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Investigating Challenges of Mobile Money usage in the Central Business District of the Kumasi Metropolitan Assembly, Adum- Ghana

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Abstract

A descriptive cross-sectional design approach was deployed using a structured questionnaire underpinning the research objective to collect data from mobile money users and non-users within the Business District Centre of the Kumasi Metropolitan Assembly, Adum. The purposive random selection technique was used to choose a sample size of 59. This study seeks to investigate the challenges encountered by patrons of mobile money and examine their behaviour and attitudes towards the usage of mobile money transactions. The study identified seven (7) challenges, namely, financial, security, privacy, performance, time, convenience, and psychological, with performance, security, and privacy challenges being the most prevalent. The low transaction limits due to inadequate constant liquidity flow (cash and e-float) by agents affect consumers who wish to transact more than being offered; unwarranted delays experienced by customers and merchants due to incomplete payment process are some of the causative challenges of mobile money transaction; and invasion of privacy and defamation are among major. Fraudsters use the fear and anxiety of customers' personal details in the hands of a third party, especially when the mobile money accounts are linked to clients' bank accounts. The effect of inconvenience and delays in transactions are pointers to a duplicated transaction. It is recommended that service charges be lowered to their minimum rates, ensure a reliable mobile money system for consumers through system upgrades, and service providers ensure that personal details remain private to avoid consumer-driven fraud by inadvertently making pin codes known to third parties.

Keywords*: Global System for Mobile Communications Association (GSMA), Mobile Money, Theory of Reasoned Action (TRA), Technology Acceptance Model (TAM), Theory of Planned Behavior (TPB) and the Diffusion of Innovation Theory.*

Introduction

Mobile Money (MM) has become one of the most effective payment systems in the world, especially with the underserved and unbanked in most developing markets; thus, the rapid growth due to the penetration and application of mobile phones, especially in the rural areas of Africa and Ghana in particular. Mobile money is described as a reliable and fast financial service that entails transfers of cash deposits, withdrawals, and other related activities that integrate society using telecommunication platforms or networks by subscribers at their convenience [1]. It is worth mentioning that mobile money services can be categorized into two components, with the first category comprising a technology that allows banks to wire the account of their customers to their emails and mobile phones that, allow them to undertake different kinds of transactions as well as track activities in their bank accounts; and the

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second being the one solely undertaken via mobile phones that has no connection with the customers' bank account. Nonetheless, both categories can send and receive payments using mobile phones [2].

Currently, the mobile money service is a worldwide spectacle, recording astonishing growth in emerging markets and reaching a broad range of customers. The GSMA 2021 State of the Industry Report on Mobile Money (MM) indicated that at the close of the year 2020, there were 5.2 billion mobile money users with a new daily routine for millions around the world, culminating in almost $2 billion in daily transactions.

It is worth mentioning that mobile money and mobile network technologies have a colossal role in keeping people connected by delivering financial support and providing safe platforms for the payment of goods and services without any physical contact, bringing several benefits to users such as convenience, speed, flexibility, and affordability, particularly at the pick of the Covid-19 pandemic [3-4]. A Bank of Ghana Payment Systems Oversight Annual Report for 2020 revealed that Mobile Money transactions in terms of volumes increased from 2 billion transactions in 2019 to 2.86 billion in 2020, representing a year-on-year 42.27% rise.

The total value of the transactions also increased year-on-year by 82.37% from GH¢309.35billion in 2019 to GH¢564.16 billion in 2020 (Bank of Ghana Report, 2020). In 2021, mobile money transactions were valued at GH¢905.1billion as against the GH¢109billion by September 2016, showing a percentage increase of 730% and 60.4% from 2016 and 2021, respectively. Bank of Ghana has indicated that if the current trend of increase prevails, the worth of MM is expected to exceed GH¢1trillion in 2022. (Source: GhanaNews.com; Accessed on 22-03-2022).

Even though the use of mobile money has surged rapidly in Ghana in recent times since its inception a little over a decade ago (launched in 2009), its focus has mainly been transfers and remittances of cash and, in certain instances, the buying of airtime. The payment of goods and services aspect of mobile money transactions is in its teething stage due to certain challenges that patrons are encountering. Consumers are mindful of the challenges associated with innovative technology.

According to Kiran et al., mobile money transactions are open to threats like unsecured networks, mobile malware, third-party applications, and precarious customer behaviour, which are imminent but avoidable [5]. Some pieces of literature [6-8] have identified convenience, performance, privacy, security, time, and social and financial challenges as the bane to mobile money transactions. It is upon this basis that the study seeks to investigate the actual challenges associated with the usage of mobile money services at Adum (Central Business District) in the Kumasi Metropolitan Assembly in the Ashanti Region of Ghana.

