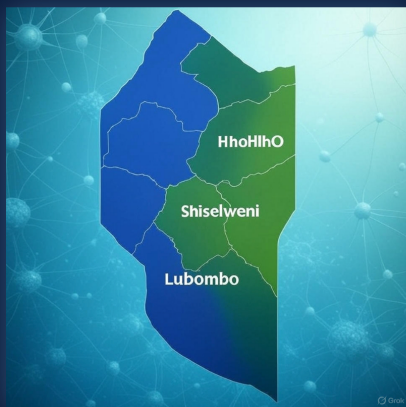


# Can the use of machine learning techniques on financial inclusion dataset in Eswatini be a game changer?

**Keywords:** Financial Inclusion, Machine learning, Eswatini second National Financial Inclusion Strategy, potential impacts, FinTech integration

## Abstracts

Lack of data-driven intelligent applications for re-engineering financial inclusion is a barrier. Machine learning can assist policymakers and financial service providers with effective ways of managing financial services to ensure inclusive participation and economic growth. This can help regulators make informed decisions and monitor financial inclusiveness across the four regions of Eswatini.



## Introduction

Emerging nations have increasingly utilized analytics to address economics difficulties. Formal financial inclusion in Eswatini improved from 53% in 2011 to 87% in 2023. The application of ML models on quality datasets could be a groundbreaking approach to address challenges in the Kingdom.

## Potential Impacts of ML

**Data Quality Resolution:** Class imbalance can be eliminated using SMOTE, and missing data can be handled with imputation, improving ML model performance.

**Improved Credit Risk Assessment:** ML models show higher prediction accuracy for credit risk among underserved groups compared to conventional methods.

**Identification of Lagging Regions:** ML applications showed that Hhohho, Shiselweni and Lubombo are lagging in financial inclusion.

**Enhanced Financial Access for SSBs:** ML techniques can identify barriers to financial access for small scale businesses, such as payment channels and bank usage.



## Problems and Shortcomings

**Implementation Barriers:** The cost of ML infrastructure (like GPUs) and a scarcity of AI experts are major concerns for an emerging nation like Eswatini.

**Generalization Issues:** Findings from country-specific datasets can be difficult to generalize due to limited diversity, data collection bias, and dataset variability.



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## Conclusion

ML techniques have the potential to be a game-changer in Eswatini's financial landscape. However, issues of data quality, research output, and implementation cost must be addressed. Government-private partnerships are needed to fund these initiatives.

