

**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.

TABLE OF CONTENTS

	PAGE
DECLARATION	Error! Bookmark not defined.
DEDICATION	Error! Bookmark not defined.
ACKNOWLEDGEMENTS	Error! Bookmark not defined.
ABSTRACT	2
LIST OF FIGURES	9
LIST OF TABLES	10
ACRONYMS AND ABBREVIATIONS	Error! Bookmark not defined.
DEFINITION OF OPERATIONAL TERMS	Error! Bookmark not defined.
CHAPTER ONE: INTRODUCTION	Error! Bookmark not defined.
1.1 Background to the study	Error! Bookmark not defined.
1.2 Statement of the Problem	Error! Bookmark not defined.
1.3 General Objective	Error! Bookmark not defined.
1.4 Specific Objectives	Error! Bookmark not defined.
1.5 Research Questions	Error! Bookmark not defined.
1.6 Significance of the study	Error! Bookmark not defined.
1.7 Scope of the Study	Error! Bookmark not defined.
1.8 Limitations of the study.....	Error! Bookmark not defined.
1.9 Contributions of the Study	Error! Bookmark not defined.
1.10 Organization of the Thesis	Error! Bookmark not defined.
CHAPTER TWO: LITERATURE REVIEW	Error! Bookmark not defined.
2.1 Introduction	Error! Bookmark not defined.
2.2 Mobile Money	Error! Bookmark not defined.

2.2.1	Definitions	Error! Bookmark not defined.
2.2.2	Mobile money transfer service	Error! Bookmark not defined.
2.2.3	Technologies supporting mobile payment transfers	Error! Bookmark not defined.
2.2.4	Mobile Money Service Providers in Kenya ..	Error! Bookmark not defined.
2.3	Interoperability	Error! Bookmark not defined.
2.3.1	Key definitions of interoperability	Error! Bookmark not defined.
2.3.2	Need for Interoperability	Error! Bookmark not defined.
2.3.3	Evolution of Interoperability	Error! Bookmark not defined.
2.3.4	Levels of Interoperability in relation to Mobile Money	Error! Bookmark not defined.
2.3.5	Types of Interoperability	Error! Bookmark not defined.
2.3.6	Theories of Interoperability	Error! Bookmark not defined.
2.3.6.1	Interoperability Theory	Error! Bookmark not defined.
2.3.6.2	Institutional Theory	Error! Bookmark not defined.
2.4	Impact of Technology, Cost, Policy and Security on Interoperability	Error! Bookmark not defined.
2.4.1	Technology	Error! Bookmark not defined.
2.4.3	Cost.....	Error! Bookmark not defined.
2.4.4	Security.....	Error! Bookmark not defined.
2.5	Existing Interoperability Frameworks.....	Error! Bookmark not defined.
2.5.1	Mobile Agents System Interoperability Facilities (MASIF) Framework	Error! Bookmark not defined.
	Bookmark not defined.	
2.5.2	Open Mobile Access Abstract Framework (OMAF)	Error! Bookmark not defined.
2.5.3	Foundations of Intelligent Physical Agents (FIPA) Framework	Error! Bookmark not defined.
	defined.	

- 2.5.4 Grid Mobile Agent System (GMAS) Framework **Error! Bookmark not defined.**
- 2.5.5 Interoperability in Card Payment System **Error! Bookmark not defined.**
- 2.5.6 Tangaza Pesa **Error! Bookmark not defined.**
- 2.5.7 Real Time Gross Settlement (RTGS) System **Error! Bookmark not defined.**
- 2.6 Interoperability Assessment Techniques **Error! Bookmark not defined.**
- 2.6.1 Levels of Information Systems Interoperability (LISI) **Error! Bookmark not defined.**
- 2.6.2 Organizational Interoperability Maturity Model (OIMM) **Error! Bookmark not defined.**
- 2.6.3 Enterprise Interoperability Maturity Model (EIMM) **Error! Bookmark not defined.**
- 2.6.4 Government Interoperability Model Matrix (GIMM) **Error! Bookmark not defined.**
- 2.6.5 Information Systems Interoperability Maturity Model (ISIMM) **Error! Bookmark not defined.**
- 2.7 Conceptual Framework **Error! Bookmark not defined.**
- 2.8 Chapter Summary **Error! Bookmark not defined.**