The study's outcome will add to knowledge in the subject area under investigation and form the basis for further surveys by other researchers and consultants who may wish to conduct similar studies in other related fields. It may also contribute to operational definitions of concepts, which may assist future researchers in adopting them. This study will be useful to policymakers, regulatory authorities, mobile network operators, and other mobile money stakeholders and assist them in making an informed judgment on the operations of mobile money services. Again, from an economic viewpoint, the contribution of mobile money services (in terms of volume of transactions and the amount involved), any infractions in the mobile money services will have deep, devastating economic ramifications for subscribers.

Theoretical Framework

This study was based on four theories, namely the Theory of Reasoned Action (TRA), the Technology Acceptance Model (TAM), the

Theory of Planned Behavior (TPB), and the Diffusion of Innovation Theory.

Theory of Reasoned Action (TRA)

The Theory of Reasoned Action (TRA) propounded by Fishbein and Ajzen in 1975 indicated that behavior is the intention to act in a manner that is caused by the combination of attitude and subjective norms, being the most significant factor influencing the performance of the behavior. Fishbein and Ajzen assumed that people are rational and make efficient use of information available to them to assess the outcome of behavior to decide whether to engage in that behavior. Based on their assumptions, they further postulated that individuals' attitude is formed by behavioral beliefs, which may be positive or negative based on their evaluation of the consequences (benefit or cost) of the outcome of that behavior. The relevance of this theory to the study shows the need for an individual (consumer) to predict and understand the factors that motivate him/her to take part in human behavior, such as choosing and using a payment system, adopting a new technology, buying a new car or even casting a vote, which is under the person's control [9].

Technology Acceptance Model (TAM)

In his 1989 Doctoral thesis, Fred Davies [10] proposed the Technology Acceptance Model (TAM), which has its foundation in the Theory of Reasoned Action (TRA) by Fishbein and Ajzen. According to Taylor & Todd, TAM is an information systems theory that models how individuals accept and use technology. The model proposes the notion that when individuals are given mobile money technology and mobile money services, factors such as perceived usefulness (PU) and perceived ease of use (PEOU) affect their decision [11].

Theory of Planned Behavior (TPB)

According to Ajzen, attitude and subjective norms as determinants of performance of behavior are not enough to explain the link between beliefs and behavior of people. This theory links one's beliefs and behavior. The theory states that attitude toward behavior, subjective norms, and perceived behavioral control together shape an individual's behavioral intentions and behaviors toward the use and adoption of mobile money technology and mobile money services [12].

Theory of Diffusion of Innovation

This theory, which was propounded by Everett Rogers in 1962, shows why, how, and at what rate new ideas and technology spread. It is a behaviour change model which seeks to test the level of adoption of mobile money technological innovation action. The theory originated from communication to ascertain how an idea, product, or innovation gains momentum and diffuses through a specific population. The theory identifies five prerequisites for the successful adoption of innovation: relative advantage, compatibility, complexity, trialability, and observability.

Materials and Methods

Research Design

The study adopted a descriptive cross-sectional design, which involves the collection of data at one point in time as a research design for the study. The researcher employed a structured questionnaire underpinning the research objectives to collect data from mobile money users and non-users within the Business District Centre of the Kumasi Metropolitan Assembly, specifically, Adum in the Ashanti Region. Secondary and primary data were used for this research.

This study obtained its primary data from administered questionnaires to respondents (users and non-users of mobile money) with the assistance of field assistants by purposive selecting randomly within the coverage area. Secondary data for the research were accessed by the review of journals, articles, magazines, publications, the internet, etc., for historical perspectives of the data from distinguished scholars.

Study Site

The study was deployed within the Central Business District (CBD), which comprises the Central Market, Adum Shopping Centre, and the Kejetia Lorry Park located at Adum, a suburb of Kumasi, which is situated between Bantama and Nhyeaso.

The Kumasi Central Market, established in 1925, is the single largest traditional market in West Africa, with an estimated daily population between 15,000 and 20,000, embracing 80% of tabletop stores and 20% of brick-and-mortar stores with a total storage capacity of 10,000. Kejetia is made up of 60% commercial vehicle parking facilities, 30% stores, 5% offices, and 5% residential [13].

Size of Sample and Sampling Techniques

The study adopted the non-probability purposive sampling technique in the selection of samples. The appropriate study sample size was estimated at 59 using the [14] formula below:

$$n = Z^2 * \frac{p(1-p)}{d^2}$$

Where the population is more than 10,000.

Z = confidence level at 95% (standard value 1.96).

p = estimated prevalence = 4%.

d = Margin of error = 5% = 0.05.

n = 59.00698 ≈ 59.

