

# Empirical Data on Mobile Money Hesitation Factors in Somalia

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**Abstract:** Mobile money is an electronic system of transferring money from person to person. The mobile money service has expanded its coverage all over the world and there is hardly any country that do not practice any form of mobile money transfer. Somalia is one of the countries that embraced mobile money unconditionally as there is lack of traditional financial institutions providing financial services since the collapse of central government in 1991. Somalians accepted mobile money because it has made money transfer easier for them to pay bill and shopping. However, there are hesitation factors that hinder the full scale functioning of the system and makes people hesitate to use mobile money. Currently mobile money users practice very limited mobile money functions such as sending and receiving, withdrawal, top up and internet recharge. Other mobile money functions such as pay tuition fees, payrolls, payments for purchase t, utility payment and saving money into mobile money account are lagging behind. This empirical study explores the inconvenience factors that lead people to hesitate to use mobile money in a large scale. In this study, 650 survey questionnaire were distributed among mobile money users in Somalia. The questionnaires were distributed through online Google form. A total of 375 respondents submitted their responses and all the answers were recorded into SPSS. IBM-SPSS statistics 22 were used to statistically analyses the data. Factor analysis for data validity and scale analysis for data reliability, frequency and descriptive statistics were conducted to analyze the data. The study found that there are numerous mobile money hesitation factors that make Somalian people to hesitate fully practicing the system. These hesitation factors include perceived risk of financial loss, perceived risk of system error, perceived risk of authentication weaknesses, lack of regulation and policy and interoperability between the mobile money service providers. This study concludes that hesitation factors needs to be addressed that will improve the level of mobile money usage into full scale. Among factors that may reduce hesitation factors of the usage of mobile money services in Somalia are high level accuracy of mobile money authentication system, operative interoperability platform, highly effective compensation system and functioning mobile money regulations and policy.

**Keywords:** Mobile money, hesitation, perceived risk, regulations, interoperability.

## I. INTRODUCTION

Mobile money is an electronic form of money saved into subscriber identity module (SIM) of the user's cell phone and

is delivered and distributed by mobile network operators. The SIM number is recognized as an identifier which is used as an application that records money into an electronic form [1, 2]. For this, the hard cash is transformed into a notational equivalent by an agent and the converted amount of electronic money is saved into mobile money account in the user's mobile SIM card. This makes mobile money account like a bank account under conventional banking system. In addition, the hard cash of this electronic money is securely held elsewhere by entities like banks, mobile money agents and mobile money stores [3]. The introduction of mobile money service has modernized the way traditional financial service operated. In the developing countries, which generally having less developed formal financial system, mobile money innovation has become the most popular aspect that continues to progress in a way that no one has imagined [4]. This is because mobile money allowed new way of money transfer that provide 24 hours of connected service thus answering the market demand for cheaper, faster, efficient and convenient way to move money among financially disconnected societies [5]. In addition, mobile money gives an opportunity to the people who had no access to formal financial service to conduct a long distance transaction in a very short period of time [6]. Therefore, it has become very popular in Africa where even the necessities of life are still underachieving [7, 8].

Mobile money functions can be categorized into three types of transactions; mobile money transfer, mobile money payments and mobile money financial service [9]. Mobile money transfers are transactions that take place between person to person for sending and receiving money. Meanwhile, mobile money payments are transactions that enables users and merchants for purchasing goods and services [10]. Finally, mobile money financial services are transactions that takes place between mobile money and banks for deposit and withdrawal of money from and to bank through mobile money [11]. Among of these three types of transactions, mobile money transfer is mostly used by mobile money users. Mobile money payment is less popular since people still prefer to pay cash, while mobile money financial service is yet to evolve because very few people have access to bank account in Somalia. Globally, mobile money transaction has increased from \$26 billion transactions from 2016 to \$31 billion transfers in 2017, indicating about 21% upsurge. The most common transactions are cash-in with the amount of \$56.4 million US dollar, cash-out (\$45.9 million US dollar), person to person transaction (\$57 million US dollar),

