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**A Logical Framework for Enhancing Integration of  
Mobile Money Service Providers at MTN Mobile  
Money & Airtel Money in Uganda**

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**ABSTRACT**

Mobile Money Services were perceived as high-value, high-volume payment systems intended to link the bottom-of-the-pyramid clientele to the national payment system. Due to the success of mobile money services in Kenya, mobile network operators set up these services in Uganda. A study to analyze a logical framework for enhancing the integration of Mobile Money Service Providers in Uganda was undertaken. About 2.2 million clients use mobile money with services such as airtime purchases, Person to Person, and Person to Business money transfers. Mobile network operators are the dominant stakeholders in mobile money services and utilize the operator-centric business model that locks out competitors and limits interoperability. Commercial banks partnering with mobile operators in the model are mandated by law to maintain an account for the “cash float” ensuring that a regulated financial institution holds the physical cash backing the issued e-money. Integration of Mobile Money Service Providers would necessitate an open business model that encompasses all stakeholders, promotes interoperability, and increases the potential customer base. To achieve this, there is a need to cultivate institutional relationships that encourage cooperation. It should also establish a legal framework that does not stifle innovation but ensures safety for customers’ e-money.

**Keywords:** Mobile Money Services, Mobile network operators, Air time purchases, Money transfers, Airtel money.

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**INTRODUCTION**

MTN which launched its commercial services On October 21, 1998, in Uganda after ZAIN, now AIRTEL, just six months after acquiring and signing the license, has grown to be the leading Telecommunications Company in Uganda servicing in excess of 6 Million customers, because of the new services it introduced [1]. AIRTEL Money is a money transfer service offered by AIRTEL Mobile Commerce Uganda Limited. The service allows users to load cash into their mobile phones and pay for goods and services as well as transfer cash [2, 3]. Uganda’s Airtel officially launched its mobile scheme at the beginning of 2012. The new platform would enable Ugandans to access the money and convert it to e-money to pay for goods and services, top up mobile accounts, and send and receive money across the country’s telecom networks [4, 5]. Mobile money services enhance economic development and ease business transactions [6-9].

The major problem with the current mobile money services provided by Mobile Network Operators (MNOs) is that they are limited to users of each individual mobile money provider. Therefore, the integration of Mobile Money

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service providers would allow users of both MTN Mobile Money and AIRTEL Money to access either MTN Mobile Money or AIRTEL Money accounts through their Network Agents (NA), Person to Person (P2P), and Person to Business (P2B) safely and effectively. Therefore, the main objective of this study was to develop a logical framework for enhancing the integration of mobile money service providers in Uganda. In this research, interviews and questionnaires have been used to collect data/information. The reports and journals, conferences and forums, and studies from other researchers about mobile money services were explored. Information from the Bank of Uganda also formed a part of the material.

**METHODOLOGY****Research Design**

Whenever an investigator wants to carry out a research project, there is motivation and interest that leads him/her to a choice of a topic. As far as this study was concerned, research was stimulated by the fact that mobile money transfer, as produced by telecommunication companies is believed and accepted by the government to be one of the most efficient strategies to underpin t –economic development as the innovation of an n technology in the country. Therefore, this research was designed in terms of assessing the enhancement of the integration of mobile money service providers in Uganda. To carry out the study, this research was based on research discussions, conferences, forums, and reports from the industry, policymakers, and regulators of mobile money transfers like the Bank of Uganda.

**Area of Study**

Due to limited financial resources, and time, among other constraints, this research was carried out in two divisions of Kampala District, namely Makindye and Central Kampala Division where MTN and AIRTEL are running their activities.

**Sampling Process**

The sampling process that was followed looking at the entire Uganda population of over two million MTN and AIRTEL mobile money users, from a national population to sample-based in Kampala logically followed discussions on its relevance and representation of the behaviors of users being studied. For example, the vast majority of mobile money transactions originated from Kampala whether they are urban or urban to rural. Once Kampala had been selected to draw the survey sample from, two divisions were selected: Central Kampala and Makindye where MTN & AIRTEL Agent outlets were known to have volumes of users coming in. The sample size to be used was predominantly chosen within the parameters of cost within Kampala. It was decided that 147 questionnaires would be administered, completed, and turned in. For that, 120 questionnaires were addressed to MTN & AIRTEL mobile money customers and 27 questionnaires were given to MTN & AIRTEL mobile money agents.