From the formula, the size of the sample is fifty-nine (59). Thus, the study focused on fifty-nine (59) users of mobile money service within the Central Business District (Adum) of the Kumasi Metropolis who provided the required information for the study. The researcher used the non-probability purposive sampling technique to administer questionnaires to users (business owners, traders (sellers and buyers), and mobile money merchants to reduce or eliminate errors, bias, and undue meddling to ensure the quality of the data collected the questionnaires were standardized to ensure uniformity and reliability. The questionnaires, which were originally written in the English language, were translated into the Asante Twi language for a better understanding of the issues on the table, taking cognizance of the fact that the majority of the respondents were more comfortable with the local dialect (Asante Twi). The researcher ensured that assistants were trained with the objectives of the study in mind and appropriate use of the data collection tools, thereby ensuring uniformity in the data collection process. The participants were purposively sampled randomly to avoid selection bias, and the researcher ensured they participated only once in this study.

Inclusion Criteria

Mobile money users who are business owners, traders (sellers and buyers), and mobile money merchants within the selected study site. Mobile money users over 18 years.

Exclusion Criteria

Mobile money users who are business owners, traders (sellers and buyers), and mobile money merchants outside the selected study site. Mobile money users under 18 years. Non-users of mobile money

The Instrument for Data Collection

The main instruments employed for the collection of data were structured questionnaires administered to the fifty-nine (59) users of mobile money. The questionnaire was constructed mainly using the Likert-type items on a 1-5 scale with endpoints ‘Strongly disagree’ and ‘Strongly agree’ as the response anchor in this study.

Consequently, opened and closed tendons were asked to stimulate reactions from participants in respect of their experiences in identifying prevalent challenges of mobile money users, consumers’ ability to the apparent threats, and the reactions of users of mobile phones on a one-on-one basis. The questions were structured based mainly on consumer behaviour towards mobile phone users; and further, as if the mobile money service is the best of choice or otherwise.

Analysis of Data

The collected data was reviewed to check and correct possible errors and omissions that may have occurred to ensure consistency across respondents. It was coded for respondents to be categorized into limited numbers. Microsoft Excel software was used for this analysis. Processed data were presented in narratives, tables, and graphic forms. Descriptive statistical tools such as bar graphs, means, and standard deviations were used in analyzing the data.

Ethical Standards

Throughout this investigation, all applicable ethical criteria for conducting research were upheld. Along with gaining the study subjects' informed consent, disclosures to the study subjects about the goals and advantages of the study, the confidentiality of their information, and volunteers were made. All data obtained were discreetly manner.

Results and Discussion

Respondents' Demography

The survey showed that most of the respondents were male (32 representing 54.24%). In comparison, the remaining 27(45.75%) were female as buttressed by [15, 17, 18] reviews which resonates with the fact that men are mostly early adaptable to innovative technology. At the same time, women are less confident to the use mobile money, thus the gender gap. Table 1 revealed that 96.61% of participants are above 20 years, with "31-40 years" being the modal age group with as many as 20(33.90%) of the respondents, followed by the "21-30 years" group of 15(25.42%). This result agrees with the assertion of Sasu [16], which intimated that 38.9% of the Ghanaian population above 15 years had a mobile money account in Ghana as of January 2022. This further explains the early adaptation to the use of mobile transactions and the technology that goes with it. Besides, the participants in respect of ages were duly represented with "41-50 years", "51-60 years" and "more than 60 years," scoring 10(16.95%), 8(13.95%), and 4(6.78%), respectively. Education-wise, the study revealed that 55(93.22%) of the respondents were educated and are in a very good position to contribute to the study, with the modal group being "SHS graduates" and "professionals" attaining 11(18.64%), "post-graduate" 9(15.25%), "Diploma and Primary/JHS" 7(11.86%) and "illiterates" 4(7.78%). Howbeit, the illiterates had their questionnaires translated into the local Asante Twi.

Table 1. Respondents' Demography

Description	**Freq.**	**(%)**
Gender		
Male	32	54.24%
Female	27	45.76%
Total	**59**	**100.00%**
Age		
Less than 20 years	2	3.39%
21 - 30 years	15	25.42%
31 - 40 years	20	33.90%
41 - 50 years	10	16.95%
51 - 60 years	8	13.56%
More than 60years	4	6.78%
Total	**59**	**100.00%**
Educational Level		
Illiterate	4	6.78%

Primary/JHS	7	11.86%
SHS	11	18.64%
Diploma	7	11.86%
First Degree	10	16.95%
Postgraduate	9	15.25%
Professional	11	18.64%
Total	**59**	**100.00%**