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airtime top up (\$2.8 million US dollar), Merchant payment (\$4.3 million US dollar) and bill payment, \$9.5 million US dollar [12]. In Somalia, people needed an alternative financial system as the government banking system collapsed during the civil war [13]. World Bank (2017b) reported that banking service penetration in Somalia is very poor and only very few people have bank accounts [14]. The mobile telecommunication companies that are spread across Somali peninsula have answered that call by providing electronic mobile money that has interlocked the financial service system of the country. At first, people registered and adopted mobile money due to lack of bank transfer, automatic teller machine, check payments and other financial instruments [13]. Unfortunately, many users only use specific mobile money functions although mobile money service provides three types of mobile money transaction; mobile money transfer, mobile money payment and mobile money financial service [9]. Most users use mobile money for money transfer only [6], and only few users use the mobile money payment system, while countable people are connected to the mobile money with their financial service [15].

The predominant usage of mobile money function in Somalia is the mobile money transfer which consists of sending money, receiving money, deposit money for the purpose of send, withdraw received money, remittance transfer, airtime and internet recharge. This function of mobile money transfer is widely used by the mobile money users because people send and receive money from and to families, friends and relatives while they also receive remittance from remittance agencies [6, 16]. For instance, 82% of mobile money transfers are from person to person while another 61% of transactions are from airtime and internet recharge [17].

Current problem of mobile money usage has paid little attention in scholars' literature review. Many previous studies were focusing on the establishment of mobile money and how people adopted and accepted the mobile money system [18-22]. While many other research articles focus on specific African countries like Kenya [6, 23, 24] South African [25, 26], Nigeria [27, 28], Somalia [29-31]. None of these studies did not investigate the hesitation factors that make people hesitate to use mobile money into full scale. As discussed above, most of the mobile money studies emphasizes on mobile money acceptance and mobile money adoption, however, there is a dearth of research that investigated the hesitation factors in the context of Somalian mobile money. Therefore, this study will focus on hesitation factors that make people hesitate to use mobile money. This will give more comprehensive knowledge on why mobile money is not fully used.

## II. MOBILE MONEY HESITATION FACTORS

Hesitation is deferring or postponing person's purchase of product by having a processing time prior to product purchase decision [32]. Reasons person's hesitation to purchase is invoked by postponing behaviour and avoidance behaviour. These two concepts are more or less directly related to hesitation. Though hesitation belong to decision making style, then postponing and avoidance are not fully account to hesitation [33]. ur Rehman, et al. [34] Conducted study on

factors that make users feel hesitated towards online shopping. Results revealed that the ratio of user hesitation on online shopping is very high because of unsecured transactions and payments and fear of cyber hacking.

Lu and Ng [35] Argued in his study that items users put into cart and not checked out carry hesitation information as they were almost sold. Authors explained that high hesitation states that the user is usually hesitating to continue buying due to some obstacles. They further explained that if these obstacles are identified and removed then users have high chance of using it. McKnight, et al. [36] Also stated that many users hesitate to engage the necessary behaviour to diffuse technology. The hesitation factors will be explored in this study by using as a mobile money hesitation factors. The mobile money hesitation factors that are explored in this study are interoperability, regulation, perceived risks which comprised perceived risks of authentication weaknesses, perceived risks of system error and perceived risks of financial loss. These factors are explained in the following subsections.

### A. Perceived Risk

Perceived risk is defined as hypothesized in terms of predictable negative utility related with technology [37]. It is also defined as a possible loss when pursuing anticipated outcome [38]. Theory of perceived risk has been used to describe user's behaviour [39]. Similarly substantial studies has observed the effect of risk on traditional consumer decision making [40]. Though according to the type of product or service the measurements of perceived risk may vary, There are six types of perceived risk have been identified that are financial loss, system performances, social, physical, security (Authentication) and time loss [41]. There are three types of perceived risks that this study has focused which are perceived risks of authentication weaknesses which is under the security risk, perceived risks of financial loss of money which is under financial perceived risk and perceived risk of system error which under system performance perceived risk. The following sub sections explain each of the perceived constructs that are understudy.

