

**MODELING AND EVALUATION OF PLATFORM-LEVEL INTEROPERABILITY
FOR MOBILE MONEY TRANSFER SYSTEMS**

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ABSTRACT

Techniques to expedite money transfer have been perfected over time. The use of Mobile phone to transfer money as an alternative to existing traditional payment systems is one of the evolutions of mobile telephony. Mobile money services offer the most convenient means of transferring money and are constantly evolving and are predicted to become the number one choice for cashless transactions in emerging markets. However, despite these prospects, there are various challenges to the expansion of this technology, cross network money transfer being one of them. For example, it is not possible to directly transact money between the different mobile money service providers in Kenya seamlessly. Although the money will be finally transacted, one has to pass through several agents before being able to transact. The research study was aimed at developing a platform level interoperability model for mobile money transfer systems using the Real Time Gross Settlement (RTGS) money transfer system as a reference model. The study used both qualitative and quantitative data from the four main mobile money providers in Kenya, M-Pesa, Airtel Money, Orange Money and Yu Cash to provide empirical evidence for the study. The study is grounded on two theories of interoperability. The first is Institutional Theory of interoperability which stipulates that organizations respond to pressures arising from both their external and internal business environments and adopt structures and practices that are accepted as appropriate organizational choices. The second one is the Interoperability Theory, which indicates that there is no single form or optimal amount of interoperability that will suit every circumstance and therefore, it should be allowed to evolve naturally. Data was collected using mainly a structured Questionnaire and face to face interview. The study used an interpretative exploratory research approach, simple random sampling to distribute the questionnaires and purposive sampling technique for the interview schedules. Qualitative and quantitative data collected was analyzed using both descriptive (frequencies, mean and standard deviation) and inferential statistics (Spearman's rho and factor analysis). Expert opinion survey was used to develop the proposed interoperability model. The model was validated by Structural Equation Modeling (SEM) using Analysis of Moment Structures (AMOS). The interoperability metric was developed based on ISO/IEC 15504-2 standard; the metric was applied to the four main mobile service providers. The model was successfully accepted by experts. The findings of this study are essential to the government in regulating mobile money and also form a basis for future development of interoperability of mobile money transfer systems.

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