



Mobile Money as an Effective Financial Tool in Underdeveloped Countries

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Abstract

The available literature has shown that a lot of people in underdeveloped countries do not fulfill the criteria needed to benefit from banking facilities. As a result, the lower segment of these societies has been deprived of basic financial services and left with vulnerable traditional methods of saving and transacting using funds. Fortunately, innovative ideas like mobile money were introduced in the first decade of the 21st century, allowing people in poor countries to access essential financial services and conduct basic transactions in a more advanced and secure manner. This study thus aims to establish mobile money as an effective and Shariah-complaint substitute for banking services particularly in underdeveloped countries. It would do so through the qualitative research method of analysing the relevant materials on the subject matter i.e. books, journal articles, research papers, websites, etc. The study has found that although the presence of mobile money has brought about various benefits to underdeveloped communities, issues that are regulatory, service, or security-related have impeded the service from realizing its true potential. Nonetheless, the study has shown that these issues may be countered by introducing the right measures, which include regulatory reformations, service enhancements, and awareness-building. Such measures would empower members of underprivileged communities and integrate them into the financial industry, which in turn would greatly contribute to their countries' socio-economic welfare.

Keywords: Mobile money, Islamic finance, Islamic banking and economics, financial services, underdeveloped countries, Shariah compliant

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1. Introduction

The practice of banking is said to have begun sometime between the 3rd and 4th millennium BCE (Luhmann, 2005). Temples in the Babylonian state, which was founded around 2000 BCE, offered safekeeping services to local inhabitants with gold as well as lending facilities through issuing grains, whose harvest would be regarded as the accrued interest (Orsingher, 1967). Fast forward to contemporary times, we see that major financial, regulatory and structural developments have been made to banks as well as other financial institutions. Likewise, the scope of their functions has expanded from merely collection deposits and offering loans to include investing in projects, trading assets and managing liquidity, to name a few.

However, it seems that in modern times, banking services have not been made available or, rather, do not effectively serve the needs of members of the lower class, which make up the majority of the population in underdeveloped countries (Kazeem, 2018). As a result of the unfortunate financial circumstance of members of the said class that survive off their day to day earnings, the notion of having a bank account and entrusting the institution with safekeeping their limited funds is regarded unnecessary. In response to such a situation, a number of vibrant local and foreign players timely introduced an alternative referred to as 'mobile money'. They have set-up services that were previously not available to the lower segment of the society, allowing them to walk around carrying virtual money like bank card holders.

This alternative has introduced bank-like facilities that have benefitted much of the population in underdeveloped countries, particularly those in Africa. The study therefore aims to explore the concept and

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features of mobile money and highlight a number of existing models as well as their modus operandi. In addition, the study also aims to identify pertinent issues and challenges related to the said service and, thereafter, propose a number of recommendations that would enhance and maximize the service's usage so as to have it established as a viable alternative to banking facilities, mainly for the majority, lower class in underdeveloped nations.

2. Literature Review

2.1 Defining Key Terminologies and Historical Development of Mobile Money

[World Remit \(n.d.\)](#) fittingly defines mobile money as “a technology that allows people to receive, store and spend money using a mobile phone”. It is said to have first been introduced in the Philippines in 2001 through a partnership between the tech company Smart Communications and the Makati-based bank, Banco de Oro. The mobile money service provider (herein referred to as MMSP) was called ‘Smart Money’ and was aimed at penetrating bank-like services to areas in the Philippines that were void of them and to people that did not have access to them ([Hasnain et al., 2016](#)). In essence, this particular technology or service has created a mobile platform that allows individuals – more so in lesser developed nations – to conveniently and securely conduct fundamental monetary transactions, such as transfers and withdrawals through a mobile phone.

Furthermore, [Jalakasi \(2019\)](#) states that developments to the graphical user interface experience and the efficient integration of mobile money has brought about a more advanced version of the said service, which is referred to as mobile money 2.0. Similar to mobile money, online banking – the online platform of a bank that also operates physically – and digital banking – whose entire platform and operations solely exist online – also offer financial services that may be done through the mobile phone. However, in contrast to online or digital banking, mobile money, as mentioned by Jalakasi, does not require the sender or the recipient to create or own a bank account in order to conduct the aforementioned transactions.

