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Digital Payment Systems, Mobile Money Services and Agent Banking:

Bangladesh, Nepal and Sri Lanka

Prepared by
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1 Executive Summary

This report focuses on services that expand access to financial services for un- and underserved populations beyond the bank branch, via agents and mobile phones, in Bangladesh, Nepal and Sri Lanka.

The report provides an overview of the current state of national payments systems, Mobile Money Services and Agent Banking, and regulatory frameworks in these three countries, as well as recommendations for each country on how to further financial inclusion and economic development in the payments domain. Each country chapter commences with an overview and analysis of the national payments ecosystem, followed by a review of the Mobile Money and Agent Banking market conditions, and terminates with a regulatory environment evaluation. The final chapter provides recommendations on legal and policy reform, technology and institutional development, capacity building and other necessary infrastructure improvements to promote and enhance payment systems, Mobile Money Services and Agent Banking.

Bangladesh

Bangladesh has relatively low levels of usage in both payments network and financial services, and could be a good candidate for country-level initiatives to build both, particularly in rural areas. The wholesale layer of services in Bangladesh is fully functional and the country has a full set of operating core services including Switching, Clearing/ Settlement and Payment Service Provider (PSP) Hosting. However, there is an absence of a national Real-Time Payments platform and initiatives to facilitate the implementation of such a platform are recommended. Internet and cloud services required to support next-generation payment services are growing steadily but remain nascent and initiatives to expand them to the point of comprehensive coverage across Bangladesh are recommended. The financial technology ecosystem is small and, with the support of enabling policy and investment, could be nurtured to stimulate development of homegrown Financial Inclusion-focused services.

Bangladesh has a relatively well-developed Mobile Money ecosystem. The un- and under- banked in Bangladesh are served via Mobile Money Services provided by 11 payments service providers. The market is dominated by one player – bKash - that has not had an incentive to seek interoperability. Lack of interoperability and advanced services, beyond over-the-counter (OTC) domestic remittances, are hindering further sector development. Although consumers are aware of the services available, there is lack of compelling use cases beyond money transfer. Widespread illiteracy and inability to use a mobile phone beyond simple calls hinders further adoption.

Our main recommendations for market development are thus (i) developing a shared platform and/ or agent aggregation to help smaller players compete; (ii) decreasing reliance on OTC; (iii) improving consumer education; (iv) developing plans to increase adoption beyond basic services; and (v) introducing more advanced services such as mobile loans.

From a regulatory perspective, Bangladesh has an institutionally-focused regulatory framework for Mobile Money Services[1] where only banks and their subsidiaries may offer such services, and thus it is the most restrictive regime in this report. Bangladesh's success in the roll-out of Mobile Money Services is primarily due to the dominance of bKash, which brings with it its own issues.

In addition to the lack of incentive for non-banks to compete in the market and the market dominance of (and potential abuse by) one entity, the main regulatory challenges include certain weaknesses concerning the safeguarding and isolation of customer funds held by Mobile Financial Service (MFS) providers, the existence of disproportionate regulation concerning bank and MFS agents, a one-size fits all KYC policy for all financial services regardless of the risk profile, the high percentage of OTC that creates Know Your Customer (KYC)/ Anti Money Laundering (AML) issues, the existence of high USSD access prices, a lack of interoperability between Mobile Financial Services (MFS) providers, and weak data protection regulation.

Our main recommendations for regulatory reform are thus (i) revised regulations concerning ownership of MFS subsidiaries of banks to incentivize greater telecom and non-financial sector involvement; (ii) more detailed regulatory guidance for the safeguarding and isolation of customer funds held by MFS providers; (iii) the proportional treatment of bank and MFS agents; (iv) the adoption of tiered KYC for MFS; (v) the utilization of biometric SIM registration for KYC purposes (both to facilitate tiered KYC and to diminish OTC); (vi) the fostering of regulatory cooperation between the Central Bank and the telecom regulator concerning USSD pricing; (vii) the mandating of interoperability of MFSs; (viii) the bolstering of the competition authorities' competence and jurisdiction; and (ix) the introduction of a specific framework for data protection.

Nepal

Nepal is seeing a high level of development activity in payment systems, however, the country faces significant challenges in modernizing them. Low network readiness and Internet penetration among consumers, as well as a shortage of payments and technology expertise, are some of the key factors that are holding the country back in this respect. However, Nepal's steadily growing middle class and falling Smartphone prices may equate to an opportunity for Nepal to "leapfrog" directly to a strong next generation payments ecosystem, given appropriate strategic guidance and financing.

At the wholesale payment systems layer, Nepal has all the necessary services for Switching, Clearing/ Settlement and PSP Hosting except for a Real-Time Payments platform. Initiatives to facilitate implementation of Real-Time Payments in Nepal are recommended. Internet and cloud services, required to support next-generation payment services, are minimal and initiatives to expand them to the point of comprehensive coverage across Nepal are recommended. The financial technology ecosystem is small and needs to be further developed.

[1] Please note that the regulatory framework uses the term Mobile Financial Services, and therefore this term will be used throughout the regulatory section in regards to Bangladesh, in substitution for Mobile Money Services, where appropriate.

Nepal is just beginning to develop its Agent Banking ecosystem. The major banks offer Agent Banking, however, the distribution network is focused in urban areas, and users and volumes are negligible. Reaching remote areas requires large investment because of the country's geography. Banks use Money Transfer Agents for international remittances, but they are not allowed to provide Agent Banking. Regulation was recently revised to allow for non-banks, such as Mobile Network Operators (MNO), to enter the market and the environment is still uncertain.

Our main recommendations for market development are thus (i) monitoring new player market entry; (ii) assisting players with business model development; (iii) reaching remote locations; and (iv) introducing compelling services that can jumpstart adoption.

From a regulatory perspective, since July 2016 Nepal has adopted a functionality-focused framework for all payments services, a radical departure from its previous bank-driven regime. Given the recent character of Nepal's regulatory reform, many areas are still left to be dealt with and/ or clarified, and the jury is still out on how enabling and effective the regime will be.

The main regulatory issues we have been able to identify include the limited scope of the payment service regime, the problematic "fair access" condition imposed on the MNOs, the existence of unclear regulation concerning agents, the lack of provisions relating to the interest earned on the e-float, the absence of clarity on whether the deposit insurance extends to funds held by non-bank payment service providers, the non-existence of interoperability of Mobile Payments, the ambiguity of the implementation of simplified KYC, and the absence of English translation of key legislation in the sector.

Our main recommendations for regulatory reform therefore include: (i) enlarging the scope of the regime, (ii) validating the need for a "fair access" condition being placed on MNOs wishing to become payment services providers through a regulatory inquiry, preferably undertaken by the telecom regulator; (iii) issuing separate agent guidelines, which are proportionate to the risk profile of the services; (iv) clarifying in legislation whether interest can be earned on the e-float and if yes, what is to occur with the interest; (v) rendering the diversification of e-float fund holdings obligatory and undertaking a further study of Nepal's deposit insurance system to understand what the current level of protection is for the e-floats; (vi) communicating "support" to the private sector in reaching bilateral agreements on interoperability; (vii) clarifying in the legislation the simplified KYC procedure; and (viii) investing in the translation into English of key legislative documents.

Sri Lanka

Of the three countries examined in this study, Sri Lanka has the most mature payments ecosystem and is the only country to have implemented Real-Time Payments. Usage of existing digital payment services, however, is low. With a relatively large and growing middle class, and steadily falling Smartphone costs, Sri Lanka can benefit from accelerating the transition to a "next-generation" Internet/ Smartphone-based payment services infrastructure, while continuing to support widely-adopted "last-generation" GSM-based infrastructure in the interim. Internet

and cloud services, requisites to support next-generation payment services, are minimal however and initiatives to expand them to the point of comprehensive coverage across Sri Lanka are recommended. Sri Lanka's financial technology sector is small as well and could be further developed.

Sri Lankans have one of the highest levels of access to financial services in South Asia, but usage of traditional instruments such as cards is limited. Mobile Money Services are widely available with two providers, eZ Cash and mCash. However, usage of the Mobile Money Services and the number of active users are low. The main use case is bill payment carried out over-the-counter. There are still regulatory constraints to offering certain more advanced Mobile Money Services such as mobile loans.

Our main recommendations for market development include: (i) increasing adoption of more traditional instruments such as payment cards and bank accounts; (ii) increasing provider profitability by allowing new services; (iii) growing further distribution networks in rural areas (iv) decreasing usage of OTC, and (v) supporting ecosystem development and industry collaboration.

Of all the countries in our study, Sri Lanka represents the most flexible and progressive established regulatory regime for Mobile Money Services[2], due both to the regulatory framework in place, and the Central Bank's flexible application of the regulations themselves on a bilateral basis. Both banks and non-banks (provided certain custodian accounts are created) are entitled to offer mobile payment services under two separate pieces of legislation introduced in 2011.

Although Sri Lanka's regime is clearly the most "enabling", this also brings its own set of concerns, including the lack of legal certainty and possible uneven playing field created by the flexible, bilateral application of the regulations, issues surrounding the interest earned by e-float funds held on custodian accounts, the lack of interoperability between the main Mobile Payments platform and other providers, and the existence of minimal, piece-meal data protection regulation.

Therefore, our main recommendations for regulatory reform include: (i) introducing proportional KYC and the authorisation of SIM registration for KYC for all institutions offering mobile payment services; (ii) creating a transparent framework for the authorization of services outside the scope of the current regime, or possibly implementing a "regulatory sandbox"; (iii) consolidating the current legislation on Mobile Payments; (iv) clarifying in the legislation of what is to occur to the interest earned on funds held in e-floats, with the possibility of allowing such interest to be passed-on to the customers; (v) mandating the interoperability of mobile payment service; and (vi) introducing an overreaching data protection law.

[2] Please note that the regulatory framework is limited to mobile payment services, and therefore this term will be used throughout the regulatory section in regards to Sri Lanka, in substitution for Mobile Money Services, where appropriate.

2 Introduction

2.1 Project Background

The Asian Development Bank (ADB) Forum on Promoting Remittances for Development Finance identified areas for potential ADB operations in Remittances:

- Payment systems and e-banking service development
- Diaspora bond for infrastructure and social sector investments
- Remittance future flow securitization

South Asia Public Management (SAPF) believes that payment systems and e-banking have the potential to develop into investment projects for the ADB. Developing Member Countries have articulated that further study on the subject would be useful.

2.2 Objectives

The objective of this study is to identify areas for legal and policy reform, technology and institution development, capacity building and other necessary infrastructure improvements to promote and enhance payment systems, digital finance, and E-Money services in Bangladesh, Nepal and Sri Lanka.

2.3 Scope of Study

Digital payments and broader digital financial services are part of an evolving and complex domain that does not always have clearly delineated boundaries and sometimes lacks universally accepted terminology and definitions**.**

This report focuses on the supply side of services that expand access to finance beyond the bank branch via agents and mobile phone devices for un- and underserved populations. In this report these services are defined as Mobile Money Services and Agent Banking. It should be noted, however, that the regulators in each of the countries subject to this report use different terminology and definitions for these services, and the relevant country-specific terminology used in those markets' regulations will be used in the regulatory sections.

2.3.1 Payment Systems

The payment systems section of the study examines each of the three countries' domestic payment services infrastructure against a payments infrastructure reference model that has been defined for this report in Section 3.1, being:

- Last-mile/ end user services (those enabling Payers and Payees to send and receive payment);
- Wholesale payment services (those serving the back-office function of the last-mile services);

- Foundational infrastructure (those not providing payment services directly, but providing critical technology and services support to payment systems).

In addition to profiling the players, their services, differentiators and key partnerships, observations of current trends and issues are provided for the payment systems of each country, as well as recommendations for further sector development.

Excluded from the study as out of scope are services related to the following payment types:

- Corporate (B2B) payments
- Paper based payments
- Large value payments and/ or systemically important payment systems
- Financial services beyond payments (money lending and insurance, for example)
- Commerce, beyond its payments component (retailing, for example)
- Payment services relying on Generation 3 (Internet of Things) infrastructure, which are today largely experimental in nature—for example, voice recognition technology used to initiate transactions, embedded payment functionality in household electronic devices, etc.

2.3.2 Mobile Money Services and Agent Banking

The Mobile Money and Agent Banking sections of the report consider the market dynamics for the selected countries, such as commercial model considerations, illustrative distribution networks, User Experience trends, available services and the relative performance of major players in this space. These are distilled into current trends and market-specific requirements for consideration in assessing potential opportunities and recommendations for further sector development.

Excluded from the study as out of scope are a sub-set of Branchless Banking services such as traditional banking on a mobile (e.g., a bank app on a smartphone), Internet banking, and Automated Teller Machines (ATM). The study only includes Mobile Money Services and Agent Banking. Agent Banking is the provision of banking and financial services via Agents and does not have to use Mobile Money.

2.3.3 Regulatory

The regulatory section of the study examines the regulatory framework for each of the three countries in regard to Mobile Money Services and Agent Banking, with particular emphasis on the following regulations:

- Financial services regulation
    - Regulatory framework
    - Capital requirements
    - Safeguarding of funds
- AML/ Counter Terrorist Financing (CTF)/ KYC
- Agents
- Interoperability
- Telecom regulation

- Foreign exchange/ money transfer
- Competition
- Data protection
- Consumer protection
- IT Security

In addition, G2P policies and legislative reform are discussed. Lastly, there is a comparison between the current legislative framework and international regulatory best practices, to determine how enabling the regimes are for Financial Inclusion and to provide recommendations on how to render the regimes more enabling.

Excluded from the study as out of scope are the following types of regulation:

- Payment infrastructure
- Taxation
- Public procurement
- Immigration
- Corporation/ company law
- Foreign investment
- Export controls

In each country, the focus is on the regulation of financial services that are most closely aligned with the goal of Financial Inclusion and which most closely match our definitions of Mobile Money Services and Agent Banking. As the regulatory scope of each country is different, it should be noted that in Bangladesh the focus is on Mobile Financial Services, in Nepal on Branchless Banking, mobile banking and payment services, and in Sri Lanka on Mobile Payments, as defined in the respective legislation.

2.4 Sources Consulted

A literature review and stakeholder interviews were carried out in order to identify players and issues in each market. For the regulatory assessment, a template was created to facilitate consistency of data collection across the markets for those types of legislation identified in the scope of work. Sources included primary legislation and secondary studies by organizations such as the World Bank, UNCDF, GSMA and CGAP as well as company websites and news articles. Interviews were conducted with stakeholders from the national regulators, Mobile Money and Agent Banking providers, technology vendors, MNOs, banks, and other ecosystem players.

The study describes the characteristics in each market, then evaluates them based on best practices, in order to provide recommendations for further development to put each market on the road to achieving a robust Payments, Mobile Money Services and Agent Banking ecosystem.

Nota Bene: Legislation and literature available in English on the Internet or provided by the regulatory officials was reviewed. This did not create any issues for Bangladesh or Sri Lanka. In regard to Nepal, it was not possible to locate official or even unofficial translations of several key texts, and therefore it was necessary to

rely on secondary literature and information provided during interviews. English translation of the following Nepalese legislation could not be obtained:

- Unified Directive 2072
- Money Transfer Operators Guidelines
- Microfinance Policy 2014
- Licensing Policy for Payment Related Institutions/ Mechanisms 2073
- Remittance Bylaws
- Directive to Microfinance
- Foreign Exchange (Regulation) Act, 2019 (1962)

3 Background and Context

3.1 Composition of National Payments Ecosystems

This section describes the common reference model used in this report to analyze and describe the domestic payments ecosystems of Bangladesh (Section 4.1), Nepal (Section 5.1) and Sri Lanka (Section 6.1). The model is also referred to in the general recommendations on payment systems (Section 7.1). It is suggested for readers to familiarize themselves with this model prior to reading these sections.

With multiple supply chains and component technology stacks, payments ecosystems are inherently complex. In describing and comparing these ecosystems across jurisdictions, it is therefore useful to deconstruct them into their key elements. In this report we use the following three-layered model to describe and compare payment systems in the three countries under review.

3.1.1 Layer 1: Last Mile Payment Services

Transaction services provided directly to Payers and Payees who comprise the payment system's end-users, or "last mile". Examples of entities operating in this layer include:[i]

- Consumer PSPs providing digital Wallets and facilitating Person-to-Person (P2P), Government-to-Person (G2P), Person-to-Government (P2G) and Consumer-to-Business (C2B) payments;
- Retail banks providing any of the following services to consumers: (a) Bank Account; (b) branchless or remote (mobile, desktop, Call Center, or other non face-to-face Channel) banking; (c) physical or virtual Payment Card issuance (credit, debit, prepaid);[3]
- Agents providing Cash-In/ Cash-Out services to consumers.
- Merchants (which range from retail stores to billing institutions and government agencies) accepting mobile Wallets, Payment Cards, and other digital payment methods for products and services; and
- Commercial banks, Payment Gateways and money transfer companies providing transaction acquiring or cash in/ cash out services to Agents or Merchants.

The analysis of Layer 1 focuses mainly on Consumer PSPs. Some PSPs provide Mobile Money Services and these are reviewed in depth in the Mobile Money Services and Agent Banking sections of the report.

3.1.2 Layer 2: Wholesale Payment Services

This is a Business-to-Business (B2B) services layer that includes switching, Clearing, Settlement, and Hosting services provided to banks. This layer forms the core of a country's payments infrastructure, performing the critical functions of

[3] Not included in the report. However, the information is included here for purposes of describing the next generation of payment systems.

routing and settling transactions between different financial institutions for various payment instruments such as Electronic Funds Transfers (EFT), ATM cards and Payment Cards. Interfaces between the national services and international ones such as SWIFT and the global Card Schemes also operate within this layer.

A newer form of Layer 2 service is multi-bank hosting, where a single service provider provides a cloud-based technology infrastructure for several banks to offer market-facing products such as Mobile Money Services or Branchless Banking to their own customers. It is noteworthy that there is not a great deal of variation across different countries in Layer 2 technology platforms and transaction-related business processes (the latter of which are dictated by the former to a large degree). This is due to the relatively small number of vendors worldwide that service this industry sector, the high cost and complexity of operating their products (e.g. payment switching platforms) and a certain degree of global standardization in the industry (e.g. in the format of payment messages, which adhere to global standards such as ISO 8583 and ISO 20022).

Note that this standardization provides national Interoperability at Layer 2. When the issue of non-Interoperability is raised in the context of Mobile Money Services, this is referring to the Interoperability of consumer-facing Layer 1 service providers—not of banks, which are Interoperable if they have joined the applicable national Clearing House or Switch.

Layer 2 service providers are usually either operated directly by the country's Central Bank (as is the case in Bangladesh), or by private companies under contract to the Central Bank (as is the case in Nepal). In either event, these service providers are under close supervision of the Central Bank in their roles as part of the national critical financial infrastructure.

Examples of entities operating in this layer include:

- Clearing Houses;
- Domestic Payment Card and ATM Switches;
- Multi-bank platform Hosting services; and
- Connections to international payment networks such as the Card Schemes.