Source: Fieldwork Survey, November 2022

Utilization of Mobile Money Transactions

It was discovered that out of the three main network providers (Telcos), MTN is the most preferred with a representation of 67(49.63%), Vodafone recorded 43(31.85%), and AirtelTigo 25(18.52%). Again, participants subscribed to more than one network provider; thereby rendering the result in agreement with a data report of Statista.com showing MTN as with the market leader with 57%, Vodafone 22%, and AirtelTigo 20% of the market share (statista.com/statistics/671653/mobile-subscription-share-in-ghana-by-operator, 20 Give new of population accessibility, the survey showed that all 59 (100%) participants have access to mobile money transactions; thereby laying credibility to the fast growth rate of mobile money patronage [15], [17], [18]. Also, it was detected that over 80% of the participants had had the services of mobile money for more than 1 year, with 20 (33.90%) being the modal class and having patronized the service for 4 years, 18 (30.51%) for "3-4 years", 12 (20.34%) for "1-2 years" and 9 (15.25%) for "less than 1 year". Finally, the survey exhibited that the most preferred service used on the mobile money platform was for 'receiving' and 'transfers' of money, with their respective representations of 49 (28.00%) and 47 (27.43%). Airtime purchases had 25 (14.29%), Savings 22 (12.57%), payment of bills 18 (10.29%), and other services scored 13 (7.43%), as indicated in Table 2 below.

Table 2. Utilization of Mobile Money

Description	**Freq.**	**(%)**
Telcos (Service Provider)		
MTN	67	49.63%
Vodafone	43	31.85%
AirtelTigo	25	18.52%
Total	**135**	**100.00%**
Accessibility to Mobile Money on Phone		
Yes	59	100.00%
No	0	0.00%
Total	**59**	**100.00%**
Period of using mobile money services		
Period		
Less than 1 year	9	15.25%
1-2 years	12	20.34%
3-4 years	18	30.51%
More than 4 years	20	33.90%
Total	**59**	**100.00%**
Preferred transactions with MM		

Transaction		
Buy Airtime	25	14.29%
Pay Bills	18	10.29%
Transfers of money	48	27.43%
Receiving of money	49	28.00%
Savings	22	12.57%
Others	13	7.43%
Total	**175**	**100.00%**

Source: Fieldwork Survey, November 2022

Identification of Challenges among Mobile Money Users

Recognition of Challenges of Mobile Money

The majority, 55 (93.22%) of the participants acknowledged their recognition of the challenges bedeviling the mobile money industry; 1(1.69%) for 'No' and 'Don't Know' and 2(3.39%) for 'Not Sure' as demonstrated by Table 3 below. This result is an affirmation of Bećirović [19] recognition and awareness of major challenges to the implementation of e-money from an economic perspective, taking cognizance of transaction costs and trust.

Table 3. Recognition of Challenges of Mobile Money

State of Recognition	**Freq (%)**
Yes	55(93.22%)
No	1(1.69%)
Not Sure	2(3.39%)
Don't Know	The 1(1.69%)
Total	**59(100.00%)**

Source: Fieldwork Survey, November 2022

Means of Awareness

As illustrated by the table below, the majority 19 (32.20%) of participants became aware of the challenges associated with the use of mobile money through "social media", followed by "Traditional Media," registering 13(22.03%), "Colleagues" scored 10 (24.14%), 8(13.26%) for "Family", 6(10.17%) for "Telcos" and "Cannot Remember" scoring 3(5.08%). The majority of the respondents became aware of the various identified challenges of mobile money transactions through the media landscape (both social and traditional media mostly through colleagues and family and advertisements, respectively); howbeit, telcos use SMS messages and advertisements.

Table 4. Means of Awareness

Medium	**Freq. (%)**
Telcos	6(10.17%)
Colleagues	10(16.95%)
Family	8(13.26%)
Traditional Media	13(22.03%)
Social Media	19(32.20%)
Cannot Remember	3(5.08%)
Total	**59(100.00%)**

Source: Fieldwork Survey, November 2022

Most Identified Challenges

Figure 1 below provides a picturesque illustration of the survey results concerning the most identified challenges that participants associate with mobile money transactions. The researcher provided 7 (seven) challenges as variables affecting the use of mobile money transactions based on other studies [8], [20], [21]. The results indicated that "Performance" is the most recognized challenge registering 58(18.47%) as the modal class, followed closely by "Security" and "Privacy," scoring 55(17.52%) and 54(17.20%), respectively. In addition, "Financial", "Time," and "Psychological" attained 47(14.33%), 30(9.55%), and 25(7.96%), respectively. [22] the assertion that financial challenges have a direct link to security, privacy, and financial issues like the potential loss of money due to transaction error or bank account misuse [8] or in instances whereby the merchant or the customer uses fake currency to pay for mobile money transactions [21].