#### 1) Perceived Risk of authentication weaknesses (PR\_AU)

When subscriber wants to perform transaction activities like cash withdrawal, money transfer, air time and internet recharge. Security and authentication reliabilities are the foremost aspects for creating and preserving customer reliance, trust and expectations in mobile money services. Unfortunately, mobile money service users rely on personal identification number (PIN), which is weak, vulnerable and can be easily guessed, misused and forged. Vulnerability and the exposure of unstructured supplementary service data (USSD) of mobile money authentication is based on the application of personal identification number (PIN). As Yogesh Kisan Mali [42] mentioned, these shoulder surfers are people who pick exposed targets and feat information acquired from the victim that has been looked over his/her shoulder.

Furthermore malware attacker tries to find way to capture the codes of the USSD and apply the gained information to exploit android devices [43, 44].

Results have shown that the large number of mobile money service customers use date of birth (DOB) and the number of their cell phone SIM card as their mobile money PIN. This increase the percentage of guessing the user's personal identification number (PIN). This kind of propensity directs to a critical security susceptibility as birth of date can be found in different sources like co-worker, family members, friends and countless management system logs [45] and user's number is widely known by everybody that he/she is connected. Apart from the user going to the mobile network operator office and reporting the incident and disconnecting the SIM card operation from that stolen or lost mobile, which will take time the user to go there and will take time to process the disconnection.

Likewise the proliferation influence of the calculations of traditional password and PIN method of the sensitive data is more prone to brutal force attack [46]. Furthermore, personal identification numbers (PIN) and passwords can be chopped effortlessly through precise fake actions and it can be witnessed by human and device attackers. The crime rate for computer attack, mobile hacking and money transaction devices attack are rapidly growing with transitory period and it will continue to grow as attackers are well-organized enough with all detailed felonious information composed with them [47].

## 2) Perceived Risk of financial loss (PR\_FL)

Financial risk is conceivable loss of money while using technology for purchasing of a product and its consequent maintenance. This is based on the concept of perceived risk which is referred to possible loss in the chase of anticipated consequence using technology based service [48]. In the case of this study financial loss is preferred as perceived risk or threat of a potential monetary loss while using mobile money. Apart from the opportunities that technology innovation provides trust in using that particular technology innovation has its own effects [49]. Mobile money is no exception in this case.

Users trust in mobile money have several dependencies like compensation for financial loss of money through transfers, user control, reliability of mobile money system, mobile network operators or whoever is charge on the service system [50]. Remote hacking of mobiles and cybercrimes provide imminent threat [51]. Trust stand for interchange affiliation between seller and buyer [52]. Trust is a vital factor for people to have self-assurance on interchanges that take place between the buyer and the seller particularly when there are high level of uncertainty and risk on electronic commerce process [53].

Mobile money transfers are susceptible, uncertain and involve to potential risks. User trust mobile money is very important as it decreases users fear and worries like financial loss about the money transfers [54]. Mobile money user penetration is affect by security anxieties and hacking user phone remotely [55]. Perceived risk of financial loss is a user belief that unanticipated lost may happen [56]. So perceived risk of financial loss is based on the idea that mobile money users

incur loss of money and personal information caused by the use of mobile money service [57]. Moreover, Yang et al. (2015) Found that perceived financial lost has significant negative impact with the intention of accepting mobile payment.

## 3) Perceived Risk of system error (PR\_SE)

Some time it is natural that mobile money service becomes unavailable due to system network error. This temporary system shutdown makes the users to be out of service. As explained by Chauhan [49] this service downtime is caused by network failure which leads to the system service being down for a while. During this time people cannot get access to the system service like transferring money, cash in cash out and other mobile money services. Hence denying users from accessing their own money is a serious problem to the mobile money system service [58].