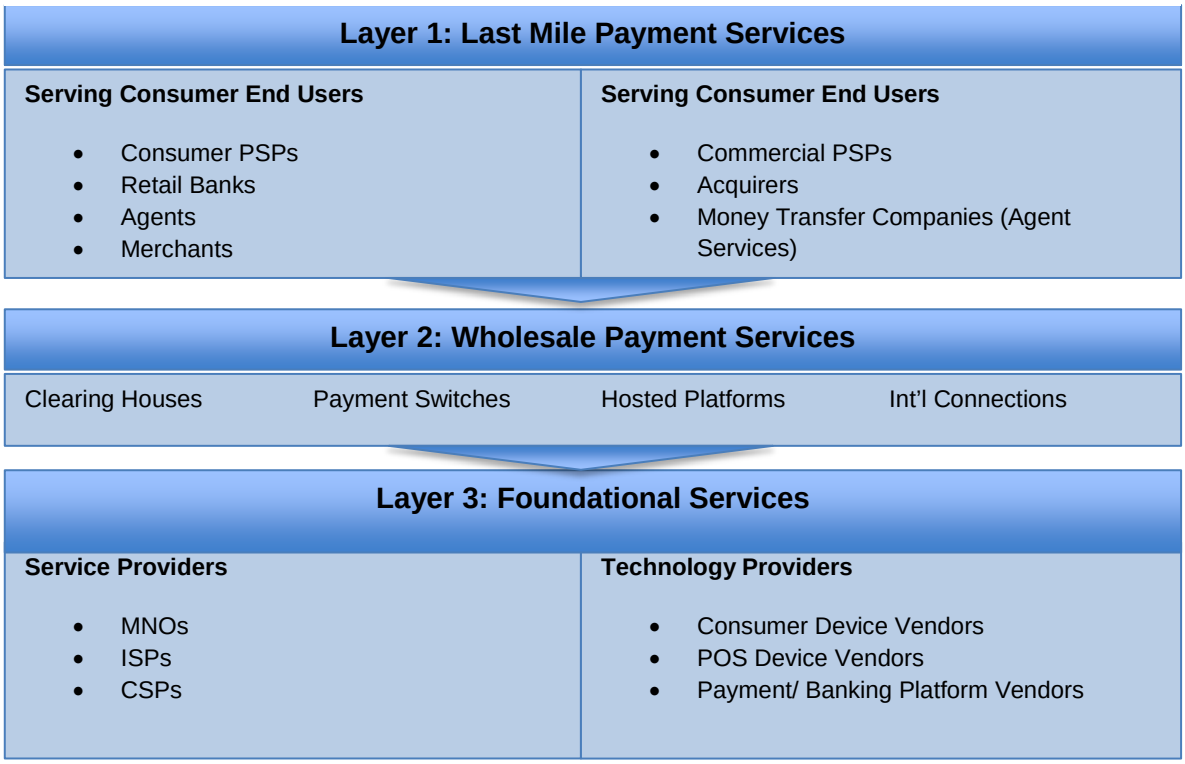
3.1.3 Layer 3: Foundational Services

This is a foundational infrastructure layer of enabling technology products and services provided to both Layer 1 and Layer 2 organizations. Examples of entities operating in this layer include:

- Telecommunications providers—notably including their MNO components;
- ISPs;
- CSPs (Hosting or Co-location centers);
- Payment and banking platform vendors; and
- Consumer device (phone, tablet, etc.) and Point of Sale (POS) Mobile Network Operators device manufacturers.

The three layers are depicted graphically in Figure 1.

Figure 1: Abstraction of Payment Systems Infrastructure



3.1.4 Abstraction of Payment Systems Infrastructure

A fully functional, robust, and trusted digital payments ecosystem in any country requires all three of these layers—as they exist within the context of the country's national boundaries and regulatory framework—to be fully functional, robust, and trusted.

Note that in this model, which is referred to extensively throughout this report:

- The higher layers are dependent on all of the layers below them in order to function (that is, Layer 1 is dependent on Layer 2 and Layer 3, and Layer 2 is dependent on Layer 3).
- Some entities may operate in multiple layers. For example, an MNO may also be a PSP, as we will see in the report.
- The following are considered for each layer:
    - Payment processing entities or technology suppliers operating within the country's banking, telecommunications, and commercial regulatory frameworks;
    - The contracts and operating rules that these organizations have in place to facilitate payments; and
    - The business processes and supporting technology platforms that these organizations have in place to facilitate payments.

3.1.5 Implications for Mobile Money Services and Agent Banking

The payments industry has long been highly technology-driven, and the ongoing evolution of ever-more sophisticated digital payment services that has been under

way globally since the mid-20th century has closely tracked the general evolution of information and communications technology. Each major wave of ICT innovation tends to be associated with significant advances in payment services. For example, the advent of personal computers and modems in the 1980s led to PC-initiated payments; the opening up of the Internet for commerce in the 1990s led to online payments; and the mobile revolution in the 2000s led to Mobile Payments.

In 2016, this parallel evolution is set to continue—and at an accelerating pace—into the foreseeable future. Today we are witnessing more technological change in the global payments industry than ever before, and this is taking place in all segments of the payments technology environment. Some of the more influential emerging technologies that are transforming the way payments are transacted and processed include:

- At Layer 1, consumer Smart Devices such as Smartphones, Tablets and Wearables, on-device technologies such as biometric readers, cameras, GPS receivers and sensors, and application-based service models such as the Sharing Economy, Social Media, Smart Assistant and geofencing models. Also, on the merchant side, POS technologies such as Beacons, NFC, HCE, MST, QR codes and Barcodes.
- At Layer 2, enterprise technologies have emerged such as Cloud Computing and behavioural analytics, along with security technologies such as blockchain and tokenization.
- At Layer 3, we see networking technologies such as LTE, 5G, WiFi, BLE and others.

Individually, the introduction of any one of these technologies could have a major effect on payment processing. Collectively—catalyzed by the worldwide emergence of innovation-focused movements such as Fintech, the Sharing Economy and Financial Inclusion—they are driving a wave of change in the way people pay that may be more profound than that which resulted from both the Internet and mobile revolutions.

Historically, the innovation of new payment (and supporting) technologies has been centered in a handful of developed countries. In the past decade, however, this activity has become more globalized as a result of falling technology development costs and the fast spread of know-how facilitated by Internet access. We see evidence of this in the recent proliferation of Fintech start-ups, companies that provide technological innovation in the financial services sector, all over the world, including in those less-developed countries which are targeted by the Financial Inclusion movement—and not least of all the countries which are the subject of this study. bKash in Bangladesh and F1Soft in Nepal are two strong examples.

Cheaper technology has, of course, filtered through to consumers as well. Nowhere is this better exemplified than in Mobile Devices. According to one estimate, the average global price of an Android Smartphone fell by over 48 percent from USD 403 in 2008 to USD 208 in 2016.[4] Low-end Android devices are now commonly

[4] KPCB/ Morgan Stanley Research. 2016.

available in India for as little as USD 15[5], with one model announced in July 2016 (albeit controversially with respect to the price), for USD 4.[6] At these price points, feature phones are no longer the clear purchasing choice that they were a few years ago, even for those at the bottom rungs of the income scale.

This trend (and the common desire of consumers everywhere to upgrade their Mobile Devices) meets another one—the steady erosion of poverty and growing middle class in the developing world—to directly impact one of the basic pillars of Financial Inclusion-driven Mobile Financial Services. That is the employment by PSPs of ubiquitous, low-cost and "low fidelity" delivery technologies such as USSD and SMS—which as a common feature of every GSM system, work on all connected mobile phones regardless of their selling price, thus enabling network access to all but the very poorest users, as long as they had a connected phone.

This premise remains valid today, but only for a limited time to come. The transition to the next generation of digital payments technology is under way in Bangladesh, Nepal and Sri Lanka, just as it is globally. The next generation is built on Smartphones at the consumer end, and new platform architectures on the service provider side which leverage cloud computing, advanced data analytics and open-source software. These platforms will be able to clear payments in real-time and will give PSPs the ability to very rapidly test and deploy new financial products at low cost and risk. Indeed, there is a generation beyond this one that is emerging, based on the Internet of Things (IoT).[7]

Efforts to develop the payments infrastructure in any of our markets should begin in the context of this fast-evolving technological landscape. Otherwise there is a real risk of promoting technologies and processes that may become somewhat obsolete in the foreseeable future or nearly so, and thus making a decreasing contribution to Financial Inclusion goals (as well as the other myriad benefits of a well-functioning digital economy).

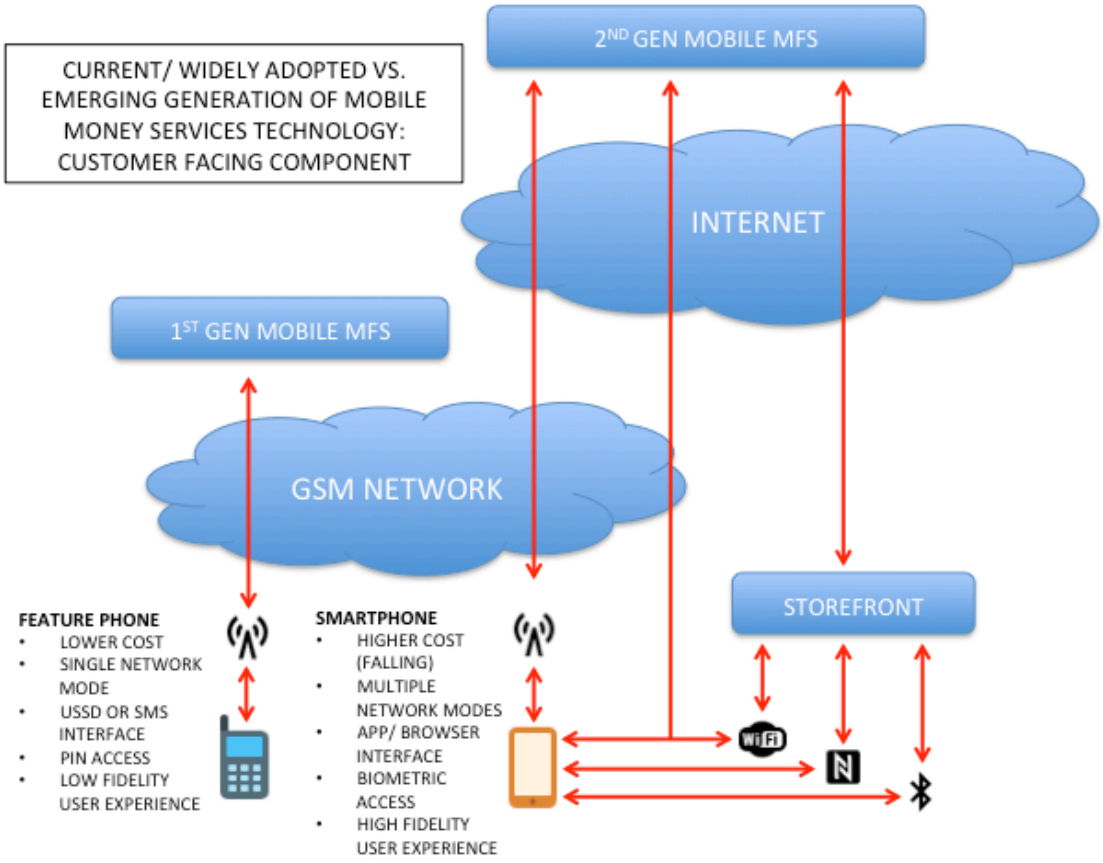
Figure 2 presents a simplified view, for the purposes of this report, of the present (representing greater adoption) and emerging technology environments supporting the provision of Mobile Money Services in Bangladesh, Nepal and Sri Lanka as well as virtually all other less developed economies. These are labeled Generation 1 and Generation 2 respectively. These technology generation labels are referred to extensively throughout this report.

[5] Jaideep Mehta, Managing Director South Asia, IDC. 2016. *Smartphones: 6 Key Industry Trends in 2016*

[6] BBC News. *'Cheapest ' Freedom 251 Ready to Deliver*. www.bbc.com/news/technology-36738602

[7] As it is still in a nascent stage, not yet well defined and evolving quickly, discussion of this "Generation 3" infrastructure is out of scope for the current report.

Figure 2: Current vs. Emerging Mobile Money Services



3.1.6 A Modern Payment System

We can perhaps best understand a modern national payment system's key characteristics—with respect not only to the three countries under study but most others as well—by looking to those countries which, today, lead the global field in their evolution to a domestic Generation 2 payments ecosystem—for example, Singapore and the United Kingdom.

Other than at Layer 1, where culture and economics play a crucial role in how payment systems develop, countries need not be directly comparable on an economic development level. That is because at Layers 2 and 3, the core technology (for example, a payment Switch or a nationally-deployed GSM platform) is highly capital-intensive, complex to implement, and is provided to a small number of enterprise customers (such as telcos and banks) by a small number of vendors globally.[8] The Layer 2 and Layer 3 infrastructure in a country like Australia, for example, will not differ widely from that in, say, Thailand.

An analysis, then, of the common characteristics of payment systems that have been built (or are being built) by the leading nations in the field yields the following

[8] For example, the vast majority of the world's telecommunications equipment is provided by Alcatel-Lucent, Ericsson, Huawei, Samsung, Juniper Networks, NEC, Nokia Networks, Ciena, ZTE and Emerson Network Power (Source: wikipedia.org/wiki/Network_equipment_provider).

common, high-level requirements for a modern payment system. A supporting technology infrastructure at or near Generation 2 is implied:[9]

- Speed—Payments are settled from end to end (that is, between Payer and Payee) in Real Time or near-Real Time.
- Flexibility—The system supports a wide variety of Layer 1 Form Factors, use cases and partner connections without excessive customization, including the addition of new Form Factors, use cases and partner connections so that innovation is optimally enabled.[10]
- Enhanced data—Payment messages contain a higher level of detail than previous generation systems, enabling more advanced analytical processes and resulting in improved risk and exception management.
- Trust—"Industrial strength" security and risk management are incorporated into all technology and business processes that involve payment transactions.
- Standardization—The key standard here is ISO 20022, which is becoming the global payments messaging standard, and which supports global Interoperability.
- Access by non-traditional players—While non-bank access to payment systems is more of a regulatory issue than a technical one, it is included here for the sake of completeness.

These may be thought of as core requirements for entering into any Layer 2 or Layer 3 infrastructure development initiative today, anywhere in the world. Note that the legacy Generation 1 systems at Layers 2 and 3 may meet a few of these criteria, but rarely, if ever, meet all of them. Of course, the benefit of Generation 1 systems is that it has tended to provide more affordable access to lower-income users.

Potential benefits of payment systems modernization include:

To service providers at Layer 2:

- Operational savings as a result of faster and more efficient transaction processing and, over time, less use of physical cash.
- Lower incidence of fraud and compliance violations, along with their associated costs.
- Reduced friction in key business processes such as customer onboarding and transaction processing, as well as overall product development and innovation.
- Greater ease of technology integration among ecosystem partners.
- Improved management of overall working capital.

And to end-users at Layer 1:

- Improved consumer access to products and services.

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[9] For example: Canadian Payments Association. April 2016. *Developing a Vision for the Canadian Payment Ecosystem* (draft for consultation); and SWIFT Institute. 2014. *Near Real-Time Retail Payment and Settlement Systems Mechanism Design (Working Paper No 2014-004)*.

[10] For example, non-bank entities that are increasingly entering the payment services market.

- Improved liquidity for both small businesses and consumers (especially significant at lower revenue/ income levels where access to credit may be restricted or even unavailable).

Finally, at the national macroeconomic level:

- Improved international competitiveness resulting from reduced friction in physical and financial supply chains.

3.1.7 Payment Systems Trends and Issues in the Three Countries

The following observations apply severally to Bangladesh, Nepal and Sri Lanka. We have also identified certain trends and issues that apply individually to all three countries in the study. These are outlined in Section 4.1.2(for Bangladesh), Section 5.1.2(for Nepal) and Section 6.1.2(for Sri Lanka).

3.1.7.1 Lack of primary research

There is a dearth of available information about consumer needs and attitudes around payment services in Bangladesh, Nepal and Sri Lanka, and an understanding of this beyond what is available anecdotally would be a key first step to developing more detailed national strategies for modernizing the countries' payment systems, and particularly to provide insights on how best to encourage consumer usage of digital payments (beyond just access) at Layer 1. While this analysis is an important first step, well-designed quantitative and qualitative surveys of the general population would provide an opportunity to assess requirements on a segmented and end-user centric basis.

3.1.7.2 The rise of Smartphones

Smartphone ownership is highly prized among consumers throughout Asia, and widely seen as a status symbol. The devices are very price sensitive and as they are widely available for purchase, price is the main factor that stops people from acquiring them. While the price of the most globally popular Smartphones is still beyond the reach of most citizens of Bangladesh, Sri Lanka and Nepal (somewhat less so for Sri Lanka), units being marketed at the lower end of the price spectrum are increasingly affordable.

This trend will continue and as it gains momentum, we can expect an ownership (and hence usage) shift to Smartphones at the expense of feature phones over the next several years, until feature phones become much less common. Note that while the cost of accompanying data plans significantly affects Smartphone affordability along with physical unit costs, the wholesale cost of providing data services is falling steadily as well—according to Deloitte it dropped by 98.4 percent globally between 1999 and 2012.[11] The extent to which end-user pricing reflects this falling cost on a country basis is both the result of business decisions by MNOs, as well as the state of broadband infrastructure in a given market. But data is becoming increasingly affordable to wider set of segments in general, and "financially inclusive" data plans certainly appear to be increasingly available for many in our target countries.

[11] Deloitte. 2013. From Exponential Technologies to Exponential Innovation.

3.1.7.3 Social Media giants entering the payments arena

The near-universal embracing of Social Media by Smartphone users everywhere is not lost on the world's leading Social Media platforms (Facebook, WeChat and the like), all of which in the past 2-3 years have launched—or are planning to launch—payment services for users which include support for P2P transactions. While generally not available yet outside of the world's most developed countries (the services tend to be launched in these markets and the largest outbound Remittance corridors first), barring regulatory disapproval they can be expected to reach the three countries in the next few years. These players may then potentially become either Layer 2 suppliers to the home-grown PSPs at Layer 1—or their competitors.

3.1.7.4 Continued focus on Generation 1 infrastructure development

To date, investment in Mobile Money Services and Agent Banking from the perspective of Financial Inclusion in less-developed countries has focused heavily on Generation 1 based services—that is, those reliant on USSD and/ or SMS messaging, which are native features of all GSM systems and therefore available on all GSM handsets. The rationale for this approach is the low cost and simplicity that makes them accessible to the very poor.

This was a sound strategy a decade ago when the Mobile Money Services and Agent Banking movement began to gain steam, as mass adoption of modern Smartphones was really only just beginning to gain momentum. Even as these devices became ever more popular with the launch of Apple's iPhone in 2008, Smartphones were seen more as a luxury good with limited relevance to developing markets outside of perhaps wealthy business districts. It was not clear at the time that this product category would be successful across such a wide range of socio-economic groups—let alone become a dominant means for consumers around the world to access the Internet. And payment services are similarly evolving along these lines to a Generation 2 paradigm.

With the increasing accessibility of Smartphones to even the poor populations of South Asia (Internet and telecommunications support notwithstanding), the region's unbanked and underbanked populations will be best served by ecosystem players that build for the future as soon as practicable. This means investing in Generation 2, while simultaneously continuing to support existing Generation 1 services over the remaining period during which they are still relied upon by a sub-set of the target populations.

3.1.7.5 Lack of Interoperability holds back development

Universal transaction interoperability (the ability for the customer of one PSP to pay the customer of any another existing PSP) does not presently exist in any of the countries covered in this study. While not a critical success factor for new products in new markets (as has been the case with Mobile Money Services all over the world in the past decade), Interoperability gains in importance as the market begins to mature—as consumer uptake grows and a competitive ecosystem develops—to the point where its absence becomes a significant constraining factor in achieving ubiquity for Mobile Money Services, as customers can only transact within their provider's network and not countrywide (let alone internationally).

3.1.7.6 Lack of expertise is a significant hurdle

A national shortage of required expertise in the business and technology of payments is in evidence, especially those that support Generation 2 payment systems. Examples of emerging key skill sets that are in short supply (not an exhaustive list) include digital product development, UX design, cyber security and data science.

3.2 Mobile Money Services and Agent Banking

The section provides broader sector context for analytical focus areas in assessing the selected markets. Mobile Money Services and Agent Banking are part of Layer 1 of a national payment system and this report focuses on those as they have proven to be effective tools for increasing Financial Inclusion in markets across the world.