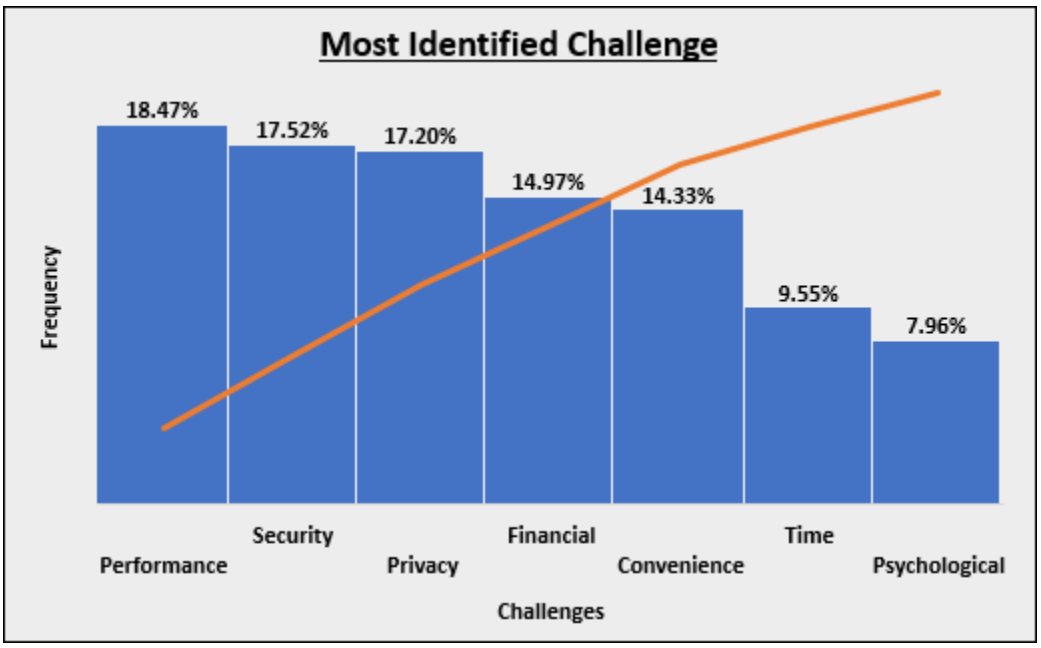

Figure 1. Most Identified Challenges

Source: Fieldwork Survey, November 2022

Degree of Challenges Facing Patrons of Mobile Money Transactions

To analyze the various degree of challenges facing mobile money users and merchants, weights were assigned to the scale of the agreement to each variable using the Strongly Disagree (1) Disagree (2) Somehow Agree (3) Agree (4) Strongly Agree (5) for the computation of mean and standard deviation of each of the challenges identified. This study indicates that consumers and merchants of the Business District Center of Adum, Kumasi have an overall positive perception of the seven (7) variables representing challenges affecting mobile money users. The assessment was undertaken using the 5 Likert-scale, and thus is elucidated individually by Tables 5-11 below. The findings are consistent with [2, 7, 8, 20, 22], which affirmed that the aforementioned variables influence mobile money operations.

Financial Challenges

Financial challenges occur when customers experience certain shortfalls leading to money being lost during mobile money services, which adversely affects customers [22]. In this study, four (4) variables were adopted to measure financial challenges as depicted in Table 5 below.

Table 5. Financial Challenges

Financial Challenges	Mean	Std. Dev.
Socially engineered fraud typologies.	3.23	1.434
Unreasonable charges by the network providers and merchants etc	3.99	1.741
Inadequate constant liquidity flow (cash and e-float) by agents	3.52	1.426
Low transaction limit affects consumers who would want to transact more	4.02	1.034
Total Average	**3.69**	

Source: Fieldwork Survey, November 2022

The financial challenges, as displayed in Table 5 indicated that some of the variables have mean values approximately to the notion of agreement of influence on mobile money operations such as "Low transaction limits which affects consumers who would want to transact more" which recorded a mean of 4.02(80.40%); followed closely by "Unreasonable charges by the network providers and merchants etc." which scored 3.99(79.80%) affirms the attitude and behaviour of a section of Ghanaians who found the introduction Electronic Levy in May 2022 as unwanted and unreasonable charges to rip-off consumers could be classified under this variable.

Also, the variable "Inadequate constant liquidity flow (cash and e-float) by agents" registered 3.52(70.40%) and "Socially engineered fraud typologies" scoring 3.23(64.60%) which was aptly stated by Yawson [2] that although when financial challenges leading to loses occur on the side of the merchant it can easily be traced and tracked the same could not be said about a customer, especially when the customer has a criminal intent, he may never turn up to such mobile money merchant or shop again for fear of being identified and arrested. Summarily, it was detected that the mean score of 3.69(73.80%) is an affirmation of the direct effect of finances on mobile money operations.

