



Technical Assistance Consultant's Initial Report

Project Number: JFPR 9170-KGZ
June 2017

Kyrgyz Republic: Women's Entrepreneurship Development Project

(Financed by the Japan Fund for Poverty Reduction and administered by
ADB's Resident Mission in the Kyrgyz Republic)

Mobile Banking (FMCC)

Prepared by A2F Consulting, LLC

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Asian Development Bank



Women's Entrepreneurship
Development Project

Mobile Banking



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ABBREVIATIONS

ADB	–	Asian Development Bank
ADC	–	Alternative Delivery Channels
C2C	–	Cash to Cash (money transfer)
C2M	–	Customer top-up mobile account
M2M	–	Mobile to Mobile account transfer (e-money)
M2C	–	Mobile to Customer (electronic to cash transfer)
KGS	–	Kyrgyz Som
DFS	–	Digital Financial Services
e-Wallet	–	Electronic Wallet
e-money	–	Electronic Money
FSP	–	Financial Services Provider
G2P	–	Government to Person
GDP	–	Gross Domestic Product
GNI	–	Gross National income
GSMA	–	Groupe Speciale Mobile Association
ICT	–	Information and Communication Technology
ISP	–	Internet Service Provider
ITU	–	International Telecommunication Union
IVR	–	Interactive Voice Response
m-Money	–	Mobile Money
MFI	–	Microfinance Institution
NBKR	–	National Bank of the Kyrgyz Republic
NFC	–	Near Field Communication
OTC	–	Over the Counter
OTP	–	One Time Pin
POS	–	Point of Sale
P2B	–	Person to Business
P2P	–	Person to Person
PSO	–	Payment Services Operator
SIM	–	Subscriber Identification Module
SMS	–	Short Messaging Service
USSD	–	Unstructured Supplementary Service Data



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1. INTRODUCTION

Most people and small businesses in rural Kyrgyzstan today do not fully participate in the formal financial system. Particularly women entrepreneurs transact exclusively in cash, have no safe way to save or invest money, and do not have access to credit beyond informal lenders and financial institutions that offer microfinance loans. As a result, a significant amount of wealth is stored outside the financial system and credit is scarce and expensive. This constraints women entrepreneurs from engaging in economic activities that could transform their lives. Economic growth suffers.

Mobile banking offers a transformational solution, and one that could be implemented rapidly and without the need for major investment of costly additional infrastructure (see section “2.1. Mobile Financial Services”). In the Kyrgyz Republic, financial institutions, mobile network operators, and payment services providers are already using mobile phones and other readily available technologies to offer basic financial services to customers. Many of these financial institutions perceive mobile banking as an innovative technology capable of reducing costs and increasing operational efficiency while increasing convenience for users and opening access to finance for people at all income levels, in particular, for women entrepreneurs in the rural areas. However, a strategic engagement with mobile network or payment operators is often a new hurdle, as are is the existing regulatory framework¹.

While banks offer mobile financial services that are connected to a formal bank account, payment services operators provide services based on the purchase and transfer of electronic money, and thus remain independent of the banking sector (only fully licensed banks can issue electronic money). Currently in Kyrgyzstan, mobile network operators are not licensed to offer mobile financial services, despite having a strategic advantage in the setup of an agent network that could perform basic banking operations such as account opening and withdrawals.

The appropriate mobile banking model depends on many different factors and therefore must be evaluated on a case by case basis. Each combination has its advantages and disadvantages, and choice and success heavily depend on the starting position as well as the long-term goals.

This report assesses the potential of mobile financial services to increase financial access and to deepen financial inclusion for women entrepreneurs, in the rural areas of the Kyrgyz Republic. In particular, it provides: (i) Research and analysis of the international best practices on the use of mobile services by microfinance institutions and bank; (ii) Market research on the mobile banking and analysis of existing alternative delivery channels (ADC) used by banks and microfinance institutions in the Kyrgyz Republic and (iii) assesses the real conditions of the use of mobile banking and other alternative delivery channels (ADC) in the activities of FMCC.

¹ For example, in the Kyrgyz Republic, microcredit institutions are only licensed to offer credit products hence not able to immediately leverage mobile financial services as a means of offering savings, remittances and payment services.



2. MOBILE FINANCIAL SERVICES OVERVIEW

2.1. Mobile Financial Services – What is?

Mobile Financial Services (MFS) is a term generally used to describe any financial service provided by the use of a mobile device. MFS are usually provided by banks, mobile network operators (MNO) and payment services operators involving different technologies and concepts to achieve the same purpose. There is no limit to the range of transactions and services for which electronic money could be used, whether through mobile phone or card or other forms of electronic banking. Box 1 provides the terminology commonly used in electronic banking.

Box 1: Understanding Electronic Banking

Mobile Banking (m-Banking) is the provision of account-based banking services to mobile devices. This includes two main services: first, the mobile device is used to access bank accounts without physically visiting a branch or using a computer to remotely manage accounts and conduct transactions. This service is very similar to internet banking and can be offered by simply opening the online banking homepage of a bank with a smartphone. A more user-friendly approach is to access via mobile banking applications. Often, mobile account management comes with a variety of informational functions, such as querying account balances or monitoring last transactions, as well as explicitly designed mobile services, such as SMS alerts, announcements, or authentication (e.g. one time pin). Second, mobile banking can be used to withdraw or deposit funds at ATMs. In this case, the mobile phone is used for identification and authorization of the account holder.

Mobile Payments (m-Payments), is the transfer of money between two people (P2P), between a person and a business (P2B), or between the government and a person (G2P) via the subscriber's platform, in which at least one party uses a mobile phone. M-payments can be used for micropayments, such as a utility bill, as well as to transfer larger sums, like in international remittances. They can be used for transactions from a business to a person, for example, for the payment of salaries. Most mobile payment systems are based on a prepaid balance that is transferred by SMS, near-field communication, or using codes, but postpaid or real-time payments are also possible. As distinct from some other forms of electronic banking, the transferred money is available immediately and, depending on the system, a bank may not need to be directly involved.

Electronic Money (e-Money) refers to a balance of electronic money stored on a mobile device (a so-called m-float). It is a means of electronic alternative to cash and has monetary value stored electronically on receipt of funds, which is used for making payment transactions.

Mobile Money (m-Money) is a subset of e-money referring to financial services and transactions made on a mobile phone that may or may not be tied directly to a personal bank account.

Electronic Wallet (e-Wallet) is a specialized folder on an electronic device in which mobile money and/or the electronic representation of cards are kept. In connection with near-field communication, a mobile phone can then be used as a payment card, with the amount loaded on its SIM card while the bank account is charged at the same time. Such multiuse cards can be dedicated, such as electronic purses, or general, such as an application on mobile phones, personal digital assistants, or computers. One example is Google Wallet, which stores electronic cash in the form of an m-float as well as

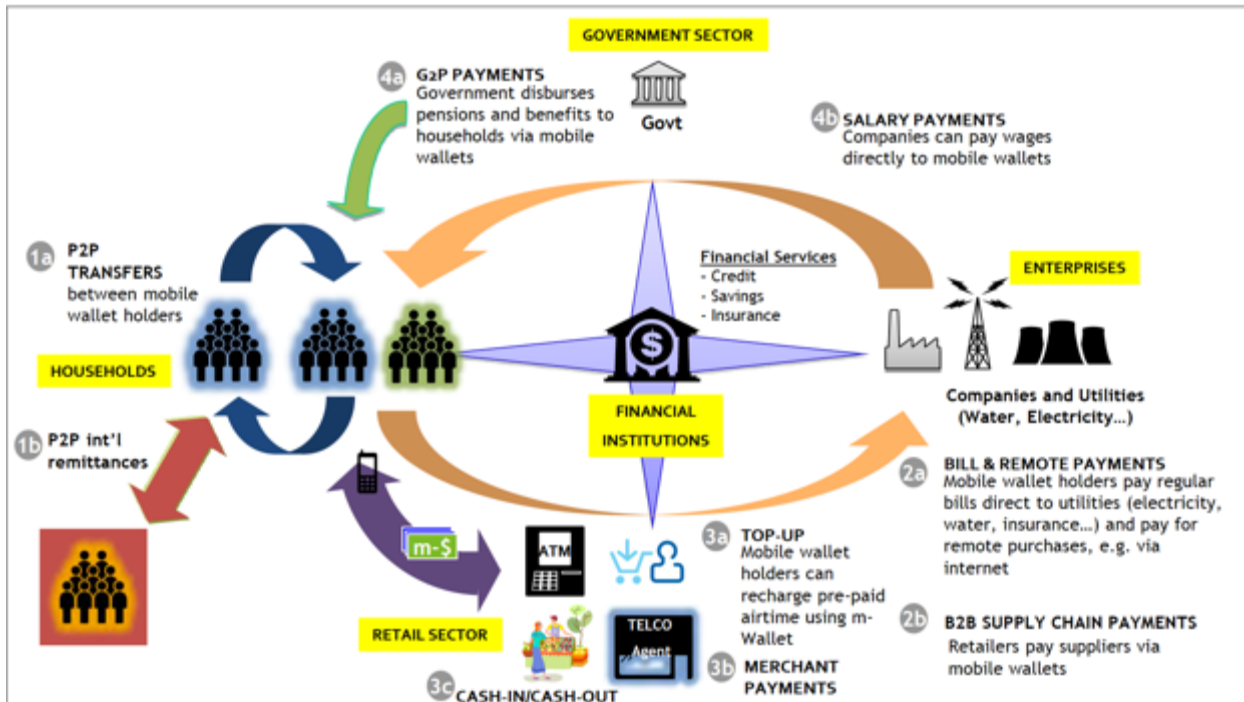


information on debit and credit cards, loyalty cards, various identification cards (such as for a parking lot or security), and others. The customer selects the preferred payment source, enters a personal identification number, and, via near-field communication, the data are transferred to the point of sale and the money transferred, either as an m-float or by sending electronic card information.

Electronic Banking (e-Banking) Banking transactions conducted through computerized systems intended to speed operations, reduce costs, and allows bank’s customers to request information and carry out most retail banking services via computer, television, mobile phone, or via other electronic means.