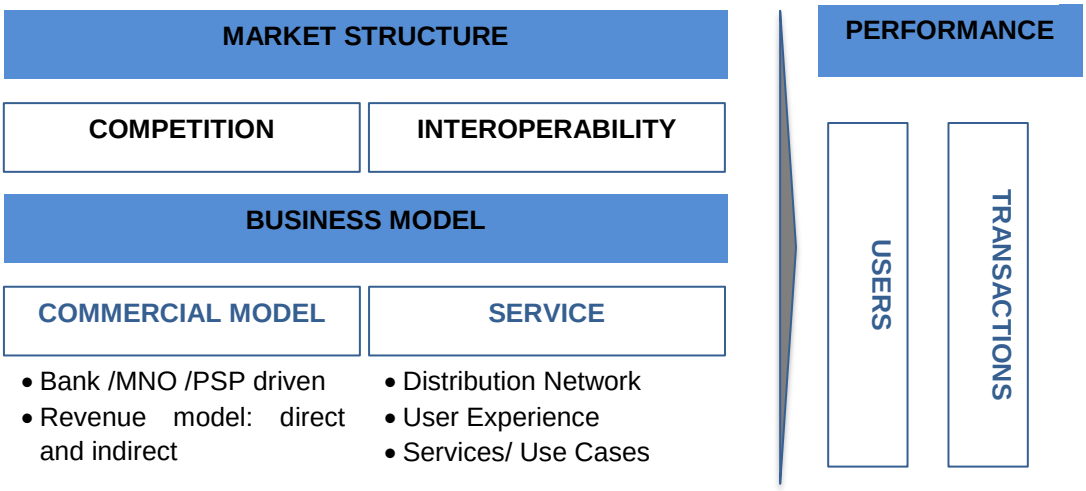
Financial services, especially for individuals at the bottom of the income pyramid or at locations where there is no brick-and-mortar infrastructure, can be delivered via Mobile Money Services and/ or Agent Banking. Mobile Money Services and Agent Banking offer complementary or parallel Channels to traditional banking in many emerging markets and have opened new, previously non-addressable customer segments.

Providers have seen varying levels of success around the globe. Local requirements can vary, and successful models are not always directly transferable across markets. Over the past 15 years, since the launch of the first Mobile Money Service in the Philippines in 2001, some best practices have been observed on a more universal basis, such as for building, managing and incentivizing Agent networks, driving customer usage, building effective partnerships, issuing regulatory practices and other topics. It should, however, be noted that the challenges of localization should never be underappreciated.

3.2.1 Main Evaluation Areas

This report analyzes the market structures and the business model of Mobile Money Services and Agent Banking in order to evaluate the supply side of the ecosystem. In the case of market structure, the number and type of players and service Interoperability are reviewed. The business model analysis includes a review of the commercial model, as well as the service characteristics such as distribution network, User Experience and the services available in the market. Business performance is measured by the number of active users and monthly transactions. The areas are depicted graphically in Figure 3.

Figure 3: Country Evaluation



3.2.2 Market Structure

The ideal Mobile Money Services and Agent Banking market structure in the long run is expected to be a competitive, interoperable ecosystem that results in deep Financial Inclusion and decreased use of physical cash. A good example of the benefits of Interoperability is the Payment Cards business where cards issued by global Card Schemes such as Visa and MasterCard are interoperable across not only merchants and Agents (ATMs) but also international borders.

Some argue that Interoperability could impede market development in its early stage as it may prevent players in establishing their business and earning a return on their investment. Case in point, some of the most successful Mobile Money Service providers are market leaders, such as M-Pesa or bKash. However, while having a leading market share could be an advantage to reach scale quickly, in the long term it is expected that competition and Interoperability would keep service levels higher and prices more competitive. Dominant players may also refuse to supply interconnectivity, which delivers a better experience and products for the end user as well as a larger addressable market for providers.

The market is still nascent and the exact effects of Interoperability are not yet clear as real-world examples are still relatively new or have limited scale. There are only seven markets in the world that have interoperable Mobile Money Services, namely Indonesia, Madagascar, Pakistan, Rwanda, Sri Lanka, Tanzania, and Thailand[12] but even here, Interoperability is not always in place across all levels of the services.

Bangladesh has a relatively large number of players though that lack Interoperability, which could potentially play a role in hindering adoption of Mobile Money Services. However, as bKash currently dominates the market, the benefits from interoperability may be something that is realized over the medium-term as the ecosystem evolves rather than more immediately. Nepal has few services currently with significant sale, and potentially provides an opportunity to consider whether and how interoperability could be built into the system from the beginning. While in Sri Lanka, with two main platforms, eZ Cash and mCash, there is Interoperability where one MNO provides its

[12] GSMA. 2016. *State of the Industry, Mobile Money 2015*

Wallets to two other operators within a platform, but there is no inter-wallet Interoperability.

3.2.3 Business Model

3.2.3.1 Commercial Model

Mobile Money and Agent Banking business models differ and are not easily replicable across markets. A business model has many components and this report focuses on the commercial model and service characteristics, such as distribution network, User Experience and services.

Models can differ depending on the main entity type that is providing the service, which can be banks, MNOs, or dedicated PSPs. The types of organizations that can provide these services within a given country are usually determined by regulation.

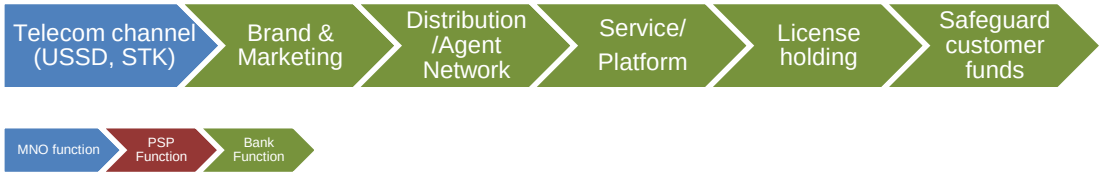
Figure 4 depicts the three commercial models and where the responsibilities of each player usually lie. In the MNO driven model, the operators are often in control of most functions except for license holding and fund safeguarding, while in the bank driven model the bank has to work with the MNO for the provision of telecommunication services. However, often many of the functions can be subcontracted, such as the management of an Agent network. The PSP driven model usually requires the largest number of partnerships and service providers, as they may not be able to hold customer funds nor provide their own telephony services.

Figure 4: Sample Commercial Models

1. MNO Driven: MNO assumes most of the functions of the value chain

2. PSP Driven: Dedicated company manages core offerings

3. Bank Driven: Bank assumes most of the functions of the value chain



Sources: GSMA. 2016. Mobile Financial Services in Latin America & The Caribbean. Mondato Research and Analysis

Bangladesh, although bank-led from a regulatory perspective, has a PSP driven commercial model, where the provider has to pay telecommunication and other fees,

leading to relatively high service prices. Nepal's commercial model will most likely become MNO-driven, as MNOs can, since July 2016, secure a license. And Sri Lanka has an MNO driven commercial model despite having originally been bank-driven due to regulation, after which the Central Bank revised its policies given low adoption rates initially.

3.2.3.2 Service Characteristics

3.2.3.2.1 Distribution Network

Having an extensive, active, well-supported, liquid and educated Agent network provides the backbone for Mobile Money Services and Agent Banking. Usually, providers rely on Agents to on-board users and to provide CICO services, customer service and to carry out transactions in the case of Over-the-Counter (OTC) Mobile Money transactions, which are most widespread in Asia. In the case of Agent Banking, the agent carries out all the transactions on behalf of the customer. In the case of Mobile Money Services where the user can use their own mobile phone and wallet to carry out their transactions but choses to give the Agent cash and have the Agent carry out the transaction is considered OTC.

Agents are expensive, however, as 54 percent of the top 10 Mobile Money Service providers' revenues go to Agent commissions. Having active Agents is yet another hurdle for providers as, on average, only 51 percent of Mobile Money Agents globally are active. [13] Mobile Money Services can use electronic distribution Channels such as ATMs, but these may carry their own fees as well as potential need for user education.

Bangladesh and Sri Lanka have extensive Agent networks and the service providers are reliant on the Agents to perform transactions on behalf of the customer, accounting for a large part of the companies' expenses. This model is less profitable and not desirable for the long term, and players are looking to move away from it. Nepal does not have a well-developed distribution network due to the country's geography and the associated cost of reaching remote areas. However, with the updated regulation allowing an MNO to become a PSP this may change.

3.2.3.2.2 User Experience

User Experience impacts uptake and continued use of Mobile Money Services and Agent Banking. In Mobile Money experiences related to the User Interfaces, fees and consistency of the service were found to have the highest impact, and are discussed in the paragraphs below.[14] In Agent Banking the User Experience is a result of the quality and consistency of the service provided by the Agent, as this is the main customer touch point.

Users can access Mobile Money via various channels including SMS, USSD, and Apps. The most common channel at the moment is USSD. However, USSD can be problematic as some of the services for feature phones based on USSD require multiple steps (five to six) and need to be completed during a limited time session,

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[13] GSMA. 2016.*State of the Industry, Mobile Money 2015.*
[14] CGAP. 2015. *Doing Digital Finance Right: The Case for Stronger Mitigation of Customer Risks.*

which can be confusing even for the most literate individuals. Complex and confusing menus, sometimes in English or formal style of the local language, can make it very difficult for users, especially the poor, illiterate or those lacking confidence in their ability to use technology, to take up the service. Many users struggle to memorise PINs, especially first time users of PINs or passwords. Mobile Apps, Smartphones, and Biometric Authentication alleviate these issues.

Unclear fee structures with hidden fees are also an issue, for both Agents and users. Lack of transparency can make users uncomfortable about using the service and also creates more risks, such as Agent misconduct and price fraud. Agents sometimes do not know the fees they receive for each type of transaction and find it difficult to manage their business.

Additionally, in markets dominated by OTC transactions, such as Bangladesh and Sri Lanka, Agents often times charge their own fees to carry out a transaction, on top of the service fees, even if this is prohibited by legislation. User Experience (UX) issues especially related to the customer journey, and User Interface are some of the reasons for the popularity of OTC transactions.[15] This includes not having to worry about systems that are difficult to operate, remembering PINs, or sessions expiring.

Inconsistent levels of service negatively impact adoption even if the rest of the User Experience is relatively good. System downtime or latency, and insufficient Agent liquidity, can reduce the volume of transactions taking place. When users repeatedly face such issues they become increasingly less likely to continue using the service in the future.

As related to UX in the three counties subject of this study, Mobile Money User Experience in Bangladesh is not fit for the target customer base, resulting in high usage levels of OTC services. In the case of Sri Lanka, Mobile Money users do not experience major issues, however, they still prefer OTC. There are no issues in Nepal for the moment as there are few services and Agent Banking is carried out by an Agent.

3.2.3.2.3 Services

A greater offering of use cases that address real pain points can help Mobile Money Services to witness increasing usage and transaction volumes. To date, despite the large strides being made by the industry, adoption is still relatively limited to a few use cases, namely P2P transfers, utility bill payments, and airtime top-ups.

Nonetheless, Mobile Money Services and Agent Banking have great potential well beyond these existing and proven use cases and services. In certain markets, M-insurance, M-lending, M-savings and other services have emerged and have the potential to form part of the larger ecosystem that increases Financial Inclusion and contributes towards economic development.

A well-developed ecosystem can drive healthy Mobile Money margins, which can be achieved by expanding the services and use cases so that users keep funds

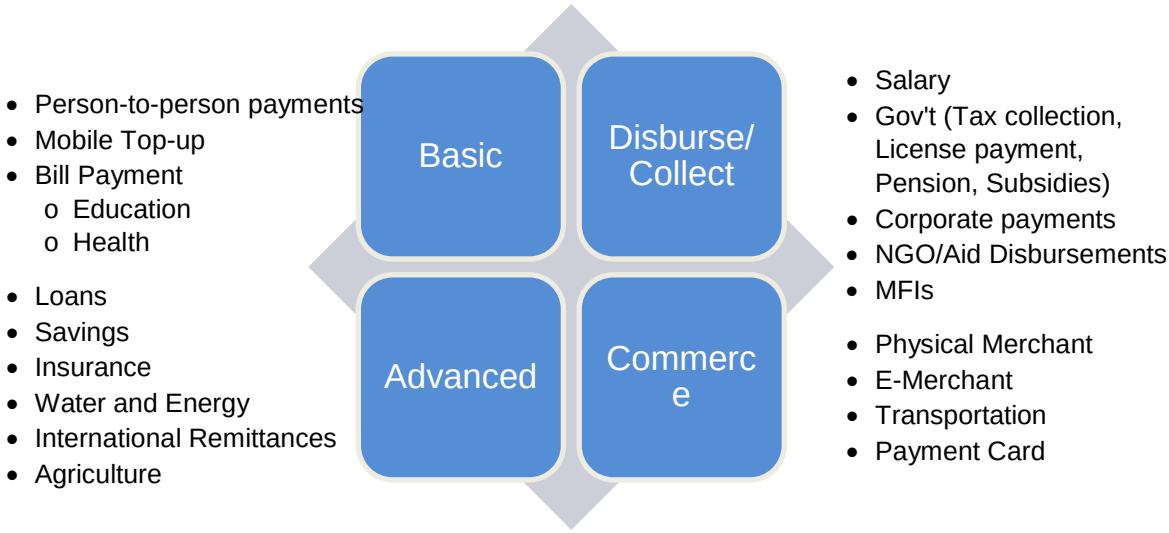
[15] CGAP. 2015. *Doing Digital Finance Right: The Case for Stronger Mitigation of Customer Risks*

digital.[16] Collaboration between providers to offer services such as mobile credit, savings, and insurance could be beneficial to all parties, as seen in instances such as Commercial Bank of Africa (CBA) and Safaricom, M-Shwari or Tigo's partnership with Banco Familiar on a mobile credit product.

Figure 5 details the different types of services that make up the ecosystem. The basic services, as person-to-person payments, mobile top up and bill payments, are the services that are usually launched first. Once these services see take up, a provider can begin providing the other three groups depending on the market needs.

Disbursements and collections, such as disbursements such as tax collection and pension payments, are services that require only partnerships and are easily launched. Commerce, on the other hand, may require additional infrastructure and development. While advanced services, such as loans and insurance, are more complex products and usually depend on regulation, require additional product development and partnerships The more services are available in a market, the more developed the ecosystem is and the bigger the potential impact on the economy would be.

Figure 5: Mobile Money and Agent Banking Services



Mobile Money Services do not necessarily have to be carried out via the user's phone but can be carried out via OTC transactions, with the help of an agent, and are very popular in certain markets. In this case, clients do not use their own wallets but instead hand cash to agents who execute Mobile Money transfers on behalf of both or either senders and/ or receivers. While OTC is an efficient way for a Mobile Money Service to gain initial traction, it can prove costly and difficult to migrate from

[16] M. Almazán, F. Frydrych. 2015. *Mobile financial services in Latin America & the Caribbean: State of play, commercial models, and regulatory approaches.*

in the long term, and can potentially be harmful to the business as OTC has high Agent commissions and Agents do not want to incentivize users to migrate to registered Mobile Money accounts because they would lose their commissions. Also, Agents sometimes charge extra fees for themselves to carry out the transaction. Thus, Agents have often zero incentive to promote migration to registered Mobile Money accounts. However, the transition to Wallets/ Mobile Money account registration is complex and requires heavy investments in customer acquisition as well as working with the Agents to make sure they are willing to support the shift.

The best developed ecosystem in terms of services available is in Bangladesh, followed by Sri Lanka and then Nepal. However, there are still regulatory constraints to offering certain more advanced services and, in general, only the adoption of basic services is predominant. The markets in Bangladesh and Sri Lanka are dominated by OTC transactions. Nepal's ecosystem is not well developed yet.

3.2.4 Business Performance

Measuring the number of active users and transactions versus the addressable market shows how a Mobile Money Service or an Agent Banking business is performing, and thus whether or not it is having a positive impact on financial inclusion in practice.

When performance and revenue are low, organizations often struggle to get access to resources in order to improve existing or new services. Mobile Money is an operational expenses business with agent commissions, technology, customer care, fraud and settlement, marketing and personnel expenditures, among others.

There are cases of deployments becoming profitable in as little as 36 months[17], if the right conditions are in place. If the service does not take off for some reason, such as business model issues or confused marketing communications, providers face significant uncertainty in continuing to funnel money into a service which has had such a mixed record globally, both in terms of financial returns and timelines for achieving significant scale. Thus, sometimes Mobile Money units in an MNO, for example, find it difficult to get more dedicated resources to the service. The same is true for banks, and stand-alone providers who need to find additional financing for investors or shareholders.

3.2.4.1 Active vs. Registered Users

A big issue in the business is user activity rate. Even if there is a large number of registered users, that does not mean that they are actually using the service. Despite a large and growing number of registered accounts, average active user rates in 2015 were 32.6 percent globally, 26.7 percent in South Asia and 13 percent in East Asia and the Pacific.[18] Reasons include those related to the business model such as access to Agents and favorable fee structures, service design, trust,

[17] M. Almazán, N.Vonthorn. 2014. Mobile Money for the Unbanked, Mobile money profitability: A digital ecosystem to drive healthy margins GSMA
[18] GSMA. 2016.*State of the Industry, Mobile Money 2015*.

availability of relevant use cases as well as provider independent factors such as customer income.[19]

Bangladesh has a large number of users but they are mainly OTC customers. Sri Lanka has a good level of registered users, but low level of active users. Adoption in Nepal is negligible.

3.2.4.2 Number of Transactions/ Ecosystem Development

Ecosystem development is key to revenue generation and profitability, and therefore supplemental resources and investment are often necessary to achieve service evolution towards more advanced offerings and financial inclusion. As more basic transactions are carried out and the service sees more revenue, the service providers are more likely to introduce more advanced services and thus deepen financial inclusion. A case in point is Kenya, where after the initial uptake of Mobile Money for P2P transfers and airtime top up, Mobile Money became commonplace and the majority of businesses wanted to use the new payment method. Even new business models using Mobile Money were developed such as mobile donations, healthcare, among many others.

Bangladesh sees a large number of transactions, mainly OTC P2P transfers, followed by Sri Lanka with OTC bill payment. As for Nepal, the volumes are negligible, with bill payment being dominant for the few currently using such services. The ecosystem in all three countries is still nascent and dominated by one service.

3.3 Regulatory

The purpose of this introduction is to provide a synopsis at a high level of the general themes that are discussed in the regulatory part of the report, in the analysis of each of the countries—Bangladesh, Nepal and Sri Lanka. This report attempts to identify and analyze the levers and barriers that regulation can present to Financial Inclusion in the three countries.

When reviewing the regulatory landscape for Mobile Money Services and Agent Banking in this context, it should be kept in mind that the relevant laws and regulations are by and large national in scope. Such regulation is complex, spanning several different areas of law, including financial services, telecom, anti-money laundering, consumer protection, data protection, taxation and foreign currency exchange regulation, and often invoking the jurisdictional competence of more than one regulator (Central Bank, Telecom Regulator, possibly others).

It is noted that an ‘enabling’ regulatory approach is critical in order for Mobile Money Services and Agent Banking providers to achieve scale and thus to contribute to Financial Inclusion. As per the “Payment Aspects of Financial Inclusion” report of the Committee on Payments and Market Infrastructures and the World Bank Group

[19] IFC. 2015. *The mobile banking customer that isn’t: drivers of digital financial services inactivity in Côte d’Ivoire*.

(2016), key aspects of an “enabling” legal and regulatory framework in the context of Financial Inclusion, on a high level, include: (i) regulatory neutrality and proportionality; (ii) risk management; (iii) protection of deposits and E-Money customer funds; (iv) financial customer protection; and (v) financial integrity.

For the purposes of this report, we interpret an ‘enabling’ regulatory regime as one which (i) allows for a competitive, dynamic environment, permitting several actors, including, where relevant, non-Financial Institutions, to issue Electronic Money (or its equivalent), either under a direct license or through a specific subsidiary; (ii) imposes risk-proportional initial and ongoing capital requirements that are relative to the risks of the E-Money business; (iii) ensures safeguarding of customer funds; (iv) imposes risk-proportional tiered KYC; (iv) permits the use of Agents for Cash-In and Cash-Out operations in order to extend the distribution network; (v) champions Interoperability; and (vi) avoids unnecessary restrictions in regard to cross-border payments. This report assesses, for each country, the extent to which it represents an enabling regulatory regime, and uses this assessment to influence the pertinent recommendations.