CHAPTER THREE: RESEARCH METHODOLOGY **Error! Bookmark not defined.**

- 3.1 Introduction **Error! Bookmark not defined.**
- 3.2 Research Design **Error! Bookmark not defined.**
- 3.3 Research Strategy **Error! Bookmark not defined.**
- 3.4 Target Population **Error! Bookmark not defined.**
- 3.5 Sampling Design and Sample Size **Error! Bookmark not defined.**
- 3.6 Research Instruments **Error! Bookmark not defined.**
- 3.7 Pilot study **Error! Bookmark not defined.**
- 3.8 Validity of the Research Instruments **Error! Bookmark not defined.**
- 3.9 Reliability of the Research Instruments **Error! Bookmark not defined.**

3.10	Data analysis.....	Error! Bookmark not defined.
3.10.1	Mean Interpretation	Error! Bookmark not defined.
3.10.2	Standard Deviation Interpretation	Error! Bookmark not defined.
3.10.3	Correlation interpretation	Error! Bookmark not defined.
3.10.4	Regression Interpretation	Error! Bookmark not defined.
3.10.5	Factor Analysis Interpretation	Error! Bookmark not defined.
3.11	Ethical Consideration	Error! Bookmark not defined.
3.12	Chapter Summary	Error! Bookmark not defined.

CHAPTER FOUR: MOBILE MONEY TRANSFER PROCESS MODEL**Error! Bookmark not defined.**

4.1	Introduction	Error! Bookmark not defined.
4.2	Response Rate	Error! Bookmark not defined.
4.2.1	Response Rate for Mobile Money Transfer Subscribers	Error! Bookmark not defined.
4.2.2	Response Rate for Technical Staff	Error! Bookmark not defined.
4.3	Respondents Demographics	Error! Bookmark not defined.
4.3.1	Gender of respondents.....	Error! Bookmark not defined.
4.3.2	Age of Respondents.....	Error! Bookmark not defined.
4.3.3	Occupation of Respondents.....	Error! Bookmark not defined.
4.3.4	Level of Education of Respondents.....	Error! Bookmark not defined.
4.4	Modeling the mobile money transfer process	Error! Bookmark not defined.
4.5	The Proposed Process Model	Error! Bookmark not defined.
4.5.1	Architecture of the Model	Error! Bookmark not defined.
4.5.2	Algorithm for the model.....	Error! Bookmark not defined.
4.6	Results and Discussions	Error! Bookmark not defined.

- 4.6.1 Market Share of Mobile Service Providers ...**Error! Bookmark not defined.**
- 4.6.2 Profile of mobile money transfer users based on gender of users**Error! Bookmark not defined.**
- 4.6.3 Profile of Mobile Phone Money user and Length of time of using Mobile Money Transfer Platform.....**Error! Bookmark not defined.**
- 4.6.4 Profile of Mobile Phone Money user and age bracket of the users**Error! Bookmark not defined.**
- 4.6.5 Profile of Mobile Phone Money users and occupation of the users**Error! Bookmark not defined.**
- 4.6.6 Profile of mobile money transfer with the geographical area of users**Error! Bookmark not defined.**
- 4.6.7 Profile of mobile money transfer and frequency of use among the Subscribers**Error! Bookmark not defined.**
- 4.6.8 Factors in the implementation of MNO Interoperability**Error! Bookmark not defined.**
- 4.6.9 Factors inhibiting successful implementation of interoperability of MNOs in Kenya.....**Error! Bookmark not defined.**
- 4.6.10 Model Significance with ANOVA**Error! Bookmark not defined.**
- 4.6.11 Coefficients of the model to interpret relative ranking of the factors**Error! Bookmark not defined.**
- 4.6.12 Key challenges that affect the implementation of mobile money network Interoperability**Error! Bookmark not defined.**
- 4.6.13 Commonality Extraction**Error! Bookmark not defined.**
- 4.6.14 Eigenvalues Component Extractions.....**Error! Bookmark not defined.**

4.6.15 Component Extractions**Error! Bookmark not defined.**
4.6.16 Determinants of interoperability**Error! Bookmark not defined.**
4.7 Chapter Summary.....**Error! Bookmark not defined.**

**CHAPTER FIVE: A MODEL FOR EVALUATING THE INTEROPERABILITY OF
MOBILE MONEY TRANSFER SYSTEMS.....Error! Bookmark not defined.**