Many mobile financial services users find the concept of MFS hard to grasp, especially if the market environment is predominantly cash-based and characterized by low literacy rates. However, in countries where virtual airtime top-up exists, the transition is easier, because the concept is simple to test and trust is gained quickly. In reality, all transactions (Figure 1) that are carried out “virtually” via mobile money have to be mirrored by the physical movement of cash within the financial system. Therefore, reconciliations are carried out between the cash-in / cash-out points (agents), the accounts of the users and the bank accounts in which the funds are pooled, either in real time or at least several times a day.

Figure 1: Mobile Banking Ecosystem and Products

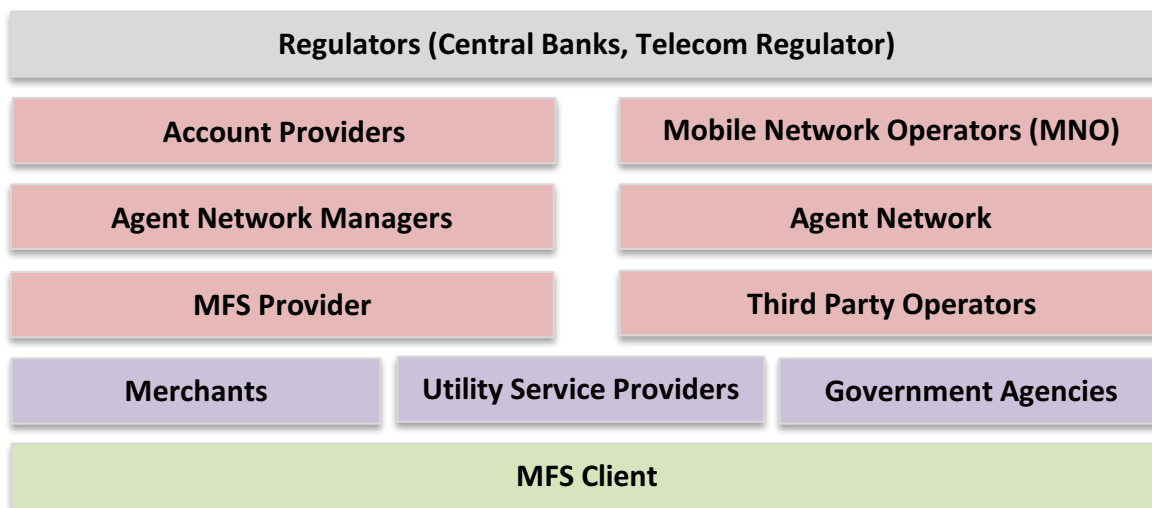




2.2. Mobile Financial Services - Ecosystem

Though the mobile financial services ecosystem continues to evolve, it is typically composed of following actors represented in Figure 2.

Figure 2: Mobile Financial Services Ecosystem Actors



The Regulators. Financial and telecommunication sectors regulators design policy and provide market operators supervision.

The Account Provider. The company that manages the client accounts. The account provider typically is a financial institution (bank, MFI, etc.) or a non-bank MFS provider (e.g. MNO or PSO). In the case of the latter, the client will have an account with the non-bank entity, but the funds will have to be deposited with a partner financial institution (i.e. a regulated bank).

The MFS Provider. This is the company that hosts the mobile money platform over which transactions are recorded. The FSP provider can be the same entity that manages the account.

The Mobile Network Operator (MNO). To deliver mobile financial services it is required the existence of a mobile telephone network that makes it possible to carry the data from one mobile device to another. The network also is how the interfaces of the different players communicate and how they exchange information on the transactions carried out.

The Agent Network. This is the entity or network of entities that operate the cash service point where the customer does cash-in and cash-out transactions. The agent can also register new customers, conduct payment transactions, etc. A vital characteristic of a mobile money service is the importance and easiness for clients to convert their virtual money to physical cash. Hence, for the system to succeed, agents must have access to high volumes of cash (liquidity or e-float) that they can use to convert cash to e-money and back to cash.



Third-party Operators. These include companies that provide services aimed at improving the delivery of mobile financial services, such as, mobile money platforms, software companies and even NGOs that have developed products based on mobile money transactions.

Agent Network Manager. These are companies that specialise in managing the agents of the service. With the rise in popularity of the market, the number of players and the role they play is expected to expand in the future.

Merchants, Utility Service Providers and Government Agencies. Provide value added services through the mobile financial services channel.

The MFS Client. Is the end-user and/or beneficiary of the financial service.

2.3. Delivery Channels Evolution

Retail banking has traditionally evolved by introducing innovative products, services and infrastructure. As customers demand more access means, anytime, anywhere and anyhow, the evolution of distribution channels has simplified and increased access to financial products and services as banking moves away from a traditional branch-based approach towards a more

Figure 3: ADC Landscape

diverse set of delivery channels and an increase level of integration.



Figure 3 shows the most common distribution channels, their importance, and their usage. The branch still remains central to providing individualized service, but clients now visit these locations less often because new technology allows simple and secure transactions or other standardized procedures through alternative systems. Diversification of distribution channels allows clients to select the most convenient channel and avoid time consuming and sometimes costly branch visits.

A recent study ² on retail banking customers interactions with delivery channels, concluded that customers interact with the mobile channel on average 20-30 times per month, with desktop internet banking 7-10 a month, with the ATM channel 3-5 times a month, whereas only walks into a branch 1-2 times per year.

² Source: Bank 3.0 by Bret King – September 2014 The Financial Brand



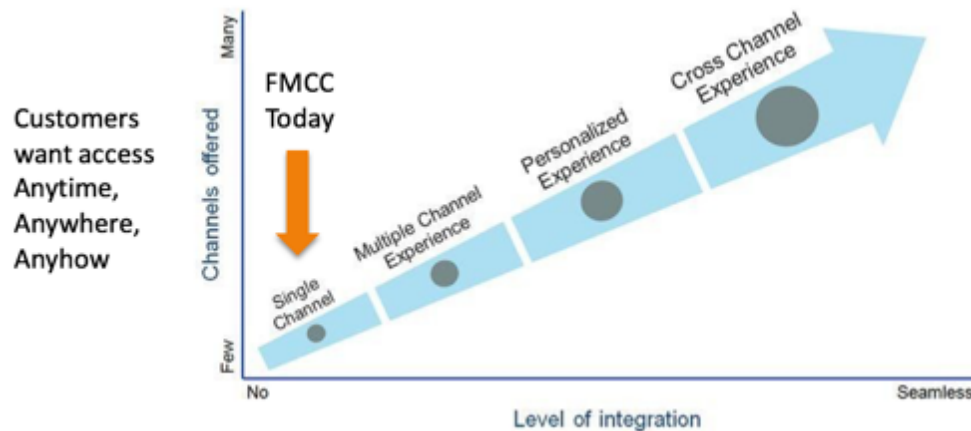
Innovation is introducing new players and business models, pushing financial institutions towards investing in ADCs. In fact, the cost of servicing an account over the various channels differs drastically showing again how the branch is the most expensive (\$5/month/account) vs less than \$2 for mobile based agents, mobile accounts or mobile wallet.

2.4. Delivery Channels Reach

delivery channels reach relating two important dimensions: (i) **diversity** - from single channels to multiple channels, and (ii) **level of integration** - from zero to seamless. Since FMCC is offering the Elsom wallet to its customers it can be plotted in the single channel stage.

Figure 4 illustrates the delivery channels reach³ relating two important dimensions: (i) **diversity** - from single channels to multiple channels, and (ii) **level of integration** - from zero to seamless. Since FMCC is offering the Elsom wallet to its customers it can be plotted in the single channel stage.

Figure 4: Delivery Channels Reach



More mobile money providers are actively tracking data⁴ on the gender and rural/urban split of their customer base to capture the social and commercial opportunities of reaching these underserved segments. Although this has not yet translated into greater penetration of mobile money services, the fact that mobile money providers have begun to look at untapped market segments is promising:

- **Female customers** – 39.2% of survey respondents reported the gender composition of their customer base. This is significantly higher than in previous years, indicating that a growing number of mobile money providers are tracking gender data. Among survey respondents who reported the percentage of female customers, the median value

³ Adapted from Accenture: Meeting customer expectations with an excellent multi-channel service delivery

⁴ Source: GSMA Data from the 2015 Global Adoption Survey



reached 37% in June 2015, with no significant change compared to previous years (39% in 2014 and 37% in 2013);

- **Rural customers** – 40.2% of survey respondents reported the urban/rural split of their customer base and this is also higher than in previous years. Among survey respondents who reported the percentage of rural customers, the median value reached 47.3% in June 2015, which is lower than what was reported in 2014 (53%), and similar to the reported value in 2013 (47%).

2.5. Technology Enablers

From the perspective of technology, ADC are enabled by the aggregation of four key components: (i) a **physical device** (e.g. mobile phone, ATM, POS); (ii) **an application** running on the device (e.g. mobile app); (iii) **a communication channel** used to exchange data between the device and the core financial system; and (iv) **an authentication mode** used to confirm the identity of the user of the channel. Table 1: ADC Technology Components shows a matrix of options available per channel in terms of device, type of application, communication, and the different types of authentication modes used per channel.