As noted in the Introduction, in each country the focus is on the regulation of financial services that are most closely aligned with the goal of Financial Inclusion and which most closely match our definitions of Mobile Money Services and Agent Banking. As the regulatory scope of each country is different, it should be noted that in Bangladesh the focus is on Mobile Financial Services, in Nepal on Branchless Banking, mobile banking and payment services, and in Sri Lanka on Mobile Payments, as defined in the respective legislation.

3.3.1 Regulatory framework for Mobile Money Services/ Agent Banking

In each of the selected countries there is a distinct and different regulatory framework for Mobile Money Services and Agent Banking, that determines which entities can offer services in this sphere, what services may be provided and what obligations these providers have in offering these services.

Broadly, the main regulatory area that is triggered by Mobile Money Services and Agent Banking is financial services regulation, with the financial regulatory authority, usually the Central Bank, in each jurisdiction either permitting only licensed Financial Institutions to offer Mobile Money Services and Agent Banking (though possibly allowing non-banks to act as Agents or investors) or mandating a license for specific Mobile Money Services (and possibly Agent Banking activities), regardless of the identity of the service provider (often with tiered capital and prudential requirements, and capped to specific activities i.e. no intermediation of funds or deposit taking). The former focuses on the institution providing the services in order to delineate who can offer such services, which is often called a “bank driven” regulatory model, and is a form of institution-focused regulation. The latter focuses on the functionality being provided, known as “proportionate supervision,” and targets the mitigation of specific risks triggered by particular services.

In certain jurisdictions the area of competence of the banking regulator in Mobile Money Services and Agent Banking is unclear, given the lack of clarity of the legislation itself, which can lead to creative interpretation of existing legislation and informal authorization of Mobile Money Services and Agent Banking services

through “comfort” or “no-objection” letters (as has been in the case in the past in Kenya and Tanzania).

In this study, Bangladesh has an institutionally-focused framework, focusing on banks/ Financial Institutions as the main actors (allowing both banks and subsidiaries of banks, who may have minority non-bank investors), while Sri Lanka, and since July 2016, Nepal, have functionality-focused frameworks; Sri Lanka provides separate legislation for banks and non-banks (provided that certain custodian accounts are created by the latter), while Nepal now has one legislation for all Payment Service Providers. Given the recent character of Nepal’s regulatory reform and the many areas still left to be dealt with or clarified, Sri Lanka’s regime is clearly the most “enabling” and progressive of the three regimes, although this also brings its own set of issues, as will be set out in the specific country section.

3.3.2 Capital requirements

A primary tool of banking regulation everywhere is the imposition of initial capital requirements on banks. This is a prudential rule with three functions: (i) it stipulates the assets that the provider must hold as a minimum to insure creditors and depositors from insolvency risk; (ii) it ensures that the institution can cover operational costs; and (iii) it creates a barrier to entry to the banking industry.[20]

On the basis of risk-proportionality, as Mobile Money Services are often low risk and thus less risk exposure for the service provider (given that they usually do not hold deposit or make loans), best practice suggests that the initial minimum capital requirements should be lower than those required for full-fledged banks. Further, in instances where the Mobile Money Service provider is required to hold funds equivalent to customer funds in an e-float or trust structure, there may not even be a need for such Mobile Money Service providers to hold minimum capital requirements in the event of insolvency. Given that the funds in the e-float or trust structure secure the entirety of the customer funds, this measure is already equivalent to a 100 percent capital reserve, the highest and most secure form of such prudential requirements.[21]

In our study, Bangladesh does not provide any proportionate minimum capital requirements for Mobile Money Services, as only banks are able to perform such services, and they are all required to abide by the capital requirements relating to the bank license. However, such providers are in addition required to hold an e-float. In both Sri Lanka and Nepal there are proportionate, risk-based minimum capital requirements for Mobile Money Services, though non-bank Mobile Money Services providers in Sri Lanka must also maintain equivalent funds in a custodial account—while in Nepal, all Payment Service Providers must in addition hold an e-float and pay one percent of their proposed paid-up capital in a security deposit account at the Central Bank.

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[20] Simone di Castri. 2013. *GSMA Mobile Money for the Unbanked: Enabling Regulatory Solutions*. p 16-17

[21] Simone di Castri. 2013. *GSMA Mobile Money for the Unbanked: Enabling Regulatory Solutions*. p 16-17

3.3.3 Safeguarding of funds

One of the critical features for driving Financial Inclusion and increasing the number of customers is addressing the issue of trust in the system, to allay fears of insolvency of the institution holding the funds and its liquidity to be able to meet the demands for cash, especially if it is a non-bank. Customer fund protection is rightfully a serious issue for regulators.

In the context of safeguarding customer funds, we are in essence looking at two separate issues: (i) Mobile Money Services provider insolvency; and (ii) insolvency of the bank or entity holding the customer funds (in an e-float/ custodian account/ trust structure). In cases where Mobile Money Services are provided by a bank, this may be one and the same entity, but often there are at least two different entities involved. Below we look at the situation in regard to regimes that permit non-banks to offer Mobile Money Services.

3.3.3.1 Mobile Money Service Provider Insolvency

In regard to Mobile Money Services provider insolvency, there are various options available to the regulator for ensuring the safety of customers' funds in the case that the Mobile Money Services entity is a non-bank. As already mentioned above, these include requiring that 100 percent of the cash backing the customer funds is held in trust or in an e-float in a fully prudentially regulated institution such as a bank, in a monetary Financial Institution or in more than one regulated institution (depending on the stage of the development of the deployment) or the usage of fiduciary contracts and/ or escrow accounts.[22] Such mechanisms offer one level of guarantee if the issuer of the Mobile Money Service provider goes insolvent. Further, customer funds should be "ring-fenced" from the issuer's funds to be protected from claims by the issuer's creditors (also called "fund isolation").[23] In comparison to a bank or Financial Institution, these options for non-banks are significantly more stringent as banks/ Financial Institutions 'are typically subject to reserve requirements mandating only some small portion of overall deposits to be kept in liquid form- typically cash— to satisfy potential depositor claims.'[24]

All three of the countries in our study have some sort of provision for an e-float; in Bangladesh, all Mobile Financial Services providers are required to retain a e-float in a Bank Account; this is similar in Nepal, where they have recently introduced an e-float for all Payment Service Providers. In Sri Lanka, on the other hand, only non-bank mobile payment providers must retain funds in a custodial account.

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[22] B. Muthiora. *Mobile Money for Financial Inclusion*. Presentation at GSMA Capacity Building, 25 February 2016, p 34

[23] B. Muthiora. *Mobile Money for Financial Inclusion*. Presentation at GSMA Capacity Building, 25 February 2016, p 34

[24] See M. Tarazi and P. Breloff. 2010. *Nonbank E-money Issuers-Regulatory Approaches to Protecting Customer Funds* CGAP Focus Note 63. This difference in treatment reflects a fundamental difference among banks, nonbank service providers, and their respective business models. A bank's business is predicated on the ability to intermediate capital, i.e., take money from those who have it and provide it (in loans or other products) to those who need it. Nonbanks, on the other hand, are expressly prevented from intermediating deposits and thus must make money in other ways, such as transaction charges, lowered airtime distribution costs, and reduced customer churn.

3.3.3.2 Interest Paid on E-floats

With the introduction of e-floats (and similar mechanisms), large amounts of money are being held in Bank Accounts for long periods of time, and so it is legitimate to raise the issue of what happens to the interest paid on these fund deposits—whether it should be pass through to the Mobile Money customers (as interest or otherwise), kept by the Mobile Money Service provider, invested elsewhere in the business or even given to charity.

Regulators have embraced the argument that non-bank E-Money issuance is simply a payment mechanism and not a bank deposit. Therefore, as most regulators consider the payment of interest a feature of a bank deposit, they logically ban interest payments on E-Money to ensure a distinction between Mobile Payments and banking activity. This distinction between payments and banking activity is, however, of questionable legal validity[25]—collecting repayable funds from the general public is arguably a "deposit" regardless of whether it is collected by a bank or payment services provider.[26]

Another argument used by regulators to support their position on interest is that they believe "permitting an E-Money issuer to pay interest could encourage E-Money issuers to make unsound investments with their working capital in order to pay out competitive rates of interest."[27] However, it is unclear why paying interest would encourage unsound investment any more than any other cost of the issuer, and this has clearly not been the case in Tanzania, where Mobile Money Service providers have been allowed to share interest with consumers since 2014[28], albeit not as interest payments per-se. Further, such risk to end users is greatly diminished if the E-Money float is adequately safeguarded and isolated.

To avoid the problem of turning Mobile Money accounts into "deposits", there are ways to benefit Mobile Money customers with interest without paying them interest on the actual funds in their Mobile Money accounts. One option is to oblige the Mobile Money Services provider to reinvest the interest in its activities rather than take the interest as profit, or make other payments to customers that are based on average balances (like Tigo in Tanzania), or level of activity (like Vodacom in Tanzania), rather than as straight interest on their Mobile Money balance.[29] Of note equally is Ghana's attempt to mandate the payment of interest to Mobile Money customers, though the implementation of this policy has not yet been completed.[30]

In all both Nepal and Sri Lanka, the interest that is paid on the e-floats/ custodian account is prohibited from being paid on to customers, but there are no clear provisions as to what happens to this interest. Interestingly, in Bangladesh, banks

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[25] M. Tarazi and P. Breloff. 2010. *Nonbank E-money Issuers-Regulatory Approaches to Protecting Customer Funds* CGAP Focus Note 63 p 7

[26] M. Tarazi. 2009. *E-Money Accounts Should Pay Interest, So Why Don't They?* http://technology.cgap.org/2009/03/17/e-moneyaccounts-should-pay-interest-so-why-dont-they/

[27] M. Tarazi and P. Breloff. 2010. *Nonbank E-money Issuers-Regulatory Approaches to Protecting Customer Funds* CGAP Focus Note 63 p 7

[28] C. Mackay. 2016. *Interest Payments on Mobile Wallets –Bank of Tanzania's Approach*.

[29] C. Mackay. 2016. *Interest Payments on Mobile Wallets –Bank of Tanzania's Approach*.

[30] B. Buruku, S. Staschen. 2016. *How Ghana Set Its Rules on Interest Payment on E-Money Accounts*. www.cgap.org/blog/how-ghana-set-its-rules-interest-payment-e-money-accounts

are required to pay interest on funds in mobile customer accounts, but it should be kept in mind this is a consequence of its pure-bank driven regulatory model, as these accounts are just seen as another type of current account.

3.3.3.3 Insolvency of fund holder

In regards to the insolvency of the fund holder, customers' funds can be safeguarded by various alternative mechanisms: a mandatory deposit insurance scheme, the use of a bank as trustee, the carrying of private insurance, the provision of a guarantee from the bank's parent group, the real-time monitoring of the strength of bank(s) holding customer funds, and the diversification of funds across multiple banks.

One particular clever way to protect customer's digitally stored value is the "pass through" deposit insurance approach. In certain jurisdictions such as the United States and Nigeria, so long as the pool of customer funds of a non-bank E-Money is placed in an insured depositary institution (which is a deposit insurance member) in the form of a custodial account and the funds are held for the benefit of the underlying E-Money customer, those funds are considered an insured deposit and protected from insolvency of the fund holder up to a certain amount per account, as the deposit insurance coverage "passes through" to each E-Money customer whose funds are held in that account.[31] This is sometimes also called the "indirect approach" to deposit insurance, as the deposit insurers identify the custodian as acting for the benefit of the individual E-Money customers – and not under the custodian's own total capacity.[32]

Even where deposit insurance already exists, it is often the case that the value of the pooled accounts is far greater than the applicable deposit insurance coverage limits, which is problematic if there is no "indirect approach" to deposit insurance. 'As electronic value offerings grow in volume and popularity and as evidence mounts that E-Money schemes are increasingly being used as savings vehicles, regulators may wish to consider extending deposit insurance protection at the level of individual customer E-Money balances or raise the ceiling for pooled accounts,' as has been done in the US, which expressly characterizes the funds underlying store-value cards as "deposits" covered by deposit insurance as long as such funds are placed in an insured institution.[33]

Before a particular option is deployed, one must consider who will fund it, how the premiums will be determined and what impact the premiums will have ultimately on the fees charged to the customers for Mobile Money Services (premiums may raise the fees payable by the customers). Further, it is almost certain that specific options,

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[31] JC Izaguirre, C. McGuire, D. Grace. 2016 *How Can Indirect Deposit Insurance Work in Digital Finance?* www.cgap.org/blog/how-can-indirect-deposit-insurance-work-digital-finance

[32] JC Izaguirre, C. McGuire, D. Grace. 2016 *How Can Indirect Deposit Insurance Work in Digital Finance?* www.cgap.org/blog/how-can-indirect-deposit-insurance-work-digital-finance

[33] M. Tarazi and P. Breloff. 2010. *Nonbank E-money Issuers-Regulatory Approaches to Protecting Customer Funds* CGAP Focus Note 63 p 7

such as the indirect approach, will require adjustments to a country's legal framework, i.e. to provide for, or clarify, the treatment of custodial accounts.[34]

All the countries of our study have deposit insurance in place. In Sri Lanka, the limit per depositor is 200,000 LKR, while the limits are 100,000 BDT and 200,000 NPR per account for Bangladesh and Nepal respectively. It is our understanding that individual Mobile Money customer funds are insured in Sri Lanka up to the threshold, but that in Bangladesh there are issues regarding the pass-through of the insurance to funds held by bank subsidiaries. In Nepal it is unclear whether this insurance will pass through to funds held by non-bank PSPs in e-floats.

3.3.4 AML/ CTF/ KYC

Although mobile and Electronic Money, as opposed to cash, reduces the risk of money laundering and terrorist funding, as such transactions can be monitored and traced more easily than cash, the application of legislation covering anti-money laundering (AML), countering terrorist financing (CTF) and know-your-customer (KYC) processes to Mobile Money Services/ Agent Banking transactions is still very important from a supervisory perspective. These AML/ CTF rules attempt to prevent laundering of the proceeds of crime by requiring specific identification from persons who initiate fund transfers or open financial accounts, as well as the reporting of suspicious activity by the Mobile Money Services and Agent Banking providers themselves. Traditional AML customer identification rules often require an extensive number of official documents, including passports or national identity cards, as well as voting registration papers and electricity bills. These rules create hurdles in less developed economies where there may not exist a national ID, and where often a large section of the population has no official documentation, be it a passport or even a birth certificate. Further, AML/ KYC can be a hurdle to non face-to-face account opening, which may play a key role in accelerating the Financial Inclusion of significant unbanked rural populations who do not have the ability to travel to Mobile Money Agents. Lastly, excessive KYC requirements add friction to the account opening process, which discourages customers who are thinking about using digital money for the first time, thus harming overall consumer uptake and usage

It is thus imperative for Financial Inclusion and the adoption of Mobile Money Services/ Agent Banking that legislation covering AML, CTF and KYC processes is "proportionate" to the risks inherent in the services being offered i.e. achieving the balance between the need to protect the integrity of the financial system with the need to promote and foster the adoption of Mobile Money Services and Agent Banking for Financial Inclusion.[35]

In this context, it should be noted that the average target customer of Mobile Money Services and Agent Banking is poor, maintains a low account balance and in many cases lacks a permanent address or government issued ID. On this basis, the Financial Action Task Force (FATF), an inter-governmental body established in 1989

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[34] For more detailed information on the challenges of implementing indirect deposit insurance, see JC Izaguirre, C. McGuire, D. Grace. 2016. *How Can Indirect Deposit Insurance Work in Digital Finance?* www.cgap.org/blog/how-can-indirect-deposit-insurance-work-digital-finance

[35] Simone di Castri. 2013. *GSMA Mobile Money for the Unbanked: Enabling Regulatory Solutions*. p 18-19

to safeguard the integrity of the international financial system, recommends a proportionate AML/ CTF regime that allows the providers to delegate a number of critical functions to their Agents and to implement tiered customer due diligence. This latter requirement allows for the opening of basic accounts (accounts with low risk profiles, controlled by means of balance and transaction limits) and the transferring of small amounts of funds (up to a specified maximum per transaction and per day) with the provision of minimal identification, such as simply a name and a telephone number or on the basis of SIM card registration (as is currently the case for Dialog in Sri Lanka) due to the low risk of the transaction. Further, the inherent risks associated with Mobile Money Services in respect of AML and CTF can be mitigated by limits on the number of accounts that can be held by an individual customer, restrictions on the maximum amount that can be sent within a given timeframe, and limitations on the total amount a customer can store in his/her account at any one time.

It should be noted that this proportionality principle may, however, lend itself to an inconsistent scenario if not applied consistently across the broad user base on the specific service provided. In certain jurisdictions, banks may be required to obtain the same high level of identification for its Mobile Money customers as it does for its bank account holders, in contrast to the risk-proportionate requirements required by a pure Mobile Money business for the same customers. This could be considered an unduly conservative approach.[36]

In our study, Bangladesh does not currently offer tiered KYC for Mobile Financial Services. Both Sri Lanka and Nepal, on the other hand, have introduced simplified KYC for low risk Mobile Payments, although in regard to Sri Lanka this has been negotiated on a bilateral basis with the MNOs, and does not apply to mobile Wallets of bank providers. On the positive side, simplified KYC for basic accounts in Sri Lanka can be based on pre-registered SIM card, which allows for non face-face KYC—and thus remote activation of accounts.

3.3.5 Agents

Given that a key purpose of Mobile Money Services is to reach populations in rural and underdeveloped areas where formal Financial Institutions have no presence, an Agent distribution network is essential, as previously discussed. The types of Agents employed range from large retailers, rural banks, mobile financial institutions, money-changers to airtime resellers and mom and pop stores.

The recommended regulatory approach in relation to the deployment of Agents is one with a 'light touch', as the risks presented by Agent Banking and/or distribution can often be managed by the service providers. According to the GSMA, 'placing large compliance or financial constraints on Agents hampers Mobile Money Services from reaching scale, as they rely heavily on low-cost distribution at low-overhead Agent points.'[37]

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[36] Simone di Castri. 2013. *GSMA Mobile Money for the Unbanked: Enabling Regulatory Solutions*. p 20-21

[37] Simone di Castri. 2013. *GSMA Mobile Money for the Unbanked: Enabling Regulatory Solutions* p 24-25

Although often integrated in payments/ financial service legislation, some countries, such as Bangladesh, have enacted specific Agent Banking regulations. In most cases, regulators acknowledge the fact that business decisions concerning the operation of the Agent network should be left to commercial negotiations between the Mobile Money Services/ Branchless Banking service provider and the third party, and the service provider remains liable for the acts and omissions of the Agent whilst it is acting on behalf of the service provider. By placing the liability squarely on the Mobile Money Services and Branchless Banking provider, the provider is incentivized to set up and monitor the distribution of its products properly and with caution.

If the regulator wishes to retain some oversight on Agents, it can adopt a scheme of either authorization or notification of third party Agents. A notification scheme is usually the preferred option, as Mobile Money and Branchless Banking providers can then quickly respond to market developments by adding and removing third parties to/ from the network. In addition, there is a reduced cost due to time saved in waiting for approval under the authorization regime, and minimal ongoing administrative requirements.[38]

Regulator often require the Mobile Money Services and Branchless Banking providers to provide training on certain issues such as KYC and AML to Agents, as third party Agents are essential in the registration process of new customers. Regulators in all cases need to find the right balance between AML/CTF compliance and allowing Agents to conduct the due diligence of customers required to open accounts and conduct transactions.[39]

In respect to our study, Bangladesh allows for monthly bulk notification of Mobile Financial Service Agents, though it has imposed some restrictions on the geographic location of acceptable Agents. In Sri Lanka, there is only prior notification of A Grade outlets (more than 250,000 LKR of revenue), but the Central Bank monitors both bank and mobile payment Agents closely as an activity beyond cash in cash out needs to be approved, as well as transaction and day limits for Agents. In Nepal, bulk notification within 15 days of appointment is required for Agents of payment services under the new *Licensing Policy*, but other requirements are currently unclear.