The study will demonstrate that despite the shortcomings within the relevant infrastructures – particularly legal and financial – across lesser developed regions, several MMSPs have effectively operated the service through sheer effort and determination. Moreover, previous researches have pointed out that besides willpower, in order for underdeveloped countries to flourish, their respective leaders need to ensure that there are adequate avenues for the constituents to raise capital for their entrepreneurial projects and make investments ([The One Brief, n.d.](#)). [Kwemo \(2017\)](#) adds that incumbent initiatives such as free regional trade and investment in the manufacturing sector would increase the prospect and potential for essential collaborations within the African continent, which, according to the World Trade Organization, currently stands slightly above 10%.

Thankfully, with the help of disruptive organizations in recent times, mobile phones have been and continue to be used as a better alternative – if not the best – mechanism to resolve major economic and financial issues in underdeveloped and developing countries, such as providing banking services to the unbankable and relevant health information to local inhabitants during health crises ([Kelion, 2014](#)). Additionally, it is worth pointing out that certain entities have offered the service beyond their localities i.e. on an international level. This only goes to show the lengths to which the innovation has stretched.

With the basic concept and historical development of mobile money explained, the study will now delve into and elaborate on a few existing mobile money models to further expand on its specifics and modus operandi. Thereafter, it would look into the Shariah position on the service, which would be followed by a discussion on the issues and challenges, as well as advantages/benefits of the service. Finally, before concluding, the study would propose a list of recommendations that would potentially develop and enhance the regulatory framework, user experience and scope of operation of mobile money services in underdeveloped countries, which in turn would significantly improve their overall socio-economic reality.

2.2 Case Studies of Mobile Money Service Providers

The case studies that would be presented below would consist of Mobile Money Service Providers (herein referred to as MMSPs) that predominately operate in the African region. They are M-Pesa, Orange Money and MTN MoMo. The discussion would mainly include their origins, extent of operation in different countries as well as scope of services.

2.2.1 M-PESA

Aron (2018) explains that the MMSP introduced in 2005 known as M-Pesa was the outcome of a collaborative effort between the Kenyan government and Vodafone subsidiary, Safaricom. M-Pesa is currently holding the largest market share (65%) of the mobile money market in the said country, has seen exponential growth, reaching over half a billion USD in revenue in 2017 (FSD Kenya, 2013). In the said country, all MMSPs are regulated by Kenya's National Payment System Act and generally overlooked by the country's Central Bank to ensure prudent conduct and customer protection. The act requires that the net deposits of customers of a particular MMSP must strictly be kept as non-investable trust funds in recognized banks. During the earlier periods of M-Pesa's operations in Kenya, the government had granted it exclusionary rights over agency operations, however, in 2014 it paved a way for other retail and wholesale operators to act as agents (Aron, 2018).

M-Pesa, which has operations in over 90 countries, mainly thrives in the Eastern and Southern regions of Africa. In order for customers to use the mobile money services on their mobile phones, they would simply need to purchase a Safaricom SIM card and, thereafter, use their identification cards (IC) to activate the said service at the nearest retail agent outlet. This would create for them an account that allows them to top-up e-money on their phones, transfer it or make payments to others, or convert it into cash. The service is considered instant with a cost that is efficient (ranging from 0.16% – 20%) and limited to a transfer and withdrawal fees – as opposed to a top-up fees (Aron, 2018). An amazing feature of M-Pesa's payment service is its integration with a wide range of utilities in the country, allowing for both, offline and online transactions like the payment of bills through simple SMS and online shopping through opting it as the chosen means of payment, respectively (Adyen, 2019).

Moreover, beyond the mere transfer or payment of funds, M-Pesa provides a list of other utilities to its mobile money customers, such as remuneration payment services for the government and other commercial entities to their clients or employees (under the name M-Shwari), penalty, fine, levy, permit, bill services and public transportation payment services. Additionally, it provides fixed and unfixed deposit schemes, micro-loan services (under the name M-Tiba), as well as low cost, cross-border fund transfers/payments in collaboration with key partners, such as MoneyGram and Western Union.