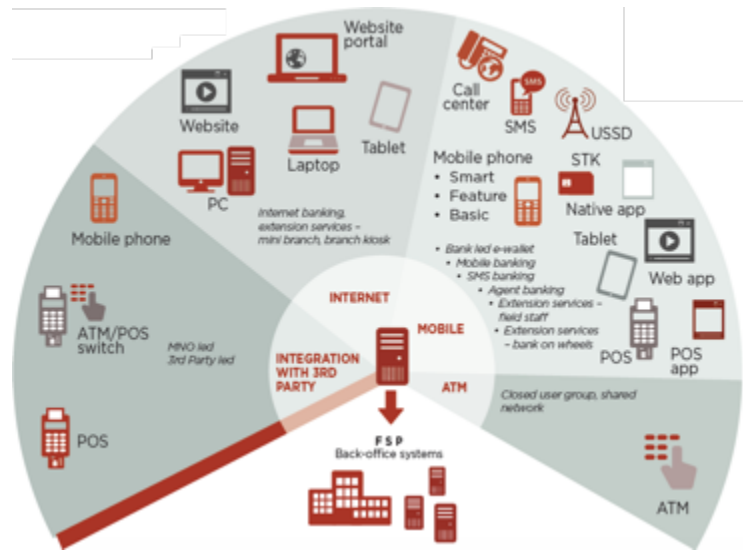
Table 1: ADC Technology Components

	Chanel Name	Device	Application	Communication	Authentication Mode
	ATM	ATM, HSM	Bespoke	LAN, VPN, 3G/4G	Card/PIN, OTP
	Internet Banking	Computer, smart phone, tablet, kiosk	Web	Internet (mobile, land line, wireless)	Username, password, OTP
	Agent / Merchant	Computer, phone, tablet, POS	Web, POS, Mobile	Internet (mobile, land line, wireless)	PIN, bio, physical ID
	Extension Services	Computer phone, tablet, POS	Web, POS, Mobile	Internet (mobile, land line, wireless)	PIN, bio, physical ID
	m-Banking	Phone	Mobile	Mobile (3G/4G)	PIN, OTP
	e-Wallet	Phone, kiosk, POS, ATM	Web, POS, Mobile, Bespoke (ATM)	Internet (mobile, land line, wireless)	PIN, card, physical ID
	Call Center	Phone	IVR	Telecoms - Voice	Password

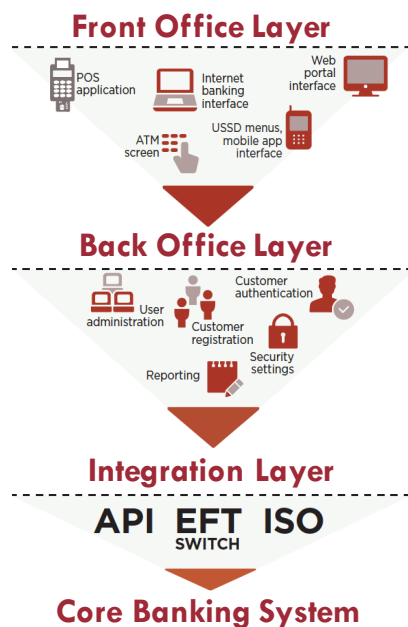


ADC technology is continuously evolving at a speed that is sometimes difficult to keep pace with. Therefore, MFS providers need to invest sufficient effort prior to vendor selection researching the available options and understanding the benefits and disadvantages of the technology platform that they decide to pursue. Figure 5 illustrates the range of technology options for each of the globally available ADC, depending on whether the channel will require a third-party integration or can run on the Internet, on a mobile platform, or through a bespoke application such as ATM. As the diagram shows, some channels like the ATM provide very few choices, while others such as mobile channels offer many options at the device, application, and communication levels. The technology selection needs to be somewhat iterative, reverting back to the strategy with informed decisions about what is available in the market, which will continuously change in this fast-moving ICT world.

Figure 5: ADC Technology Options



In a standard delivery channel architecture, there are three key components to enable a transaction: **front office layer**, **back office layer**, and an **integration layer**. In addition, a **communication channel** and a **mode of authentication** will also be required.



Front office Layer. The front-office component of the ADC technology platform is the software application that runs on the device, referred to as the front-end application for the purpose of this handbook. ADC applications can be based either on mobile, Web or bespoke platforms such as POS, ATM, and IVR. For instance, Internet banking runs on the back of a Web application. As with devices, mobile applications are the most complex, with four main types of applications.

Back Office Layer. The back-office applications form a critical component of the ADC platforms and are typically used to drive the front-end applications and devices. They also allow financial service providers (FSPs) to manage the channel users, define the products and services offered via the channel, control the security of the channel, and monitor and report on the channel activity and performance.



Integration Layer. The last component in the architecture involves integration between the various systems involved in the delivery channels platform (such as CBS, Accounting and ERP) and the technology driving the channel. In many cases, delivery channels solutions also require multiple integrations with third parties (e-wallet providers, bulk SMS providers and national switches), as well as several in-house systems (m-banking software, agency banking modules, accounting software, CBS or loan portfolio systems).

Communication Channel. Delivery channels require the exchange of financial or non-financial information between the FSP’s or PSO’s and the client, which typically occurs over communication channels connecting the device and the back-office component of the delivery channel. There are currently six communication channels available: LAN – local area network / WAN – wide area network; Internet portals; Mobile data (3G/4G); USSD (GSM technology, controlled by MNOs.); SMS (‘store and forward’ communication channel); IVR (computer application with voice recognition); NFC (used for contactless payment transactions).

Mode of Authentication. The last component of delivery channels technology is the mode of authentication, as illustrated in this table. This is of particular relevance, as one of the more apparent risks associated with delivery channels is related to fraud arising from the authentication of a customer’s or other user’s identity, and failures which may occur during this process. Branch-based transactions can rely on well-trained tellers or staff whose judgement can be used to confirm customer identity using scanned photos, physical ID cards, signatures, and other tools. However, transactions initiated remotely through mobile devices or agents often require enhanced means of verification.

Table 2: ADC Modes of Authentication

FACTOR TYPE	DEFINITION	OPTION AVAILABLE
Knowledge	Something that customer knows	Password, PIN, pattern, secret question, image
Possession	Something that customer owns or has	Bank card, mobile phone, OTP/TAN, physical ID card
Inheritance	Something that customer is	Biometric characteristic fingerprint, iris scan

2.6. Delivery Channels Risks

While MFS providers have existing risk management practices to safeguard their business, the introduction of delivery channels may require a reassessment of these policies and the introduction of new controls and risk monitoring systems. Certain characteristics of delivery



channels, such as a dependence on rapidly changing technology and their ubiquitous nature, mean that new risks may be introduced (e.g. agent-level fraud). There is also the likelihood of an increase in existing risks or their severity (e.g., in terms of dependency on the security of IT systems).

Box 2: Delivery Channels Risk Areas

Typically, five areas of risk applicable to delivery channels have to be mitigated during the model decision process:

- **Legal** – the risk of lawsuits arising between any of the actors involved in the channel (customer, agent or MFS provider), either due to misuse of the channel, a lack of clarity of roles/ responsibilities, or breach of contracts or laws such as data protection/AML;
- **Operational** – fraud/theft committed via the channel, failure to manage the liquidity of agents and ATMs, unauthorized fees charged for use of the channel, poor quality of service, and loss of private data;
- **Technological** – insecure data storage, weak back-office security, insufficient communication protection, poor authentication/authorization of users, inadequate integration between systems/third parties, or a lack of service associated with hardware/software failures;
- **Compliance** – the risk of fines or loss of license as a result of noncompliance with laws or regulations, including AML, CFT, Agency Banking, Mobile Money, Consumer Protection, Regulatory Reporting;
- **Reputational** – a loss of customer and market share as a result of the occurrence of any of the risks described above;

2.7. Delivery Channels Regulation

Regulatory policy influences the market by mandating who can do what, where, and which rules apply when it comes to financial services. Delivery channels are a complex topic for regulators, as the space is constantly changing. It is the MFS providers' responsibility to assess and understand the obligations vis-à-vis the regulator and other relevant authorities. Regulations governing the use and issuance of e-money/mobile money, mobile banking, agency banking, Internet channels, and remote branches are the most obvious ones to consider. But others, such as regulations governing access to communications, interoperability, electronic documents or signatures, KYC, biometrics, national ID, and AML/CFT must also be considered, as they may impact some component of the channel.



Box 3: Delivery Channels Regulatory Framework

- **Agents** - Authorization to use nonbank retail agents as the cash in/cash out point and principal customer interface;
- **AML/CFT** - Risk-sensitive anti-money laundering (AML) rules and rules for Combating Financing of Terrorism (CFT) adapted to the realities of remote transactions conducted through agents;
- **E-Money** - Appropriate regulation for the issuance of e-money and other stored-value instruments;
- **Consumer Protection** - Effective consumer protection to address the risks involved in electronic payments;
- **Data Privacy and e-Security**;
- **Payment Systems** - Inclusive payment system regulation and effective payment system oversight as branchless banking reaches scale;
- **Competition** - Policies governing competition among providers that balance incentives for pioneers to get into the branchless banking business and against the risk of establishing or reinforcing customer-unfriendly monopolies;
- **Prudential Regulation** - For Deposits & Payments;
- **Telecom/Mobile Network Operator (MNO) Regulation**;
- **General Banking & Financial Access**;

3. FINANCIAL INCLUSION AND MOBILE FINANCIAL SERVICES

3.1. Mobile Money as a Driver of Financial Inclusion

Mobile money is a powerful engine to deepen financial inclusion⁵. In 2015, the number of mobile money services increased to 271 in 93 countries. Moreover, according to World Bank data on global financial inclusion, mobile money services are available in 85% of countries where the number of people with an account at a financial institution is less than 20%. Until recently, policy efforts to develop financial services focused on the formal banking sector and its intermediating function in converting savings into investment. This meant that the wealthy, urban population enjoyed access to financial services while financial institutions neglected low income population segments (who generated low or negative returns) and rural areas (which required costly bricks and mortar branches).