## B. Regulations (REG)

Regulation is conventionally perceived as barrier or constraints to technology innovation. Policies are guidelines, standards and theories developed into policies that are adopted consciously to guide actions and decisions about assessment and evaluations when organizations institute consequences for inspiring or imposing the policies. The purpose of regulation policy is to make sure that regulation works efficiently [59, 60]. Regulations and policy are another important factor that influences the usage mobile money. Regulations and policy are set by government and central bank together with mobile network operators. There is no mobile money standardized policy, rules and regulation. Countries have different model; some follow bank led model while others follow mobile network led models. Governments usually try to set rules and regulations that protect mobile money users. Central banks set the policy and rules of monetary control and money laundering. Meanwhile mobile network operators set organizational policy and rules. The common variables of mobile money policy, rules and regulations are user protection, money control and money laundering, user identification (know your customer) and transaction and commission charge limits [61, 62].

Authorization of money transfers and payments, money storage and safeguarding, capital requirements, money laundering countering terrorist financing. Know your customer requirement, supervision of agent network, user protection, interoperability and taxation are the regulatory and policy issues. These are relevant to regulation such as government, policy makers, mobile money providers and other stakeholders that are needed to consider in the provision of mobile money service [63].

There is only one regulation that is established by many countries to regulate the mobile money service. This regulation is known as guidelines for mobile money services [64]. However, even this type of mobile money guidelines has not yet been implemented in Somalia. Innovation and acceptance of mobile money has gone faster than regulation and policy. There are number issues that need to be considered by policy makers.



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These include mobile money technology security, stability of financial system, competition among mobile money network operators and money fraud [65]. World Bank (2017) stated that mobile money users in Somalia do not trust the mobile money system because the system is unregulated and people have concern about the lack of regulation of the mobile money service.

### C. Interoperability (IOP)

Interoperability is the indispensable cooperation taking place between systems to allow the fulfilment of a task that is only be performed by combining these systems. Interoperability is the ability that mobile money users can make transfer and payments across different mobile money system [66]. Interoperability is divided into two types, mobile money context interoperability and interoperability payment system of mobile money service provider. Mobile money context interoperability is the interoperability between mobile network operator which are the mobile money service provider and central bank. This interoperability make the transactions and cooperation between mobile money accounts and bank accounts [67]. Banks also manages how to keep the hard cash deposits while mobile money service provider handles the electronic money.

In addition, GSMA [68] and Hoernig and Bourreau [69] categorized mobile money interoperability into several categories including person to person interoperability which takes place between mobile money operators. This allows mobile money users to transfer money from one mobile money account to a different mobile money account, from bank account to mobile money account and vice-versa. Another category is agent interoperability where network agents are permitted to handle the transactions of different mobile money service operators. While third interoperability categories are business to customer and government to person interoperability which are transactions that take place between companies or governments and the mobile money users, thus sending money from a company or a government to the mobile money users. Donovan [70] stated that for mobile money to grow interoperability should encourage inclusiveness that marks interoperability between mobile money providers, the government, central bank of the country and the civil society. World Bank (2017) Also stated that there is a problem of lack interoperability between mobile money providers.

### III. METHODOLOGY

The method utilized in this study was quantitative research. The data was collected through quantitative survey questionnaire by using online Google form. Closed ended questions of Likert scale were used for the survey questionnaires. The population of the study were all mobile money users who have access to internet. A total of 400 sample size is selected from the population as the whole population cannot be studied. However, to get the required 400 sample size, we distributed around 650 survey questionnaire through emails, Facebook and WhatsApp. The data analysed the answers to the questions as in the following.

- 1) Questions were asked about the mobile money hesitation factors in Somalia.
- 2) Major hesitation factors were extracted through analyses of answers of the questionnaire by SPSS.
- 3) Key factors for higher mobile money usage are recommended in a way to remove the mobile money hesitation factors.

