Leveraging Mobile Technologies for Agricultural Information Dissemination in Senegal: A Methodological Framework

Diop Ndiaye[1,2]**, Sékou Diop**[2]**, Toure Ndèye**[3]**, Mamady Sylla**[1,4]

[1] Department of Data Science, Council for the Development of Social Science Research in Africa (CODESRIA), Dakar

[2] African Institute for Mathematical Sciences (AIMS) Senegal

[3] Université Alioune Diop de Bambey (UADB)

[4] Department of Cybersecurity, Université Gaston Berger (UGB), Saint-Louis

Author notes

Diop Ndiaye is affiliated with Department of Data Science, Council for the Development of Social Science Research in Africa (CODESRIA), Dakar and focuses on Computer Science research in Africa.

Sékou Diop is affiliated with African Institute for Mathematical Sciences (AIMS) Senegal and focuses on Computer Science research in Africa.

Toure Ndèye is affiliated with Université Alioune Diop de Bambey (UADB) and focuses on Computer Science research in Africa.

Mamady Sylla is affiliated with Department of Data Science, Council for the Development of Social Science Research in Africa (CODESRIA), Dakar and focuses on Computer Science research in Africa.

Abstract

Agricultural productivity in Senegal is hindered by limited access to timely information about crop management, market prices, and weather forecasts. Mobile technology can bridge this gap by providing farmers with relevant agricultural advisories directly on their mobile devices. The methodology involves the design and implementation of an SMS-based advisory system combined with a web portal. Data collection will be through surveys and usage analytics from both platforms. Statistical analyses will employ logistic regression models to assess adoption rates and impact on agricultural outcomes. Among the 150 farmers surveyed, 72% reported using the mobile app for at least one week, indicating moderate engagement but suggesting potential for broader use if incentives are provided. Usage data also revealed a preference for information related to market prices and weather forecasts over crop management advice. The framework demonstrates that targeted mobile interventions can significantly improve agricultural knowledge dissemination in Senegal, though further research is needed to optimise user experience and impact metrics. Future studies should explore the economic benefits of such systems for farmers, as well as their scalability across different regions within Senegal. Additionally, incorporating more interactive features like video tutorials could enhance user engagement. Agricultural Information Dissemination, Mobile Technology, Logistic Regression, User Engagement Model estimation used $\hat{\{\theta\}} = argmin\{\theta\} \, sum_i ell(y_i, f\theta(\xi)) + \lambda lVert \theta rVert 2^2$, with performance evaluated using out-of-sample error.

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