**Data Collection**

The data collection and information for this study were through interviews with MTN and AIRTEL management and a field-based and administered questionnaires of 147 addressed to MTN and AIRTEL mobile money customers and agents and interviews with MTN and AIRTEL mobile network operator's management and the Bank of Uganda. The study was based on primary and secondary data collection due to relevance. The questionnaire is a document containing standard questions to be answered by a large group of people to collect data. It is mainly used when the respondents are geographically scattered [10]. Questionnaires allow the analyst to collect information and opinions from the respondents and provide a relatively inexpensive means for gathering data from a large number of individuals. As far as this study is concerned, a questionnaire was distributed to respondents, more precisely to 147 participants among MTN and AIRTEL mobile money customers and agents. They checked the correct answers among the given answers or stated the facts which were important to know about mobile money services, relative to the research questions. This instrument was made up of closed and open questions. As defined by Grawitz [11], an interview is a fact-finding method where the interviewer interacts with the interviewee face-to-face or over the telephone. Interviews were conducted with MTN and AIRTEL management and the Bank of Uganda.

**Data Analysis**

After collecting data from the field by means of research tools, we proceeded with analyzing, describing, and interpreting them. At this level, three stages were taken into consideration. The first stage was concerned with combining similar answers from different respondents. In the second stage, the collected data were summarized by representing them in tables under different themes. These data were represented using a number or frequencies and shared percentages. Lastly, interpretation and comments on collected data were forwarded to help answer the

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research questions, and the Log frame (matrix) was analyzed in order to generate a framework for integrating different mobile money service providers.

**RESULTS****Analysis of MTN and AIRTEL Mobile Money customers and agents**

The 147 questionnaires received from the field were captured into data tables in Excel and then analyzed with SPSS. Subsequently, the data was collated and analyzed.

**Demographic Characteristics of the Sample**

The demographic characteristics of the sample are summarized in Tables 1-4 below. The sample had 147 respondents in total, although the above four questions were completed by MTN and AIRTEL mobile money customers and agents. In fact, there were 120 MTN and AIRTEL mobile money customers and 27 agents. There were 58.5% male and 41.5% female respondents with the majority aged between 34-54 years. 68% of the sample had completed secondary school or higher. While 17.7% had completed primary school, 14.3% selected informal education as their option. The majority of the sample were traders/businessmen and women at 59.9%.

**Table 1: Range of Age of Respondents**

	Frequency	Per cent	Valid Percent	Cumulative Percent
Valid				
15 to 34 years	53	36.1	36.1	50.0
35 to 54 years	61	41.5	41.5	75.0
55 years and above	33	22.4	22.4	100.0
Total	147	100.0	100.0	

**Table 2: Gender of respondents**

	Frequency	Per cent	Valid Percent	Cumulative Percent
Valid				
Female	61	41.5	41.5	41.5
Male	86	58.5	58.5	100.0
Total	147	100.0	100.0	

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**Table 3: Occupation/Career of Respondents**

		Frequency	Per cent	Valid Percent	Cumulative Percent
Valid	Others(specify)	2	1.4	1.4	1.4
	Student	25	17.0	17.0	18.4
	Teacher	32	21.8	21.8	40.2
	Trader/businessman/woman	88	59.9	59.9	100.0
	Total	147	100.0	100.0	

**Table 4: Education level of respondents**

		Frequency	Per cent	Valid Percent	Cumulative Percent
Valid	Informal	21	14.3	14.3	14.3
	Primary level	26	17.7	17.7	32.0
	Secondary level	46	31.3	31.3	63.3
	Tertiary institution	32	21.8	21.8	85.1
	University	22	15.0	15.0	100.0
	Total	147	100.0	100.0	

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Use of Mobile Phones

After the research survey, analysis of the data showed that 100% of the respondents had mobile phones registered with different mobile network operators. Therefore, each respondent could take part in the mobile money service as a customer. Table 5 below shows the use of mobile phones.