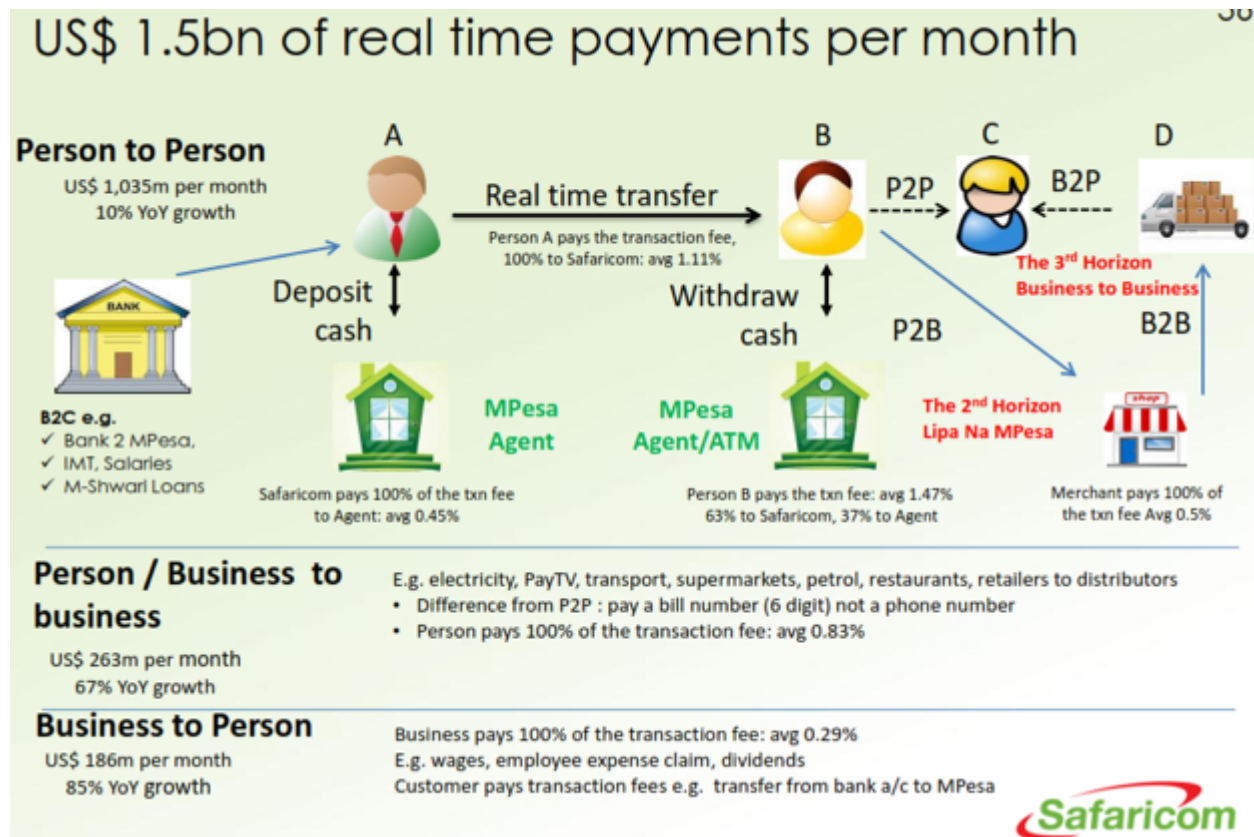
⁵ The research analysis in this chapter is based on the data from the GSMA State of the Industry Report on Mobile Money (December 2015).



Barriers to financial inclusion on the demand side include:

- **Affordability**, such as high interest rates on loans, high premiums on insurance products, and minimum balances on accounts;
- **Awareness and understanding**, both as to availability of products and how they are structured, priced and used;
- **Accessibility**, with financial products typically offered in urban centres and near high income users, and subject to heavy bureaucratic processes; and
- **Desirability**, with many products not designed for the needs of low income users.

Figure 6: Mobile cash-in, cash-out, transfers and payments over M-Pesa⁶



According to the latest GSMA state of the industry report on mobile money, as of December 2015⁷, there are 411 million mobile money accounts globally. Moreover, mobile money is available in 85% of countries where the vast majority of the population lacks access to a formal financial institution. This accomplishment, demonstrates the power of mobile, underpinned by the important role mobile network operators and payment service operators have played in building this industry. Additional key findings are described in Box 4.

⁶ Source: Safaricom 2014-5 results presentation.

⁷ In 2015, 107 mobile money providers from 67 countries participated in the survey.



They also account for a significant cost of doing business, with an average of 54.4% of the top 10 providers revenues going to agent commissions.

5. Mobile money is changing the landscape of financial inclusion. In 2015, 37 markets had ten times more registered agents than bank branches and registered customer accounts grew 31% to reach a total of 411 million registered accounts globally.

6. Mobile money providers processed just over a billion transactions in December 2015, which is more than double what PayPal processed globally. Furthermore, active mobile money customers conduct an average of 11.2 transactions per month and maintain a median account balance of US\$ 4.70, both increases from 2014.

7. While OTC continues to be a significant part of mobile money, the growth rate is slowing, relative to the growth of account adoption. In South Asia, home to especially high OTC activity, the 19% growth (year-on-year) of OTC is dwarfed by the 47% growth in registered accounts. This promising sign suggests that the increased focus of providers to migrate OTC customers is bearing fruit.

8. Cross-border transactions were the fastest growing product in 2015. Mobile money services offering International money transfers saw the volume of cross-border remittances increase by 51.8%.

9. Fifteen providers reported revenues of more than US\$ 1 million during the month of June 2015, up from 11 in June 2014. All but three of these providers are MNOs, and 12 have over one million active accounts on a 90-day basis.

10. The majority of mobile money providers recognize the need for long-term investment in their service. In 2015, three-quarters of respondents maintained or increased their investment in mobile money over the previous year.

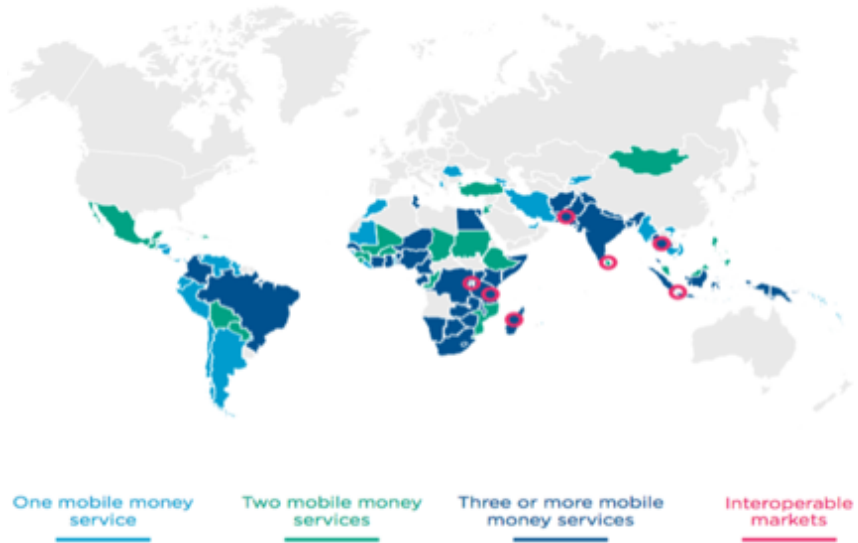
Source: GSMA 2015 State of The Industry Report on Mobile Money

3.2. Mobile Money Services - World Availability

Mobile money services are live in 64% of developing countries (86 of 135 countries), a small increase from 2014 (61%). When looking at income classifications for these developing countries, mobile money is most widespread in low-income economies (81%) compared to lower-middle income and upper-middle-income economies, where mobile money is available in 71% and 47% of markets respectively. In 2015, mobile money was launched in four new markets: Albania, Kyrgyz Republic, Myanmar, Peru, and Seychelles. Kyrgyz Republic and Myanmar are classified as lower middle-income, and Albania and Peru are upper-middle-income.

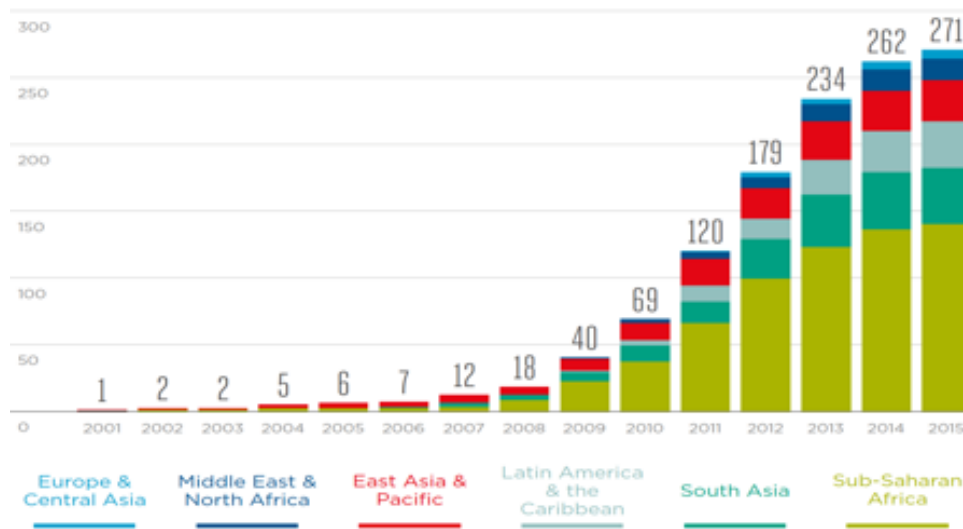


Figure 8: Number of Live and Interoperable Mobile Money Services by Country



As the mobile money industry matures, the launch of new services has been slowing each year. In 2015, 13 new services were launched, compared to 30 services in 2014 and 58 services in 2013. Sub-Saharan Africa continues to account for the majority of live mobile money services (52%), however, more than half of new services launched in 2015 were outside this region, primarily in Latin America & the Caribbean. Looking ahead, new mobile money services are expected to grow by as much as 50% in Europe & Central Asia as well as the Middle East & North Africa.

Figure 9: Number of Live Mobile Money Services by Region (2001-2015, year end)

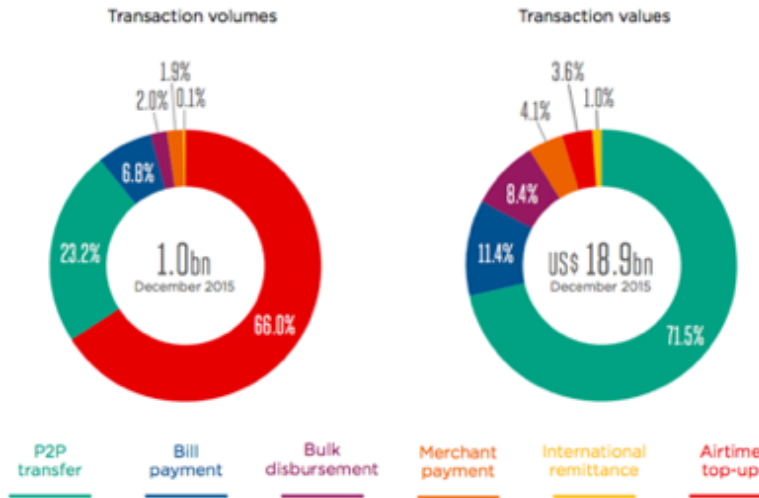


While customers are becoming more active and the market size is growing, MFS providers have yet to convince customers to actively diversify their usage patterns, so the industry



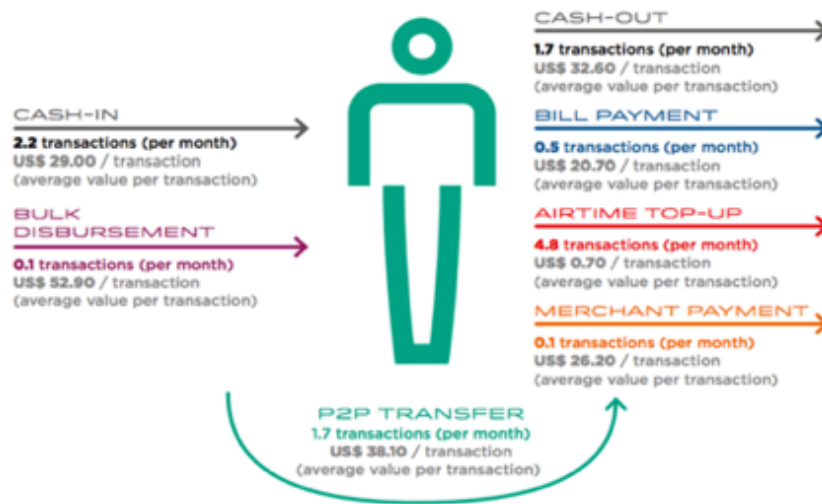
remains dominated by person-to-person (P2P) transfers and airtime top-ups. These two use cases are the foundational use cases for mobile money, the value of P2P transfers represents 71.5%⁸ of the total mix, and airtime top-ups represent 66% of the total volume of transactions (but only 3.6% of the value). These two use cases grew in volume by 27% and 24%, respectively.

