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Determinants of mobile money services adoption by traders in Uganda

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Abstract

The use of mobile money services has brought benefits such as sending and receiving of money, payment of bills, reduction in cost of transactions, transactions time, loss of sales, and reliable savings options and convenience. Unfortunately, despite the cited benefits the adoption and use of mobile money services by traders in business activities has been observed to be low globally and Uganda inclusive (Kyeyune *et al*., 2012). Furthermore, despite the numerous benefits of using mobile money services for transactions, the facility is apparently not widely adopted among traders in Kampala. However, whether there are significant determinants that have not been factored into the Unified Theory of Acceptance and Use of Technology (UTAUT) model or there exists significant inhibitors that need to be mitigated so that traders in Kampala may adopt the use of mobile money services, is not yet investigated, reported on and incorporated in the wealth of knowledge on technology adoption.

This paper presents the results of a study that determines the determinants of mobile money service (MMS) adoption among traders in Uganda as an attempt to bridge this gap for developing country. Requirements for the study were extracted from the field study extending the original determinants that existed in the original Unified Theory of Acceptance and Use of Technology (UTAUT) model. The determinants included level of exposure, legal issues, sensitization, security, performance expectancy, effort expectancy, social influence, and facilitating condition.

Keywords: determinants, drivers, UTAUT model, developing country

1. Introduction

The rise of mobile money services changed human's lives with increased convenience, enhancement of the standard of living for the unbanked population and stimulation of economic development (Lonergan *et al*., 2009) [31]. Participants across many industries are looking forward to entering the mobile payment marketplace. Despite the fact that the benefit of mobile money extends beyond the individual and household levels to businesses and organizations (Munyegera & Matsumoto, 2014) [41], there is no definite study on the effective use of mobile money services by traders in Uganda.

According to (Baptista & Heitmann, 2010) [6] Mobile Money Service (MMS) is defined as a service in which the mobile phone is used to access financial services. Mobile money also represents payment and banking services operated under financial regulation and performed through a mobile device (Ho-Young, 2012) [21]. It was asserted in the World Bank, (2012) [75] report, that mobile money services is a mobile payment, mobile money transfer, or mobile wallet, commonly referred to as an intersection of both banking and telecommunications services that is operated and performed from a mobile device such as mobile phone, credit or debit card.

Determinant is what cause or force something to go in a specified direction or into a specified position by applying pressure to it, pushing it, hitting it in order to get things done or to achieve (Hornby, 1996) [20]. Furthermore, determinants of mobile money services refers to the desirables, elements and factors to get things done or to achieve adoption of mobile money services by traders. To explain more, determinants of mobile money services are forces in the environment to which mobile money services adopters or traders must respond to and that influences the direction of the mobile money services usage.

The success of Mobile Money Services (MMS) led many Mobile Network Operators (MNOs) around the world to venture into offering similar products to satisfy the global market demand for the services. In Haiti for example, with a maximum monthly transaction limit of US$1500, the e-wallet is not sufficient to meet all of a traders financial service needs, whose monthly restocking is worth US$2000. The limit of upper e-wallet is a major challenge and a potential limiting factor for future growth of mobile money in Haiti (Taylor *et al*., 2011) [61] as well as in Uganda.

The declining revenues in the mobile telephone voice business as well as the proliferation of mobile phone handsets, enticed mobile network operators(MNOs) to venture into the provision of mobile money services (Lachaal & Zhang, 2012) [28]. Despite the initiatives to implement this strategy, unfortunately there was low adoption of the service by African adults (70%) (Obgonna, 2013; Chogi, 2010) [49, 10] Uganda inclusive. This is attributed to lack of trust, sensitization, training, exposure, and fear of unreliable internet connectivity services (Uduma, 2012; Obgonna, 2013; Murthy, 2012; Githui, 2011; Davidson & McCarty, 2010) [67, 49, 42, 13]. Furthermore, although mobile financial services have brought mobile phone operators and banks together to take advantage of in Africa, nonetheless, in almost all sub-Saharan African countries, a huge and vibrant informal cash economy and transactions still exists (Taylor *et al*., 2011) [61].

Unlike their counterparts in Uganda, sole proprietors, small and micro-business operators in Kenya have adopted mobile payments as a way of transacting their business such as paying suppliers for goods and services, as well as paying bills and receiving payments from customers as well as savings of

money (CCK, 2008; Arunga & Kahora, 2007) [8, 2]. These factors constitute impediment to the adoption of mobile money services by traders in these countries.

Furthermore, although, KCCA launched a partnership with MTN to enable traders pay taxes to city authority using the mobile money services, nevertheless, the service has been condemned for its flaws in terms of inconvenienced urgent transactions, poor network all the time and suffered fraud related cases that have been rampant (Namagembe, 2015) [44].

Other issues raised by users including traders were fraud, unreliable network, network failures, inconsistent service quality, inefficient systems delivery, glitches, insufficient number of agents, low float, cash, liquidity (Mwesigwa, 2013; Murthy, 2012; Kalungi, 2012) [42, 43, 25].

Mbogo (2010) [34] mentioned that security and safety of mobile payment transactions, transaction incompleteness, private information disclosure, privacy and the use of pin and secrete code are some of the primary concerns for users (Joseph, 2013; Kyeyune *et al*., 2012; Murthy, 2012) [42, 27, 24].

Other issues that need to be considered as key requirements for financial transactions in an electronic environment more so mobile money service environment should include confidentiality, authentication, data integrity, privacy, non-repudiation, anonymity as well as policies of customer's personal information (Mallat *et al*., 2008; Swatman *et al*., 2002) [32, 58].

Despite the fact that East African Community (EAC) is the world leader in offering mobile money services and host more than one quarter of all known such systems in Africa, there are still enormous legal, policy, and guideline irregularities under which mobile money in East Africa operates, thus creating a gap for fraud and other mobile money service crimes (Joseph, 2013; UNCTAD, 2012; Makin, 2012) [24, 69]. Despite the fact that Uganda had 13.2 million registered subscribers of mobile money services, the traders of its counterparts Tanzania and Kenya were far ahead of it in mobile money services utilization for trade transactions (Nyaga, 2013; Bångens & Söderberg, 2011) [48, 5].

In addition, population ignorance and illiteracy, lack of trust, training, sensitization and exposure were among the problems inhibiting the adoption of MMS by users in general as well as traders (Obgonna, 2013;Murthy, 2012;Githui, 2011;Davidson & McCarty, 2010) [49, 42, 13].

2. Comparison of Theories Used In the Study of Mobile Money Services (MMS)

Adoption

Since the Unified Theory of Acceptance and Use of Technology (UTAUT) theory aims to explain user intentions to use an Information Systems (IS) and subsequent usage behavior, and mobile money services procedures are basically information technology procedure, hence, it can fit into the study of mobile money service adoption. Furthermore, (Tobbin, 2011) [65] argued that since the determinants of adoption in m-banking and m-payment environment are almost similar, and UTAUT was used in the study of M-banking and M-payment, hence, it should be applicable to mobile money services adoption study as well.