3.3.6 Interoperability

Interoperability, in the terms of this report, means the ability to send money to another person, regardless of the identity of the Mobile Money Services and/ or Branchless Banking service provider of the sender or of the receiving party. Although in Branchless Banking/ Agent Banking Interoperability is often assured by inter-bank Clearing and settling, and the adherence to a payment scheme, Interoperability can be considered as operating at three different levels for Mobile Money Services:

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[38] Simone di Castri. 2013. *GSMA Mobile Money for the Unbanked: Enabling Regulatory Solutions* p 26-27.
[39] Simone di Castri. 2013. *GSMA Mobile Money for the Unbanked: Enabling Regulatory Solutions* p 27-28

- Mobile Money platform (platform level): This allows Mobile Money to be transferred across Mobile Money deployments i.e. "Wallet –to-Wallet", and could include connections to Switches, Financial Institutions and companies;
- Distribution network (distribution level): This allows transactions to be conducted across multiple distribution networks, or electronic retail payments acceptance schemes; and
- SIM card (customer level): This allows a customer of one MNO, bank or third party to use the MM services of any other MNO, bank or third party.[40]

Interoperability is important in assuring the uptake of Mobile Money Services and Branchless Banking services, as previously discussed.

Although the technical capacity for Interoperability of a product/ service must be set up at the design stage (and is thus beyond the scope of this section), it is essential for that Interoperability is "turned on" at the right time in a particular payment ecosystem so that it creates value for both customers and providers, while identifying and mitigating regulatory risks. According to the GSMA, 'the benefits of Interoperability are more likely to emerge from mature Mobile Money deployments such as ones with a functioning Agent/ third party network and an active customer base,'[41] and 'Interoperability makes sense when more customers can be reached and when a greater frequency and variety of transactions can be performed.'[42] On the other hand, some financial regulators in various countries have mandated Interoperability at the introductory stage, on the basis that such Interoperability will lower the costs of financial services, increase customer choice and augment competition. As stated in the GPFI white paper "Global Standard-Setting Bodies and Financial Inclusion: The Evolving Landscape,"[43] mandating Interoperability too soon may result in reduced incentives for firms to enter new markets[44], while concurrently raising compliance costs, making the business case more challenging from an operational cost perspective for providers, especially in the start-up phase. Further, the technical implementation of Interoperability can be complex and distract the Mobile Money service provider from focusing on the basics of the service, such as building the distribution network.

Equally as important as timing is deciding how to enable Interoperability; regulators may decide to mandate it in legislation, going as far as setting out technical specifications for bilateral connections or supporting the creation of a mobile Switch, or, at the other extreme, simply "accompanying" the private sector in reaching bilateral agreements on Interoperability. Between these two extremes there are many nuances, and part of a regulator's decision will be based on its particular market landscape—i.e. whether it is a highly concentrated market with a dominant

[40] Simone di Castri. 2013. *GSMA Mobile Money for the Unbanked: Enabling Regulatory Solutions* p 33-34
[41] Simone di Castri. 2013. *GSMA Mobile Money for the Unbanked: Enabling Regulatory Solutions* p 31-32
[42] Simone di Castri. 2013. *GSMA Mobile Money for the Unbanked: Enabling Regulatory Solutions* 2013 p33-34
[43] GFI. 2015. Global Standard-Setting Bodies and Financial Inclusion – The Evolving Lanscape
[44] Global Partnership for Financial Inclusion. 2016. *Global Standard-Setting Bodies and Financial Inclusion: The Evolving Landscape*

player, or highly competitive market with strong incumbents and nibble new market entrants.

The World Bank recommends that where the regulators and market are unable to establish Interoperability from the beginning, the focus should be on ensuring that Interoperability is technologically feasible, using international technical standards for financial services and telecommunication services. At the same time, regulators should ensure they have both the necessary information and regulatory power to intervene when there is evidence that a dominant position is being exploited.[45]

Ultimately the goal is to allow providers significant incentive to innovate while also ensuring the necessary connectivity at the right moment to give the Mobile Money ecosystem the requisite scale needed to attain the applicable Financial Inclusion goals.

Interoperability is currently not mandated in any of the countries of our study. However, there are varying levels of 'effective' Interoperability, depending on the extent to which there is connectivity of non-proprietary platforms. In Sri Lanka, there is de facto Interoperability of approximately 75 percent on the eZ Cash platform (which contains several MNOs, along with Dialog), while in Nepal, E-Sewa, an online payment platform and bank and Agent aggregator, is used by 18-20 banks, and all banks are connected to each other through banking Settlement infrastructure. The issue of Interoperability, however, will soon become problematic in Nepal with the entrance of non-bank players into the payment services market. Only in Bangladesh is there no multi entity platform, and thus no effective Interoperability, although bKash has a 58 percent market share, which may explain a lack of incentive on its part to negotiate such Interoperability.

3.3.7 Telecom regulation

Regulatory competence is often shared, to a certain extent, by the financial service authority/Central Bank and the telecom regulator, as Mobile Money Services and often Agent Banking services must access the mobile communication networks. In certain jurisdictions, where access to MNO networks for the provision of Mobile Money Service and Agent Banking is difficult or prohibitively expensive (often due to the existence of a dominant MNO), both Central Banks and telecom regulators often enter into a legislative dialogue, which may result in shared competence.

Some jurisdictions give equal importance to the telecom regulator, who may require an additional license from (and thus impose additional obligations) on a Mobile Money Services and/ or Branchless Banking provider, and this license may even be a condition precedent to the requisite financial services license (as is the case in Tanzania).

But even in jurisdictions where there is a clear separation of the telecom and financial services regulatory spheres, and where the financial regulator has primacy, Mobile Money Services and Branchless Banking providers will still need to take heed of certain types of telecom legislation that will indirectly affect any service rollout,

[45] T. Lammer, K.Lauer, O. Tomilova. 2016. *Championing Interoperability for Financial Inclusion – Carrot or Stick?* http://blogs.worldbank.org/psd/championing-interoperability-financial-inclusion-carrot-or-stick

such as mandatory SIM card and phone registration. Further, in certain instances, where the data collection is rigorous and monitored (especially in combination with a biometric element), these types of registrations may be used to replace classic KYC identification, at least for low level Mobile Money accounts with low risk. The use of SIM card registration for KYC identification enables non face-to-face activation of Mobile Money Services, and thus promotes more access to Mobile Money Services in rural areas where there is no physical presence of Agents but strong mobile network coverage.

Bangladesh, since 2016, has imposed mandatory biometric SIM card registration. Since this registration is linked to the national identity card database, there are discussions under way between the Central Bank and the telecom regulator on whether verified biometric registrations can be used for KYC of financial services. In parallel, the Central Bank and telecom regulator are also currently engaged in dialogue on USSD access for Mobile Financial Services.

Sri Lanka also has mandatory SIM card registration since September 2008, and MNOs have negotiated the authorization to use the KYC information already stored in their database from the SIM card registration to verify identities for the opening of basic accounts, thus allowing remote, non face-to-face account opening.

Nepal, which has a mobile handset registry since April 2016, has just rolled out a simplified KYC process for basic accounts/ low value payment transactions based on simply a telephone number. It has also tried to preempt any issues with USSD provision by requiring a commitment from MNOs who wish to obtain a payment service provision license to provide non-discriminatory access to their network by other PSPs.

3.3.8 Cross Border Transfers

In regard to cross border transfers and foreign Remittances, there exist both significant, complex regulations and risk management issues, such as customer due diligence account limits, exchange rate exposure and additional licensing requirements and costs for such cross border transfers.

In order for there to be an effective policy on cross border transfers that supports low-cost Remittances, there are various 'enabling' pre-requisites, with first and foremost being that such types of transfers are permitted for Mobile Money Services and Branchless Banking. Secondly, regulators will want to ensure that there is sufficient competition to keep prices down, as often incoming Remittances are a lifeline for families in home countries, and may make up a significant part of a country's GDP (For example, in Bangladesh Remittances made up 8.2 percent of GDP in 2014).[46] According to the GSMA's State of the Industry Report 2015, as the number of services have increased, the median cost of sending 100 USD has reduced by half, from 4 USD in 2014 and to 2 USD in 2015.[47]

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[46] J. Kynge. 2014. *Record Remittance Inflows Boost Bangladesh GDP Outlook*. Financial Times. http://blogs.ft.com/beyond-brics/2014/08/12/record-remittance-inflows-boost-bangladesh-gdp-outlook/

[47] GSMA. 2015. *State of the Industry Report Mobile Money* p50

In all cases, to support “enabling” regimes, there needs to be an effective dialogue between the Mobile Money Services and Branchless Banking service providers and the regulator, often the Foreign Exchange department of the Central Bank, leading to the harmonization of practices, rules and limits amongst all cross border providers, including Money Transfer Operators (MTOs) and banks.

In all of three countries—Bangladesh, Nepal and Sri Lanka—inward Remittances are authorized, although whether they can be paid out into a mobile Wallet depends on several factors: (i), whether such transfer is prohibited under the Mobile Money/ Agent Banking regulatory scheme; (ii) whether the Mobile Money Service providers have a currency exchange license or (iii) whether there is a partnership with a licensed MTO. It should be noted regulators in Sri Lanka are flexible, for although the regulation limits Mobile Payments to domestic transactions, in practice MNO Dialog has launched with MoneyGram, in June 2016, the acceptance of Remittances via eZ Cash. In Bangladesh, inward receipt of Remittances requires a special license, and it appears that through the MTO/ MFS partnership of MasterCard, Western Union, bKash and BRAC Bank, that the effective receipt of Remittances into a mobile Wallet is possible. In Nepal, MTOs also need a license for incoming Remittances, and currently the *Licensing Policy* does not allow for reception/ dispatch of foreign Remittances through the licensed payment systems (and thus any Mobile Payment system).

The situation is not as welcoming for outward Remittances. In Nepal, although such outward Remittances are allowed, it is difficult due to the formalities that need to be provided and in all cases prohibited for Mobile Payments. In Bangladesh, barring medical and educational payments no outward Remittances are allowed, and in Sri Lanka, all outward Remittances are prohibited.

3.3.9 Other

Competition authorities are responsible (inter alia) for monitoring of the relevant markets to ensure a level playing field, and intervening when there is an abuse of a dominant position or engagement in anti-competitive practices. As Mobile Money Services reach mature stages of growth, competition problems often emerge, given the historical dominance in many jurisdictions of state telecom companies that control the means of access and/ or the state sanctioned monopolies of banks in financial services. Depending on the market ecosystem and the type of regulatory framework chosen for Mobile Money Services, this may result in a dominant provider (either a bank or an MNO) who may be susceptible to abusing this position—through practices such as refusal to supply, tying, price discrimination and predatory pricing—in order to retain market dominance. It is in this context that either a strong, independent competition authority or well versed sections of the Central Banks and/ or telecom regulators can ensure the requisite monitoring and appropriate *ex poste* actions take place in order to guarantee that all actors have a fair chance at competing for customers, thereby also benefiting consumers.

In this report, in all three countries we find independent competition authorities, although the level of competence and expertise varies. In Bangladesh, the Bangladesh Competition Commission has only recently become a reality with the final appointment of its chairman and members in April 2016, while the Nepal Competition, Promotion and Market Board Act has been established since 2007. Sri

Lanka has the most established set of competition authorities, the Consumer Affairs Authority which monitors and investigates anti-competitive practices and the Consumer Affairs Council, which has the power to terminate or authorize any anti-competitive practice.

Often overlooked, but no less important, are consumer protection laws that promote transparency and ensure that consumers are treated fairly and non-discriminately by service providers through price transparency, the obligation to provide clear and fair terms and conditions for services and products, the provision of effective consumer complaint mechanisms, etc. Regulators should, however, be conscious that they do not introduce significant, disproportionate costs for service providers that are processing low-value transactions. Thus regulators should ensure that regulations are not unduly prescriptive, and should limit the mandating of standards and protocols for technology that are expensive or impractical in low-income areas.[48] Regulators of Mobile Money Services and Agent Banking need to strike a balance 'between creating innovative forms of financial access and offering an acceptable level of consumer protection.'[49]

Frequently, however, there is no specific legislation that relates to consumer protection in emerging markets. Rather, these issues are covered by a patchwork of various laws that apply to Mobile Money Services and Agent Banking, and thus include the specific obligations placed on Financial Institutions and telecom providers as well as general consumer protection terms.

In Sri Lanka, consumer protection for Mobile Money Services and Agent Banking is found in the main regulatory framework for such services, the two *Mobile Payment Guidelines,* and is fairly comprehensive in comparison with the other jurisdictions that legislate Mobile Money Services. According to a current EPAR Technical Report[50], Bangladesh is also quite advanced in its consumer protection laws, although its legislation is found in a patchwork of various laws, including the *PPS Regulations*, the *MFS Guidelines,* the *Regulations on Electronic Fund Transfer* and the *Guidelines for Customer Services and Complaint Management*. Nepal is the only country with a general consumer protection law, the *Consumer Protection Act 2054 (1998)* as well as a specific regulator, the Consumer Protection Council, though most of the consumer protection for payment services is found in sectorial legislation (*IT Guidelines*, *E-Banking Directive* and *Licensing Policy*). Although none of the jurisdictions have an entire comprehensive set of consumer protection laws for Mobile Money Services and Agent Banking, they are all fairly well positioned in this regard.

Ancillary to such consumer protection is digital signature legislation that allows consumers to validly consent to transactions through digital means. Asian countries are progressively adopting such legislation, but where no such law is passed, there may be legal uncertainty of the validity of electronic transactions, including Mobile Money Services and Agent Banking.

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[48] Simone di Castri. 2013. *GSMA Mobile Money for the Unbanked: Enabling Regulatory Solutions* p29-30

[49] Simone di Castri. 2013. *GSMA Mobile Money for the Unbanked: Enabling Regulatory Solutions* p29-30

[50] EPAR. 2016. *DFS Consumer Protection Regulations*, EPAR Technical Report #324

Fortunately, this is not the case in the three countries of report, which all legally recognize digital signatures.

Data protection is a significant regulatory topic in the developed world, and is starting to take up more of the attention of developing world legislators as well. Relevant data in a Mobile Money Services/ Agent Banking transaction may include Payer and Payee IDs, geographic location, time of day, purchased items and the value of the transaction. Regulators and Mobile Money/ Branchless Banking providers need to work together to understand security concerns and maintain the integrity of customer data.[51]

In South Asia, including the three countries our study, there is no specific data protection legislation in place, but rather a piecemeal of obligations that are found in various sector-specific regulations for telecom operators, Financial Institutions and the like. Given the rising importance and value of this data and its increasing vulnerability to hackers and fraud, there is a strong argument for regulators to deal with data protection in either separate legislation or specifically in the context of the Mobile Money Services and Agent Banking framework.

Adjacent to data protection, information, communications and technology legislation often exists that deals, at a broad level, with data and systems security. In each of the countries of our study there is a separate piece of legislation that is devoted to this subject and deals with topics such as outsourcing, business continuity, and disaster recovery.

Finally, there does not appear to be any special public procurement legislation for bulk disbursements, notably government to person payments (G2P). Rather, governments often issue policy documents that specifically support the rollout of G2P given their ability to trigger mass consumer adoption of Mobile Money Services and Agent Banking.

[51] Simone di Castri. 2013. *GSMA Mobile Money for the Unbanked: Enabling Regulatory Solutions* p 30-31

4 Bangladesh

4.1 Payment Systems

Bangladesh has a population of 161 million[52] that is characterized by a low 'banked' rate (31 percent of adults had a Bank Account in 2014)[53]—along with a low mobile penetration rate relative to the rest of Asia (82 percent in 2014).[54] The country also has a low Internet penetration rate (13.2 percent in 2016) and growth of Internet usage has slowed in 2016 to 10.4 percent compared to 27.2 percent in 2015 and 46.6 percent in 2014.[55]

Bank coverage is moderate, with 56 scheduled banks operating[56], while mobile coverage is high with 6 MNOs operating. There are 18 licensed and 11 active MFS PSPs at Layer 1, providing last mile payment services, the dominant PSP by far being bKash, while most of the others have failed to gain significant traction in the market to date. Thus, actual competition in the market is low, discussed in depth in Section 4.2.

Domestic Layer 2 wholesale payment services are managed directly by the Central Bank. While Bangladesh Bank (BB) has implemented Real-Time Gross Settlement (RTGS) for interbank payments Settlement, it does not have a Real-Time Payments system for retail transactions, and has not publicly announced plans for one.

With its relatively low level of usage in both the payments network and financial services, Bangladesh appears to be a clear candidate for country-level initiatives to build both, particularly in rural areas.

Table 1 rates, at a high level, the maturity and health of the digital payments ecosystem in Bangladesh. (Please refer to in the Appendix Section 8.3 for an explanation of the evaluation framework). Bangladesh has a maturity score of 12, and a health score of 12 (both out of a possible total of 21).

Table 1: Payment Systems Evaluation Bangladesh

Criteria	Maturity	Health
LAYER 1		
Consumer Payers & Payees	1	1
Business Payees & Agents	2	2
Retail Banks	2	2
PSPs/ Acquirers/ MTOs	2	2
LAYER 2		
Clearing Houses, Switches, Hosting	2	2

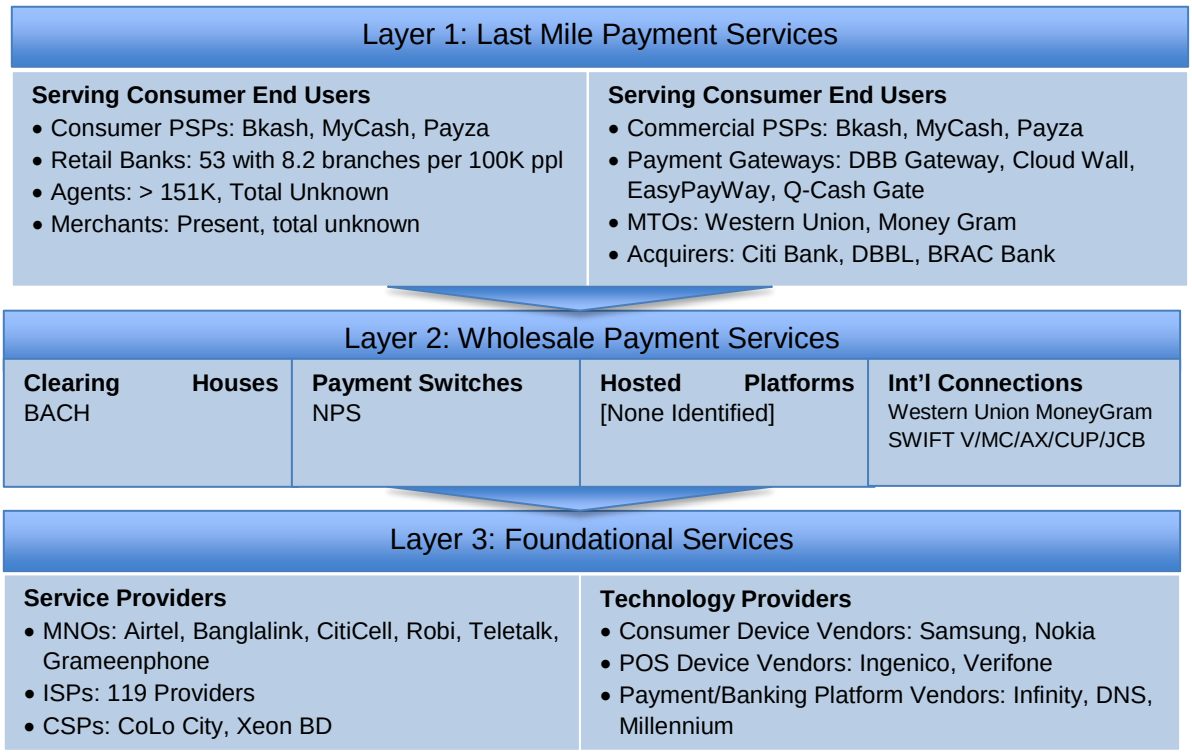
[52] World Bank. 2015. Country at a Glance, Bangladesh. http://www.worldbank.org/en/country/bangladesh
[53] World Bank. 2016. Findex. www.worldbank.org/en/programs/globalfindex
[54] GSMA. 2016. Intelligence. www.gsmaintelligence.com/markets/240/dashboard/
[55] Internet Live Stats. 2016. Bangladesh Internet Users. www.internetlivestats.com/internet-users/bangladesh
[56] Bangladesh Bank. 2016. Financial System. Banks and FIs. www.bb.org.bd/fnansys/bankfi.php

LAYER 3		
Telcos/ MNOs/ ISPs/ CSPs	2	2
Technology Providers	1	1
TOTAL	12	12

4.1.1 Digital Payments Ecosystem Bangladesh

Figure 6 below and the narrative that follows describe the digital payments ecosystem in Bangladesh and its key service providers following the reference model defined in Section 3.1

Figure 6: Digital Payment Systems Infrastructure Bangladesh



4.1.1.1 Layer 1–Last Mile Payment Services

The Layer 1 digital payments ecosystem in Bangladesh includes:

- Consumer PSPs
- Retail banks
- Agents
- Merchants

4.1.1.1.1 Consumer PSPs

We have identified the following consumer PSPs currently operating in Bangladesh.[57] There is a combination of dedicated PSPs and Mobile Banking

[57] Note that individual banks offering Mobile Banking are not included here unless they include broader Mobile Money services.

offerings of Retail Banks with extended payment functionality (i.e. beyond only EFT transactions between Bank Accounts, which are standard with most Mobile Banking services worldwide). All of them except for Payza have a MFS license and are reviewed in Section 4.2.