5.1 Introduction**Error! Bookmark not defined.**
5.2 Response Rate**Error! Bookmark not defined.**
5.2.1 Respondent Demographics.....**Error! Bookmark not defined.**
5.2.1.1 Gender of Respondents**Error! Bookmark not defined.**
5.2.1.2 Age of Respondents.....**Error! Bookmark not defined.**
5.2.1.3 Occupation.....**Error! Bookmark not defined.**
5.2.1.4 ICT Qualification**Error! Bookmark not defined.**
5.3 The Proposed Model**Error! Bookmark not defined.**
5.4 Model Development**Error! Bookmark not defined.**
5.4.1 Architecture of the Model**Error! Bookmark not defined.**
5.4.1.1 Model Analysis.....**Error! Bookmark not defined.**
5.4.1.2 Model Measures of Fit**Error! Bookmark not defined.**
5.4.2 Applicability of the Model**Error! Bookmark not defined.**
5.4.2.1 Validation of the Model**Error! Bookmark not defined.**
5.4.2.2 Verification of the Model**Error! Bookmark not defined.**
5.4.2.3 Validation Tools for the Final Model.....**Error! Bookmark not defined.**
5.4.2.4 Quantitative Results of Model Validation.....**Error! Bookmark not defined.**
5.5 Metrics for Evaluating Interoperability.....**Error! Bookmark not defined.**
5.5.1 Base Metrics**Error! Bookmark not defined.**

5.5.2. Derived Metrics: The Interoperability Index.**Error! Bookmark not defined.**
5.5.3 Case Study.....**Error! Bookmark not defined.**
5.5.3.1 Case Study I: M-pesa**Error! Bookmark not defined.**
5.5.3.2 Case Study II: Air Tell Money**Error! Bookmark not defined.**
5.5.3.3 Case Study II: Yu Cash.....**Error! Bookmark not defined.**
5.6 Chapter Summary.....**Error! Bookmark not defined.**

CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS**Error! Bookmark not defined.**
defined.

6.1 Conclusion.....**Error! Bookmark not defined.**
6.2 Recommendations**Error! Bookmark not defined.**
6.3 Future Work**Error! Bookmark not defined.**

REFERENCES.....**Error! Bookmark not defined.**

APPENDICES.....**Error! Bookmark not defined.**

LIST OF FIGURES

- Figure 2.1: Structure of the Mobile Finance Market ..**Error! Bookmark not defined.**
- Figure 2.2: Players in Mobile Money Ecosystem.....**Error! Bookmark not defined.**
- Figure 2.3: Cash in MNO Model**Error! Bookmark not defined.**
- Figure 2.4: Person to Person transfer MNO model.....**Error! Bookmark not defined.**
- Figure 2.5: Safaricom Operational Framework**Error! Bookmark not defined.**
- Figure 2.6: Card Payment System Model.....**Error! Bookmark not defined.**
- Figure 2.7: The RTGS Model**Error! Bookmark not defined.**
- Figure 2.8: Conceptual framework**Error! Bookmark not defined.**
- Figure 4.1: Transaction Process Interoperability Model for Mobile Money
Transfer System**Error! Bookmark not defined.**
- Figure 4.2: Architecture of the Model**Error! Bookmark not defined.**
- Figure 4.3 Client-Server Architecture.....**Error! Bookmark not defined.**
- Figure 4.4: A flowchart for mobile transaction database query**Error! Bookmark not defined.**
- Figure 4.5: Flowchart for the Model.....**Error! Bookmark not defined.**
- Figure 4.6: Market Share of Mobile Service Providers**Error! Bookmark not defined.**
- Figure 5.1: Model Regression Weights**Error! Bookmark not defined.**
- Figure 5.2 MNOs Respondents Proportions**Error! Bookmark not defined.**
- Figure 5.3 MNOs Interoperability Preparedness**Error! Bookmark not defined.**