Table 1: Factors in other Scholars models compared against traders' Mobile Money Services factors.

Scholars	**Tobbin, P (2011) [65] Extended TAM and DOI**	**Sayid, O., Echchabi, A., and Abdul-Aziz (2012). upgrade the TAM**	**Pousttchi, K and Wiedemann, D., G (2007) extended TAM model**	**Osei-Assibey, E. (2014) [54] Extended TAM and DOI.**	**Omwansa, T.,K. (2012) [51] Enteded UTAUT**	**Tai, Y.,M. and Ku, Y., C.(2013) Enteded UTAUT**	**Kateete, P.,T.,K.,G. (2010) [26]. Enteded UTAUT**	**Nyaga, K.,M. (2013) [48] No model**	**Orotin P., Quisenbery W. and Ted Sun (2013). No model**
Factors/ constructs in this study									
Performance expectancy	×	×	×	×	√	√	√	×	×
Effort expectancy	×	×	×	×	√	√	×	×	×
Social influences	×	×	×	×	√	√	√	×	×
Facilitating conditions		×	×	×	√	×	√	×	×
Security	×	√	×	×	√	√	×	×	×
Sensitization	×	×	×	×	×	×	×	×	×
Legal issues	×	×	×	×	×	×	×	×	×
Level of exposures	×	×	×	×	×	×	×	×	×

Table 1 depicts a comparison of the factors used in this study against the factors in other scholars' works similar to this study in relation to the types of information technology models/theories used in the study of mobile money services. The common theories used were TAM, DOI and UTAUT. TAM model was used thrice, DOI twice and UTAUT thrice, as well as thrice in non-Mobile money service related studies. In other words, some of the above models/theories were used in mobile devices (non-mobile money services) studies. Hence, they can also help in the guiding the research. On the other hand, some studies only considered constructs without referring to particular theories/models.

3. Methodology

3.1 The Descriptive Field Study

Descriptive research is a research for which the purpose is to produce an accurate representation of persons, events or situations. It involves collection of descriptive data whose value is measured by classifying into sets or categories. It uses descriptive statistics in form of means, frequencies and percentages (Saunders *et al*., 2009) [56]. Descriptive statistics is methods of collecting, organizing, summarizing,

characterization, and presenting data in an informative way (Lind *et al*., 2005) [29]. In other words, it gives numerical procedures to summarize a collection of data in a clear and understandable way simplifying huge amount of data in a sensible way.

To examine the determinants or drivers of mobile money service adoption model by traders in Uganda, a descriptive field survey was used to collect data using a questionnaire, from a sample of 400 traders. The samples size was determined using proportionate stratified sampling methods. After analysis, data were presented in graphical figures, and interpreted in the subsequent sections. The field study resulted into identification of determinants of traders' mobile money services adoption model.

3.2 Reliability and Validity of Questionnaire

3.2.1 Questionnaire Reliability Testing

Reliability is the dependability or trustworthiness of the research instrument. In other words it is the degree to which the instrument consistently measure whatever it is measuring in a study (Amin, 2005) [1]. Furthermore, reliability of a research instrument measures its internal consistency, meaning that if the same instrument is administered to two or more independent groups of respondents of the same population, the results measuring the constructs will be similar (Churchill, 1979) [11]. In order to determine the reliability of the collected data, Cronbach's Alpha Coefficient was calculated. The following table 2 shows a summary of reliability score (alpha) measures.

Table 2: Summary of reliability score (Cronbach alpha) measures

Construct	Cronbach's Alpha Coefficient	No of Items
Performance Expectancy	0.877	6
Effort Expectancy	0.842	6
Social Influences	0.710	3
Facilitating Conditions	0.817	6
Security	0.896	6
Sensitization	0.875	5
Legal Issues	0.871	5
Level of Exposure	0.763	5
Behavioural Intentions	0.651	5
Use Behaviour	0.913	11

Source: Primary data, 2014

Table 2 above shows that most of the constructs met required level of Cronbach's Alpha as the values were above 0.60 which is the acceptable level (Babbie, 1992) [4].This means that the results of the questionnaire can be relied upon since all the constructs present an acceptable level of reliability.

3.2.2 Validity of Questionnaire

According to (Mugenda, 2008) [40], validity refers to the degree to which a research instrument evaluates what it is supposed to measure. While Amin (2005) [1] asserts that validity establishes the relationship between data and constructs within the study, Hair *et al*., (2010) [17] on the other hand also contends that validity is a way of establishing if a questionnaire measures an item in a useful way. In other words, it is used to determine how consistently the selected variables measure some constructs in a given study.

The results of factors analysis indicated that the scale that was developed to measure the variables was highly reliable. The high factors loadings of the model show significant level of convergent validity. Nunnaly (1978) [47] suggested that researchers to rely on a minimum factor loading of 0.6. Item 4 on Facilitating Conditions (when MMS transaction cost are affordable) which had a loading of 0.462 was dropped from the study because they had factor loading lower than 0.6 and an Eigen value lower than 1.0.

Table 3: Validity of Questionnaire

Variables on performance expectancy construct	Factor Loading
Performance Expectancy	0.8
Effort Expectancy	0.7
Social Influences	0.8
Facilitating Conditions	0.7
Security	0.8
Sensitization	0.8
Behavioral Intention	0.5

Extraction Method: Principal Component Analysis. a. Only one component was extracted. The solution cannot be rotated. Rotation Method: Varimax with Kaiser Normalization.

3.3 The Descriptive Statistics

The study investigated the use of mobile money services by traders in Uganda with the objective of determining the drivers of mobile money services adoption by traders in Uganda. The results presented in this section are from the analysis of the data collected through questionnaires that were administered to traders in Kampala business district.

The data was analyzed, hence, presented on the themes of Performance Expectancy (PE), Effort Expectancy (EE), Social Influences (SI), Facilitating Conditions (FC), Security (SE), Sensitization (SZ) and Behavioural Intentions (BI).

3.4 Performance Expectancy

Performance Expectancy is the extent to which traders believe that using mobile money services will assist them gain benefits from job performance. The study evaluated the perception of traders on the performance expectancy of mobile money services in business transactions. The questionnaire asked about the performance expectancy of mobile money services in trade transactions and the results are presented in figure 1.