Figure 10: Mix of Mobile Banking Services by Volume and value



Many MFS providers have begun to invest in new partnership models and fresh approaches to diversify beyond P2P transfer volumes and values, with particular focus on: bulk disbursements, lowest volume per month but largest value per transaction (Figure 11), merchant payments, interoperability, cross-border mobile money remittances and transport payments.

Figure 11: Mobile Banking Average Monthly Transactions



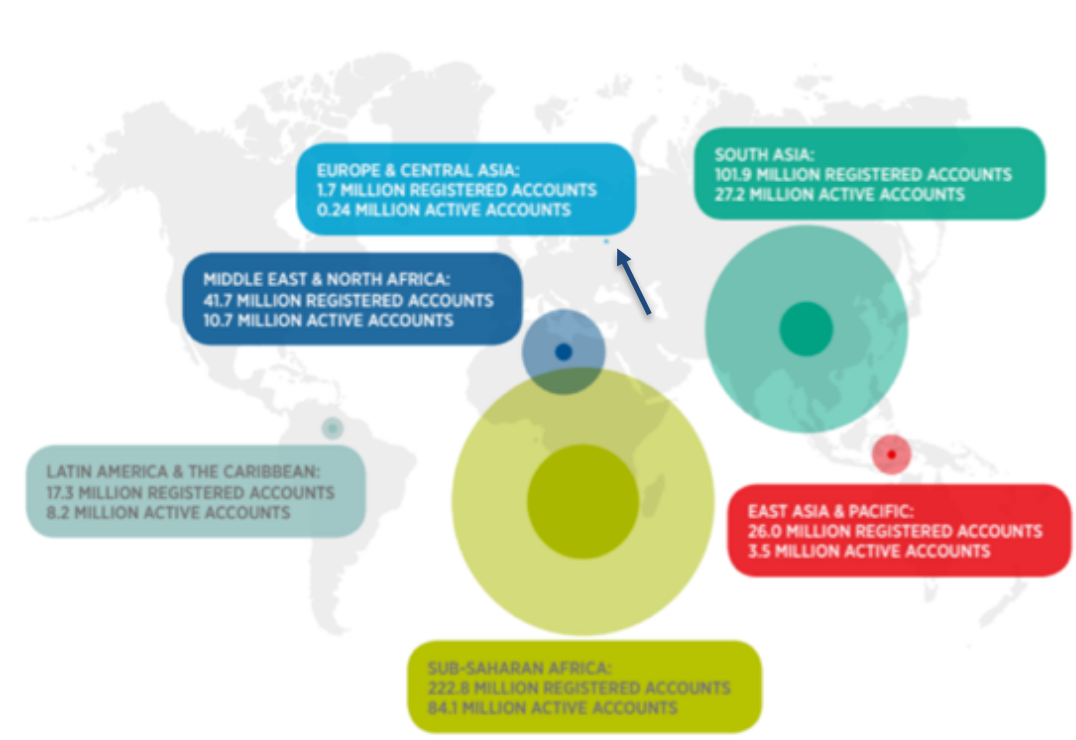
⁸ Source: GSMA State of the Industry Report On Mobile Money Dec 2015



With a 31% increase in 2015, the number of registered mobile money accounts grew (almost 100 million new accounts) at nearly the same pace as in 2014 (33%), reaching a total of 411 million globally. However, South Asia and Sub-Saharan Africa showed the strongest growth in adoption, accounting for 85% of all new accounts opened in 2015. In Sub-Saharan Africa, we see the majority of growth coming from outside the mature mobile money markets of East Africa 63% of all accounts opened in Sub-Saharan Africa in 2015 were in Middle, West, and Southern Africa.

The penetration of mobile money is also deepening relative to mobile connections. In markets where mobile money is available, 10% of mobile connections are now linked to a mobile money account, compared to 8% as of December 2014. Across Sub-Saharan Africa, one in three mobile connections is linked to a mobile money account as of December 2015. Of all sub-regions, East Africa recorded the highest level of mobile money penetration (55%), which is more than twice the level of smartphone penetration (19.4%). The most impressive growth occurred in West Africa, where the percentage of mobile connections linked to a mobile money account increased by nearly six percentage points in 2015 to reach 19.6%. Europe and Central Asia remain the smallest regional market (1.7 million accounts) but has a huge growth potential.

Figure 12: Numbers of registered and active customer accounts, by region

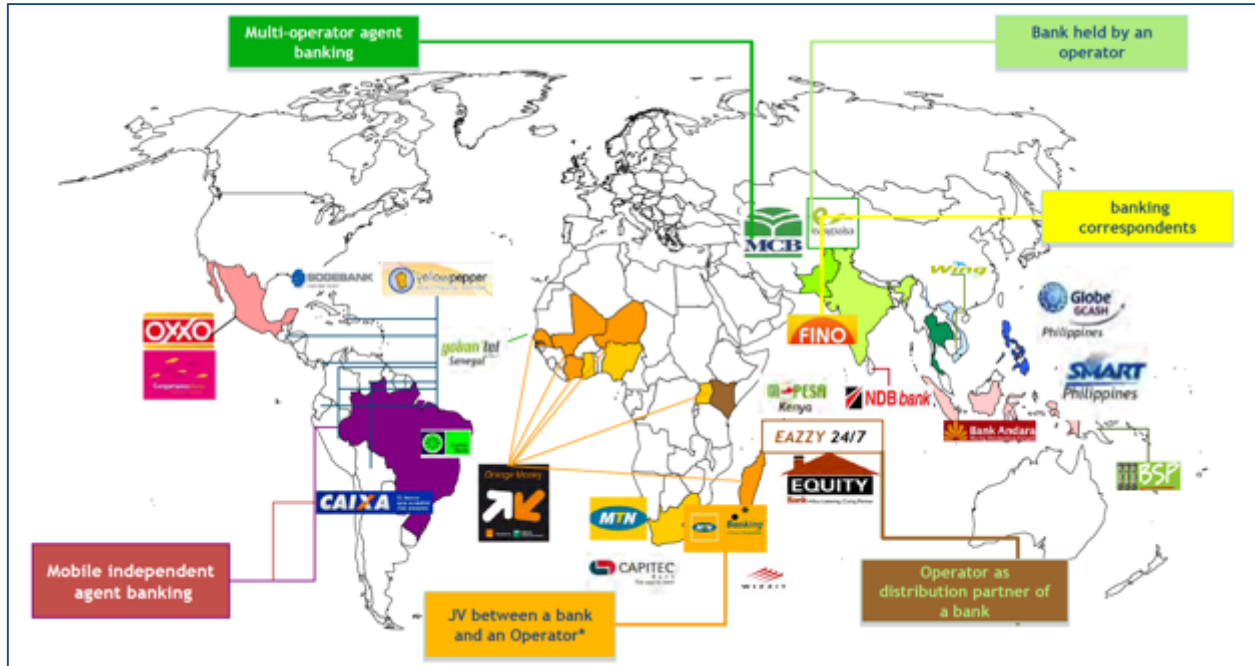




3.3. Mobile Financial Services Success Stories

Mobile financial services are delivered through different entities ranging from bank/financial institution to Telco/MNO and third party or any hybrid type combination. See examples in Figure 13.

Figure 13: Different MFS Models in Emerging and Developing Markets



- In Kenya, Vodacom/Safaricom’s M-PESA was initially designed as a pilot, conducted in partnership with the microfinance institution Faulu in 2003, to assess whether mobile phones could be used by microfinance institutions to better serve their clients;
- In the Philippines, Negros Women for Tomorrow Foundation, Inc. (NWTF) partnered with Smart Telecommunications in 2008 to provide eWallet services to its clients;
- In Tanzania, Zantel introduced Mimina Credit;
- Pesa Chap Chap instant e-loan product in Kenya;
- In Cambodia, Wing has established a successful MFS Agent model;
- In South Africa, MTN has partnered with Capitec Bank in a JV model;
- In Brazil, Banco do Brasil has been very successful with the agency banking model with the national postal office network.