Privacy Challenges

Patrons of money transactions are mainly concerned about privacy being invaded by a third party who could hack into their personal details in the course of undertaking an electronic financial transaction using the mobile money service [23].

However, privacy is critical, especially when consumers are in the position to connect their mobile money accounts to their bank accounts. These challenges have a great impact on electronic banking services [24]. In view of the above deliberations, four (4) variables were set for investigation as demonstrated in Table 6 below:

Table 6. Privacy Challenges

Privacy Challenges	Mean	Std. Dev.
Personal details being used for fraud, inappropriately shared, or sold.	4.33	0.936
Personal information is intercepted or accessed.	3.76	1.542
Payment information is collected, tracked, and analyzed	4.03	0.742
Privacy (account number, pin code, etc.), may be exposed when using electronic payment.	4.14	1.032
Total Average	**4.07**	

Source: Fieldwork Survey, November 2022

Table 6 is the descriptive statistics on privacy challenges. It shows a total average mean of 4.07 (81.30%), indicating affirmation of the effect of privacy challenges in using the mobile money service. This result agrees with the assertion that the invasion of privacy and defamation being a major feature with respect to challenges as opined by Kim et al. [25]; perpetrators harvest the email addresses and other personal details of targeted individuals [26], and the elements of the technology-centric such as spam, phishing, malware, denial of service attacks, hacking, the violation of digital property rights, and click fraud [27] among others. The study revealed that variables such as "Personal details being used for fraud, inappropriately shared, or sold", "Payment information could be collected, tracked, and analyzed," and "Privacy could be exposed when using m-payment" are scored over 4.0(80.00%) representation of respondents.

Performance Challenges

Challenges pertaining to performance are mainly characterized by malfunctioning of the entire wireless connectivity to mobile phones going off, thereby leading to an abrupt end to a transaction, causing both merchants and customers to lose money since they are unable to determine the completion of a transaction or otherwise. This challenge has four (4) variables to assess its effect on the consumer as illustrated in Table 7 below:

Table 7. Performance Challenges

Performance Challenges	**Mean**	**Std. Dev.**
Constant unstable or blocked payment system	4.02	1.046
The payment system does not work as expected.	2.05	1.084
The performance level might be lower than designed.	3.22	1.278
Service performance is interrupted by other payment systems and unrelated advertisements	4.533	1.839
Total Average	**3.45**	

Source: Fieldwork Survey, November 2022

The overall mean average for performance challenges was 3.45(69.08%), an indication of the near agreement of the effect it has on the patronage of mobile money operations. The study demonstrated that the variables "Service performance interrupted by other payment systems and unrelated advertisements" scored 4.53(90.66%) and "Constant unstable or blocked payment system" with a mean score of 4.02(80.32%) are the major bottlenecks causing financial loss to the mobile money services. However, the mean score of 4.19(83.8%) of the variable "The performance level might be lower than designed" cannot be ruled out of the performance insatiability it brings to customers with its 3.22(64.40%) score. The result is in agreement with Kuismaa [28], who posited that this challenge makes consumers suspicious and insecure of their accounts when systems are suddenly disconnected, tempered, or broken down.

Psychological Challenges

Psychological challenges such as frustrations, anxiety, psychosomatic pressures, unfamiliarity, unreliability, and fear particularly; when consumers feel anxious because of failed transactions, were assessed using variables v as depicted in Table 8 below:

Table 8. Psychological Challenges

Psychological Challenges	Mean	Std. Dev.
Mobile money payment may cause unnecessary tension (e.g. concerns about errors).	3.76	1.542
System malfunction in mobile money transactions causes unwanted anxiety and confusion	4.03	0.794
Anxiety sets in until the transfer reach the intended recipient or when money cannot be transferred timeously.	4.03	0.794
Experiences stress when there is money loss during mobile money transactions.	4.29	1.004
Total Average	**4.03**	

Source: Fieldwork Survey, November 2022

In Table 8, the general assessment of the psychological challenge revealed that the total average mean of 4.03(80.55%) concludes that customers and merchants are in full agreement with the impact that psychological challenge brings to bare on the attitude and behaviours of mobile money services users. Variables such as "Experiences stress when there is money loss during mobile money transactions" recorded 4.29(85.80%), "System malfunction in mobile money transaction causes unwanted anxiety and confusion" and "Anxiety sets in until transfers reach intended recipient or when money cannot be transferred timeously" both had 4.03(80.60%) and the least being "Mobile money payment may cause unnecessary tension (e.g. concerns about errors)" with 3.76(75.20%) are triggers of psychological challenges.