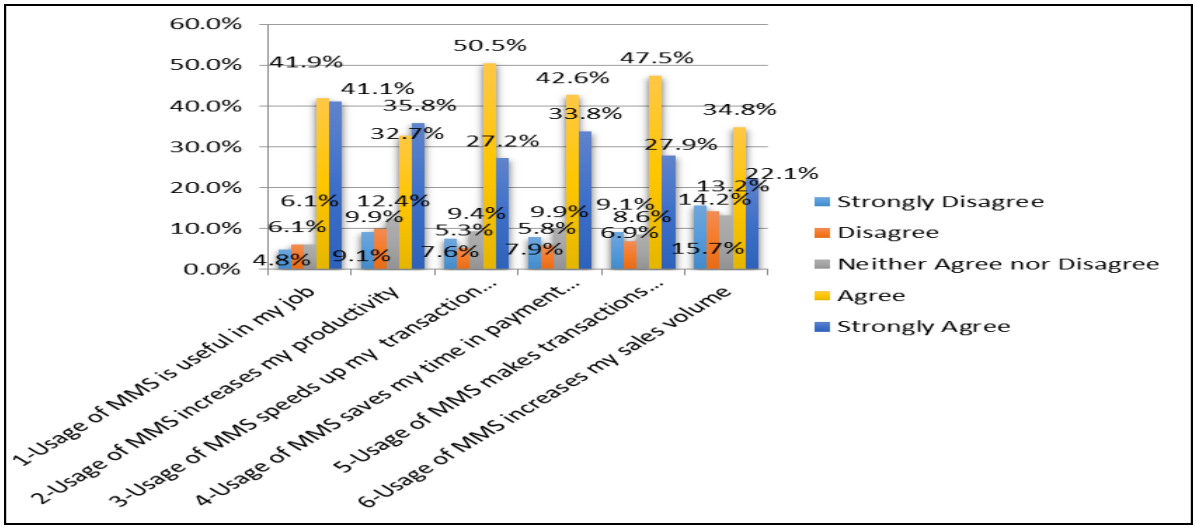

Fig 1: Performance Expectancy

The results on figure 1 revealed that traders generally agree that performance expectancy is among a determinants to the behavioural intention to adopt mobile money services for trade transactions in Uganda.

3.5 Effort Expectancy

Effort expectancy is the extent of ease an individual or trader believes that learning to use the mobile money services will not require significant effort. Data was collected on traders' perception on effort expectancy of mobile money services usage for trade transactions in Uganda and the findings are presented in figure 2.

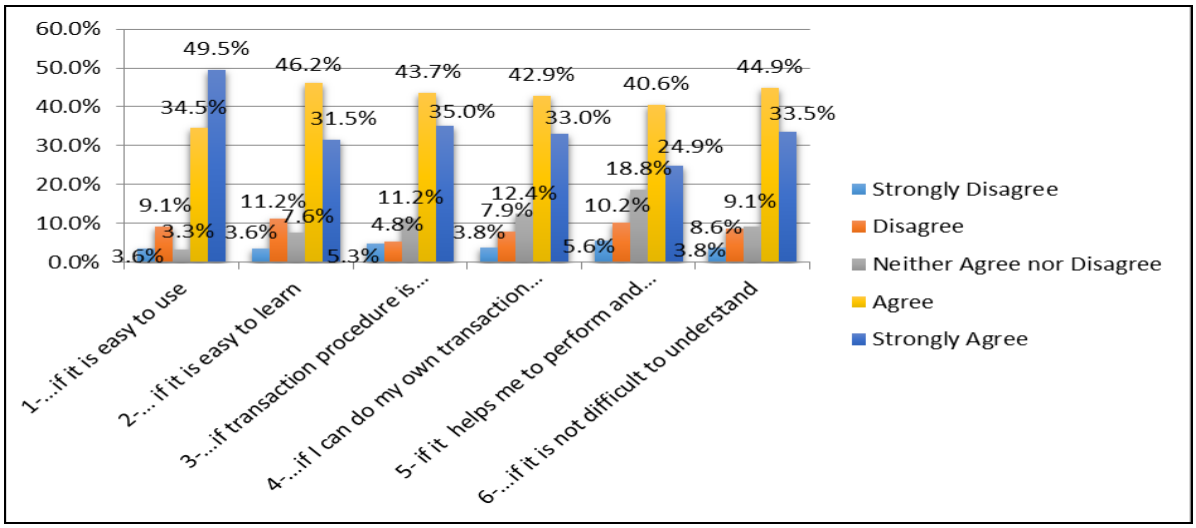

Fig 2: Effort Expectancy

The results on figure 2 reveal that respondents by and large agree that effort expectancy is a determinant to the behavioural intention to adopt mobile money services for trade transactions. The results in the figure indicated almost fifty percent (49.5%) of respondents strongly agree that the easy use of Mobile Money Services contributes to its adoption, nine percent (9.1%) disagreed with the opinion, and three percent (3.3%) were not sure.

3.6 Social Influence

Social Influence involves the social pressure applied on the traders by the opinion of other individuals or groups on the use of mobile money services for trade transactions. The study also elicited responses on a number of attributes proposed as to whether respondents were socially influenced to adopt mobile money services for trade transactions in Uganda and the results are presented in figure 3.

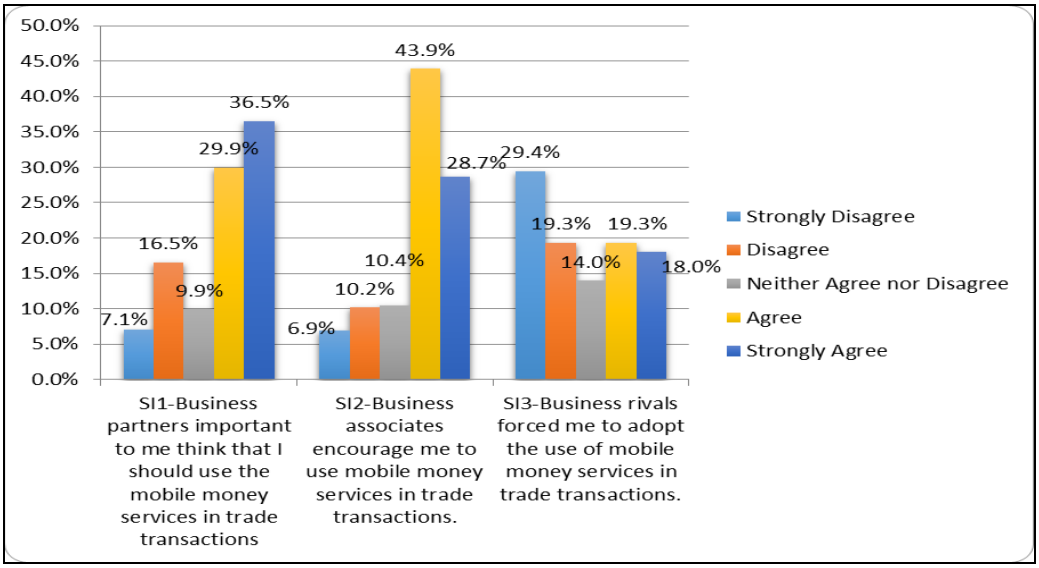

Fig 3: Social Influences

The results on figure 3 revealed that traders generally agree that social influence is a determinant to the behavioural intention to adopt mobile money services for trade transactions.

