES

Skills Gap in Data Analytics

Many SMEs lack internal expertise to analyze complex data, limiting data-driven decision-making capabilities.

Lack of Data-Driven Culture

SMEs often lack a culture that values data-driven insights and have insufficient training programs.

Management Skepticism

Senior management may resist investing in BDA due to low awareness of its benefits and potential.

Absence of Integration Strategy

Without clear strategy, BDA efforts remain fragmented and data utilization is suboptimal.

CONCLUSION AND FUTURE WORK

DISCUSSION AND CONCLUSION

Technological Challenges

Inadequate IT infrastructure and limited digital systems hinder SMEs' readiness for Big Data Analytics adoption.

Organizational Constraints

Weak leadership support and low technical skills are significant organizational barriers to Big Data Analytics adoption.

Environmental Factors

Unclear policies and limited institutional backing complicate the environmental context for adoption.

Holistic Approach Needed

Addressing challenges requires leadership engagement, capacity building, and scalable Big Data Analytics solutions.

FUTURE WORK

Expanding Research Scope

Future studies will include diverse sectors and regions to improve the breadth and relevance of findings.

Use of Visual Analytical Tools

Incorporating tables, graphs, and comparative analyses will enhance data visualization and interpretation.

Collaborative Partnerships

Engaging technology providers and industry groups will facilitate knowledge sharing and resource pooling.

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