Time Challenges

The unwarranted delays experienced by customers and merchants due to the incomplete transaction process, user doubts, and the learning curve of mobile applications when using mobile money services are the notable challenges of time wasting to patrons of mobile money. The researcher used four (4) variables to measure the extent of the effect of time challenges on mobile money operations as demonstrated in Table 9 below.

Table 9. Time Challenges

Time Challenges	Mean	Std. Dev.
It costs a lot of time to access mobile money services	2.456	1.638
It costs a lot of time to perform mobile money transactions	2.746	1.684
More time is required to fix payment errors offline.	4.42	0.987
It costs more time to confirm an ID and other details for mobile money transactions	2.078	1.274
Total Average	**2.925**	

Source: Fieldwork Survey, November 2022

The total average mean for time challenges in respect of this study is 2.93(58.50%). This indicates a neutral position to the fact that some level of agreement to the assertion of time challenges influencing the mobile money service, though not that strong, as has been mentioned in other surveys [29], [2]. The variable "It costs a lot of time to access mobile money services" scored a mean of 2.45(49.12%), 2.07(41.56%) for "It costs more time for confirmation of ID and other details for mobile money transactions," and 2.74(54.92%) for "It costs a lot of time to perform mobile money transactions." "More time is required to

fix payment errors offline" recorded 4.42(88.40%) being the only variable that participants totally agreed challenges time as per the operation of mobile money. These results indicate that customers occasionally experience longer transaction time, causing inconvenience.

The result is consistent with Yawson's [2] postulation that the effect of inconvenience and delays in transactions may potentially result in a duplicated transaction, which could eventually lead to a loss of money. Furthermore, the need for additional time to become experienced with the mobile payment system concerning hoot its problems is also a time challenge factor affecting users [30].

Security Challenges

Unrestrained transactions and loss of financial information in mobile money activities pose security to customers. Challenges with respect to payment method security, overall, and cybersecurity are among the major areas of concern. When the security of the payment transaction data and other sensitive information is high then it, it results in high patronage of mobile money services.

Table 10. Security Challenges

Security Risk	**Mean**	**Std. Dev.**
There might be mistakes since the accuracy of the inputted information is difficult to check from the screen.	4.03	0.794
Personal account information may be used by a third party to perform an illegal transaction	3.12	1.338
Transaction information may be stolen by a third party	2.56	1.526
The money sent through mobile money may not reach the intended recipient	4.53	1.839
Total Average	**3.56**	

Source: Fieldwork Survey, April 2022

As indicated in Table 10 above, the total average mean for the security challenges is 3.56 (71.22%), revealing that serious breaches in security challenges affect mobile money operations. This survey discovered that "The money sent through mobile money may not reach the intended recipient", "There might be a mistake since the accuracy of the inputted information is difficult to check from the screen." and "Personal account information may be used by a third party to perform an illegal transaction" attained mean values of 4.53(90.66%), 4.03(80.60%) and 3.12(62.40%) respectively. When this goes unchecked, not only will it result in the loss of huge liquidity, but it will also potentially dwindle the level of trust in the mobile money transaction and eventually jeopardize the system.

Behaviour and Attitudes of Customers and Merchants using Mobile Money Services

Challenging Encounters

As illustrated in Figure 2 below, the behaviour and attitudes of users of the service in the face of challenging encounters in the past vis-à-vis the usage of mobile money transactions. Five variables were investigated in this survey. The study shows that the majority 37.69% "revealed my pin code to more than one person"; followed by 32.31% in respect of "Gave my phone to someone to transact on my behalf"; "My phone containing mobile money got stolen" recorded 13.85% while "Accidentally sent money to a wrong recipient" and "My mobile money chip got stolen" registered 6.92% and 9.23% respectively.