3.7 Facilitating Conditions

Facilitating Conditions (FC) is the extent of mobile money services technology services and other external support in the environment availability to traders whenever they need it for business transactions. The study assessed the perception of traders on facilitating conditions' influence on mobile money services usage for trade transactions and the results are presented in figure 4.

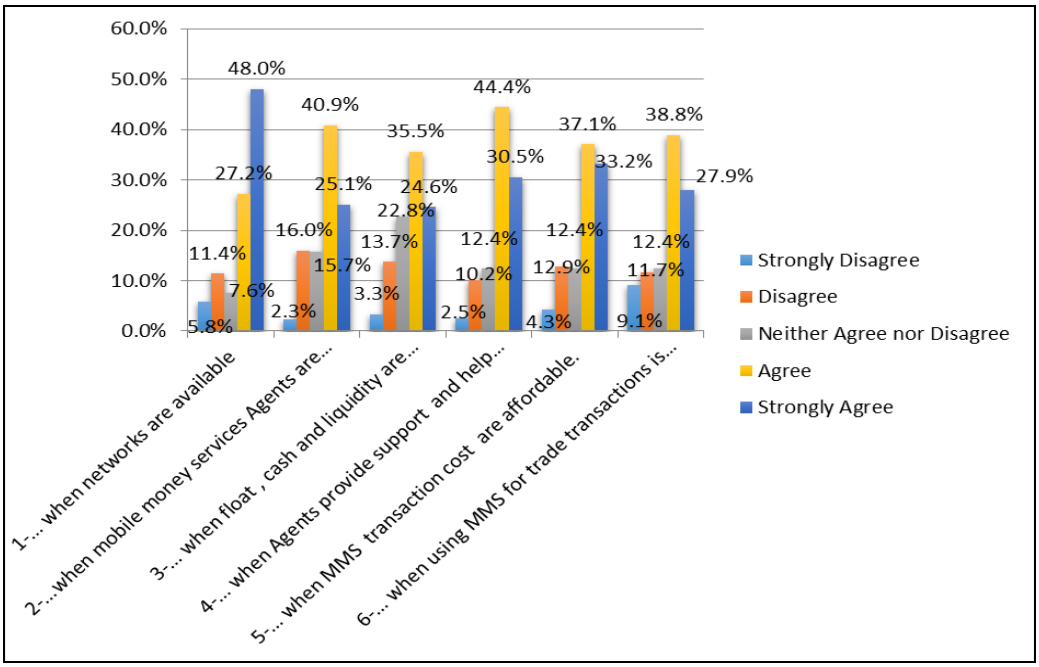

Fig 4: Facilitating Conditions

According to the findings in figure 4, traders in Uganda generally agreed on facilitating conditions as being a determinant for adopting mobile money services for trade transactions.

3.8 Security

Mobile money services security (SE) is the extent to which the prospective trader is concerned about the authentication, confidentiality, non-repudiation and data integrity relevant to mobile payments or transactions. Data was collected on the security of mobile money services usage for trade transaction in Uganda and the findings are presented in figure 5.

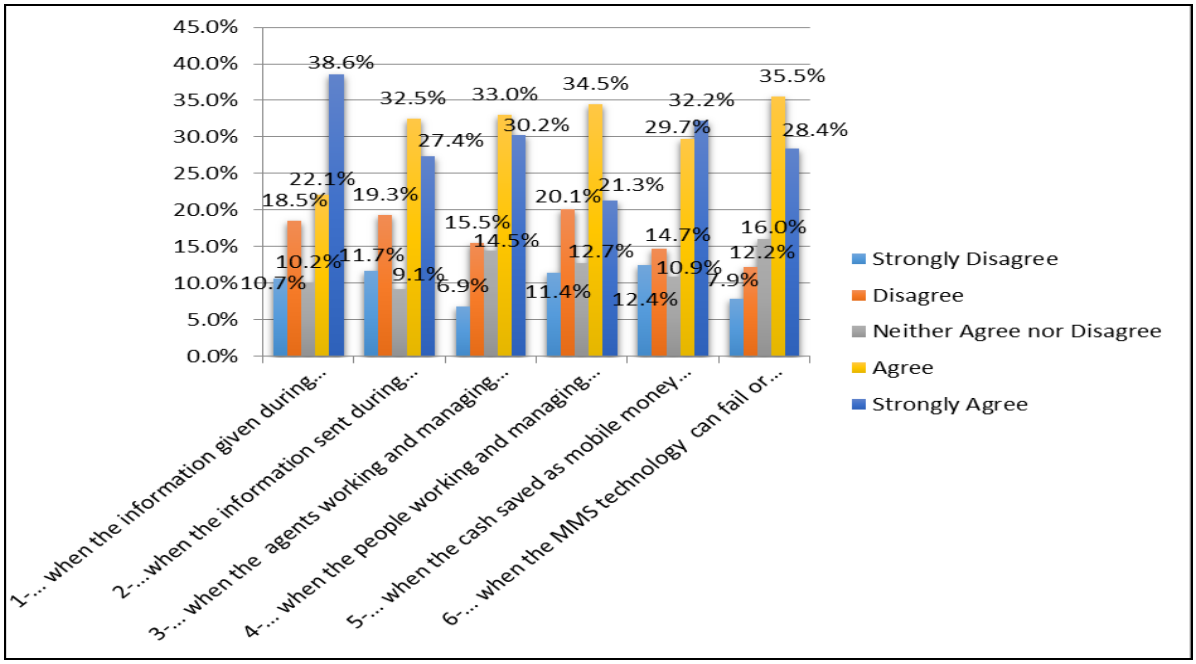

Fig 5: Security

The results on figure 5 reveal that traders generally agree that security is a driver to the behavioural intention to adopt mobile money services for trade transactions.

3.9 Sensitization

Sensitization (SZ) is the extent to which a trader is made aware about the existence and availability of mobile money services for trade transactions. The study evaluated the extent to which sensitization on mobile money services usage for trade transactions influences in its adoption by traders. The results of the study are presented in figure 6.