## IV. RESULTS AND DISCUSSIONS

The following subsection discuss the results and findings of the empirical study on mobile money hesitation factors. The discussed include gender and age, validity and reliability of the data and the hesitation factors of the mobile money.

### A. Gender and Gender

Table I illustrates an overview of the demographic variables studied which included gender and age.

**Table I: Percentages and frequencies of demographic variables**

Variable	Groups	Frequency	Percentage (%)
Sex	Females	71	18.9
	Males	304	81.1
	Total	375	100.0
Age	16-25	129	34.4
	26-50	244	65.1
	51-above	2	0.6
	Total	375	100.0

Table I displays that 304 (81.1%) of the of the answers from participants were male and 71 (18.9%) were females. The age distribution of the survey participants showed that 244 (65.1%) of them were aged from 25 to 50 years old, the second largest group 129 (34.4%) were aged between 16-25 years old, while the percentage of those wo were older than 50 years old was 0.3% and 0.3% for 51 to 75 years old and for 76 to 100 years old respectively.

### B. Hesitation

To know whether Somalian mobile money users hesitate to use mobile money service or not, the participants were asked if they hesitate when they are transferring money through mobile money services. The respondents' answers are displayed in Table II below.

**Table II: Hesitation**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	254	67.7	67.7	67.7
	No	48	12.8	12.8	80.5
	May Be	73	19.5	19.5	100.0
	Total	375	100.0	100.0	

About 67.7% of the mobile money users stated that they hesitate when using mobile money, 19.5% of the respondents stated they may be hesitating while using mobile money while only 12.8% stated that they use mobile money without hesitation. This indicate that mobile money users hesitate to practice mobile money meaning that the users statement supports the research problem statement claiming that users hesitate to practice mobile money service extensively.

**C. Validity and Reliability**

Kaiser-Meyer-Olkin (KMO) and Bartlett’s test were also conducted using IBM SPSS statistics 22 to confirm the validity and reliability of the research data. Results of Kaiser-Meyer-Olkin (KMO) and Bartlett’s test are presented in Table III below.

**Table III: KMO and Bertlett’s test**

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.886
Bartlett's Test of Sphericity	Approx. Chi-Square	14280.022
	df	2556
	Sig.	0.000

Kaiser-Meyer-Olkin (KMO) Measure of Sampling verifies the quality of the data validity and reliability. KMO results from SPSS analysis indicate that 0.886 with significance 0.000. This concludes that the validity and reliability of this research study was satisfactory.

Table V presents the reliability statistics of the data.

**Table IV reliability statistics**

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	Number of Items
0.829	0.833	28

As shown in Table V Cronbach’s alpha is 0.829 and it is greater than the required threshold of 0.70 [71, 72].

**D. Analysis of Hesitation Factors**

The following Tables V, VI, VII, VIII, IX elaborates the findings of the hesitation factors from the respondents. Table V presents the perceived risk of financial loss.

**Table V: Perceived risk of Financial Lost**

Items	Scale	Frequency	Percent %
Mobile money is not secure because of possibility of Financial loss	Strongly disagree	67	17.9
	Disagree	35	9.3
	Neutral	70	18.7
	Agree	70	18.7
	Strongly agree	133	35.5
<b>Total</b>		<b>375</b>	<b>100</b>
There should be compensation system for lost money	Strongly Disagree	48	12.8
	Disagree	71	18.9
	Neutral	59	15.7
	Agree	103	27.5
	Strongly Agree	375	100
<b>Total</b>		<b>103</b>	<b>27.5</b>

As depicted in Table V, above 64% of the respondents stated that mobile money is not secure as there are possibilities of financial loss. This indicates that perceived risk of financial loss may make users hesitate to use mobile money into full scale. Most of the respondents also stated that mobile money service providers should establish compensation system for lost money. This is stimulated because currently, mobile money service providers sign agreement from the users during

registration that if anything happen to their electronic money saved into their mobile money account, there should be no refund claim from the service provider. This means that perceived risk of financial loss is a hesitation factor that make people hesitate to use mobile money into full scale. Table VI presents the perceived risk of system network errors.