2.2.2 Orange Money

Another MMSP that is currently operating in 7 countries – most of which are in West Africa – is 'Orange Money' (Orange, n.d.a). Launched in Ivory Coast in 2008, Orange Money is considered another mobile money giant operating in most regions of the African continent (Orange, 2018). Similar to M-Pesa, its services allow for fund deposits and withdrawals as well as imperative remittances, such as bill payments, donations and international transfers along other services. While some orange mobile money networks in countries have unique features, they all commonly allow their local customers to conduct international transfers to countries where the orange network is available. In the Republic of Mali, for example, Orange Money customers may transfer up to 1 million FCFA to neighbouring countries, such as Niger, Ivory Coast, Senegal, Guinea, etc. (Orange, n.d.b).

Equally, in the Republic of Guinea, the said users may transfer a maximum of 30 million GNF per day or receive a maximum of 10 million GNF for fee-based services from the aforementioned countries in addition to France. The transfer fee is fixed at 1,000 GNF (Orange, n.d.). And so, it may be seen that mobile money has done well in countries that are heavy on cash-based transactions (Aron, 2018).

2.2.3 MTN MoMo

Founded in 2009, under the then CEO of Ghana's MTN operations, Brett Goschen, the particular MMSP today has reached over 14 million users, partnered with over 19 tech, financial and humanitarian institutions, and operates in 15 African countries; some in the West, such as Ghana, Guinea and Nigeria and others in the East, such as Rwanda, Uganda and Zambia (MTN, n.d.). In response to the rapid increase in its user base, the said service provider employed over 100,000 employees as agents and promoters of the service. Apart from the essential financial services MTN MoMo provides, it also allows for its customers to pay school fees and staff salary, purchase government bills, insurance policies and travel tickets and shop (Zaney, 2020).

Similar to both of the earlier mentioned MMSPs, MTN MoMo enabled international transferring of funds through collaborating with partners, such as Western Union and WorldRemit; an online platform dedicated to transferring funds from across numerous regions in the world, particularly the Middle East, Africa, Asia, Europe, etc. It has plans in the near future to allow for ‘People to Government’ and vice-versa transactions, which would facilitate and enhance relations between entities that operate in the country and the government, in relation to tax payments and other relevant monetary dues. The said MMSP has also offered its resources to Ghana’s local police force as a means to enhance cyber security and reduce identity fraud (Zaney, 2020). And so, it is quite evident that this MMSP, similar to the earlier ones, has greatly contributed to the communities in which it operates.

3. Methodology

This study adopted a qualitative research methodology. The qualitative method of content analysis utilized throughout the paper were content analysis and case study research. In relation to content analysis, reference was primarily made to books, journal articles, research papers, government legislations, organizational reports, and webpage resources. Similarly, for the case study researches, the information garnered were from the abovementioned on and offline materials.

In essence, therefore, it is understood that the methodology adopted in this study is one that is qualitative in nature, and that the primary methods of data analysis were content analysis and case study research.

4. Shariah View on Mobile Money

Before delving into the advantages and benefits of mobile money, the study intends to draw out the Shariah’s perspective on the financial tool. To begin, there are numerous verses in the Quran that call Muslims to enjoin good and forbid evil. For example, it is mentioned in the Quran that, “You are the best nation produced [as an example] for mankind. You enjoin what is right and forbid what is wrong and believe in Allah (Quran, 3: 110). Similarly, another verse reads, “And cooperate in righteousness and piety, but do not cooperate in sin and aggression” (Quran, 5:2). It therefore follows that traits which promote goodness and righteous unity are highly encouraged to be adopted while those that produce the contrary are to be discarded.