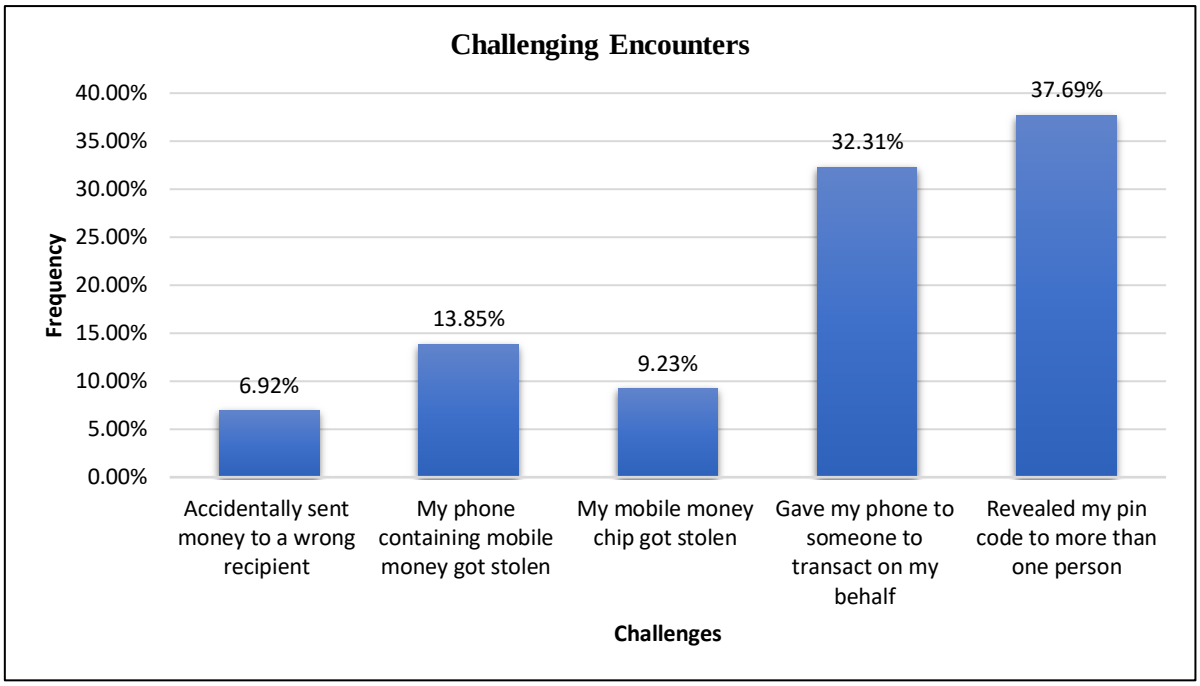

Figure 2. Challenging Encounters

Source: Fieldwork Survey, November 2022

Conclusions and Recommendations

Conclusions

The astonishing rapid growth due to the penetration and application of mobile phones in the rural areas of Africa and Ghana has resulted in Mobile Money (MM) transactions becoming one of the most effective payment systems in the world, especially with the underserved and unbanked in most emerging markets. Consumers are not oblivious of the bottlenecks associated with innovative technology, hence the recognition of convenience, performance, privacy, security, time, and psychological and financial challenges as the bane to mobile money transactions within the Business District Center at Adum Kumasi.

The low transaction limits due to inadequate constant liquidity flow (cash and e-float) by agents affect consumers who wish to transact more than being offered; unreasonable charges by the network providers and merchants; unwarranted delays experienced by customers and merchants due to incomplete payment process are some of the causative challenges of mobile money transactions. Invasion of privacy and defamation are major challenges whereby fraudsters harvest the personal details of targeted individuals. The elements of the technology-centric such as spam, phishing, malware, denial of service attacks, hacking, the violation of digital property rights, and click fraud, cannot be overemphasized. System malfunction in mobile money transactions causes unwanted anxiety and confusion. On several occasions, anxiety sets in until the transfer reach the intended recipient or under circumstances when money cannot be transferred on time. The fear and anxiety of customers' personal details in the hands of a third party could be used for fraudulent activities, especially when the mobile money accounts are linked to client bank accounts. Again, the effect of inconvenience and delays in transactions are pointers to a duplicated transaction, which could eventually lead to loss of money.

In conclusion, despite the relative convenience that technology has brought to mobile money users, especially the unbanked and underserved, fraudsters have it their business to undertake mind-boggling crimes causing the entire service unappealing. Thus, the

requisite steps should be taken to minimize the challenges and make it seamlessly successful.

Recommendations

Removal of Prohibitive Service Charges and Taxes

Given the negative reaction of consumers to prohibitive charges leading to low patronage, it is fair to recommend that service charges be lowered to their minimum rates. Telecommunication service providers (network platforms) have a duty to the market to reduce their charges taking cognizance of consumer behaviour at the introduction of the electronic levy in May 2022.

Augment the Operating Infrastructure for Efficiency

Consumers over the years have had to endure abysmal performances from the network providers, which inhibits accessing mobile money services. Malfunctions due to unstable or blocked networks and service performance which is unmatched to advertised levels, among others. Thus, a system upgrade is recommended to ensure a reliable mobile money system for consumers.

Airtight Security System

In order to avoid consumer-driven fraud by inadvertently making pin codes known to third parties, service providers should set up password age parameters for the users to change their passwords periodically and authenticate personal identification questions. The networks should ensure that personal details remain private.

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Conflict of Interest

I do certify that I have no affiliation with or involvement or any personal relationship with any of the directors of the Publishing House or any entity with a financial interest. Also, I have no conflict of interest. I am a Ph.D. Management candidate of Texila American University.

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