4. M-BANKING IN THE KYRGYZ REPUBLIC

4.1. Building Blocks of Mobile Banking

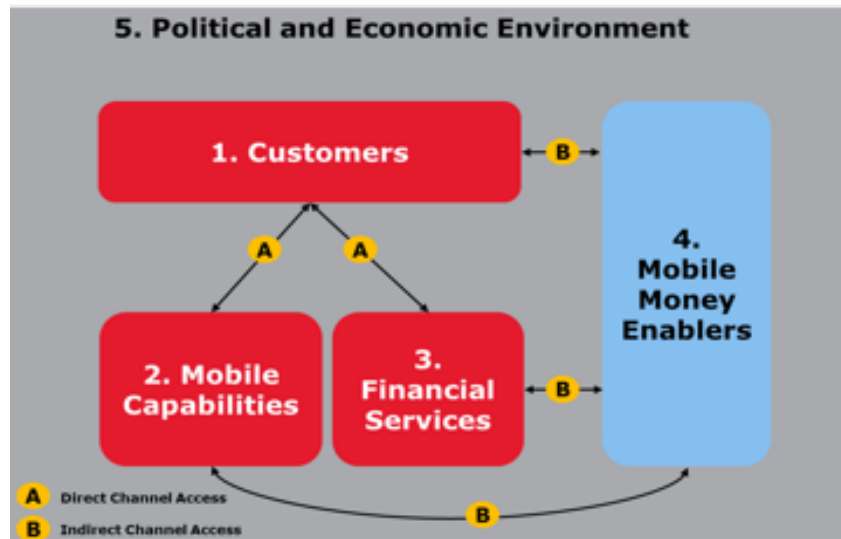
The success of mobile banking depends on completeness and maturity of several key building blocks that make up the mobile money value chain. In order for basic services to be available,



each of the following five building blocks needs to be present in a market: (i) Market Considerations, (ii) Mobile Capabilities, (iii) Financial Services, (iv) Mobile Money Enablers and (v) Political and Economic Environment.

The first three building blocks address the core capabilities that need to be available for customers. Mobile Money Enablers have a support function primarily to Mobile Capabilities and Financial Services, but can also play a secondary role towards the end customer. Political and Economic Environment underpins all building blocks.

Figure 14: Mobile Banking Building Blocks



4.1.1. Customer Considerations

Financial literacy is still very low particularly in the rural areas and amongst women, as education levels in Kyrgyz Republic are very low. Besides that, the level of urbanisation is also very low (37%), more than 85% of the population is unbanked.

Distrust in financial institutions, constraints in access to finance and a predominantly cash payment transactions ecosystem are some of the considerations to take into account in the decision process of a mobile banking business model.









4.1.2. Financial Services

The financial regulation index is significantly strengthened in the last few years, with some level of investment achievements in the banking infrastructure, however remains low compared with OECD countries.



The finance sector is comprised 25 banks and 323 branches with total assets of about 178 billion KGS⁹, however only 18% of adults of which 19% women actually have a bank account opened. The microfinance market is large, with 99 licensed microcredit/microfinance institutions and 114 licensed credit unions, responsible for at least one-quarter of the total credit to the private sector. Although the commercial banks give the microfinance institutions heavy competition, the role of the latter and credit unions in providing credit to micro, small, and medium-sized enterprises and the rural population has increased significantly in recent years. Some level of consolidation in the financial sector is expected in the short/medium term.

Table 3: Payment / Cash-out Instruments in Kyrgyzstan

Payment / Cash-out Instruments		Number
Automated Teller Machines (ATMs)		1,319
Main kiosk players (some are owned by banks and installed at the branches) – 1,400 of which are located in Bishkek and Chui region, with only a few terminals existing in the south region. In average, one month of payments in the amount of 1,2 billion KGS are made through the payments terminals/kiosks in Kyrgyzstan ¹⁰ . Main payment providers are: Mobilnik, Qiwi and Quickpay.		1,500
		
		
POS (of which 6,014 are located at retail merchants)		6,014
Visa and MasterCard International Cards		452,643
		15,729
Elkart (National Payment Card – commission free)		635,152
Zolotaya Korona Card – is Russia's largest payment system also operating in Kyrgyzstan		558,781
Interbank Processing Center (IPC), controlled by NBKR		n/a
International Remittances		1.54 million
Domestic Money Transfers		137,700

The remittance market is quite competitive in Kyrgyzstan: Anelik, Blizko, Contact, Migom, MoneyGram, Western Union, Unistream, Gold Crown, Leader, Quick Post, Allure, Xpress Money, Privat Money, INTERexpress, and other remittances done through KyrgyzPost. However, the majority of the providers are managed from Russia, and their main operation is

⁹ Source: National Bank of Kyrgyzstan (31 March 2017)

¹⁰ Source: These data were presented by the Association of payment system operators at the end of 2016



the money transfer between Russia and Kyrgyzstan, mostly done through Gold Crown company, managed from Russia. The most recurring money transfer services provided by the players are:

- C2C – (cash to cash) most prevalent option;
- C2M – customer can top up mobile account (air time only), but from this mobile account customer can't make any payments;
- C2M – client can top up an e-wallet, enter his e-wallet from a mobile using a mobile application and pay for different services;
- M2C – available only from Russian sim-card by sending an SMS, not available from Kyrgyz sim-card;
- M2M – transfers from e-wallet to e-wallet using mobile application is possible;

As of 09 June 2015, the National Bank of the Kyrgyz Republic has provided licenses for: (i) rendering of services on accepting, processing and delivery of financial information (processing, clearing) on payments and settlements of third persons to participants of payment systems of the present processing, clearing center and (ii) rendering of services on accepting and making payments and settlements for goods and services; to the following companies: Interbank Processing Center (IPC); Momentary Payments Integrated System; Mobilnik" (Cell Phone); Mobilnyi Koshelek; BM Technologies; Kyrtelesat; Quickpay System and Alimbek JSM.

Box 5: Payment System Legislation Relevant to MFS

- Only fully licensed banks can issue electronic money and perform operations on accounts opened on the basis of bank account agreements;
- Banks may enter into agency agreements with non-financial institutions and non-bank financial institutions to provide services to the public on payments, settlements (including payments and settlements with using bank cards), remittances, distribution of electronic money in accordance with the regulatory acts;
- The holder of electronic money can purchase goods and services via electronic money payments and receive cash in exchange for electronic money in special devices for acceptance and service of electronic money instruments;
- The record of the movement of electronic money is carried out by the issuer (Bank) through opening a settlement (current) account to record electronic money in the bank in accordance with the agreement for opening and service of accounts;
- The use of electronic money in the settlements shall be carried out by the holder of electronic money transferring to business entity or person (acceptor), which makes the exchange of its products/services for electronic money and has the special equipment (software and hardware) for receiving and accounting payments using electronic money;
- Software and technical tools used in the system of settlements with electronic money must comply with regulatory of the Bank of Kyrgyzstan ensuring information security;



4.1.3. Mobile Capabilities

Telecommunication infrastructure in general is good, as the sector has been part of the final phase of a large scale privatisation program that has been steadily progressing in the country since 1992. Fixed broadband penetration continues to grow strongly but from a very small base. It reached 4.4% in 2016, up from 2.4% in 2013 and 0.9% in 2012. The mobile subscriber growth rate in 2015 and 2016 was a flat 0.2% as the market reached 7,595,000 subscribers in 2016¹¹. The mobile market is now mature. Further slow growth is also predicted over the next five years to 2021.

Over the past few years there has been particularly strong growth in mobile broadband subscriptions. This phenomenon is rapidly changing the shape of the internet market. The active mobile broadband subscriber penetration reached 33% in 2016. In fact, the 4G mobile market is slowing growing as major operators launch services. As of 2015 the percentage of population with mobile data coverage was: 2G 97.8%, 3G 59% and LTE/4G 1.6%.

During 2012 to 2016 the internet penetration in Kyrgyzstan has been increasing steadily, increasing from 23% in 2012 to 30% in 2015 and 32% in 2016. The percentage of households with the internet has risen from 8.7% in 2013 to 16.5% in 2016. Furthermore, the international internet bandwidth has risen significantly over the last five years rising from 1,200 Mb/s in 2010 to 12,700 in 2015.

Internet access is also good, with a user penetration rate of 21%, mostly through internet cafes, as only 4% of households own a computer (World Bank and ITU 2013). **The two largest mobile network operators, Beeline and MegaCom, account for 90% of total subscribers. O! the new private mobile operator is growing market share but still limited to the largest cities.**

Box 6: Telecom sector latest key developments

- O! expanded LTE coverage to the cities of Osh and Jalal-Abad, adding to its existing coverage in Bishkek and Naryn;
- Megacom launched its 4G LTE network in the cities of Bishkek, Osh and Jalal-Abad;
- Beeline introduced its 4G LTE network to all regions across the country;
- The NCA disconnected all non-registered SIMs from 1 February 2016;
- VimpelCom Ltd partnered with ZTE Corporation to build a complete virtual network infrastructure providing 4G/3G/2G mobile data services.

4.1.4. Mobile Banking Enablers

Under the law, all electronic payments take place on the basis of specific agreements between the payment parties. Although still limited, the existing regulation on the mobile banking sector has become available since the end of 2011, and it was the second most popular

¹¹ Source: BuddeComm Research 2016



remote banking service after internet banking, according to the central bank. However, mobile banking is for the most part limited to SMS alerts on account activities and monitoring account balances. In 2013, Geopay (an international private investment start-up) was the first operator of mobile money in the Kyrgyz Republic, introducing a mobile wallet service. Today, there are several payment services operators licensed to operate m-wallets/e-wallets in partnership with commercial banks responsible for the issuing of e-money.

Table 4: Mobile Banking Enablers

Mobile Banking Enablers		Number
<p>There are 4 main m-wallets: Mobilnik (3rd party driven), Elsom (bank driven, Doshcard (3rd party driven), Umai (3rd party driven).</p> <p>Additionally, there are several other e-wallets e.g. Yandex, Webmoney, Kyrtsat, Geopay (USA based), e-Pay (virtual internet wallets) in the market mostly operated by Russian and Kazakh based companies used mostly for gaming, phone top-up or utility payments.</p>		<p>Elsom is market leader with: 97,000 subscriptions or 1.6% population</p>
<p>Agent Networks – 2 main agent network players with national coverage – require a payment services operator license and/or agent banking license</p>	Asisnur (National Coverage)	2,500 agents
	Kyrgyz Post	922 postal offices

4.1.5. Political and Economic Environment

The Kyrgyz Republic has 6.02 million inhabitants and a very low population density of 30 inhabitants per square kilometre¹². The country is among the poorest in world and has the second lowest GNI per capita (\$1,170) after Tajikistan in the region¹³. Poverty incidence is high at 32.1% and trending upward. The size of the informal economy is significant and limits the state capacity to deliver governance and strong institutions, which in turn discourages participation in, and expansion of, the formal economy.