In relation to the mobile money, which falls under the discussion on trade and finance, the general Islamic ruling is that all trade is regarded permissible in Islam except for those, such as *riba* (usury), for which there is a specific prohibition against (Quran, 2:275). Scholars have used this verse and other similar ones to establish the Islamic legal maxim that reads, “Originally things are considered permissible until they are prohibited” (Jaapar, n.d.). Seeing that there are no specific legal texts that speak on mobile money and its operations, we therefore need to look into the said service’s salient features and operations to determine whether or not it goes against any of the Islamic legal maxims related to Islamic finance. The 3 main aspects of mobile money that are of concern or relevant to Islamic finance are the transaction fee, underlying function or service, and lastly, *Maslahah* or public benefit.

In regards to the fee and services, we know – from having looked into the fundamental operations of M-Pesa, Orange Money and MTN Momo – that the fee MMSPs impose on their customers is mainly for the service of fund transfer, whether done through an agent or a smartphone. This, consequently, falls under the Islamic finance discussion on *wakalah* (agency) which is a concept that is not only recognized by the Quran and *Ijma* – jurists in consensus – but also considered recommended based on *ta’awun* i.e. enjoining good (Islamic Markets, n.d.).

It’s worth noting as well that mobile money is merely an instrument – similar to online banking – that essentially facilitates the depositing, transferring and withdrawing of funds with the help of agents. Thus, seeing that its core services do not contravene the Islamic principles – despite its more advanced services, such as conventional insurance and loans, having the potential to do so – and the fact that it has now given bank-like facilities that were previously not available to members of the lower-class, we may say that the *Maslahah* or public benefit that it has produced is considered magnificent. In summary, with mobile money essentially being a pioneering service that is usury-free, and benefits, especially, the lower-class members of underdeveloped communities, it is considered permissible.

5. Findings and Discussion

5.1 Advantages and Benefits of Mobile Money in Underdeveloped Countries

From the brief case studies presented above, numerous benefits have resulted from the employment of mobile money. These benefits could concisely be elaborated on under several headings, namely, ease of access to services, ease of access to finance, and convenience and utility of usage.

5.1.1 Ease of Access to Services

This particular trait offered by MMSPs has almost – if not completely – overshadowed banks in that the fundamental functions of a bank, being to provide its customers with the means to deposit, withdraw and transfer their funds, are now accessible without a bank account, but instead an ordinary smartphone. Additionally, as opposed to banks that require the establishment of financial institutions in multiple branches, MMSPs work within a conglomerate of agents that are able to operate with minimal staff and facilities (Sadana et al., 2011; Aron, 2018).

In support of the abovementioned point, in underdeveloped countries it is often the case that ATM machines are scarce and, therefore, limited in terms of access and liquidity. This serves as a major deterrent for the lower class in such countries. Luckily, with the overwhelming majority of the population having in their possession a mobile phone and the wide availability of mobile money network agents to provide the relevant services, the issue of fund depositing, transferring as well as withdrawing is considered to be resolved. In addition, some MMSPs, such as M-Pesa have managed to utilize mobile money with ATM machines (Muhammed and Kassim, 2015). This way, customers are able to deposit, transfer and withdraw funds between their phones and ATM machines without bank accounts and in the absence of network agents.

Furthermore, on the discussion on ease of access to services it should be pointed out that internet data is considered far pricier in underdeveloped countries compared to developed ones. Mobile money provides a solution that does away with the need for internet access. It has done so by allowing customers to send out SMS' that enable them to receive and send funds they require simply through text messaging. It's also worth adding that although digital and online banks are generally more advanced than mobile money establishments in terms of ease of access and interface usage, the fact remains that they, unlike mobile money operations, are dependent on internet facilities. Therefore, it is quite evident that mobile money services are more suited for underdeveloped countries, where internet packages are relatively more expensive.

5.1.2 Ease of Access to Finance

Aron (2017) writes that mobile money has partially incorporated or included previously non-included persons into the formal sector. This alternative form of inclusion into the financial sector offers similar traits of full inclusion as well as those that go beyond it. The example that Aron gives is that of micro-loans, seeing that this formal method of inclusion barely offers micro-entrepreneurs with the financial support that is required for the success of their projects. However, with the backdoor approach (i.e. mobile money), entrepreneurs, small businesses as well as fundraisers (e.g. crowdfunding platforms and others) would be connected to a much wider pool of potential investors (Haas et al., 2010).