**Table VI: Perceived risk System Error**

Items	Scale	Frequency	Percent %
I worry that using mobile money may result unexpected system network error	Strongly disagree	73	19.5
	Disagree	55	14.7
	Neural	71	18.9
	Agree	92	24.5
	Strongly Agree	84	22.4
<b>Total</b>		<b>375</b>	<b>100.0</b>
Mobile money service may not perform well because of system network errors	Strongly disagree		
	Disagree	55	14.7
	Neural	77	20.5
	Agree	55	14.7
	Strongly Agree	58	15.5
	Strongly disagree	130	34.7
<b>Total</b>		<b>375</b>	<b>100.0</b>

Table VI shows that around 47% of the mobile money users worry that unexpected system network error may happen when using mobile money while around 19% are not sure whether to worry or not. Table V also shows that more than 50% of the respondents perceive that mobile money service may not perform well because of regular system network error. This indicate that perceived risk of system network error is another mobile money hesitation factor that make people hesitate to us mobile money extensively. This forces mobile money users to carry hard-cash as back up or may prefer to keep their money in cash instead of saving into mobile money account and later go trouble with system network failure.

Table VII presents the perceived risk of authentication weaknesses

**Table VII: Perceived Risk of Authentication Weaknesses**

Items	Scale	Frequency	Percent %
I concern the four-digit number (PIN) as the only security features	Strongly disagree	50	13.3
	Disagree	49	13.1
	Neural	71	18.9
	Agree	99	26.4
	Strongly Agree	106	28.3
<b>Total</b>		<b>375</b>	<b>100.0</b>

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There should be finger or iris system for mobile money authentication	Strongly disagree	52	13.9
	Disagree	44	11.7
	Neural	75	20.0
	Agree	81	21.6
	Strongly Agree	123	32.8
<b>Total</b>		<b>375</b>	<b>100.0</b>

Table VII illustrates that around 55% of the respondents stated that mobile money is not secure because of the weak authentication system that consists of only four plain digits of personal identification number (PIN). The table VI also illustrates that most of the mobile money users think that there should be more secured authentication and authorization system including two-authentication system and biometric system such as iris and fingerprint. This indicates that mobile money authentication weakness is another hesitation factor that make people hesitate to use mobile money into full scale. Table VIII presents lack of regulation and policy results.

**Table VIII: Lack of regulation and policy**

Items	Scale	Frequency	Percent %
Mobile money is not secure because there are no government regulation and policy	Strongly disagree	46	12.3
	Disagree	42	11.2
	Neural	47	12.5
	Agree	69	18.4
		171	45.6
<b>Total</b>		<b>375</b>	<b>100.0</b>
I worry about using mobile money extensively because the government does not regulate the mobile money service	Strongly disagree	57	15.2
	Disagree	39	10.4
	Neural	26	6.9
	Agree	63	16.8
	Strongly Agree	190	50.7
<b>Total</b>		<b>375</b>	<b>100.0</b>

Table VIII shows that above 64% respondents agree or strongly agree that mobile money is not secure because of lack of government regulation and policies. Meanwhile, more than 67% of the respondents' worry using mobile money extensively as there is absence of government control, regulations and policies. This indicates that lack of government regulations and policies of mobile money service providers is another hesitation factor that make uses hesitate to use mobile money service into full scale. Table IX presents lack of interoperability.

