

# Mobile Banking: Adoption, Benefits and Usage in Developing Countries

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**Abstract**— Around the globe, various initiatives use the mobile phone to provide financial services to those without access to traditional banks. Due to the increasing penetration of mobile phones even in poor communities, mobile-phone-enabled banking (m-banking) services are being increasingly targeted at the “unbanked” to bring formal financial services to the poor. Mobile banking is one of the areas mobile commerce that has extensive communications with other areas of mobile commerce. In the one hand, mobile banking is associated with customers and on the other hand, is capable of other firms that are active in the field of electronic commerce, provide effective financial services. This paper examines variations across countries in adoption, benefits and usage of existing m-banking services for potential users in developing countries.

**Keywords**- Mobile Banking, Mobile phone, Customers, Electronic Commerce, Developing Countries

## Introduction

Across the developing world, there are more people with mobile phones than with bank accounts. There were over 3.3 billion phone users, and close to 60% of the subscribers lived in the developing world. Thus, many entities with a global development focus have turned to the mobile phone as a potential platform for delivering financial services to the “unbanked”. The unbanked are people without formal bank accounts who operate in a cash economy; they are limited in their ability to take out loans, maintain savings, or make remote payments, and these constraints can inhibit their economic opportunities [1]. Research on Information System, has created a new wave of mobile computing research efforts that seek to understand the relationship between business and community organizations in terms of computing services. In these aspects, adoption is fundamental because without it, none of the other aspects can be clear or significant without it. Access to mobile data services can be a distinct part depending on technology or performance type. Banks gain various benefits of e-banking services, such as, lower Interactions costs, provision of services 24 hours a day and increase in the efficiency of the banking process.

One of the newest electronic distribution channels for banks is mobile banking, that the technology is increasingly vital for them which increase comfort and add value to the bank and the customer. The spread of mobile phones across the

developing world is one of the most remarkable technology stories of the past decade. Buoyed by prepaid cards and inexpensive handsets, hundreds of millions of first-time telephone owners have made voice calls and text messages part of their daily lives. However, many of these same new mobile users live in informal and/or cash economies, without access to financial services that others take for granted. Indeed, across the developing world, there are probably more people with mobile handsets than with bank accounts [2]. Various initiatives use mobile phones to provide financial services to “the unbanked.” These services take a variety of forms-including long-distance remittances, micropayments and informal airtime bartering schemes that go by various names, including mobile banking, mobile transfers and mobile payments.

## *I.M-Banking and M-Payments Systems in Developing World*

The terms m-banking, m-payments, m-transfers, and m-finance refers collectively to a set of applications that enable people to use their mobile telephones to manipulate their bank accounts, store value in an account linked to their handsets, transfer funds, or even access credit or insurance products [3]. In the developed world, by complementing services offered by the banking system, such as checkbooks, ATMs, voicemail/landline interfaces, smart cards, point-of-sale networks, and internet resources, the mobile platform offers a convenient additional method for managing money without handling cash [4]. For users in the developing world, on the other hand, the appeal of these m-banking/m-payments systems may be less about convenience and more about accessibility and affordability. There is no universal form of m-banking, rather, purposes and structures vary from country to country. The systems offer a variety of financial functions, including micro payments to merchants, bill-payments to utilities, point-to-point (P2P) transfers between individuals, and long-distance remittances. Currently, different institutional and business models deliver these systems. Some are offered entirely by banks, others entirely by telecommunications providers, and still, others involve a partnership between a bank and a telecommunications provider [2].

#### A. Services in M-Banking System

The main services of this system can be considered as follows:

- Possible to obtain a variety of information related to customer accounts.
- Possible purchase of the stores, shopping centers and costs pay in hotel.
- Observation of securities market and transfer of buying and selling securities via MobileWeb.
- Check and replace services.
- The possibility of paying bills through mobile phones from mobile banking [5].