5.1.3 Convenience and Utility

The convenience of the said service, as previously stated, is owing to the simplicity of its usage. We have mentioned earlier that the depositing, transferring and withdrawing of virtual funds has been made possible through the simple act of texting and with the help of widely available agents/shops that offer the said services. The fact that street vendors as well as store owners adopt and have trust in the service would mean that transactions are generally concluded more efficiently whether on a peer-to-peer (P2P) or merchant-to-merchant (M2M) basis. Furthermore, as also highlighted, some of the existing MMSPs, such as Safaricom's Lipa and M-Pesa, have provided utilities that allow for bulk and automated payments to settle matters such as staff salary and bill payments, respectively. This mechanism would greatly assist businesses or entrepreneurs that are currently un-bankable in settling their dues with other entities through a facility that strongly resembles that of legitimate financial institutions.

Apart from offering a bank-like facility to merchants, other employed and unemployed individuals – particularly members of the middle and lower class – are given a secure avenue to store the relatively little that

they earn or are given, which in turn would potentially reduce levels of theft and loss of funds (Sadana et al., 2011; Muhammed and Kassim, 2015). Each mobile wallet is secured with a verification code or PIN that only the owner of the account is to know. For example, Orange Money requires a ‘secret code’ from the owner of an account at the end of every mobile transaction. To ensure further security, it also blocks the account upon 5 incorrect entries of the ‘secret code’ being made until further proof of ownership is provided (Orange, n.d.c).

Apart from the above-mentioned mobile money services, other countries have also introduced the said service within and beyond their localities. Examples of these would be Nigeria’s ‘OPay’, Bangladesh’s ‘bKash’, Malaysia’s ‘Mobile Money International Sdn. Bhd’ as well as China’s ‘Alipay’ & ‘WeChat Pay’. Whereas they all share a common goal, some of these MMSPs have enriched and maximized the facilities available to their customers. PayCom’s OPay is as an example of an MMSP that enhanced its mobile money services by creating a bank account for its users. This way, its customers would conduct banking operations under PayCom as their bank and their mobile phone numbers as their bank account number (Aveni and Roest, 2018; Idris, 2019; bKash, n.d.a.; Mobile Money International Sdn Bhd, n.d.).

In essence, we observe that while some MMSPs are considered more advanced than others in terms of the range of services offered, user-friendliness of interface and/or security, their common aim to provide their customers from all corners of the world with a convenient, secure, low-cost and efficient method of transferring funds, and purchasing goods and services from individuals and commercial entities. The increase in circulation of money in society through mobile money contributes to its welfare and calls for the setting up of more service agents, which means more job opportunities are necessarily created because of it (Muhammed and Kassim, 2015).

5.2 Issues and Challenges of Mobile Money in Underdeveloped Countries

Despite the numerous advantages and benefits that mobile money has brought about, the said service cannot be said to be void of standing issues. The issues in particular are in relation to regulation, scope of service and, lastly, security. Thus, they would be discussed accordingly.

5.2.1 Regulatory Issues

Perhaps this issue was raised in the mind of the reader early on. It is understandable that the shifting of control over financial service providers from a country’s established banks to its telecom providers may be a major concern. In response to this, numerous countries have ensured that their MMSPs operate in compliance with specific legislations. For example, Malaysia’s Mobile Money International Sdn. Bhd. has been authorized by and is required to operate in accordance with two of the country’s legislations, namely, the Financial Services Act 2013 and Money Services Business Act 2011; while the former allows the said company to issue e-money, the latter authorizes it to provide remittance services (Mobile Money International Sdn Bhd, n.d.).

Similarly, looking at Kenya’s M-Pesa as well as other MMSPs in the country we find that they are governed by the National Payment System Regulations 2014 under the National Payment System Act. As stated before, the said Act strictly requires all MMSPs to place their customers’ net deposits in prudential banks as trust funds that are solely intended to be kept safely and not invested.