**Table IX: Lack of interoperability**

Items	Scale	Frequency	Percent %
I worry when I'm using mobile money because there is no interoperability between mobile money service providers	Strongly disagree	55	14.7
	Disagree	46	12.3
	Neural	79	21.1
	Agree	83	22.1
	Strongly Agree	112	29.9

<b>Total</b>		<b>375</b>	<b>100.0</b>
I worry when I'm using mobile money because there is no interoperability between mobile money service providers, the government and the central bank	Strongly disagree	41	10.9
	Disagree	40	10.7
	Neural	46	12.3
	Agree	94	25.1
	Strongly Agree	154	41.1
<b>Total</b>		<b>375</b>	<b>100.0</b>

Table IX shows that most of the respondents worry about using mobile money because of lack of interoperability between the mobile money service providers, while about 65% worry about using mobile money as there are no interoperability between mobile money stakeholders including mobile money service providers, government and the central bank. This indicates that lack of interoperability between mobile money stakeholders is another hesitation factor that hinders the use of mobile money into full scale.

### V. RECOMMENDED MOBILE MONEY KEY SUCCESS FACTORS

Key success factors for mobile money usage are the derivatives of key success factors in management information system. The key success factors for higher Somalian mobile money usage is based on user's perception and the market context that has determined the recommended critical success factors for mobile money service providers. Therefore, in this study several key success factors for higher Somalian mobile money usage are recommended. To determine the key success factors for Somalian mobile money, major hesitation factors that make users hesitate to use mobile money into large scale were studied. The mobile money key success factors were viewed from the perspectives of the users in terms of mobile money security, mobile money regulations, interoperability and service quality. The recommended key success factors to increase mobile money usage are in two folds.

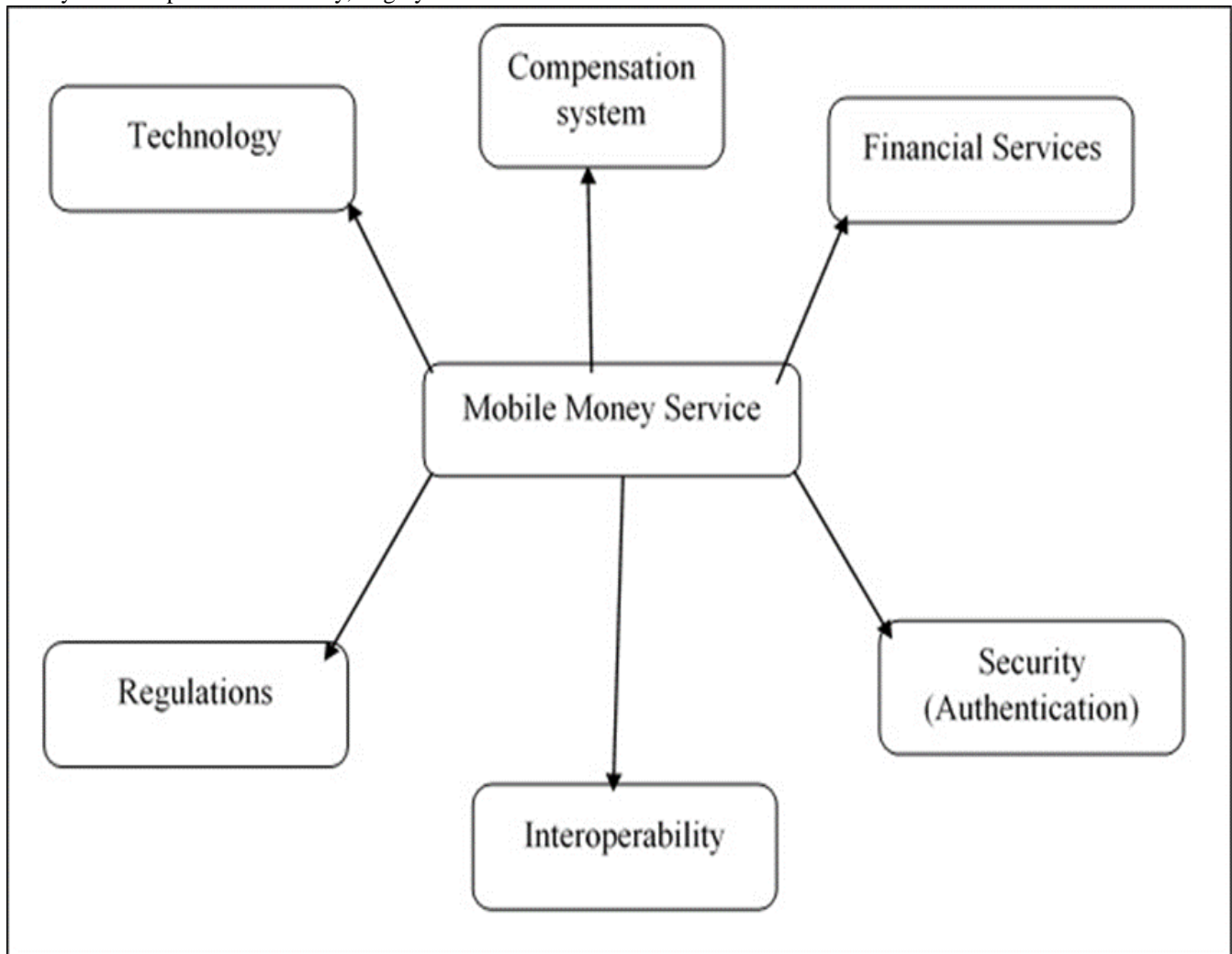
The mobile money acceptance inspires mobile money users to use mobile money.