- bKash
- DBBL
- Hello
- IFIC
- mCash
- MyCash
- OK Banking
- Payza
- SureCash
- Trust Bank Mobile Money
- uCash

Payza is a global PSP operating in Bangladesh as well as 189 other countries. Local operations are conducted in partnership with Bangladesh Commerce Bank. The service features a cloud-based Wallet. Supported transaction types include P2P (E-Money transferred between Payza customers), mobile top-up, in-Wallet currency exchange, and Merchant Payments via an Payza MasterCard Debit Card. Payza is available to banked consumers only, as funding of the Payza Wallet takes place via Credit Card or Bank Transfer.

4.1.1.1.2 Retail banks

Some of the most important Financial Institutions are state controlled, but private commercial banks have been increasing their market share and dominate the market (58.8 percent).[58] Banks are increasingly using digital technology as almost every bank has its own core banking solution. They are also expanding their presence in rural areas.

There are two primary types of banks in Bangladesh: Scheduled Banks (SBs) and Non-Scheduled Banks (NSBs). The 56 SBs operate under the Bank Company Act, 1991 (Amended up to 2013). NSBs are established with special objectives, and cannot perform all functions of scheduled banks).

Table 2).[59]

Table 2: Banks in Bangladesh

Type of Scheduled Bank	Number	Description
State owned commercial banks	6	Fully or majority-owned by the Government

[58] ADB. 2015. Financial Soundness Indicators for Financial Sector Stability in Bangladesh.
[59] Bangladesh Bank. 2016. Financial System. Banks and FIs. www.bb.org.bd/fnansys/bankfi.php

Specialized Banks	2	Established for specific objectives such as agricultural or industrial development, fully or majority-owned by the Government
Private Commercial Bank	39	Majority-owned by the private entities
• Conventional PCBs	31	Perform the banking functions in conventional fashion
• Islami Shariah based	8	Execute banking activities according to Islami Shariah based principles
Foreign Commercial Banks	9	Banks incorporated abroad
Sources: http://www.bb.org.bd/fnansys/bankfi.php *See list of all banks by category here: http://www.bb.org.bd/pub/annual/anreport/ar1415/app03.pdf* *Mondato Research and Analysis*		

Due to regulation, scheduled banks are required to increase their rural presence and must open a rural bank branch for every urban one they open, which has led to a growing number of rural branches (Table 3).

Table 3: Bank Branches in Bangladesh

Number of Bank Branches	2009	2014	Change (%)
Total	7,187	8,821	23%
Urban	3,051	3,787	24%
Rural	4,136	5,034	22%
Sources: www.unescap.org/sites/default/files/Financial%20inclusion_Dr.%20Atiur%20Rahman.pdf, Mondato Research and Analysis			

4.1.1.2 Layer 2—Wholesale Payment Services

We have identified the following wholesale payment services operating in Bangladesh:

- Bangladesh Bank and its component Clearing and Settlement services
- Q-Cash

In addition to domestic operations, the following international Layer 2 payments organizations are present in Bangladesh:

- International Money Transfer Operators—Western Union, MoneyGram
- Payment Card issuing and acquiring—Visa, MasterCard, American Express (issuing and acquiring); China UnionPay, JCB (acquiring only)
- International interbank payments—SWIFT

Bangladesh Bank (BB) provides two services that support Mobile Money Services and Agent Banking in Bangladesh: (1) the Bangladesh Electronic Funds Transfer Network (BEFTN) which is a component service of the Bangladesh Automated Clearing House (BACH), and (2) the National Payment Switch Bangladesh (NPSB). BEFTN functions as the ACH for Bangladesh, handling the country's EFT transactions, with interbank transactions cleared as a batch process. NPSB handles transactions via digital Channels including ATM, POS), Internet, and Mobile. NPSB

also functions as Bangladesh's interface to the global Card Schemes. (web: bb.org.bd)

Q-Cash is a Payment Card Merchant Payment Gateway operated by ITCL, a consortium of 35 banks established ITCL in 2000, and is a patron and technical partner of NPSB (See separate entry under Bangladesh Bank). Q-Cash acquired over 2,000 ATMs and 12,000 POS terminals, covering 1.5 million Credit and Debit Cardholders. ITCL is the only certified processor for Visa, MasterCard and American Express, and claims to be the country's first and only organization to achieve PCI-DSS compliance certification. ITCL offers a hosted MFS platform for its client banks, including a Wallet that enables customers to transfer balances via Mobile Phones, and virtual Prepaid cards from which cash may be to deposited or withdrawn from at ATMs. (web: qcash.com.bd)

4.1.1.3 Layer 3—Foundational Services

Six MNOs operate in Bangladesh under the regulatory authority of the Bangladesh Telecommunications Regulatory Commission (BTRC), serving some 130.9 million subscribers[60], all on the GSM platform: Airtel, Banglalink, Grameenphone, Pacific Bangladesh, Robi Axiata and Teletalk. Thus their role in the payments ecosystem is limited to provision of Layer 3 infrastructure. However, some MNOs have partnered with banks to offer limited payment services. Grameenphone, for example, in partnership with DBBL, provides bill payment purchase of railway tickets, "balance transfers" (for mobile top-ups between Grameenphone customers), and inbound Remittances from DBBL customers.

There are 119 ISPs operating in Bangladesh[61], serving 21.4 million Internet users as of 2016.[62]

The total number of Co-location centers in Bangladesh is unknown. We have identified two, ColoCity and XeonBD, however there are probably others. The government recently approved construction of a national data center, which it claims will be the world's fifth largest when completed.[63]

4.1.2 Trends And Issues

Infrastructure gaps—Bangladesh ranked 109th in the 2015 WEF Global Network Readiness Index[64], implying that a robust Layer 3 infrastructure is not yet in place to support the substantial growth of Generation 2 (or indeed Generation 1) payment activities in Bangladesh.

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[60] Bangladesh Telecommunications Regulatory Commission. 2016. Mobile Phone Subscribers in Bangladesh March, 2016. www.btrc.gov.bd/content/mobile-phone-subscribers-bangladesh-march-2016
[61] Bangladesh Telecommunications Regulatory Commission. 2016.Internet Service Providers http://www.btrc.gov.bd/internet-service-provider
[62] Internet Live Stats. 2016. Internet Users Bangladesh. www.internetlivestats.com/internet-users/bangladesh/
[63] WiredRE. Bangladesh Data Center Project Approved By National Committee. http://wiredre.com/bangladesh-data-center-project-approved-by-national-committee/
[64] World Economic Forum. 2016. Network Readiness Index**.** http://reports.weforum.org/global-information-technology-report-2015/network-readiness-index/

A negligible Fintech scene—The best-known Fintech startup in Bangladesh, and one that is also well known worldwide, is bKash. After that, the field drops off very quickly. Bangladesh does not currently have a discernable Fintech Ecosystem, with the lack of robust innovation in the payments industry that this implies.

Moving out of poverty—In 2015, the World Bank announced that Bangladesh had moved from the 'low-income' to lower-middle income status, defined as those with annual incomes of USD 1,046 to USD 4,125, for the first time. The government of Bangladesh has announced its goal for the country to continue this trend by reaching middle income status by 2021.[65] Along with overall income, the middle class is growing substantially as well: in 2015 it stood at 20 percent of the population, and a recent study projects that it will grow to 25 percent by 2025. And Binayak Sen, research director of the Bangladesh Institute of Development Studies said in a November 2015 press interview that if the present trend continues, the middle-class would include 33 percent of the national population in 2030.[66] Things are also improving at the bottom of the income pyramid: in 2015, the poverty rate had declined to 24.8 percent in 2015, while the rate of ultra-poor people dropped to 6.5 percent.[67]

Bangladesh is witnessing very strong demand for Smartphones and, due to steadily falling prices, Feature Phones are being abandoned in favor of their more functional and prestigious cousins.[68] Essentially, as soon as Bangladeshis can afford it, they move to Smartphones. By Q215, according to a report in the Dhaka Tribune, Smartphone penetration had reached 23.8 percent of all handsets in use (amounting to 8.2 million units)—up from 18 percent in Q214. This trend can be expected to continue as incomes rise and Smartphone prices fall, though obviously the poorer segments of the population may lag further behind.

Smartphone-dependent services—As consumers switch from feature phones to Smartphones, they invariably embrace Smart Device-dependent services that are not supported on feature phones. For example, Statista estimates the number of Social Media users at 13 million as of January 2016,[69] or 61 percent of the Internet using population of 21.4 million.[70] This points to a growing opportunity to also provide Smartphone-dependent Generation 2 payment services in Bangladesh (while continuing to support Generation 1 services during the transition period).

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[65] World Bank. 2014. Country Overview. Bangladesh. www.worldbank.org/en/country/bangladesh/overview

[66] The Daily Star. 2015. Bangladesh's middle-class expanding. www.thedailystar.net/frontpage/middle-class-expanding-168316

[67] General Economics Division, Bangladesh Planning Commission. 2015. Millennium Development Goals: Bangladesh Progress Report

[68] Ishtiaq Husain. 2016. Smartphone users on the rise. http://archive.dhakatribune.com/business/2016/jan/24/smartphone-users-rise

[69] Statista. Number of monthly active mobile social media users in Asia Pacific as of January 2016, by country (in millions). www.statista.com/statistics/295643/mobile-social-media-mau-asia-pacific-countries/

[70] Internet Live States. 2016. Internet Users Bangladesh. www.internetlivestats.com/internet-users/bangladesh/

4.2 Mobile Money Services and Agent Banking

Bangladesh has a long history of efforts to reach the unbanked and is a dynamic market for Mobile Money Services and Agent Banking. The country's largest Mobile Money provider, bKash, is considered a golden child in the industry globally. According to the Bangladesh Bank ex-governor Atiur Rahman, bKash is the world's second largest Mobile Money company.[71] However, overall usage of Mobile Money Services in the country is still low and most transactions are Over-the-Counter (OTC).

One third of the adult population[72] has an account with a formal Financial Institution, and there is significant latent demand. While 23 percent of the adult population saved money during the past year (2015), only 7.4 percent did so at a formal Financial Institution. And while 48.3 percent borrowed money, only 9.9 percent did so from a formal institution.[73] There is significant domestic Remittance flow: 14.1 percent of the adult population received and 10.4 percent sent domestic Remittances in 2014. Of those, 17 percent of the received, and 33 percent of the sent Remittances were via a mobile phone.

4.2.1 Market Structure

The Mobile Money Services and Agent Banking market in Bangladesh has many players but is dominated by one company, bKash. Although there are 29 banks approved to provide Mobile Financial Services, Mobile Money Services and Agent Banking, as defined by the Central Bank, only 18 have launched a service to date. However, a mere 11 of the 18 providers can be found in the market (**Table 4**). The rest may have one Agent to fulfill the obligations of their license but they do not appear to have the funds to invest in an Agent Network and a platform.

Table 4: Live MFS License Holders in Bangladesh

	Name of Service	License Holder
1	BKash	BRAC Bank Limited
2	DBBL Mobile Banking	Dutch-Bangla Bank Limited
3	mCash	Islami Bank Bangladesh Limited
4	MYCash	Mercantile Bank Limited
5	UCash	United Commercial Bank Limited
6	IFIC Mobile Banking	IFIC Bank Limited
7	Trust Bank Mobile Money	Trust Bank Limited
8	OK banking	ONE Bank Limited
9	FSIBL FirstPay SureCash	First Security Islami Bank Limited
10	Hello	Bank Asia Limited
11	Sure Cash	Sure Cash
* Name of license, as per Central Bank regulation		

[71] Arun Devnath. 2015. Bangladesh Backs Mobile Phones to Move Cash Among Rural Poor. www.bloomberg.com/news/articles/2015-07-24/who-needs-a-bank-bangladesh-pushes-mobile-phones-to-move-money

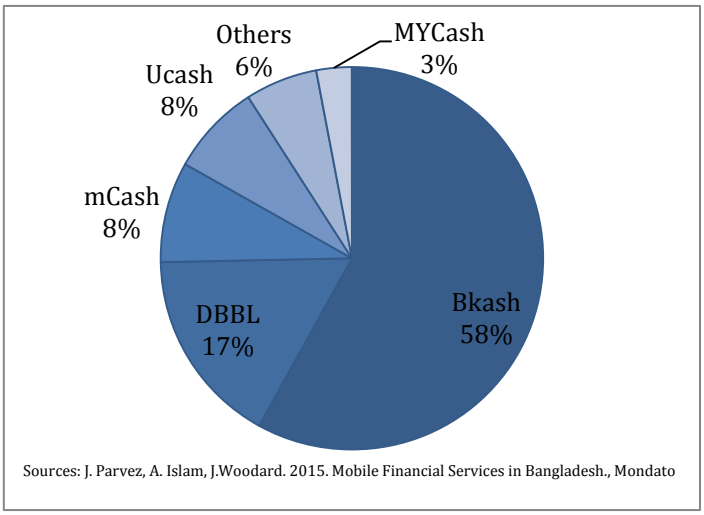
[72] 15 years or older

[73] World Bank. 2016. Findex. www.worldbank.org/en/programs/globalfindex

The two major players are bKash and Dutch Bangla Bank (DBBL) Mobile Banking. bKash is a purpose-built company providing Mobile Money Services. It has a bank as a stakeholder, as it is a subsidiary of BRAC Bank, but it is a de facto standalone provider. DBBL Mobile Banking is the second largest player. Islami Bank's mobile banking service, mCash, has achieved modest success, but lacks a vast network of Agents.[74]

While the market may appear competitive in terms of the number of banks offering mobile money products, the dominance by bKash suggests otherwise, with about 60 percent market share, followed by DBBL Mobile Banking with one-sixth of the subscriber base. The rest of the providers have about a quarter of the market (Figure 7).

Figure 7: Bangladesh Mobile Money Providers Market Share



There is no Interoperability in the market, and the relatively large number of players creates inefficiencies for both users and providers. For example, if a school partners with one bank, the hospital with another and the employer with a third provider, Payers are forced to have multiple accounts and maintain the respective balances in order to make payments to all recipients.

4.2.2 Business Model

4.2.2.1 Commercial Model

The market leader bKash is owned by four entities, namely BRAC Bank, Money in Motion, the International Finance Corporation and the Bill & Melinda Gates Foundation.[75] Due to the PSP-driven commercial model, providers need to share revenues and pay fees to MNOs for USSD, SMS and data. Even though the bank-driven model is considered the safest from a regulatory point of view, it could be

[74] Syed Zain Al-Mahmood. 2015. *Mobile Banking Provides Lifeline for Bangladeshis*. www.wsj.com/articles/mobile-banking-provides-lifeline-for-bangladeshis-1435043314
[75] CGAP. 2014. *bKash Bangladesh: A Fast Start for Mobile Financial Services.*

inefficient because it requires a couple of partners and, often, payment for telecom services. This makes it is expensive and also hinders investment, because partners are reluctant to invest while not necessarily directly "owning" the customer relationship.

MNOs do not want to participate in a business model where they do not own the customer relationship either, or at least have some significant share, and thus the service provider must pay the MNO data, USSD, SMS and other fees that in turn increase the Mobile Money service fees. Because MNOs can only own a very small part of an MFS business, they have not actively participated in these businesses thus removing a convenient service channel for their customers. There are 130 million mobile phone subscribers[76] but only 35 million Mobile Money ones[77] in Bangladesh at present, reflecting a significant number of unrealized customers for Mobile Money.

While some MNOs are hoping for a change in regulation, others are taking things into their own hands. For example, Axiata Group bought shares in Trust Bank. Thus, Axiata will work together with Trust Bank to provide Mobile Money Services in Bangladesh. Robi Axiata, the local subsidiary, has the distribution network and Trust Bank has a license and close government relations that can be leveraged to allow them to provide government disbursements. Not all MNOs have a large parent company to do that, but Telenor, which owns Grameenphone, could be next to look into an alternative arrangement.

As discussed in the regulatory section below, if MNOs are allowed a larger share in a Mobile Money business, there are potential benefits for the market including larger distribution networks, lower prices, more investment funds and the ability to use the already biometrically registered SIM cards for KYC. Also, MNOs have a lot of customer data, which can be used to develop credit histories to provide loans. Currently, Robi offers airtime credit in partnership with Tiaxa, which could be extended to provide Mobile Money credit, regulation permitting.

4.2.2.2 Service Characteristics

4.2.2.2.1 Distribution network

Agents are the backbone of Mobile Money deployments everywhere, but they are especially important in Bangladesh, where a large percentage of the users are illiterate and/ or do not know how use their mobile phone to send messages, thus relying on Agents to carry out their transactions. The Agent network is concentrated in cities and upazilas (a second tier of regional administration for urban areas, which is then followed by the village), and Agent penetration has not reached village level yet. One of the reasons for this is that Agent networks are expensive to create and operate.

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[76] BTCR. 2016. *Mobile Phone Subscribers in Bangladesh March, 2016.* www.btrc.gov.bd/content/mobile-phone-subscribers-bangladesh-march-2016

[77] Bangladesh Bank. 2016. *Mobile Financial Services (MFS) comparative summary statement of June, 2016 and July, 2016.* www.bb.org.bd/fnansys/paymentsys/mfsdata.php

bKash and DBBL have the largest distribution networks, and even though DBBLs network is only slightly smaller than bKash's (Table 5), bKash has over three times more users (17M vs. 5.2M).[78]

Table 5: Bangladesh Distribution Network

	Number of Agents	Bank Branches	ATMs
bKash	151,000	150	300
DBBL MB	134,500	155	4,000
mCash	90,000	294	450
MYCash	97,000	100	720
UCash	105,00	156	105
SureCash	33,000	1,000	320
IFIC	82,500	130	57
OK Banking	90,000	72	32
Trust Bank Mobile	22,000	101	170

Sources: Microlinks. 2016. Mobile Financial Services Comparison Chart. http://www.microlinks.org/sites/default/files/resource/files/MFS_Comparison_Chart_April2016.pdf, Mondato Research and Analysis

The majority of Agents in Bangladesh are not exclusive, and many Agents represent multiple providers. Thus, the indicated Agent network size can be misleading because of double counting. Agents in Bangladesh reject exclusivity because they cannot generate the necessary income from only one provider.

There are limited mechanisms for properly monitoring Agents. For instance, it is not possible to detect a fake customer, as providers do not have access to the national ID database. It is also difficult to enforce KYC requirements when the majority of transactions are OTC between Agents.