Apart from local regulations, international anti-money laundering and anti-terrorist financing bodies, such as the G7’s Financial Action Task Force (FATF) were called upon to look into M-Pesa’s operations. The Force found that it had fulfilled the free-corruption and free-money laundering requirements; however, research has shown that M-Pesa often faces difficulty in trying to catch up with FATF’s constant legal updates (Aron, 2018).

And so, as pointed out by Aron, we see that even upon resolving local issues, other international alarms may be brought up against lesser developed countries that have weak financial and regulatory infrastructures that do not comply with the international standards of indemnification and other security measures. These issues would therefore obstruct such countries from benefitting from the service to its fullest.

5.2.2 Service-Related Issues

In addition to the regulatory issues, the inefficiency and limited scope of the services provided by MMSPs in underdeveloped countries is considered another set of issues for numerous reasons. Firstly, the inflated usage of mobile money services coupled with the poor network connectivity and speed that exists in the said localities often clogs the network and, consequently, disrupts the flow of mobile transfers. An example of this would be M-Pesa’s services, which, despite being regarded as an advanced MMSP, has seen an increase in customer complaints over transaction failures (Aron, 2018).

Another service-related matter that MMSPs often struggle with resolving is indemnification. Indemnification is known as the act of effecting restitution in favour of an aggrieved party. [Sadana et al. \(2011\)](#) mention that in relation to mobile money operations, indemnification is needed in instances where there is either, as mentioned before, a system failure that impedes a transaction, a customer error in which the funds are sent to a wrong person, or an occurrence of fraud or theft from the customer's mobile wallet. When such instances come-about in a banking environment, banks readily have in place defined protocols to speedily rectify the matter and undo the damage. The same writers add that even in situations where the funds can no longer be recovered, there are policies that require banks to make up for the lost or stolen funds which is highly unlikely the case for most – if not all – MMSPs.

Lastly, the inefficient coordination between MMSPs and banks in terms of cross-checking and verification often results in unnecessary lags in concluding mobile transactions. This may be considered the main reasons as to why the scope of services offered by most MMSPs is limited to basic financial services like transfers and withdrawals. In contrast, we find that in a country like China that has a better financial infrastructure, MMSPs there, such as AliPay and WeChat Pay, have made bank account ownership a prerequisite to using the mobile money services. Nonetheless, their decision to do so is regarded reasonable considering two factors; firstly, that there is a much higher rate of financial inclusion within their societies compared to those in other underdeveloped regions and, secondly, their ultimate objective in operating mobile wallets is to get users 'hooked' on the variety of services they have to offer in a single app ([Aveni and Roest, 2018](#)).

And so, by comparing China's mobile money services with other MMSPs in lesser developed countries, it is clear that the former's MMSPs offer the mobile money services simply as a means to an end rather than an end in and of itself. Furthermore, it is also evident that the current environment in most – if not all – underdeveloped communities is not conducive enough to introduce advanced mobile money services like financing and investing, amongst others. Such barriers have urged banks that are currently collaborating with MMSPs in these countries to come up with alternative institutions or means to resolve such issues that raise concerns over the reliability of mobile money and push the masses away from the much-needed tool ([Sadana et al., 2011](#)).

5.2.3 Security Issues

The third major issue that may be pointed out is security. The security concern raised here is mainly about the usage of mobile money to conduct fraud or other illegal transactions. This is considered a lethal matter for several reasons. Firstly, unlike bank transfers, mobile money remittances, especially in underdeveloped countries, may be done anonymously, whether due to unverified or stolen ID registrations, and are therefore much harder to trace. Secondly, money launderers and illegal goods traders are well aware of the policies set-up to detect illegal transactions. And so, to minimize the chances of them being caught they ensure their operations remain below the radar. One way they do so, as mentioned by [Whisker and Lokanan \(2019\)](#), is through practicing what is known as "digital smurfing," which is the breaking down of transfer amounts into smaller fractions and dispensing them through a group of individuals so as to avoid red flags.