#### B. M-Banking Services in Developing Countries

Five m-banking services noted in some developing countries are: the Globe Telecom's GCash in the Philippines, Safaricom's M-PESA and Equity Bank's Eazzy 24x7 in Kenya, WIZZIT in South Africa, and Eko in India. Each of these services had a different paradigm for mobile banking both in terms of the service design.

- Globe Telecom's GCash (Philippines) and Safaricom's M-PESA (Kenya): These systems permit direct electronic transfer of money from one mobile phone number to another, with cash deposits and withdrawals made at corner shops that sell pre-paid mobile phone credits. The SIM Toolkit is a menu-driven service where transactions are conducted by selecting options that appear on the mobile phone's display, organized as hierarchical menu options. Receipts to confirm transactions are received by SMS. At the time of our study, the menu of GCash was available only in English and of M-PESA in English and Kiswahili. The service need to be activated on any given handset. In the case of GCash, it is by sending a text to a GCash service number or through the menu found on the SIM; and in the case of M-PESA it is by an M-PESA agent (usually local talk-time vendors of Safaricom). The interaction is detailed in GCash and M-PESA documentation [3].

- WIZZIT (South Africa) and Equity's Eazzy 24/7 and m-tranzact (Kenya): These systems involve moving money from one bank account to another. The account is linked with the subscriber's mobile phone, as well as, to a debit card. Bank branches are used for cash deposits and ATMs are used for cash withdrawals. Transactions for the WIZZIT service and Equity's m-tranzact are initiated through a USSD short-code entered in a specific syntax including a combination of digits and symbols ("\*" at the beginning and "#" at the end). On sending this request, a menu appears in English on the customer's mobile phone, each of which requires entry of additional digits and symbols to choose options. Confirmation receipts are received by SMS. This service is available on any handset without explicit activation. Equity's Eazzy 24/7 is an SMS service where subscribers input keywords in the correct syntax as required by the service, and it is sent as a single SMS message to a specific number for carrying out a transaction. Receipts to confirm transactions are received by

SMS. This service is available on any handset and does not require explicit activation. The interaction is detailed in Equity's documentation [5].

- Eko (India): This system involves a no-frills savings account. At the time of our study, money transfer facility was not available on this product. The service allows users to make cash deposits and withdrawals at particular agent locations that are ordinary small enterprises (talk time vendors, pharmacists) running multiple businesses out of a single location. Transactions are initiated through a single-session USSD short-code entered in a specific syntax. The syntax involves the symbols "\*" and "#" interleaved with numbers representing phone number, personal identification number (PIN), and amount to be transferred. Confirmation receipts are received by SMS. This service is available on any handset without explicit activation.

#### II. STAGES IN MOBILE BANKING

Mobile banking beginning in the late 1990s has experienced five distinct stages: The first stage is where mobile banking will be summarized in simple banking operations, especially pays bills and sending SMS from the bank to the customers and vice versa. The second stage is to add some of the accounts of depositors and related services to mobile banking services. The third stage is where banking services via mobile network and other media such as the Internet and telephone are used. This particular phase was completed with the emergence of intelligent mobile phones. The fourth stage is continuing, with the development of JP Phone and Android, and this progress has led to the providing of services such as mobile Internet access and connection to the operating systems of bank. The fifth stage is just starting; here technologies such as radio frequency identification chips for mobile payments, Banking Network Connection to Visa Card and MasterCard systems are been used. Qualitative and quantitative development of these technologies can be connected to make chips for mobile devices, such as mobile phone, watches, TV and iPad, even connected sunglasses [1].

#### III. FUNCTIONS AND BENEFITS OF MOBILE BANKING SYSTEMS

Most m-banking and m-payments systems in the developing world enable users to do the followings:

- Store value (currency) in an account accessible via the handset. If the user already has a bank account, this is generally a question of linking to a bank account. If the user does not have an account, then the process creates a bank account for her or creates a pseudo bank account, held by a third party or the user's mobile operator.

- Convert cash in and out of the stored value account. If the account is linked to a bank account, then users can visit banks to cash-in and cash-out. In many cases, users can also visit the GSM provider's retail stores. In the most flexible services, a user can visit a corner kiosk or grocery store- perhaps the same one where he or she purchases airtime- and transact with an independent retailer working as an agent for the transaction system.