Beyond customers' need to use Agents due to illiteracy and lack of ability to use a mobile phone beyond calls, another reason for OTC prevalence is related to Agent remuneration. OTC transaction fees are higher than Wallet fees and it is difficult to understand the fee structure, even on their website[79]. For a P2P Wallet-based transaction, the fee is between BDT 3 and 5 while the OTC standard rate is BDT 20. Users do not generally know that, and Agents do not educate them because they get paid once between BDT 30-50 to open a Wallet but BDT 20 per every OTC transaction. If the users all had Wallets, the Agents would then lose out on many per transaction fees, and only get cash out fees. This type of fee structure is in practice across the board with other services having followed the lead of bKash. However, even if the supply side changes, OTC will be an issue for a few more years due to the lack to technology savvy and literacy of some of the users.[80]

[78] *Microlinks. 2016. Mobile Financial Services Comparison Chart. www.microlinks.org/sites/default/files/resource/files/MFS_Comparison_Chart_April2016.pdf*

[79] bKash. 2016. *Tariff*. www.bkash.com/support/tariff-limits/tariff

[80] Interview with Jaspreet Singh, Regional Technical Specialist at UNCDF, 17 May 2016

4.2.2.2.2 User Experience

The User Experience (UX) is another reason for the prevalence of OTC transactions. The language of the USSD menus SMS for Mobile Money is English, which may pose a problem even for literate individuals. This is usually restricted by the Mobile Money technology platform's capabilities. However, bKash may be able to offer a menu in Bengali soon as they are acquiring a newer Mobile Money platform.

In order to carry out wallet transactions, the user must complete five or more steps, and the menus are not always intuitive to work through, and with transactions being time-limited they often time out. Thus customers can become frustrated and sometimes are unsure if their transaction was completed. The difficult menus can lead to mistakes, which are difficult to correct and can result in lost funds.[81]

If providers want to migrate users from OTC to Wallets, more attention must be paid to the UX in addition to accounting for the growing number of smart phones in the market.

4.2.2.2.3 Services

Currently the most common use case for Mobile Money Services and Agent Banking is domestic Remittances. The vast majority of transactions in Bangladesh are OTC domestic Remittances, representing 90 percent of transactions.

The OTC transactions are completed with the assistance of an Agent and can be categorized as either a pure OTC transaction (between two Agents) or partial OTC transaction (between an Agent and a customer). OTC transactions do not carry the benefits of a Wallet but can be a first step towards Financial Inclusion.

Airtime top-up transactions are gaining acceptance, but so far the market has failed to engage users in more advanced transactions such as utility bill payment, salary payment, payment collection, Merchant Payment, and savings schemes, even though they are available. Customers feel that the current services are not meeting their needs, as in a recent survey that found a primary reason for not using Mobile Money Services is a feeling that they do not need it.[82] Thus, product and operational innovation would be helpful to develop and market new services to increase its perceived usefulness.

4.2.2.2.3.1 Basic

As mentioned, of the basic services, P2P transfers are dominant and airtime top up is gaining traction. Bill payment is available, but has not seen significant uptake. The main reason for the success of P2P was the need for affordable domestic remittances, however, a recent study showed that the market is becoming saturated and growth has slowed down. People that are aware of the services are still unconvinced of its benefits.[83]

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[81] Michelle Kaffenberger. 2016. *Mobile Money in Bangladesh Plateaus after Fast Start*. www.cgap.org/blog/mobile-money-bangladesh-plateaus-after-fast-start
[82] Michelle Kaffenberger. 2016. *Mobile Money in Bangladesh Plateaus after Fast Start*. www.cgap.org/blog/mobile-money-bangladesh-plateaus-after-fast-start
[83] InterMedia. 2016. *Bangladesh*. http://finclusion.org/country/bangladesh.html

4.2.2.2.3.2 Advanced

There are some advanced services live in the market, but m-insurance has the largest number of providers and services.

MNOs can provide insurance but not commercial payment services. They have therefore begun using m-insurance as a way to decrease churn and increase average revenue per user. M-insurance is provided by Robi, Grameenphone and Banglalink for which they even offer life insurance cover to their subscribers. Currently, around 7.5 million mobile subscribers are covered under various insurance schemes.[84] For example, Grameenphone offers free life insurance called Grameenphone Nirvoy Life in partnership with Microensure.[85] Robi works with MILIK/ BIMA to provide free life insurance to pre-paid subscribers who meet a certain minimum spending a month.[86] Banglalink's similar service is called Banglalink Priyojon Insurance.[87]

However, the overall success of m-insurance is likely impacted by their inability to make and collect micro payments cheaply via mobile. For the time being, providers have to go through bKash and other providers. But, the cost is usually high which hampers further development of insurance services in the market.

Of the more advanced services, m-loans via Mobile Money are not available, as providers are not allowed to offer these. However, Mobile Money Services and Agent Banking can be a Channel to collect and receive payments for loans, depending on the transaction fees.

On the savings side, providers can pay interest, and bKash provides interest on balances, however, because of OTC dominance there are few who use the service.

Water and energy payments and finance is currently limited but has potential. For example, during the dry season farmers need water and the government gives irrigation subsides. A large portion of the population lacks access to electricity and accessing solar energy by paying via Mobile Money is another possible use case, depending on the contracted transaction fees.

International Remittances are still a relatively new use case for Mobile Money in Bangladesh with large potential. Regulation allows for International Remittances to be received via Mobile Money and current providers offer such services. In April 2016, a new International Remittance receiving service via a partnership between MasterCard, Western Union, bKash and BRAC Bank was launched. The service enables bKash's customers to receive Remittances from abroad directly into their bKash accounts.[88]

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[84] Asia Insurance Review. 2014. *Bangladesh: Life insurance cover for mobile subscribers***.** www.asiainsurancereview.com/Magazine/ReadMagazineArticle?aid=35440

[85] Grameenphone. 2013. www.grameenphone.com/personal/offers/nirvoy-free-life-insurance

[86] MILVIK. 2012. *Robi Partnership*. www.milvikbd.com/robi-partnership

[87] Banglankink. 2016. *Banglalink Priyojon Insurance*. www.banglalink.com.bd/en/packages/priyojon-program/banglalink-priyojon-insurance/

[88] Western Union. 2016. *MasterCard, Western Union Join bKash to Make Cross-Border Money Transfers into Mobile Phones a Reality for 22 Million Bangladeshis.* http://ir.westernunion.com/News/Press-Releases/Press-Release-Details/2016/MasterCard-Western-

One area for potential digitization is government subsidies. The government program that makes payments to farmers every year could benefit from using Mobile Money to make these disbursements both more cost effective and easier to track program spending. Using Mobile Money for large disbursements would not only provide impetus for Agent network development in rural areas but also incentivize one of the largest sectors in the economy to begin using the services. Once the agriculture sector has access to basic mobile money services then more advanced agriculture products, such as warehouse receipt financing, can be introduced.

4.2.2.2.3.3 Commerce

Bangladesh is increasingly becoming a big growth market for discretionary consumption. Half of Bangladeshis still live at the so-called bottom of the pyramid but economists estimate that another 30 million to 40 million will enter the middle class by 2025.[89]

Using Mobile Money for Merchant Payments is increasingly important for bKash, and they are actively looking to increase their merchant base. bKash has 17,230 merchants and DBBL has 4,500, while the other providers have about 100 and 550 merchants each.[90] This remains a small proportion of the total number of merchants in the country, estimated to total around 400,000, but is increasingly becoming a strategic focus area.

4.2.2.2.3.4 Disbursements

Disbursements for salaries and government payments can help transform the sector, but it is still in early days.

Salary disbursements offer a huge opportunity for Mobile Money. Ready Made Garments sector employees are already big users of bKash, mainly for OTC domestic Remittances, but if they can get paid in a Wallet, the likelihood of them using the Wallet to send money would increase. The Gates Foundation and the World Bank are already promoting RMG payments.

Another big opportunity is in government payments (payments made by the government to individuals such as pensions and subsides) and payments made by individuals to the government such as taxes and fees. The government currently pays out to only to four government banks, which in turn select private banks to do the disbursements and DBBL is one of them. DBBL claims that their market share went up 25 percent because of their G2P payments and their special government

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Union-Join-bKash-to-Make-Cross-Border-Money-Transfers-into-Mobile-Phones-a-Reality-for-22-Million-Bangladeshis/default.aspx

[89] Z. Munir, O. Muehlstein, V. Nauhbar. 2015. *Bangladesh: The Surging Consumer Market Nobody Saw Coming.* www.bcgperspectives.com/content/articles/center-customer-insight-go-to-market-strategy-bangladesh-surging-consumer-market/

[90] *Microlinks. 2016. Mobile Financial Services Comparison Chart. www.microlinks.org/sites/default/files/resource/files/MFS_Comparison_Chart_April2016.pdf*

relationship.[91] However, 71% of G2P recipients do not own a mobile phone, which could be a barrier to adoption. Thus, alternatives must be considered.[92]

DBBL is also running pilots as part of the Access to Information (a2i) program[93], under the Prime Minister's office. The government is testing a pilot with other providers as well, and they want to work with multiple providers to see what is best for them. One issue will be to determine how transaction costs are distributed across the various parties for these disbursements. Even if there are no direct charges to the recipient on the actual transfer, adoption may be still deterred if the recipient still needs to pay a fee for cashing out those funds.

In terms of corporate payments, DBBL has focused on providing corporate payments and claims to have the largest number of corporate clients. On the other hand, Standard Chartered Bank Bangladesh has partnered with bKash to launch Straight2Bank Wallet. With this service, Standard Chartered's corporate clients can make fund transfers to bKash Wallets via their Straight2Bank Wallet. The service improves clients and beneficiaries' cash flows, visibility and certainty in payment date.[94]

NGOs use bKash to disburse payments and grants including Oxfam, Plan Bangladesh (DFID), HelpAge International, and English in Action.[95] DBBL, on the other hand, is partnered with the World Food Program to disburse food aid, the Shakti Foundation for farmer microcredit and employee salaries, the USAID Mama Project, Apex Holding, MetLife Alico, and Infolady.[96]

4.2.3 Agent Banking

Agent Banking provides limited-scale banking and financial services to the underserved population through Agents.[97] There are separate regulatory guidelines on Agent Banking issued by the Central Bank. The goal is to promote Financial Inclusion in rural areas at the sub-district level. Agent banking is a cheaper Channel for banks to reach remote areas. These services are still ramping up with and the levels of adoption are yet to be determined.

Usually, the Agents are based in village markets and they can offer more advanced services than Mobile Money Agents. Users can open a limited Bank Account with biometric Authentication. Users can deposit and withdraw small amounts of money, as well as receive Remittances. The Agents can disburse small amounts of credit and collect loan installments and payments for utility bills. Customers can receive government assistance from social safety programs and deposit insurance

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[91] Interview with Abdul Kashem Md. Shirin, Deputy Managing Director, Dutch-Bangla Bank at ITU Conference 27-29

[92] Michelle Kaffenberger. 2016. *Mobile Money in Bangladesh Plateaus after Fast Start*. www.cgap.org/blog/mobile-money-bangladesh-plateaus-after-fast-start

[93] Access to Information Programme. *Digital Financial Inclusion*. www.a2i.pmo.gov.bd/content/digital-financial-inclusion

[94] bKash. 2015. *Standard Chartered partners with bKash to launch Straight2Bank Wallet Payments in Bangladesh.* www.bkash.com/news/standard-chartered-partners-bkash-launch-straight2bank-wallet-payments-bangladesh

[95] Mohammad Azmal Huda. 2015. *Business Model of bKash*.

[96] USAID. 2014. *Mobile Money Infosheet: DBBL Mobile Banking.*

[97] Bangladesh Bank. *Guidelines on Agent Banking for the Banks.*

premiums through the Agents. They can also transfer money from one account to another and check their account balance.[98]

DBBL and Bank Asia are the only providers in the market now, with about 2,000 outlets so far, and they have plans to grow. They have Agents in the sub-district upazilas, which make up the second lowest tier of regional administration, followed by villages. They are not present in the villages yet.

DBBL is investing in Agent Banking, and differentiates Agent Banking and Mobile Money. Mobile Money is an extension of their fuller banking services, and the DBBL Wallet and their core banking are interoperable. They are promoting their ability to serve all financial needs of an individual.

These Agent Banking services may cannibalize the micro finance institutions if Agents can go deeper into rural communities with their better rates and wider portfolio of services. For farmers, MFI rates are typically high and with onerous conditions. The paperwork to get a loan can be excessive, and getting a loan sometimes involves bribing the Agent to process an application. There is opportunity here, but Agent Banking providers need to streamline the application process with lower rates and simpler loan application procedures. It is too early to see how well the services offered to date have worked. But, if successful, assisting companies to grow their Agent networks would be a pivotal step forward.

4.2.4 Performance

4.2.4.1 Transactions/ Ecosystem

The ecosystem is growing, but begs for further diversification. In March 2016 there were 585,000 Agents carrying out about 4 million transactions per day. However, the majority of these transactions are Cash-In and Cash-Out, followed by P2P (Table 6)[99]. One of the reasons for high CICO numbers is that most of the transactions are still over the counter (OTC). There are about 25,000 Merchants accepting Mobile Money today, but these do not have to be exclusive and can serve multiple providers—thus the above number could be misleading because of double counting.[100]

Table 6: Mobile Financial Services Comparative Summary Statement Feb & March 2016

	Description	Amount (Feb, 2016)	Amount (March, 2016)	% Change
1	No. of approved Banks	29	29	
2	No. of Banks started to convey	18	18	
3	No. of Agents	576,996	584,912	1.37%

[98] BDNews24. 2015. *Bangladesh Launches Agent Banking in Areas with no Bank Branches*. http://bdnews24.com/economy/2015/03/06/bangladesh-launches-Agent-banking-in-areas-with-no-bank-branches

[99] Atiur Rahman. 2015*. Financial Inclusion Bolstering Inclusive Economic Growth in Bangladesh.*

[100] *Microlinks. 2016. Mobile Financial Services Comparison Chart. www.microlinks.org/sites/default/files/resource/files/MFS_Comparison_Chart_April2016.pdf*

4	No. of registered clients (Million)	33.98	34.89	2.66%
5	No. of active accounts (Million)	14	14.24	1.72%
6	No. of total transaction	116,208,212	121,334,768	4.41%
7	Total transaction (Million BDT)	165,688.9	182,415,1	10.09%
8	No. of daily average transaction	3,873,607	4,044,492	4.41%
9	Average daily transaction (Million)	5,523	6,080.5	10.09%
10	Additional information	Amount	Amount	
a.	Inward Remittance	38.2	47.7	24.87%
b.	Cash In transaction	69,352.3	77,332.9	11.51%
c.	Cash Out Transaction	60,413.5	70,507.8	16.71%
d.	P2P transaction	27,496.8	28,128.8	2.3%
e.	Salary Disbursement (B2P)	1,685.8	1,573.5	-6.66%
f.	Utility Bill Payment (P2B)	1,418.7	1,827	28.78%
g.	Others	5,283.6	2,997.4	-43.27%
Sources: Bangladesh Bank.2016. Mobile Financial Services Comparative Summary Statement Feb & March 2016. http://www.bb.org.bd/fnansys/paymentsys/mfsdata.php, Mondato Research and Analysis				

4.2.4.2 Active/ Registered Users

In March 2016, there were nearly 35.2 million mobile Bank Accounts, although less than half of them (14.2 million) were active.[101] bKash has 17 million subscribers, followed by DBBL MB with 5.2 million, followed by mCash and UCash with 2.3 million and 2.2 million respectively, and the rest are distributed among the other players.[102] Active accounts are less telling of overall transaction activity in the case of Bangladesh because of OTC. The goal of providers is to increase the number of active accounts and migrate OTC users to Wallets so that customers can take advantage of advanced financial services.

4.2.5 Key Challenges

While Bangladesh has made progress in Mobile Money and Agent Banking, the market is dominated by one player. A lack of competition may inhibit ecosystem growth where incentives are diminished to develop differentiated value propositions. Although there is a relatively large number of companies looking to offer services, few have been able to gain any traction in taking market share away from bKash. This is possibly due to the strong network effects of mobile money on a service-by-service basis in the absence of interoperability. User experience is particularly challenging, hence the reliance on OTC. Adoption of Mobile Money may be plateauing under the current market environment given the lack of new use cases beyond money transfer.

1. Market Structure
    a. Lack of Interoperability
    b. Limited competition
        i. High cost of platform
        ii. High cost of developing and maintaining Agent Network

[101] [101] Atiur Rahman. 2015. *Financial Inclusion Bolstering Inclusive Economic Growth in Bangladesh.*
[102] *Microlinks. 2016. Mobile Financial Services Comparison Chart. www.microlinks.org/sites/default/files/resource/files/MFS_Comparison_Chart_April2016.pdf*

        iii. Need for revenue share with MNOs
        iv. Lack of business knowledge—providers do not understand the business, nor mobile technology; bKash is doing well largely because much of its staff has an MNO background
        v. Exclusion of MNOs
2. Business Model
    a. Lack of business knowledge
    b. Exclusion of MNOs
        i. MNOs are not willing to participate with a small company share, but are finding ways around it e.g., Robi Axiata and Trust Bank
    c. Providers have to pay fees for telecoms services, which leads to higher Mobile Money service fees
3. Distribution network
    a. Expensive—due to OTC dominance and high Agent fees per transaction
    b. Costly for Agents to start the business—distributors have sunken costs and may not be able to sustain the service until they break even
    c. Lack of electronic record keeping of transactions, as OTC transactions do not always capture the sender and recipient data
4. User Experience
    a. Widespread illiteracy and ability to use a mobile phone beyond simple calls
    b. Complex UX
    c. OTC–currently desirable as they serve customers, but need to decrease reliance on Agents
5. Use cases and products
    a. Lack of compelling use cases that users understand
    b. Low uptake of services beyond basic use cases
    c. Low savings rate, majority of transactions are OTC
    d. No mobile loans—disallowed by regulation
    e. M-insurance faces expensive collection and disbursement transaction fees by Mobile Money providers, as they work with MNOs. Insurance companies need a large customer base to diversify risk and MNOs provide that.
    f. Mobile Money fees high for small value transactions for services provided by 3rd parties, other than as insurance, such as solar energy.
6. Transactions/ Ecosystem—size is still small
    a. Active/ Registered Users—adoption is still low, especially the number of active users, lack of service awareness
7. Women—few women are using Mobile Money Services
    a. Low-level of device ownership
    b. Widespread illiteracy and inability to use a mobile phone beyond simple calls
    c. Lack of women Agents where women are located

Suggestions for how these challenges can be overcome are included in Section 7.2.1.1

4.3 Regulatory

4.3.1 Regulatory Framework for Mobile Money Services/ Agent Banking

In terms of regulatory models for Mobile Money Services/ Agent Banking, Bangladesh sits firmly within the institution-focused framework as the country has followed a bank-driven regulatory model. All customer accounts must be held with a bank (or a bank subsidiary), and it is these accounts that are accessible through a customer's mobile phone. Banks are required to seek prior approval from the Central Bank of Bangladesh (Bangladesh Bank) before offering any Mobile Financial Services (MFS), as defined below.

The *Mobile Financial Services Guidelines* (the "*MFS Guidelines*") were issued in 2011, when it was established that only the bank-driven MFS model is allowed to operate.[103] In specific, only scheduled commercial banks and their subsidiaries may be approved under the *MFS Guidelines*[104]. Non-bank entities may not operate MFS, but they may provide ancillary services (such as a communication Channel or act as Agents) or be investors in a MFS subsidiary (such as the situation for bKash[105]).