In addition, the fact fraudsters are now able to convert their stolen cash into digital currency and transfer them at once to third parties has given them an invincibility advantage ([Gow and Parisi, 2009](#)). And finally, cross-border fund transfers also have a hand in complicating the tracing, recovering and extinguishing of such criminal activities due to prosecution restrictions ([Williams, 2013](#)). This is especially when the said transactions involve underdeveloped communities with poor legal infrastructures to deal with these matters. Therefore, we see how mobile money may be perceived as the new black market except it is legally recognized by governments.

6. Recommendations

With the prevalent issues and challenges laid out, the study now proposes a number of measures that may be adopted to develop and enhance the practice of mobile money in underdeveloped countries. These enhancements are in relation to regulation and security, user-friendliness and scope of services, and lastly, awareness and confidence. Thus, they would be elaborated on accordingly.

6.1 Enhancement of Regulation and Security

Numerous studies have shown that the first step in enhancing the practice of mobile money in underdeveloped countries is the development of the legal and information technology (IT) infrastructures to promote security. This would specifically be done through adopting the measures mentioned below.

Firstly, is to legislate on effective verification mechanisms to rid the system of anonymous and illegitimate users. [Whisker and Lokanan \(2019\)](#) have written that initiatives like imposing a limit on transaction volume and frequency are effective tools for monitoring or controlling user operations. This in turn facilitates the tracking of unusual activities. Furthermore, other writers have suggested the corresponding of user experience with the amount of verification data he/she is willing to provide the service provider ([Chatain et al., 2011](#)). This would mean that a user's access to the available services would be restricted to the basic mobile money services unless they offer the information needed to affect proper due diligence and Know Your Customer (KYC) compliance. In addition, [Murray \(2010\)](#) also states that the involvement of mobile money operators and experts in developing the relevant regulations for the said industry would increase in its soundness and efficacy. Finally, on the point of verification, it goes without saying that it is incumbent that every MMSP headquarter sets up a body that effectively verifies the details and monitors every transaction.

Moreover, apart from effective verification mechanisms, legal measures that restrict the amount of funds carried by agents – for deposit and withdrawal purposes – must also be introduced. As of now, it is only customarily upheld that agents do not carry beyond a specific amount. Nonetheless, since MMSPs do not have the same level of security as bank operators, in order to ensure the safety of the said operators against robbers, a cap on the amount of funds to be held on a daily basis ought to be legislated provided there are sufficient agents available in all areas.

In addition to the above propositions, it is also necessary that regulations legislate on the issuance of virtual mobile money transaction receipts, which stand as the sole proof of transaction for customers. One good example of this practice could be seen in Malaysia, where all MMSPs are legally mandated to issue verifiable receipts to their mobile money customers ([Mobile Money International Sdn. Bhd., n.d.](#)). Another example would be Australia which has placed MMSPs' operations in the country under government supervision and required them to submit reports to the relevant authorities. The consistent reporting and system updating would assist local authorities in pointing out violators early on, as has been the case in Ghana with MTN Momo ([Rocket Remit, n.d.](#)).

Lastly, on the legal and security-related recommendations, governments need to ensure that there exist regulations maintaining a minimal service charge. Concerns have been raised against certain MMSPs regarding their service charge being double of the amount needed to conduct a mobile banking transaction ([Rocket Remit, n.d.](#)). [Aron \(2018\)](#) accurately points out that while the increase in service charge repulses the lesser educated members in underdeveloped societies, the more educated actually become more willing to pay the price, knowing that higher fees translate into better security. Hence, the task becomes to identify the price equilibrium between the estimated cost (of customer protection) on MMSPs and the cost mobile money users are reasonably expected to pay for the service each time, considering their transactions are more frequent and more minute (in volume). Collectively enforced, these legal and security measures would strengthen mobile money operations and minimize the opportunity for fraud and other illegal transactions.