The mobile money service providers should empower the acceptance and use of mobile money, so that the mobile money users can interact with the system more and more. Secondly, mobile money hesitation factors that make people to postpone using mobile money. These factors needs to be removed so that users can rely on the mobile money system and use it more extensively. Five mobile money hesitation factors including perceived risk of financial loss, perceived risk of system errors, perceived risk of authentication weakness, regulation and interoperability needs to be eliminated. Removing these mobile money hesitation factors will lead to highly effective mobile money service with no technical errors. The recommended key success factors that will eliminate the mobile money hesitation factors are as follows.

Firstly, high accuracy for mobile money authentication system such as biometric authentication (fingerprint or iris authentication system) and two step verification system.

Secondly, set government regulations and policies that can control the mobile money system and mobile money service providers. Thirdly, highly operational interoperability between the government, the central bank and the mobile money service providers. Finally, highly effective mobile

money compensation system for lost money to enhance the trust and reliability between the users and the mobile money system. Figure 1 illustrates the recommended key success factors to higher Somalian mobile money usage.



**Figure 1. Mobile money key success factors**

As Figure 1 depicts there are several key recommended success factors that are integrated with the mobile money system. The different types of financial services that the mobile money service provides are aligned with acceptance and usage factors. These factors need to be supervised and inspired so that the users continue to use the mobile money system more and more.

The government needs to establish regulations and policies that controls the mobile money service providers and the service itself. The government getting hand from the mobile money service providers should also establish an interoperability platform that allows all the mobile money service providers to interconnect with each other. Additionally, the mobile money service providers must develop and implement high accuracy mobile money authentication system that will remove the vulnerability of the current mobile money authentication system. Implementing these key success factors will directly lead to highly reliable mobile money system with no hesitation factors. This will make the mobile money service as a complete financial circulation system that will independently operate like banks but with faster and quicker transactions.

## VI. CONCLUSION

This study has concluded that there are hesitation factors that make users hesitate to use mobile money into full scale. These are included but not limited to perceived risk of financial loss, perceived risk of system error, perceived risk of authentication weakness, regulation, policy and interoperability. The study also concluded recommendation key success factors to higher mobile money usage in Somalia and in general. These key success factors will reduce or eliminate the mobile money hesitation factors. This study will be very useful for mobile money service providers particularly Somalia. It will also be beneficial to the government and central bank to control mobile money service providers. Moreover, the study will extend the current knowledge of technology hesitation that had very limited previous studies.



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