¹² Source: ADB Basic Statistics 2017

¹³ Source: World Bank Data 2015



Services are the most important sector, at 52.5% of GDP, followed by industry with a growth rate of 5.9% from 3.8% in 2016 as gold production more than doubled, setting declines in textiles, apparel, and electricity generation¹⁴. Agriculture increased by 3.0% thanks to gains in crops and livestock, though well below the 6.2% expansion in 2015. Services growth slowed to 3.0% from 3.7% in 2015 although trade growth increased to 7.6% from 7.1%. Construction rose by 7.4%, down from 16.3% in 2015, as growth in capital investment slowed even more to 3.8% from 14.0%. Currency appreciation and higher remittances (22% rise) curbed inflation and the current account deficit. Weak exports slowed growth marginally and average inflation plunged to 0.4% in 2016 from 6.5% the previous year (estimated 5% in 2017) as consumer prices fell by 0.5% from December 2015 to December 2016. Growth is projected to slow to 3.0% in 2017 before recovering to 3.5% in 2018 with faster regional growth. The recent Eurasian Economic Union membership poses both challenges and opportunities.

4.2. Country Readiness

For each of the building blocks a set of key success factors - see Table 7 (descriptors, indices, key performance indicators etc.) - can be identified. There is no quantitative analysis framework that can automatically calculate the likelihood of success of each of the mobile money services due to the following reasons:

- The interplay of primary building blocks with enablers and overall environment create a variety and multitude of opportunities to establish mobile money services;
- Innovations in technology, services and business models for mobile money services happen on a daily basis, hence, it's difficult to codify a set of likely successful business models into a simplistic quantitative model;
- Market experience has been that it's difficult to replicate a business model that was successful in one country in another one

The collection of key success factors provides FMCC an analysis of challenges and opportunities for mobile money services.

This model is based on an EBRD mobile money services study conducted in January 2013. The study then concluded that the Kyrgyz Republic was not in a ready state for mobile banking ecosystem investment.

¹⁴ Source: ADB Outlook 2017



Table 5: Mobile Banking Readiness Scorecard (2013)

Customer Considerations	Building Blocks				Financial Inclusion Opportunity	Supporting Volumes for Commercial Activities	M-Banking Services			GO / MAYBE/ NO-GO
	Mobile Capabilities	Financial Services	Mobile Banking Enablers	Political and Economic Environment			Mobile Money Transfer	Mobile Payments	Mobile Banking	
1	1	1	1	1		No				MAYBE

Building Block Key	M-Banking Pillar Key	Financial Inclusion Opportunity Key																
<table border="1"> <tr><td></td><td>Low enabling</td></tr> <tr><td></td><td>Reasonably enabling</td></tr> <tr><td></td><td>Highly enabling</td></tr> </table>		Low enabling		Reasonably enabling		Highly enabling	<table border="1"> <tr><td></td><td>Minimal opportunity</td></tr> <tr><td></td><td>Medium opportunity</td></tr> <tr><td></td><td>High opportunity</td></tr> </table>		Minimal opportunity		Medium opportunity		High opportunity	<table border="1"> <tr><td></td><td>Highest proportion of Unbanked adults</td></tr> <tr><td></td><td>Lowest proportion of unbanked adults</td></tr> </table>		Highest proportion of Unbanked adults		Lowest proportion of unbanked adults
	Low enabling																	
	Reasonably enabling																	
	Highly enabling																	
	Minimal opportunity																	
	Medium opportunity																	
	High opportunity																	
	Highest proportion of Unbanked adults																	
	Lowest proportion of unbanked adults																	

However, in four years, the Kyrgyz ecosystem has significantly grown and improved in almost all key areas. **The consultant has used the same method criteria and despite concluded that the Kyrgyz Republic is now in a ready state for successful investments in mobile banking.**

Table 6: Mobile Banking Readiness Scorecard (2017)

Customer Considerations	Building Blocks				Financial Inclusion Opportunity	Supporting Volumes for Commercial Activities	M-Banking Services			GO / MAYBE/ NO-GO
	Mobile Capabilities	Financial Services	Mobile Banking Enablers	Political and Economic Environment			Mobile Money Transfer	Mobile Payments	Mobile Banking	
1	3	2	3	2		No				GO



Table 7: Key Success Factors

Mobile Money Opportunity Attractiveness Framework - for Country level analysis				
Customer Consideration	Mobile Capabilities	Financial Services	Mobile Money Enablers	Political and Economic Environment
Human Development Indicator	Overall Telecom/ICT investment	Investment in FS infrastructure	Platform Providers	Political Stability
Consumer Adoption	International Investment	Regulation	Service Providers	Growth
Perceived trust in Mobile and Banking services	Network capabilities (2G, 3G, USSD etc.)	Fraud/Risk	Scalable Agent Network	Productivity
Attitude towards Financial Services	Mobile Coverage	Market Competition	M-Money Consortium coverage	Ease of doing business
Consumer Protection	Device Penetration	E-Money (Virtual) Licensing	Entrepreneurial Environment (HML)	Free-market access
Social Environment and Readiness	Regulation in Telco Infrastructure	PayPal Index	Skilled Labour availability	Liberalisation
e-Readiness	Ease of Policy-making in Telecom	Banked vs. Unbanked	Compliance and Enforcement	Cash circulation / money supply
Know Your Customer (KYC) Regulation	Market Competitiveness	Existing Services and Products	Transparency/Security	Population
Consumer Needs (Gaps)	Presence of MVNOs	Ease of Banking Channel Access and Distribution	Payment terminals / alternative payment	Shadow economy
Financial Literacy Indicator	Technology/ Innovation (HML)	Availability of Money services to population	Augmented Services	
Needs of SMEs/Sole Traders/Businesses (Gaps)	Device capabilities	Availability of Proxies to M-Money	Retail Outlets/POS units	
Urban/Rural split	Device Availability (Smartphones and Featurephones)	International remittances		
	Mobile Phone Usage Stats	Access to customer financial data		
	Prepaid/Postpaid ratio	Usage metrics of Cash/Cards (Debit +		
	ARPU	Affordability to Consumers		
	Mobile Services			
	Affordability to Consumers			

5. USE OF M-BANKING IN FMCC

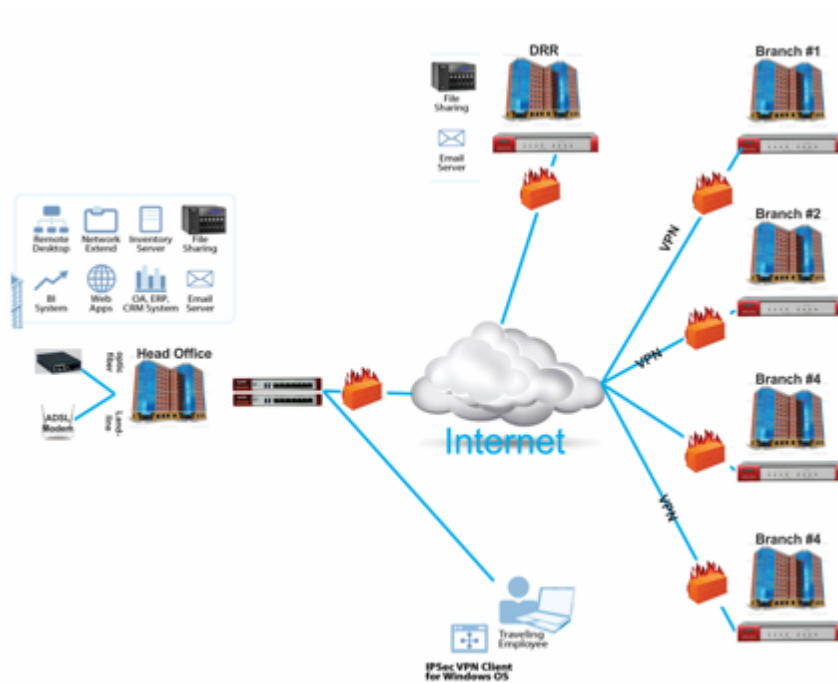
5.1. FMCC Delivery Channels Architecture

FMCC has recently initiated an important banking technology modernization program and public tender for a new core banking system is underway. FMCC has also recently hired a specialist in delivery financial services to lead the development and implementation of FMCC delivery channels strategy. FMCC's current system is based in AKAN's FMFSys (First Microfinance and Banking System). The system is operating in a decentralized model



architecture (Figure 15). Each branch operates with a local system database that is consolidated at the head office central database by end of day business. This decentralized architecture would not be compatible to support a delivery channel strategy, particularly considering the desire to implement loan disbursements, loan repayments and mobilizing deposits via DFS. However, after a detailed analysis of the RFP requirements, the new system once selected will contain all the necessary features to enable DFS such as: web based centralised system, straight through processing (STP), business process modelling (BPM workflow), etc. FMCC VPN network architecture has an adequate bandwidth capacity 1Mb/s branch connectivity and 6Mb/s HO connectivity. Network performance is critical for the future web based system.

Figure 15: FMCC Network Architecture



Like in any another technology project, a plan with specific steps are required to achieve maximum success of the proposed objectives. Typically, a delivery channel roadmap contains four major components:



This TA assignment will support FMCC with the building of the delivery channel strategy and definition of the supporting technology, culminating with the documentation of the necessary vendor request for proposals and recommended implementation plan. The TA assignment will



also evaluate the benefits of the current partnership with KICB and the offering of the Elsom Wallet to its customer base (e.g. telco and utility payments and money transfers).

5.2. Why Does It Make Sense for FMCC?

Mobile Banking makes sense for FMCC to succeed in its growth strategy and will significantly improve access to finance for its customers, particular in the rural areas and for women entrepreneurs. Particularly, mobile banking will enable:

Expansion of customer base: m-banking is a very **cost-effective** channel for delivering financials services to the mass market and to expand the customer base into new segments (e.g. women entrepreneurs) and untapped geographies (e.g. rural Kyrgyzstan).

Capture of additional fee revenue: the m-banking channel generates opportunities for multiple sources of revenue per customer by enabling the addition of new products and services. Currently with the KISCB/Elsom partnership, FMCC is collecting limited revenues.

Reduction of operating cost for delivering financial services: m-banking costs significantly less than any other traditional channel (typically the same transaction costs 10-15% of the cost associated with a branch). Despite the initial capital expenditure required for the setup, it is usually rapidly offset (2-3 years) by the drop in cost per transaction and the profit made from offering financial products to a larger customer base.