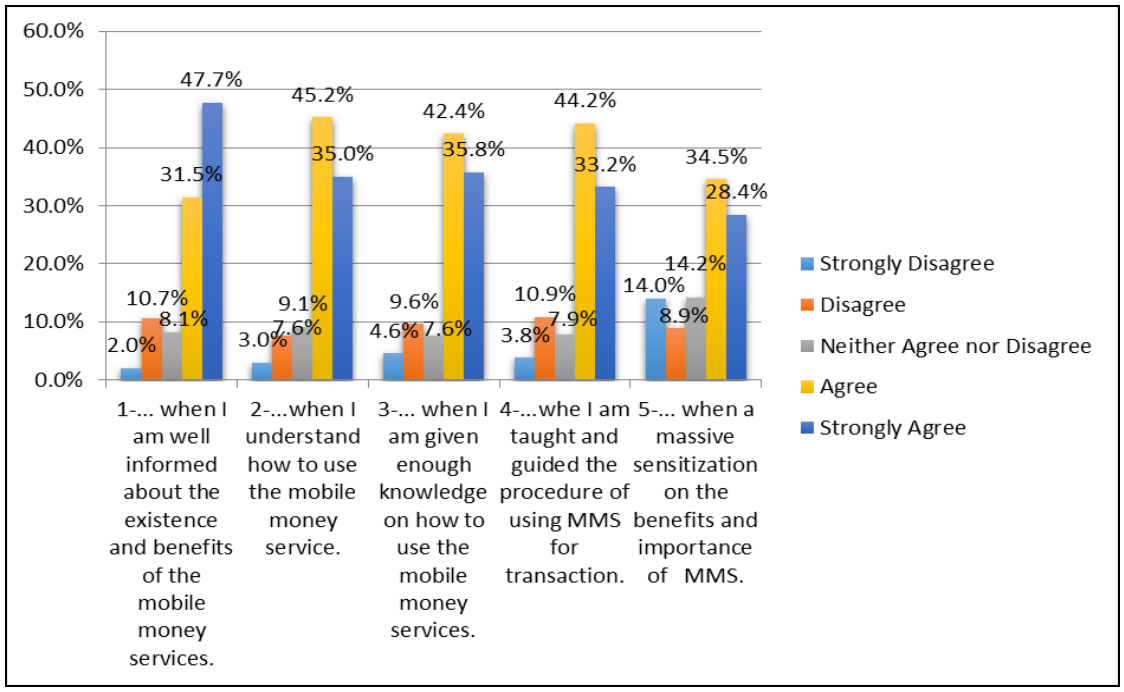

Fig 6: Sensitization

The results on figure 6 indicate that traders by and large agree that sensitization is a driver to the behavioural intention to adopt mobile money services for trade transactions.

3.10 Level of Exposure

Level of exposure refers to the degree to which the user (trader) is subjected or allowed to an action of knowing how to use, or experience a technology or service. The study elicited responses on a number of aspects proposed as to whether respondent's level of exposure influences the usage of mobile money services for trade transactions by traders. The findings on this study are presented in figure 7.

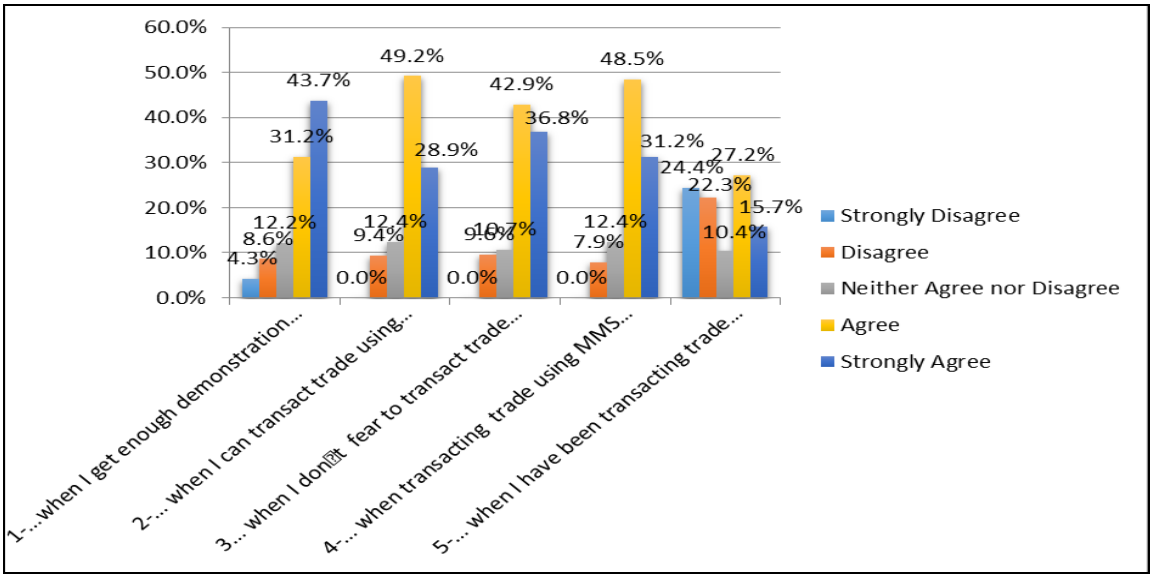

Fig 7: Level of Exposure

The results on figure 7 indicated that traders by and large agree that level of exposure is a driver to the behavioural intention to adopt mobile money services for trade transactions.

3.11 Legal Issues

Legal issue or implication is any incriminating involvements or inferences. It is a rule that when the law gives anything to a man, it gives him by legal implication all that is necessary for its enjoyment. In the context of this study, it implies that when the law gives mobile money services to a trader, it gives him/her by legal implication that is necessary for its satisfaction. The study assessed whether legal issues and implication of using mobile money services for trade transactions by traders influences its adoption. The results of this study are represented in figure 8.