LIST OF TABLES

- Table 2.1: Key players in mobile money ecosystem ..**Error! Bookmark not defined.**
- Table 3.1: Expert Opinion Survey Guide**Error! Bookmark not defined.**
- Table 3.2: Reliability Coefficients**Error! Bookmark not defined.**
- Table 3.3: Mean Interpretation**Error! Bookmark not defined.**
- Table 3.4: Summary of Data Analysis Techniques**Error! Bookmark not defined.**
- Table 4.1: Response Rate for Mobile Money Transfer Subscribers**Error! Bookmark not defined.**
- Table 4.2: Response Rate for Technical Staff**Error! Bookmark not defined.**
- Table 4.3: Gender of Respondents.....**Error! Bookmark not defined.**
- Table 4.4: Age of Respondents.....**Error! Bookmark not defined.**
- Table 4.5: Occupation of Respondents**Error! Bookmark not defined.**
- Table 4.6: Level of Education of Respondents.....**Error! Bookmark not defined.**
- Table 4.7: Profile of mobile money transfer based on gender of users**Error! Bookmark not defined.**
- Table 4.8: Mobile Money User versus Length of Time of Using Mobile Money Transfer Platform**Error! Bookmark not defined.**
- Table 4.9: Profile of Mobile Phone Money user and age bracket of the users**Error! Bookmark not defined.**
- Table 4.10: Profile of Mobile Phone Money user and occupation of the users**Error! Bookmark not defined.**
- Table 4.11: Profile of mobile money transfer with the geographical area of Users**Error! Bookmark not defined.**
- Table 4.12: Frequency of use of mobile money transfer services among the subscribers.....**Error! Bookmark not defined.**
- Table 4.13: Validity of Various factors influencing your choice of service Provider**Error! Bookmark not defined.**

Table 4.14: Key Challenges that Prevent mobile network Interoperability **Error! Bookmark not defined.**

Table 4.15: Enhancing Mobile money transfer interoperability **Error! Bookmark not defined.**

Table 4.16: Staffs information on the benefits of interoperability **Error! Bookmark not defined.**

Table 4.17: Drawbacks of interoperability **Error! Bookmark not defined.**

Table 4.18: Model Summary **Error! Bookmark not defined.**

Table 4.19: Model Significance with ANOVA **Error! Bookmark not defined.**

Table 4.20: Coefficients of the model to interpret relative ranking of the factors **Error! Bookmark not defined.**

Table 4.21: Kaiser-Meyer-Olkin and Bartlett's Test... **Error! Bookmark not defined.**

Table 4.22: Commonality Extraction..... **Error! Bookmark not defined.**

Table 4.23: Eigenvalues Component Extractions **Error! Bookmark not defined.**

Table 4.24: Component Extractions **Error! Bookmark not defined.**

Table 4.25: Factor category 1: Cost..... **Error! Bookmark not defined.**

Table 4.26: Loading of Factor 2: Technology **Error! Bookmark not defined.**

Table 4.27: Loading of Factor 3: Policy/regulation.... **Error! Bookmark not defined.**

Table 4.28: Loading of Factor 4: Security **Error! Bookmark not defined.**

Table 4.29: Spearman Correlation results for interoperability indicators **Error! Bookmark not defined.**

Table 4.30: Moderating factors of interoperability..... **Error! Bookmark not defined.**

Table 5.1: Response Rate..... **Error! Bookmark not defined.**

Table 5.2: Gender of Respondents..... **Error! Bookmark not defined.**

Table 5.3: Age of Respondents..... **Error! Bookmark not defined.**

Table 5.4: Occupation of Respondents **Error! Bookmark not defined.**

Table 5.5: ICT qualification..... **Error! Bookmark not defined.**

Table 5.6: Interoperability Maturity Levels..... **Error! Bookmark not defined.**

Table 5.7: Questionnaire Items**Error! Bookmark not defined.**

Table 5.8: Model Fit Measures**Error! Bookmark not defined.**

Table 5.9: Comparison of Model with related Maturity Assessment Models**Error! Bookmark not defined.**

Table 5.10: Quantitative Results of Model Validation**Error! Bookmark not defined.**

Table 5.11 Interoperability Maturity Levels.....**Error! Bookmark not defined.**

Table 5.12 Metrics Index**Error! Bookmark not defined.**

Table 5.13: Base Regression Weights Index**Error! Bookmark not defined.**

Table 5.14 : Moderating variables Index**Error! Bookmark not defined.**

Table 5.15 : Interoperability Index assigned scores....**Error! Bookmark not defined.**

Table 5.16: M-Pesa Metrics Index.....**Error! Bookmark not defined.**

Table 5.17 Airtel Metrics Index.....**Error! Bookmark not defined.**

Table 5.18 Yu Cash Metrics Index**Error! Bookmark not defined.**