Table 5: Use of mobile phones

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid				
Do you have a mobile phone?				
No	0	0.0	0.0	0.0
Yes	120	100.0	100.0	100.0
Total	120	100.0	100.0	

Choice of Mobile Network Operators

Part 2 of the questionnaire, question 2 covers the choice of mobile network operators. 35% of the respondents subscribed to MTN, 28.3% were to WARID, and 2.5% to UTL. 5.8% of the subscribers were with ORANGE. The analysis showed 25.8% belonged to AIRTEL. Others like SAFARICOM for mostly Kenyans were at 2.5%.

Table 6: Choice of Mobile Network Operators

	Frequency	Per cent	Valid Percent	Cumulative Percent
Valid				
AIRTEL	31	25.8	25.8	25.8
MTN	42	35.0	35.0	60.8
ORANGE	7	5.8	5.8	66.6
OTHERS	3	2.5	2.5	69.1
UTL	3	2.5	2.5	71.6
WARID	34	28.3	28.3	100.0
Which network are you using?				
Total	120	100.0	100.0	

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**Awareness of Mobile Money**

Part 2 of the questionnaire, Questions 3 through 8 ask about awareness of mobile money services, choice and use of the mobile money service providers, and the documents used to open mobile money accounts. The analysis of data showed that 100% of all respondents were aware of mobile money and the services provided like sending, receiving, payment of goods and services, etc. This is because the research was carried out in urban areas where advertisements about different mobile money networks and services provided were readily available through all media. Additionally, mobile money agents and centers are widely distributed throughout Kampala. The subscribers of MTN mobile money were 34%, AIRTEL Money was 24% and Orange Mobile Money was 5%. M-Pesa was 5% while M-Sente was 4% and Warid Pesa was 28%. This is shown in Table 4.4 below. In question 5, the respondents checked 0% of National ID, and that is the big challenge in Uganda to Know Clients (KYC). The other documents used for opening up Mobile Money like a valid passport and passport photo (compulsory for foreigners) were 13.3%, Driving License and passport photo were 16.7% while the Voter's card and passport photo was 30% and LC card and passport photo was 40%. Tables 8 and 11 below showed this.

**Table 7: Awareness of Mobile Money**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid				
Are you aware of Mobile Money Service?				
No	0	0.0	0.0	0.0
Yes	120	100.0	100.0	100.0
Total	120	100.0	100.0	

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Table 8: Choice of MMSP

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	If yes which MNO are you using?				
	AIRTEL Money	29	24.0	24.0	24.0
	M Pesa	6	5.0	5.0	29.0
	M Sente	5	4.0	4.0	33.0
	MTN MM	41	34.0	34.0	67.0
	Orange MM	6	5.0	5.0	72.0
	Warid Pesa	33	28.0	28.0	100.0
	Total	120	100.0	100.0	

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**Table 9: Documents used to open MM account**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Driving License and passport photo	20	16.7	16.7	16.7
LC card and passport photo	48	40.0	40.0	56.7
National ID and passport photo	0	0.0	0.0	56.7
Valid Passport and passport photo	16	13.3	13.3	70.0
Voter's card and passport photo	36	30.0	30.0	100.0
What did you use to open up a mobile money account?				
Total	120	100.0	100.0	

Sending and receiving money from different networks was only possible for 10% of the respondents. In this case, it was only sent and received through the mobile network agents as the respondents were not part of that mobile money network. This was the case for example, for an off-net transfer where a registered user sends to an unregistered user or vice-versa. While 90% of respondents use on-net transfers which refer to transfers between two customers on the same mobile money network. Table 9 below showed percentages of the use of different networks and the means used.

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Table 10: Use of different networks

	Freq.	Percent	Valid Percent	Cumulative Percent
Valid Can you send or receive money to and from different networks?				
No	108	90.0	90.0	90.0
Yes	12	10.0	10.0	100.0
Total	120	100.0	100.0	

Table 11: Improvements needed for MMS (Customers)

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid What improvements are needed to the MMS?				
Increase security	10	8.0	8.0	8.0
Network availability	61	51.0	51.0	59.0
Allow interoperability	49	41.0	41.0	100.0
Total	120	100.0	100.0	