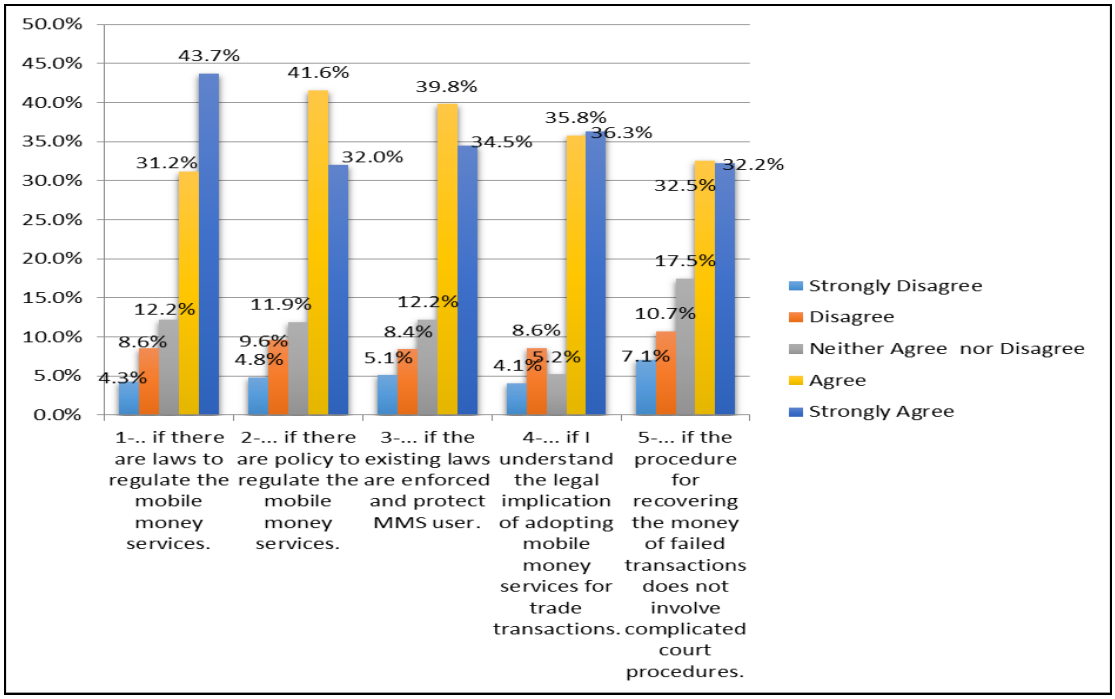

Fig 8: Legal Issuess

The results on figure 8 revealed that traders by and large agree that the legal issue and implication is a driver to the behavioural intention to adopt mobile money services for trade transactions.

3.12 Behavioural Intention

Behavioural intention (BI) is the extent to which a trader has formulated conscious and mental plans to perform or not perform some specified future behaviour. Data was collected on the view of trader's behavioural intention to use mobile money services for trade transactions by traders. The results of this study are presented in figure 9.

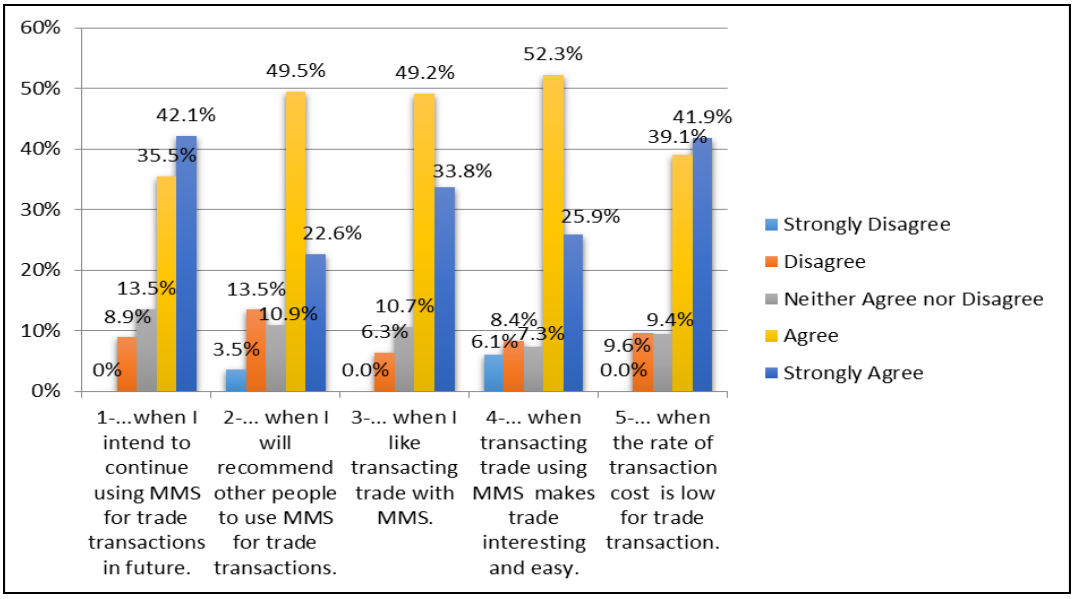

Fig 9: Behavioral Intention

According to the results on figure 9, by and large traders agree that behavioural intention is a determinant of mobile money service adoption.

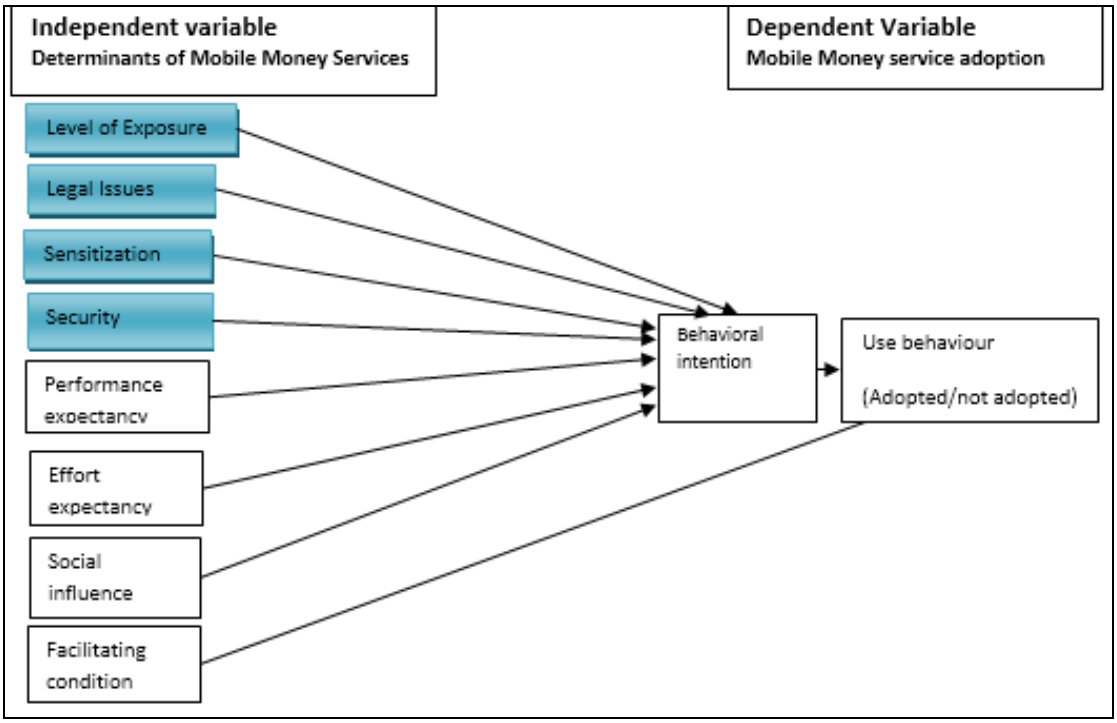

Fig 10: Determinants of Mobile Money Services Adoption model for Traders in Uganda.