Lower cost of funds: m-banking enables low cost of funding, as a means of deposits mobilization, hence reducing the overall bank cost of funds.

As indicated, m-Banking is an important channel to drive benefits to the bank's traditional lending process, with tangible application in the savings mobilization (funding), loan disbursement and loan repayment processes.



However, looking in to the broader perspective of the delivery channel spectrum, the adoption of a mobile tablet based loan application, with real time integration into the core banking system and the credit decision technology, will equip loan officers and agents in the rural areas to provide customers with an instant loan decision (e.g. micro loans).





5.2. Mobile Financial Services Business Models

Mobile money service providers are geared toward microfinance platforms that directly manage the wide range of MFS for their partners: remittances, mobile top-up, bill payment, merchant purchases and even managing agent networks. Some mobile money service providers are also able to give access to cloud-based core banking systems that can be leveraged and used to the advantage of the MFI. Hence, they provide an interesting alternative for MFIs. There are four main types of business models that have appeared on the market today:

Telco-led. This is the most prominent business model found till today. The advantage of this model is that MNOs usually have an already-existing agent-distribution network. However, the network may be limited in its geographical outreach, posing a challenge for MFIs wishing to partner with an MNO. Also, the services offered focus more on person-to-person (P2P) transactions, and merchant and utility payments, although more and more are diversifying the range of products offered (e.g., salary payments). Most MNOs do not have a banking license and therefore need to be linked to a licensed financial institution if they wish to provide savings. This would be the case in the Kyrgyz Republic. MNOs are required to deposit their funds with a licensed financial institution into a trust account. Because the funds deposited must at all times mirror the amount of funds circulating virtually in the e-wallet, reconciliations are done regularly, often several times a day. **With the current legislation, a telco-led model is not viable, despite the investments currently underway particularly in Beeline, but even in this case the most viable model would be the hybrid type (see below).**

Bank/financial institution-led. In this model, it is the bank or financial institution that takes the initiative to provide its clients with a mobile banking service, rather than the MNO. An example of a bank-led model is the KICB with the Elsom m-wallet. In this case, KICB developed a proprietary mobile application that runs on smartphones and independent of any MNO as only requires access to any 3G/4G network to transfer the data of the transactions. Additionally, KICB uses its own branches or partners for the distribution network. In a different example, XacBank Mongolia adopted a USSD base service relying on the infrastructure of the MNO to transfer the data of the transactions, but uses its own branches or partners for the distribution network.

Third party-led models. In this business model, the institution providing the service is one that is created specifically for that purpose e.g. payment services operators in Kyrgyzstan, such as: Mobilnik, Quickpay or Qiwi. Due to the increasing interest in the MFS market, several service companies have recently requested a payments services license from NBKR. Although these companies target all MFS providers, including commercial banks and network operators, they can be a judicial choice for small MFIs that are struggling with the implementation and integration of their MFS.

The hybrid model. This involves a joint venture between a MNO and a financial institution. The most successful example of such a model is Tameer Bank in Pakistan, which partnered with Telenor. Telenor owns 51% of Tameer Bank and together they offer the service EasyPaisa. As a



newer model in the early stages, it is focused on developing market share primarily through traditional services such as payments or money transfers, so it has yet to reach the market serving typical MFI clients (savings and loans are generally not first products, because clients need to build trust in systems and feel comfortable leaving cash in their e-wallets before taking the next step toward savings and loans). For an MFI, this model should be considered much in the same way that a third-party model could be considered. One of the main advantages of this model is that it can make the most of both the financial services of the financial institution and the agent network of the MNO. **This model seems to be the most adequate for FMCC to adopt in partnership with Beeline¹⁵. However, more analysis and recommendations will be made in the next phase of this assignment.**

5.3. Model Selection Criteria

Independently of the model of choice, Kyrgyzstan must meet certain conditions to introduce mobile financial services. These include supply conditions that need to be fulfilled to get a model running and demand conditions for a model to be accepted and used. In addition, enabling and limiting factors exist that can increase or decrease the probability of success or can even obviate the introduction of the model.

Adequate infrastructure is the first supply condition to introduce mobile financial services. This would include at least a mobile network with a minimum of stability and coverage and a minimum number of active users – **In the Kyrgyz Republic there are three strong and technology advanced mobile network operators (MNOs).** The better the quality of the network in terms of transfer rate and stability, the better the probability of success for mobile financial services, as it can play out its benefits only if it is reachable at a high rate and technical problems might reduce the trust this application requires.

For mobile payments, it is beneficial if the **mobile network operator has many customers – All three MNOs in Kyrgyzstan have a strong customer base.** Mobile payments are only valuable for its users if they are accepted by many people. The more customers there are that use mobile financial services, the higher is the profit for the mobile network operator, as this can spread the fixed costs of establishing the system and the transaction fees are therefore lower. Mobile banking will certainly be better accepted if faster online banking is already common.

Another important supply condition the **existence of minimal financial services infrastructure,** ideally consisting of branches and ATMs/POS, even if it is very limited. **FMCC has a strong branch network in the South (more rural) and is currently expanding to the North (more urban), with a new head office in Bishkek, however in the remote rural areas, an agent network will be suitable to provide digital financial services.**

¹⁵ Beeline, has a strong value proposition in the DFS space and is investing significantly in this space (including creating a specific payment service operator company).



Three conditions exist:

- In the regions where people do not have easy access to financial services, it is unlikely that potential clients will have their first formal contact with financial services through mobile devices. They will likely prefer direct contact with agents, people they know who can explain mobile financial services and be contacted when problems occur. This is especially true for services, such as storing mobile money, for which trust is an important component;
- Physical presence is still necessary for identification purposes to open an account;
- For more complex products such as loans or insurance, banks need information that cannot be delivered through mobile phones, such as an applicant’s risk type. In spite the existence of credit bureaus in Kyrgyzstan, agents might also be able to deliver this information.

To help FMCC define the model of choice, it is necessary to answer questions that deal with five basic issues, these are:

- *Who is legally responsible for the cash/deposit?*
- *Whose brand is most exposed to the public?*
- *Where can cash be accessed?*
- *Who carries the payment instruction?*
- *Who owns the customer?*

Table 8: Mobile Banking Model Options

Models Key Issues	Bank Led	JV (Bank and Telco or Third Party)	Telco led	Third Party Providers
Who holds the deposit	Bank	Bank	Bank	Bank
Whose brand dominates	Bank	Bank and/or Telco	Telco	PSO
Cash-in/Cash-out points	Bank Retail Agents	Bank Retail Agents	Telco Retail Agents	Authorized Retail Agents
Who carries the payment instruction (wallet accounting)	Bank or Telco	Telco	Telco	PSO
Who owns the customer	Bank	Bank/ Telco	Telco	PSO
Examples	Elsom eWallet EasyPaisa Pakistan	MTN and Capitec Bank	M-Pesa Safaricom Kenya	Mobilinik eWallet Wing Cambodia



5.4. MFS Adoption Constraints in Rural Areas

Despite the tremendous opportunities and benefits that Mobile Financial Services can bring to FMCC, there are several constraints need to be managed with no easy solution to overcome, particularly in the rural areas and the segment of customers (low financial literacy) it would be most applicable to. See below four identified constraints and possible solution:

Lack of infrastructure in rural areas creates logistical challenges for agent and cash management.

- ✓ **FMCC can leverage data, partnerships, and liquidity management tactics to address these challenges** e.g. (extend credit electronic float, partner with local infrastructure groups)

Rural customers have specific financial needs, so an effective value proposition must be tailored to meet these needs.

- ✓ **Develop and communicate a compelling value proposition for the rural market segment, FMCC needs to understand the nuances of how rural consumers earn, save, and spend their money.**

Rural customers tend to have lower literacy levels, which means the service will require a suitably user-friendly interface to enable access.

- ✓ **While there are limitations to the flexibility of technology, FMCC should use innovative approaches to simplify the customer interface and overcome the challenge of lower literacy levels** e.g. (e-Wallet or IVR call center). Invest in education campaigns.

Lack of formal identification documents among rural customers will require regulatory solutions that facilitate customer adoption in rural areas.

- ✓ **Tiered KYC procedures can be an effective way of accelerating customer adoption.**

6. SUMMARY AND CONCLUSION

The Kyrgyz Republic has reached a strong position for successful investment in mobile financial services. Although access to formal financial services remaining low, because banking infrastructure is practically non-existent in rural areas, where about two-thirds of the population lives, in recent years, significant improvements have been achieved in the telecommunications sector enabling the introduction of various e-money and m-banking services.

FMCC initiated a partnership with KICB and the Elsom wallet and is progressing with the technology modernization program in preparation for the “microfinance license upgrade”. A public tender for a new centralized core banking system is currently underway.

With current legislation and infrastructure available, in Kyrgyzstan, mobile financial services



can be delivered by a bank-led model, third party model or by a hybrid. Although these three models can offer similar mobile financial services, in practice it has been observed that wide differences emerge in the type of services offered under each them. Since FMCC does not have a bank license, the bank-led model is not applicable, but FMCC should analyse all the facts and selection criteria to secure the most adequate option.

Nevertheless, based on the learnings and data gathered so far, it seems that the best option for FMCC to deliver mobile financials services to its customers, particularly in the rural areas and to women entrepreneurs, is to partner with Beeline adopting the hybrid (joint venture) business model.



ANNEX – LIST OF INTERVIEWEES

The following key stakeholders were visited and interviewed by the Consultant.

FMCC

- Bashkim Rrezja, CFO
- Rishat Muhamedjanov, COO
- Azat Tajiev, DFS
- Asif Lalani, Head of IT & MIS
- Atabek Sulaimanov, Legal Council
- Liliya Isambaeva and Rachael Mather, Research & Product Development
- Zamir Duishoev, SME Manager
- Satyvaldy Omorkulov, Audit Head
- Kubanychbek Bakirov, Branch Manager Karasuu
- Nurgazy Tavalдиеv, Branch Manager Osh
- Adissa Ashiralieva, Risk Management

Third Party Providers

- Timur Asanov, CEO PS “Quickpay”
- Adilet Bootaev, CEO PS “Mobilnik”
- Tair Jooshbaev, CEO PS “Asisnur”
- Alexander Oparienko, Project Director “O!”
- Tilek Maralov and Bahtiar Matianu, “Beeline”