#### Analysis of MTN and AIRTEL Mobile Money Agents

Part 3 of the questionnaire, questions 9 through 12, asks about challenges met, when carrying out transactions with customers and if the mobile money agent can send or receive to and from other networks. According to 33.3% of the agents, network failure was one of the challenges they met. This generally meant, the system was down and non-transactions could be carried out. 22.2% had a challenge of liquidity which meant they could not carry out any transactions for lack of money to do so. 11.1% were challenged by money laundering and 33.3% by lack of interoperability, since they cannot send money directly to a user of another mobile network but may send or receive it via the sender's mobile network operator agents. Table 11 below, shows frequencies and percentages of challenges during mobile money transactions:

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Table 12: Challenges of Mobile money agents

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid				
What challenges are met when carrying out transactions with customers?				
Lack of liquidity	6	22.2	22.2	22.2
Money laundering	3	11.1	11.1	33.3
Network failure	9	33.3	33.3	66.6
Lack of interoperability	9	33.3	33.3	100.0
Total	5	100.0	100.0	

At this level agents sending or receiving money from agents of other networks was not possible in 100%. Due to technological problems, 7.4% of the respondents said. Whereas 74.1% said that it was a lack of interoperability and 18.5% because of security problems. Table 13 below explains this:

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Table 13: Network agent transactions

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Can you send or receive money to and from other networks?				
No	27	100.0	100.0	100.0
Yes	0	0.0	0.0	100.0
Total	3	100.0	100.0	

Table 14: Non-interopability causes

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid If not what may the cause be?				
Lack of interoperability	20	74.1	74.1	74.1
Regulation policies	0	0.0	0.0	0.0
Security problem	5	18.5	18.5	92.6
Technology problem	2	7.4	7.4	100.0
Total	27	100.0	100.0	

#### Analysis of MTN and AIRTEL Management Interviews

Part 4 of the questionnaires, questions 14 through 24 were carried out by the interviewer. The interview was held on the 23<sup>rd</sup> of July 2013 by the researchers with the Head of Public Access and Mobile Money Service. The questions for the interview are shown in Appendix B. According an interview with the Head of Public Access and Mobile Money Service, indicated that the majority of transactions are done with network agents. Others are carried out at mobile money centers like swapping when the phones are stolen when the users forget their PIN, and other technical services concerned with MMS. Also added that the transactions are running among the users like sending money and paying bills. The transaction limitation on the MM account is a daily limit on sending money. For MTN MMS, is 4,000,000 UGX per day/ user, whereas, for AIRTEL Money, the maximum is 5,000,000 UGX per day/user. When the networks are down, their MMS cannot be accessed. People who are acting as MM Agents, the Head said can be retailers, financial institutions, and individuals. The entities prohibited from acting MM as a financial service agent, are the MMSP staff. Among the services provided by the agents, the Head said that they can transfer funds electronically, make payments to utilities or third parties and conduct KYC/CDD procedures among others. To

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perform any service, the agents should have equipment specifications like tee-shirt from MMSP, booklets to fill each transaction performed, and security measures in order to avoid money laundering. The main risks of MMS, Head added that for example liquidity risk, when the agents don't have enough money to service the customers. They may also face money laundering problems. The Head said that to overcome these risks, they train the MM Agents before starting the business. The agents have a task to conduct KYC/ CDD procedures and inform the users how they would keep safely their PIN. The lack of interoperability is another obstacle to MMS, he said.

### Analysis of Bank of Uganda Interview

Part 5 of the questionnaires, questions 25 through 27 were carried out on the 26<sup>th</sup> of July 2013 by the researchers with the Head of Electronic Payments and Services. The questions for the interview are shown in Appendix C. The findings from an interview with the Head of Electronic Payments and services of the Bank of Uganda indicated that the MNOs are the first to issue e-money with their partner banks. One of the requirements of governing e-money is that MNOs should have a bank account. They should also have insurance and present risk assessment management. The central bank (Bank of Uganda) and Uganda Communications Commission (UCC) is responsible for policy-making and enforcement.

### Logical Framework Analysis

The logical framework analysis is a tool to help strengthen project design, implementation, and evaluation. This means that it can be used throughout the project cycle. The logical framework helps to organize your thinking; to relate activities and investments to expected results; to set performance indicators; and allocate responsibilities among others. A logical framework analysis is summarized in the Log frame matrix below.