4. Theoretical Contribution from UTAUT Model to the study

The Unified Theory of Acceptance and Use of Technology (UTAUT) model of Venkatesh *et al*., (2003) [70], selected for adoption and extension in this study is a hybrid of eight user acceptance and usage models. The eight models reviewed and consolidated were: (1) Theory of Reasoned Action (TRA), (2) Technology Acceptance Model (TAM), (3) Motivational Model (MM), (4) Theory of Planned Behaviour (TPB), (5) Combined Technology Acceptance Model and Theory of Planned Behaviour (C-TAM-TPB), (6) Model of PC Utilization (MPCU), (7) Innovation Diffusion Theory (IDT), and (8) Social Cognitive Theory (SCT).

UTAUT researchers such as Venkatesh and others conducted an empirical study comparing the above mentioned eight competing IS models. Using their findings, they proposed a unified model (UTAUT) containing four core determinants of IT use behaviour and up to four moderators of key relationships. The theory holds that the four key constructs namely; performance expectancy, effort expectancy, social influence, and facilitating conditions are direct determinants of information system usage intention and usage behaviour

(Venkatesh *et al*., 2003) [70]. Venkatesh *et al*., (2003) [70] also suggested that gender, age, experience and voluntariness of use, moderate the impact of the four key constructs on usage intention and behavior.

Venkatesh *et al*., (2003) [70] further asserted that UTAUT model has been tested empirically by different scholars in different parts of the world, and found that it has the capability to explain up to 70% of variance of intention. This result makes it have advantage over its counterpart TAM which is only capable of predicting the acceptance of an innovation in roughly between 30% to 40% of the cases (Meister & Compeau, 2002; Venkatesh & Davis, 2000; Taylor & Todd, 1995) [64, 35, 70, 73]. In addition, UTAUT has the advantage of including a distinction between mediating and determining factors. Venkatesh *et al*., (2003) [70] maintain that performance expectance, effort expectancy, social influences, and facilitating conditions play the most important role in determining an individual's acceptance and use of the technology.

5. Discussion and Conclusions

5.1 Determinants of Mobile Money Services Adoption by Traders

The objective of the study was to determine the drivers of Mobile Money Services adoption by traders in Uganda. The findings of the descriptive field study explained the drivers of mobile money services adoption among traders in Uganda and were presented in figure 8. The results were presented in figures 1, 2, 3, 4, 5, 6, 7, 8 and 9. The study considered six constructs as drivers that can influence mobile money services adoption by traders. They were the original four constructs, performance expectancy, effort expectancy, social influence and facilitating conditions in UTAUT model were considered in addition to sensitization and security which were derived from the literature review as gap that needed to be examined and investigated.

5.2 Performance Expectancy

The results in figure 1 revealed that respondents (traders) generally agreed that performance expectancy is among the drivers of mobile money adoption for trade transactions in Uganda. These findings are in line with the findings of Venkatesh *et al*., (2003) [70] in the original UTAUT model, Omwansa (2012) [51] with reference to the adoption of mobile money services by the poor in Kenya, and Kateete (2010) [26] with reference to the adoption of e-library services in Ugandan Universities. However, the findings were contrary to the findings of (Mirzoyants (2012) [36] who found that performance expectancy(PE) which included issues such as speed, sender/recipient's preference and safety, did not rank high among the reasons for using a given money delivery method including mobile money services. The relationship between PE and the intention to use mobile money services for trade transaction is given as, PE positively influences behavioural intention (BI) to adopt mobile money services. The effect is explained by the mobile money services being useful in trader's job, saves trader's time in payment transactions, speeds up trader's transaction work, makes transactions convenient, increases trader's productivity, and increases trader's sales volume. Performance Expectancy (PE) therefore contributes to the adoption of mobile money services by traders in Uganda.

5.3 Effort Expectancy

The results in figure 2 reveal that respondents (traders) by and large agreed that effort expectancy is a driver to mobile money services adoption by traders in Uganda. These findings are in line with the findings of Venkatesh and Morris (2000) [73] and (Wang *et al*., (2009) [74] who found that effort expectancy for using information systems (mobile money services) is a significant antecedent of behaviour intention to use the information system. However, this finding was contrary to the finding of Omwansa (2012) [51] and Kateete, (2010) [26] who found that effort expectancy did not have any substantial influence on behavioural intention, hence, it was dropped from their revised models. The relationship between effort expectancy (EE) and the intention to use mobile money services for trade transaction is given as EE positively influences behavioural intention to use mobile money services by traders in Uganda. The effect is explained by the mobile money services being easy to use in trade transactions, easy to learn, being capable of performing the transaction personally, transaction procedures are easy to perform, and helps traders perform complex transaction tasks quickly. Effort Expectancy (EE) therefore contributes to the mobile money services adoption by traders in Uganda.

5.4 Social Influences

The results on figure 3 revealed that respondents (traders) generally agreed that social influence is a driver of mobile money service adoption by traders in Uganda. Furthermore, they are more likely to adopt the service if their business associates (allies) encouraged them to use it in trade transactions. This finding is in line with the findings of Venkatesh *et al*., 2003 [70], with reference to the original UTAUT model, as well as being in agreement with the findings of Wang *et al*., (2009) [74] and Mbogo (2010) [34] who found that consumer decision to adopt a payment system is therefore significantly affected by the amount of the other consumers and traders using it. Furthermore, the finding is also in line with the findings of Omwansa (2012) [51] who also found that the significant others for the poor, though characterized by low literacy level also influenced them to adopt mobile money services. The relationship between social influences (SI) and the intention to use mobile money services for trade transactions is given as SI positively influences behavioural intention to use mobile money services by traders in Uganda. The effect is explained by mobile money services adoption by traders being influenced by business partners important to the traders, business associates encouraging traders to use it for trade transactions, and traders' business rivals forcing them to use it for business transactions. Social Influences (SI) therefore contributes to mobile money services adoption by traders in Uganda.

5.5 Facilitating Conditions

The results in figure 4 indicated that respondents (traders) generally agreed on facilitating conditions as being a driver of mobile money adoption by traders in Uganda. This finding is in line with the findings of Heyer and Mas (2009) [18] and Mallat (2007) [33] who found that users are willing to adopt the mobile money services if it is easily accessibly at anytime, anywhere, as well as reliability and affordability and flexibility of the service. Furthermore, Mirzoyants (2012) [36] also found that lack of accessibility to mobile money agents,

and mobile network reliability appear to be major barriers, preventing activation and usage of mobile money accounts. The findings of this study is also in line with other researchers' findings who also found that mobile money service transaction costs and rise of tariffs could have important impacts on adoption of mobile money services (Osei-Assibey, 2014; Mwesigwa, 2013; Jack & Suri, 2011) [43, 22, 54]. The relationship between facilitating conditions (FC) and the intention to use mobile money services for trade transactions is given as FC positively influences actual use of mobile money services by traders in Uganda. The effect is explained by the conditions facilitating the use of mobile money services being when networks are available, when mobile money services agents are available whenever traders need them, when float, cash and liquidity are frequently available, when mobile money services transaction cost are affordable, and when using mobile money services for trade payment transactions is better, more convenient and faster than the traditional means. Facilitating Conditions (FC) therefore contributes to mobile money services adoption by traders in Uganda.