6.2 Enhancement of User-Friendliness and Services

These enhancements would essentially be through developing the mobile money wallet interface so as to facilitate the interaction of users and enrich their experience with the services available. An Application Programming Interface (API) is known as the tool that connects multiple applications, data and devices ([Mule Soft, n.d.](#)). Through it, customers are able to ascertain whether or not a particular service is available to them. To elaborate further, a customer intending to book an airline ticket on a certain date would be able to determine whether or not any flights are available with the help of API, which conveniently connects all airlines to customers on a single platform. This in essence makes API the ultimate connectivity tool between consumers and suppliers/service providers.

From this, we understand that in order to enhance user-friendliness and expand the scope of services provided by MMSPs, the connectivity of API must first be developed so as to include a wide range of suppliers and service providers. As of today, MMSPs such as M-Pesa and MTN MoMo have, with the help of big telecommunication companies, developed apps that allow their customers to browse through a diversified scope of services and conveniently make payment for what they need ([Aron, 2018](#); [Ericsson, 2019](#)). It is true that

internet access, which as stated earlier is costlier in underdeveloped regions, would be needed to experience more advanced mobile money services. However, the relatively low internet penetration in underdeveloped countries cannot and should not be used as an excuse to neglect the adoption of advanced user-friendly interfaces that would most likely become widespread in the near future.

When speaking of the scope of services offered in mobile money wallets or apps, one particular application or service that is considered highly beneficial – or even necessary – in underdeveloped countries is a donation/charity app that essentially allows mobile money users to browse through a list of registered charity causes that they could contribute to. This app would, on one hand, provide registered charity organizations and other NGOs with an operative platform that is more accessible by the general population and, on the other hand, enable mobile money users – whether as individuals in the country or members of the diaspora – to contribute conveniently and discretely to a cause of their choice. [Mbiti and Weil \(2011\)](#) write that this would only be possible upon the establishment of trust and confidence between mobile money operators and the general public, through effective regulation and security measures.

Another similar app there is a dire need for is a tax and/or *zakat* app; one that helps mobile money users calculate their different government or religious dues and, thereafter, transfer the calculated amount to the relevant offices. The service could extend to allowing users to make automated payments to relevant bodies as was initiated by Nigeria's Owolowo Obafemi University ([Olasupo, 2013](#)). Although the University's model deducted the payments from the bank accounts of donors, the tax or charity here would see the payments being taken from the mobile money wallets of donors. In summary, such innovations and services would greatly enhance the user experience and draw more individuals to adopt the service.

6.3 Increasing Awareness and Building Confidence

The final recommendation this study would propose is indeed the increasing of awareness and building of confidence. To reiterate what was mentioned in the first recommendation, in order to increase customer adoption of mobile money there needs to be sufficient security measures in place that indicate to customers that their virtual wallets would not be compromised. Currently, the sole security layer for mobile money users is their verification code. It is only through enhancing the aforementioned verification mechanisms during the registration phase and regularly reminding the masses through banners, commercials and other media platforms to never share their PINs or verification code with anyone would the current verification codes be considered adequate. An example of this is Bangladesh's bKash that has an infographic video and a dedicated helpline that users may refer to in order to verify unusual demands or clear up confusions ([bKash, n.d.b.](#)).

The second leg to building confidence amongst the general population would be way of, as mentioned previously, developing secure apps that allow users to donate funds from their mobile wallets to social causes and trace the progress of the said causes. This is what the block chain technology proposes; through connecting the spreadsheet of different donations and making the funds donated visible for everyone to observe throughout the collection phase. Apart from the issuance of virtual verifiable receipts, the adoption of such measures would unavoidably lead to word-of-mouth marketing which would further help in building confidence amongst the masses.

7. Conclusion

In summary, the study has offered a concise understanding of mobile money and highlighted a few of its existing operators along with their distinct features. Furthermore, it has also been shown that the core services of mobile money operations are essentially in accordance with the principles of Islamic finance and bring about immense public benefit. Moreover, despite the numerous shortcomings and limitations impeding the service, the study has shown that they are not beyond repair. And so, through the adoption of the abovementioned recommendations and others, the service may be enhanced and provide even greater benefit to its respective communities. Thus far, it has been made clear that mobile money has greatly contributed to the economic development of underdeveloped countries and shall continue to do so with the support from the relevant authorities.

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