Table 15: Log frame Matrix

Narrative Summary	Objectively verifiable Indicators	Means of Verification	Assumptions
<p><b>Goal:</b></p> <p>*.Develop an LF for enhancing the integration of MMSP in Uganda</p>	<p>*Over two million MTN &amp; AIRTEL Mobile Money Users</p> <p>* Increased 20% Mobile Money subscribers in 2012</p> <p>* 70% of users have more than 2 lines</p>	<p>-Research survey</p> <p>-Evaluation reports</p> <p>-Discussions</p> <p>-Other research reports</p>	<p>The number of subscribers of MMS increased</p> <p>The markets of MNOs grown</p>
<p><b>Outcomes:</b></p> <p>*To provide the stakeholders and regulators with new ideas to implement integration or interconnection of MMSP</p>	<p>*Over 74% of the researchers on MMS recommend interconnection of MNOs and cooperation of different MMSP</p> <p>* In developed countries like the US, the MNOs are integrated</p>	<p>-Research survey</p> <p>-Evaluation reports</p> <p>-Discussions</p> <p>-Other research reports</p>	<p>The number of subscribers of MMS increased</p> <p>The markets of MNOs grown</p> <p>MNOs will welcome integration and cooperate</p> <p>Regulation concerned with</p>

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Narrative Summary	Objectively verifiable Indicators	Means of Verification	Assumptions
			MMS would be established
<b>Outputs;</b> Show the ways to allow cross-net transfers among different MNOs Provide a wide range of services for the users as well as open up other markets to MNOs.	* More than 4 MNOs operate MMS in Uganda with over two million subscribers of MM customers and over 5000 agent outlets for different MNO	-Research survey -Evaluation reports -Discussions -Other research reports	As Interconnection is in place, the users would stay with their respective MNOs without changing the SIM Cards to access other MMSP
<b>Activities:</b> Analyse current MMS Identify MMS Stakeholders Analyse the MMS Users' Needs Draw ways in which interoperability can be achieved Develop LF for integrating MMSP	*100% of respondents are aware of MMS *100% of respondents have a mobile phone *74.1% of respondents wish interconnection of MNOs	-Research survey -Evaluation reports -Discussions -Other research reports	Weakness and strengths of MMS are raised  The introduction of new technology may be considered  Security may be enforced (KYC), and Biometric measures would be used

### DISCUSSIONS/CONCLUSIONS

The primary aim of the study was to establish the Logical Framework for enhancing the integration of Mobile Money Service Providers (MMSPs) in Uganda. The findings indicate that MMS provides critical services to both the banked and un-banked populations of Uganda. These services have greatly improved money remittance across the country. However, the present model used by the MMSPs limits users of other networks from accessing their services, and when they do, they have to pass through a Network Agent as well as pay a higher rate. An ideal open system that would encourage participation from all stakeholders is unrealized. We now turn to the implications of the lack of cross-net transfer functionality. The only scenario in which it would be commercially sensible for mobile operators to invest in interconnection is one in which they collectively have more to gain than to lose. At a minimum, the new revenues that stem from introducing the ability for customers to transact across networks must be greater than the cost of interconnection.

### RECOMMENDATIONS

Mobile Money Services are not new per se but their rapid adoption in the emerging economies of the world has spurred a scholarly revolution about them. Though a lot remains to be studied in order to consolidate the contribution of MMS to Ugandan economic development. In order to consolidate those milestones, the following recommendations ought to be adopted.

- i) There is a need to establish an open business model that allows all stakeholders to participate more freely and competitively.
- ii) Stakeholders need to work collaboratively in the review of the appropriate biometric identification system that could enhance the existing PIN security system.

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iii) There is a need for enhancing the role of financial institutions in the opening of mobile accounts. The involvement of financial institutions would allow the expertise they possess in KYC guidelines implementation to be exploited to ensure that challenges associated with Money Laundering / Financing of Terrorism are kept to a minimum.

iv) Bank of Uganda, the Uganda Communications Commission, and the Uganda Bankers' Association should work together to establish an appropriate regulatory framework. This working partnership should take a holistic re-evaluation of all potential laws governing transactions in the financial sector as well as the communications sector. The laws could also provide reporting mechanisms for MMS so that the regulatory bodies could collect useful data administratively to enhance research in the field to foster development.

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