5.6 Security

The results in figure 5 revealed that respondents (traders) generally agreed that security is a driver of mobile money services adoption by traders in Uganda. This finding is in line with the findings of Jenkins (2008) [23] who found that the advantages of mobile money include security, affordability, and convenience. It was found that the primary driver and reason to adopt mobile financial services, according to the study is the ability to more easily send funds, pay bills, and safety of not having to carry around a lot of cash (Business Wire, 2012) [3]. Swatman *et al*., (2002) [58] further mentioned that the key requirements for any financial transaction in an electronic environment should include confidentiality, authentication, data integrity and non-repudiation. Mallat *et al*., (2008) [32] also mentioned that other security factors important to the users are anonymity and privacy, which relate to use policies of customers' personal information. Lonergan *et al*., (2009) [31] further asserts that mobile money service users' fears on security, has suppressed the uptake of mobile money services. Furthermore, Littler *et al*., (2006) [30] also asserted that where money is involved, risk is always a concern, may constitute a significant barrier for mobile money transactions, hence adoption. The relationship between security (SE) and the intention to use mobile money services adoption for trade transactions is given as SE positively influences behavioral intention to use mobile money services by traders in Uganda. The effect is explained by the mobile money services personal information given for transactions is known by other people without traders consent, information sent during transaction can be accessed by other people, when the agents working and managing mobile money services have issues on trust, when people working and managing mobile money services don't keep secret of the information about the transaction, when the cash saved as mobile money could possibly get lost, and when mobile money services technology can fail or collapse during transaction process.

5.7 Sensitization

The results in figure 6 indicated that respondent (traders) by and large agree that sensitization is a driver to mobile money services adoption by traders in Uganda. This finding is in line with the opinion of Obgonna (2013) [49] and Uduma, (2012) [67] who asserted that for African people to adopt mobile money services they need to be massively sensitized about the usefulness of the service as well change the mind set of telecom consumers towards the adoption of mobile money services. The relationship between sensitization (SZ) and the intention to use mobile money services for trade transactions is given as SZ positively influences behavioral intention to use mobile money services by traders in Uganda. The effect is explained by mobile money services benefits sensitization, with reference to being informed about the existence and benefits of the mobile money services, trader's understanding on how to use the mobile money services, traders given enough knowledge on how to use the mobile money services, respondents taught and guided the procedure of using mobile money services for transactions, and when massive sensitization on the benefits and importance of mobile money services is done. Sensitization (SZ) therefore contributes to adoption of mobile money services by traders in Uganda.

5.8 Level of Exposure

The results on figure 7 revealed that the respondents (traders) generally agreed that level of exposure is a driver to mobile money services adoption by traders in Uganda. This finding is not in line with the findings of Omwansa (2012) [51] who found that the experience and duration of usage of mobile money services did not significantly drive the behavioural intention of mobile money service adoption by the poor consumers.

5.9 Legal Issues

The results on figure 8 revealed that respondents (traders) by and large agreed that legal is a driver to the behavioural intention to adopt mobile money services for trade transactions. This finding is in agreement with the findings of Chiumbo (2013), Osikena (2012) [53] and Firpo (2010) [14] who observed that other barriers to consumer adoption of mobile money services are regulation and regulatory framework for mobile money services, risk of money laundering and fraud. The findings is also in line with the assertion made by Gutierrez and Choi (2014) [16], Lonergan *et al*., (2009) [31] and Shinyekwa (2013) [57] that there is no legislation governing mobile money services in Uganda. However, the above authors emphasized on the need for strong legislation and regulatory framework to protect interests of stakeholders such as customers, the banks and the mobile network operators (MNOs).

5.10 Behavioral Intentions

The results on figure 9 indicate that by and large respondents (traders) agreed that behavioral intention is a driver of mobile money service adoption by traders in Uganda. The finding is supported by findings of Omwansa (2012) [51] and Davidson and McCarty (2010) [13] on the behavior intention that positively influence use behavior (adoption of mobile money services). Furthermore, Kateete (2010) [26] also found that behavioral intentions had a significant positive (30%) contribution towards usage of e-library services. The relationship between behavioral intention (BI) and the actual use of mobile money services for trade transaction is given as BI positively influences the use behavior (UB) of mobile money services by traders.

The results on figure 9 indicate that by and large traders agree that behavioral intention is a driver of mobile money service adoption, with reference to when the rate of transaction cost is low for trade transaction, when they intend to continue using MMS for trade transactions in future, when they like transacting trade with MMS, when transacting trade using MMS makes trade interesting and easy, and when they recommend other people to use MMS for trade transactions.

The effect is explained by the mobile money services for trade transactions making trade interesting and easy, when the rate of transaction cost is low for trade transaction, when traders intend to continue using mobile money services for trade transactions in future, when traders like transacting with mobile money services, and when traders will recommend other people to use mobile money services for trade transactions. Behavioral intentions (BI) therefore contributes to the actual use of mobile money services by traders in Uganda.

6. Conclusions

This study sought to determine the drivers of mobile money services adoption among traders in Uganda. The major findings with reference to performance expectancy revealed that traders are likely to adopt mobile money services if the use of the service can increase on their volume of sales. Furthermore, with reference to effort expectancy, the major findings of the study found that traders are likely to adopt mobile money services, if it can help them perform trade transaction tasks quickly as well as ease complex tasks for them. In respect to social influences, the findings revealed that traders may adopt mobile money services because of the influence of their business rivals (competitors) and business partners as well. In addition, with reference to facilitating conditions, the major findings of the study indicated that traders are also likely to adopt mobile money services when trader payments are better, more convenient and faster than the traditional means of payments.

Regarding security, the major findings revealed that traders may not adopt mobile money services if their information given, or sent during transactions is either known by other people without their consent. In other words the confidentiality and privacy of their personal information can influence their likelihood to adopt the service. Pertaining to sensitization, the major finding indicated that traders are likely to adopt mobile money services when they are sensitized on the benefits and importance of mobile money service is done, as well as taught and guided on the procedures of using mobile money services for transaction. In addition, on behavioural intention, the major findings revealed that traders are likely to adopt mobile money services when he/she can recommend other people to use mobile money services for trade transaction as well as when transacting trade using mobile money services makes trade interesting and easy.

Regarding level of exposure the findings revealed that traders are likely to adopt mobile money services when they are given enough demonstration and illustration on how to transact mobile money services on their (traders) phones. Pertaining to legal issues, the findings reveal that traders are likely to adopt mobile money services when the laws used to regulate the mobile money services exist. Finally, with respect to use behaviour, the major findings of the study indicated that traders are willing to adopt mobile money services if they can use it to pay tax, trade license and insurance.

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