- Transfer stored value between accounts. Users can generally transfer funds between accounts linked to two mobile phones, by using a set of SMS messages (or menu commands) and PIN numbers [6].

The following are the benefits of Mobile Banking.

- Always on: mobile phone can be always or is always portable due to inherent design that allow users to interact in activities such as travel or meeting people, while transactions via mobile devices are equipped with Internet.

- Location-centric: Not only is mobile phone is in all places, Global Positioning System (GPS) may be created to recognize phone and tries to personalize based on existing services. Identifying the location of Internet users, provides a special advantage for mobile commerce over wired e-commerce. Using this technology, the mobile commerce providers will enable to receive and send information to a particular place.

- Convenience: Other people are not limited by time or space and access to more electronic activities. For example, people who are stuck in traffic or waiting in the queue will be able to buy their favorite Internet-based activities or managing their daily transactions through mobile commerce applications. Consumers can know a special comfort that can improve their quality of life. By making services more comfortable, the customer will be more loyal. As a result, communication facilities with mobile commerce applications are to provide a comfortable lifestyle.

- Customization: Mobile phone is much higher influence than personal computers. Therefore, mobile commerce produces to design more creative and more customized lifestyle tool. For example, using demographic data collected by wireless service providers, and information on the current location of the mobile users can do more targeted advertising. Advertising messages can be customized based on the information provided through consultation with the user's initial or previous users' shopping habits.

- Identify ability: Mobile phone provide a support to secure mobile phone transactions where personal computers are almost unknown. One person always uses mobile devices and it is ideal for personal-based target marketing through the technology of Global Positioning System (GPS), service providers can recognize a user carefully. Personalize opportunity to deliver messages to different parts of space and time through sound and look [7].

#### IV. RESULT AND DISCUSSION

Face-to-face interactions dominate customer interactions, while mobiles were valued by businesses for some types of transactions- and specifically for their perceived ability to allow business owners to work with clients outside their proximity- most respondents reported that their day-to-day communication needs were best met by face-to-face interactions. Decisions about whom to lend to and on what terms depended on the type of relationship and on mutual trust.

#### Conclusion

The emergence of m-banking/m-payments systems has implications for the more general set of discussions about mobile telephony in the developing world. For example, it underscores the way the device blurs the domestic and the productive spheres, the social and the transactional. Each transaction is influenced by (and reinforces) the structural position of people in broader informational networks. The latest case of m-banking/m-payments systems is a reminder that an understanding of the role of the mobile in developing societies must include its role in mediating both social and economic transactions, sometimes simultaneously. Five existing m-banking services across India, Kenya, the Philippines and South Africa were discussed and also the benefits accruing from having mobile banking system were enumerated.

#### REFERENCES

1. *Indrani M., Aishwanya R. and Kentaro T. (2009). "Mobile Banking Adoption and Usage by Low Literate, Low-Income Users in the Developing World".*
2. *Porteous (2006). "The Enabling Environment for Mobile Banking in Africa". Cracknell (2004): InfoDEV (2006). "Electronic Banking for the poor-panacea, Potential and Pitfalls- Small Enterprise Development". 15(4), pp8-24.*
3. *Jonathan Donner (2008). "Mobile Banking and Economic Development: Linking, Adoption, Impact and Use".*
4. *Karjalouto (2002). "Selection Criteria for a mode of Bill Payment. Empirical Investigation among Finnish Bank Customers" 30(6), 331-339.*
5. *Laukkanen and Pasanen (2008). "Mobile Banking and Its Benefits". 2(5), 37-39.*
6. *Cracknell (2004): InfoDEV (2006). "Electronic Banking for the poor-panacea, Potential and Pitfalls- Small Enterprise Development". 15(4), 8-24.*
7. *Zahra R., Atusa T., Hamideh H., Hoda Y. and Marjan S. (2012). "Mobile Banking and its Benefits". 2(5), 37-39.*