In order for a bank/ subsidiary to offer MFS, in addition to having a license for payment services under the *Bangladesh Payment and Settlement Systems Regulations 2014*[106], it must obtain prior approval from Bangladesh Bank for the MFS, by providing full details of the service, including its tentative implementation schedule, and the submission of agreement(s)/ MOU(s) containing the Service Level Agreement signed between banks and their partners/ Agents before the service launch.[107]

The services authorized to be performed pursuant to the *MFS Guidelines* are as follows: (i) disbursement of inward foreign Remittances, (ii) Cash-In/ Cash-Out using mobile accounts through Agents, Bank branches, ATMs or Mobile Operator's outlets, (iii) person to business payments, such as utility bill payments and Merchant Payments, (iv) business to person payments, such as salary disbursement, dividend and refund warrant payments, and vendor payments, (v) government to person payments, such as elderly allowances, freedom-fighter allowances, and other subsidies, (vi) person to government payments, such as tax, levy payments, (vii) person to person payments and (viii) other miscellaneous payments, such as microfinance, overdrawn facility, insurance premium, etc.[108]

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[103] Clause 6 Mobile Financial Services Guidelines 2011
[104] Clause 4 Mobile Financial Services Guidelines 2011
[105] bKash is a subsidiary of BRAC (51% shareholding), and has several non-bank shareholders (Money in Motion has 36.5%, with Bill & Melinda Gates Foundation and IFC as minority investors).
[106] Clause 5.1 of the *Payment and Settlement Systems Regulations 2014* sets out the relevant conditions to be met in order to be granted a license, including: sound financial background and solvency, robust governance arrangements, clear rules to resolve disputes associated with payment services, and safe IT systems.
[107] Clause 7.1 2 and Clause 7.1.3 Mobile Financial Services Guidelines 2011
[108] Clause 5 Mobile Financial Services Guidelines 2011

4.3.2 Capital Requirements

Clause 5.3 of the *Payment and Settlement Systems Regulations 2014 ("PSS Regulations")* states that in order to be granted a payment service license, the Bangladesh Bank may require the payment services operator to maintain capital at a specified level.[109] The *PSS Regulations* specify that the "capital level will be determined by the type of service, average value of payments, aggregate value and other factors as the Bangladesh Bank deems necessary."[110] There are no provisions in the *MFS Guidelines* specifying any specific initial or ongoing capital requirements, so we assume that there are no capital requirements beyond those relating to the bank license and the payment services license.

4.3.3 Safeguarding of Funds

In regard to the safeguarding of customer's funds from a MFS provider's insolvency, Bangladesh requires MFS providers to hold an e-float[111] in Bank Accounts. As the *MFS Guidelines* state: *'At any point of time, the relevant balance in bank book (sic) shall be equal to the virtual balance of all registered mobile accounts shown in the system. Banks will be the custodian of individual customers' deposits.'*[112] The regulations do not specify whether the value of those accounts needs to be held in individual or pooled trust accounts. Instead, it is up to the MFS provider to decide.[113] Further, the *MFS Guidelines* are silent on exactly how the virtual balance (or e-float) needs to be reconciled, and it is not clear how each bank is managing this process.[114]

As for protection against the insolvency of the bank that holds the e-float, all deposits in Wallets—up to 100,000BDT[115]—are insured if the e-float is held by a bank. This insurance, however, does not pass through to e-floats that are held by subsidiaries of banks. This thus poses a particular problem for bKash in regard to the e-floats it retains in its own Bank Accounts (versus those that it retains in other banks, which is often the case in rural areas where bKash has no physical presence).

Exceptionally in Bangladesh, interest is currently paid to customers on mobile customer deposits,[116] but this does not represent the general trend in the South Asia region or globally. However, according to the new draft guidelines that are currently being considered by the Bangladesh Bank (see section on Legislative Reform), it may not be obligatory to pay interest/ profit on balances in mobile accounts due to the fact that the accounts are not meant to be deposit accounts. Rather it will then

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[109] Clauses 5.1-5.3 Bangladesh Payment and Settlement Systems Regulations 2014
[110] Clause 5.3 Bangladesh Payment and Settlement Systems Regulations 2014
[111] "e-float" means the maintenance of liquid assets equivalent to the total value of the customer funds collected.
(i.e., the total value of electronic value issued and outstanding), as per M. Tarazi and P. Breloff. 2010. *Nonbank E-money Issuers-Regulatory Approaches to Protecting Customer Funds* CGAP Focus Note 63 p. 3.
[112] Clause 7.1(5) Mobile Financial Services Guidelines 2011
[113] Parvez, I. and Woodard. 2015. *Mobile Financial Services in Bangladesh* p32
[114] Parvez, I. and Woodard. 2015. *Mobile Financial Services in Bangladesh*, p61
[115] Information provided by Shah Zia-ul Haque, Joint Director, Payments Systems Department, Bangladesh Bank as follow up to interview 16 May 2016
[116] Clause 7.5 Mobile Financial Services Guidelines 2011

be at the bank's discretion to remunerate mobile account balances over a certain threshold.[117]

4.3.4 AML/ CTF/ KYC

The obligations to comply with the AML/ CTF procedures are set out in both the *PSS Regulations* and in the *MFS Guidelines*.

In the *PSS Regulation*, a Licensed Payment Service Provider is obliged, as an applicant for a license, to provide proof of its ability to comply with all of the AML/ CTF laws, standards and measures.[118] And per the *MFS Guidelines*, banks have to comply with the prevailing AML/ CTF laws, regulations and guidelines as issued by the Bangladesh Bank from time to time, and are obliged to monitor and report on any suspicious activity/ transactions likely to be related to money laundering or terrorist financing activities.[119]

In relation to KYC, banks and their Agents and partners are obliged to use a prescribed KYC form[120], and ensure completion of all required documents. The identity requirements are either a photocopy of the applicant's national ID card, a copy of their citizenship certificate or a copy of their driving license or passport. It is our understanding that all these records must be retained in paper form, even if the payment system is fully digital, as is the case with bKash's system. These requirements apply to all types of banking and payment services, including MFS, so one could argue there is a 'one-size fits all' policy to KYC. However, the Bangladesh Financial Intelligence Unit (BFIU) is currently working on a policy for tiered KYC (see Legislative Reform section for further details).

Of note is the fact that on December 16, 2015, Bangladesh launched biometric SIM card registration. Biometric verification devices are linked with the national identity card database of the Election Commission. Subscribers verify their identity with a fingerprint and will be allowed to register a maximum of 20 mobile SIM cards against their national identity card.[121] So far there has been no legislation allowing the registered SIM card as a replacement for primary identification in KYC, but we query whether this will be extended in the future to allow for remote, non face-to-face KYC.

A unique issue concerning Bangladesh today is the high incidence of OTC transactions and its implications for effective AML/ CTF. Over 75 percent of Mobile Money users in 2014 did not have an account; rather they transacted through an Agent using OTC.[122] Often, the MFS Agent performs the transaction on behalf of the customer by sending money from his/ her personal account to the personal account of the Agent of the recipient, and thus neither the sender nor the recipient needs to

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[117] Clause 6.7 (ii) Regulatory Guidelines for Mobile Financial Services July 2015
[118] Clause 5(2)(g) Payment and Settlement Systems Regulations 2014
[119] Clause 7.6 Mobile Financial Services Guidelines 2011
[120] as set out in Annex 1 of the Mobile Financial Services Guidelines 2011

[121] S. Mayhew. 2015. *Biometric Registration for SIM Cards in Bangladesh Starts Wednesday www.biometricupdate.com/201512/biometrics-registration-for-sim-cards-in-bangladesh-starts-wednesday* '.'
[122] Intermedia. 2014. *Bangladesh Quick Sights Report FII Tracker Survey Wave 1* http://finclusion.org/uploads/file/reports/FII-Bangladesh-Wave-One-Survey-QuickSights-Report.pdf

have a Mobile Money Account, nor to undergo proper KYC to use the service (although the Agent still charges a significant commission). This amounts to a fraudulent transaction on the part of the Agents, and the Bangladesh Bank issued in November 2014 a circular to discourage Mobile Payments made by individuals without a mobile Wallet (the "*OTC Circular*")[123]. Pursuant to the *OTC Circular*, Agents are not allowed to use their own Agent account to perform Cash-In or P2P transactions with other Agents. Further, in order to address the issues around Agents owning multiple personal accounts to conduct OTC transactions (and thus to circumvent the 5 Cash-In transactions per day limit), Bangladesh Bank has restricted account ownership to one MFS account per MFS provider.

The *OTC Circular*, however, has not provided the Bangladesh Bank with an effective mechanism to properly monitor Agents[124]. From our interviews we have determined that the Bangladesh Bank feels it is very difficult to monitor the Agents or sanction them directly through changes in the Agent guidelines or other regulations. Thus the Bangladesh Bank is trying to educate the population in order to make them more likely to open a Wallet, appealing more to the carrot than the stick.[125] Nevertheless this is a serious issue that could result in Bangladesh facing international reprisals for non-compliance with internationally accepted AML/ CTF controls.[126]

4.3.5 Agents

A critical Channel of distribution stimulating Financial Inclusion in Bangladesh is the agency model, as is highlighted by its *Guidelines on Agent Banking for the Banks 2013* ("*Agent Banking Guidelines*"): "Agent Banking means providing limited scale banking and financial services to the underserved population through engaged Agents under a valid agency agreement."[127] The purpose behind these *Agent Banking Guidelines* was to promote Agent Banking as a complementary Channel to reach poorer segments of the population, as well as existing bank customers, with a range of financial services offered to geographically dispersed locations.

As per the *Agent Banking Guidelines,* engaged Agents under a valid agency agreement can conduct banking transactions on behalf of all scheduled banks. Agents are authorized to perform various transactions, such as: (i) the collection of small value cash deposits and cash withdrawals; (ii) inward foreign Remittance disbursement; (iii) the facilitation of small value loan disbursement and recovery of loans, instalments; and (iv) the facilitation utility bill payments, but they are not, for example, to give final approval of the opening of Bank Accounts and/ or issuance of bank cards/ checks, to deal with loan/ financial appraisal or to deal in foreign currency. [128] Agents cannot charge additional fees for these services.[129]

Banks may authorize the following types of entities as their Agents: (i) NGO-MFIs regulated by Microcredit Regulatory Authority of Bangladesh; (ii) other registered

[123] Parvez, I. and Woodard. 2015. *Mobile Financial Services in Bangladesh* p 30
[124] Parvez,I. and Woodard. 2015. *Mobile Financial Services in Bangladesh* p 24
[125] Information provided by Shah Zia-ul Haque, Joint Director, Payment Systems Department, Bangladesh Bank as follow up to interview 16 May 2016
[126] GSMA Intelligence Analysis. 2014. *Country Overview Bangladesh* p19
[127] Clause 1 Guidelines on Agent Banking for the Banks 2013
[128] Clauses 4.1 and 4.3 Guidelines on Agent Banking for the Banks 2013
[129] Clause 8 Guidelines on Agent Banking for the Banks 2013

NGOs; (iii) Cooperative Societies formed and controlled/ supervised under *Cooperative Society Act, 2001*; (iv) post offices; (v) courier and mailing service companies registered under Ministry of Posts &Telecommunications; (vi) companies registered under '*The Companies Act, 1994'*; (vii) Agents of Mobile Network Operators; (viii) offices of rural and urban local Government institutions; (ix) Union Information and Service Centre (UISC); and (x) educated individuals capable to handle IT based financial services, Agents of insurance companies, owners of pharmacies, chain shops and petrol pumps/ gas stations.[130]

To enable Agent Banking, a bank is required to seek approval from the Bangladesh Bank by submitting full details of the services to be undertaken, and submitting copies of the MOU agreements. A list of the Agents names and addresses is submitted to the Department of Currency Management and Payment Systems on a monthly basis.[131]

The criteria for selecting Agents includes competence to implement and support the proposed activities, financial soundness and cash handling capability, ability to meet commitments under adverse conditions, business reputation, ability to offer technology based financial services, security and internal control, audit coverage, reporting and monitoring capacity, and disqualification of loan defaulter or a convicted person.[132]

The *MFS Guidelines* also contain provisions in regard to Agents. Only those entities that have a countrywide branch network such, as NGOs, the MNOs or the Government Postal Department, may act as partner/ Agent.[133] MFS providers are required to provide an updated list of the cash points/ Agents with their names and addresses to the Department of Currency Management and Payment System of the Bangladesh Bank on monthly basis[134] and to have clear Agent selection policy and procedures. Further, the *MFS Guidelines* set out what should be included in the agency agreements as well as selection criteria that are essentially the same to the *Agent Banking Guidelines*.[135] There are no explicit restrictions on the activities of MFS Agents, so it is submitted that they are authorized to undertake all the activities set out in Clause 5 of the *MFS Guidelines*.

Many of the provisions are similar between the *MFS Guidelines* and the *Agent Banking Guidelines*, except for the more restrained requirement for country wide networks for MFS Agents and the fact that bank Agents (but not MFS Agents) can facilitate loans/ collect loan documentation (but not actually appraise the loan). This would suggest that MFS is considered as requiring slightly tighter Agent regulation, i.e. need for Agents to be part of a network with countrywide reach. Even taking into a count the specificity of MFS, it is not immediately clear why this is this required.

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[130] Clause 5 Guidelines on Agent Banking for the Banks 2013
[131] Clause 7 Guidelines on Agent Banking for the Banks 2013,
[132] Clause 12 Guidelines on Agent Banking for the Banks 2013,
[133] Clause 8 Mobile Financial Services Guidelines 2011
[134] Clause 7.1.4 Mobile Financial Services Guidelines 2011
[135] Clause 8 Mobile Financial Services Guidelines 2011

4.3.6 Interoperability

At present Interoperability is not mandated in Bangladesh; it is left to market forces i.e. the banks may, in their discretion, decide whether to pursue it. The *MFS Guidelines* simply state that "banks may link their Mobile Financial Services with those of other banks for the convenience of the users." [136]As it currently stands, there is no such Interoperability—it is not possible to send money from an account on one MFS provider to an account on another MFS provider (i.e. to send money from a bKash to a DBBL account).[137]

With the potential for all of the 28 banks that have already received MFS licenses to eventually have products on the market, since 2015 the Bangladesh Bank has been considering actively encouraging Interoperability. In the proposed new *Regulatory Guidelines for MFS July 2015* (the "*Draft Guidelines*"), Interoperability is supported as being the basis for the "multi-bank" option, with Clause 12 requiring all MFS platforms to cooperate and work together in promoting Interoperability between the platforms and to develop linkages with the upcoming integration platforms such as the National Payments Switch. MFS Operators are to "proactively foster linking of the Mobile Accounts of customers with their existing or new accounts in banks and Financial Institutions; maximizing access of customers to credit, deposit and other financial services through the Mobile Accounts, simultaneously expanding the business and income bases of the MFS platforms."[138] However, at this stage it is unsure whether these *Draft Guidelines* will be enacted into law.

4.3.7 Telecom Regulation

The telecom regulator in Bangladesh is the Bangladesh Telecommunications Regulatory Commission (BTRC). The BTRC does not appear to have direct jurisdiction over Mobile Money/ MFS, but it is engaged in a dialogue with the Bangladesh Bank on MFS through a multi-stakeholder consultative committee on USSD, of which the BTRC is a stakeholder and the Bangladesh Bank is the chair. This committee, which includes representatives from the telecommunications association and multiple banks, meets every 2-3 months and is, as of April 2016, seeking through a dispute resolution mechanism to better understand the situation and serve as a mode for dialogue on USSD access. The Bangladesh Bank supports some sort of mandatory pricing for USSD, and it is probably likely that the MFS operators prefer bilateral agreements; we do not know the BTRC's position on this matter.[139]

Further, both the Bangladesh Bank and the BTRC are members of the National Payment Systems Council (NPSC) of Bangladesh, created in 2007, and which also includes a selected number of commercial banks, as well as representatives from the Ministry of Finance, the Ministry of Commerce, and the Comptroller General of Accounts. The NPSC, which is chaired by the Deputy Governor in charge of the Department of Currency Management and Payment Systems of the Bangladesh Bank, is the central vehicle in Bangladesh for formulating strategy, disseminating

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[136] Clause 11 Mobile Financial Services Guidelines 2011
[137] Parvez, I. and Woodard. 2015. *Mobile Financial Services in Bangladesh* p 61
[138] Clause 12 Regulatory Guidelines for MFS July 2015
[139] Phone interview with Shah Zia-ul-Haque at Bangladesh Bank, 11 May 2016

information on policy and good practices, and promoting technological development in the payments system. Since 2007, it has issued strategic directions to promote and encourage on-line banking, e-payments, use of shared ATMs, POS terminals, Mobile Payments, etc.

The role of Bangladeshi telecom operators in MFS is limited to the provision of access to technology (including USSD and Internet) to the banks which have been approved to offer MFS (and possibly as investors). Telecoms operators need to secure approval from BTRC to provide USSD connectivity to the banks they partner with. Once approved by the BTRC, subscribers of the respective mobile operator will be able to access the MFS of the partner bank.[140]

Also BTRC has imposed mandatory biometric SIM card registration since 1 February 2016 for all new subscribers (with old subscribers to be registered by April 2016 or deactivated); given this biometric SIM is linked to the national identity card database of the Election Commission, there are currently discussions between the BTRC and Bangladesh Bank on whether the verified biometric registration can be used for KYC of financial services (or a separate registration is still required) and whether paperless accounting of KYC will be enabled.[141]

4.3.8 Cross Border Transfers

Except for medical and educational purposes, there is a general prohibition on sending money out of Bangladesh.[142] However inward bound foreign Remittances are allowed. Clause 4 of the *PPS Regulations* states that "The Bangladesh Bank shall have jurisdiction to authorize certain cross-border payment system activities whose operations affect payment systems in Bangladesh," which allows for the authorization to payment systems such as SWIFT and Visa/ MasterCard. All Money Transfer Operators (MTO) are required to have a special license under the *Foreign Exchange Guidelines*.

Currently there is one MTO/ MFS partnership that allows the effective receipt of Remittances into a mobile Wallet. In April 2016 MasterCard, Western Union, bKash and BRAC Bank announced a new International Remittance service. The new service enables bKash's registered customers to use their mobile phones to receive Remittances from abroad directly into their bKash accounts via Western Union and MasterCard.[143]

4.3.9 Other

4.3.9.1 Competition

The competitive landscape in Bangladesh is notable because of the dominance of one Mobile Money operator, bKash. bKash is the fastest growing Mobile Money

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[140] GSMA Intelligence Analysis. 2014. *Country Overview Bangladesh* p17
[141] GSMA. 2016. *Mandatory Registration of Prepaid SIM Cards*, p 27.
[142] Phone interview with Shah Zia-ul-Haque at Bangladesh Bank ,11 May 2016
[143] MasterCard. April 2016. *MasterCard, Western Union Join bKash to Make Cross-Border Money Transfers Into Mobile Phones A Reality For 22 Million Bangladeshis*
http://newsroom.mastercard.com/asia-pacific/press-releases/mastercard-western-union-join-bkash-to-make-cross-border-money-transfers-into-mobile-phones-a-reality-for-22-million-bangladeshis/

Services provider in Bangladesh, approximately 58 percent market share of Mobile Payments in 2015[144] (with over 80 percent market share in terms of transactions as of 2016)[145]. There are arguably three 'institutional' factors that have combined to give rise to its dominance: (i) it is a purpose-built company to provide MFS and therefore has the advantage of being focused specifically on the market; (ii) although it is a 51 percent subsidiary of BRAC Bank, it has a diversity of other minority investors (Money in Motion LLC, IFC and the Bill & Melinda Gates Foundation) and thus deep pockets for investment and implementation; and (iii) the Bangladesh Bank has been supportive and flexible in creating a regulatory environment to suit the needs of bKash, given the direct bank involvement [146] (although it is our understanding that BRAC Bank is very hands-off with bKash and doesn't get actively involved in management beyond its shareholding).

Although this dominance has assisted in the spectacular growth of Mobile Money Services in Bangladesh, the flip side of the equation is that as a dominant player, bKash may be tempted to abuse its position to retain dominance, through predatory pricing, bundling/ tying, unfair terms and conditions, refusal to supply interconnectivity, etc.

The Bangladesh Bank is aware of the situation and is currently monitoring bKash.[147] For example, a Bangladesh Bank regulator reported in an interview with the Evans School of Public Policy that transaction fees are a big concern, and that it monitors the fees imposed by DFS providers, especially bKash. The regulator noted that the Bank uses "moral suasion" to keep the service charges and fees at a "reasonable" level.[148] It should be noted, however, that the Bangladesh Bank does not have a specific jurisdiction over competition law issues in regard to its licensed entities.

The BTRC does, on the other hand, have specific jurisdiction over competition law issues in regard to telecommunications (see Clause 30 of the *Telecommunications Act 2001*), and thus its intervention in regard to access to USSD and other technology is within its jurisdictional scope.

Further, a Bangladesh Competition Commission (BCC), which was established in 2012 by the *Competition Act 2012*, has recently become a reality with the final appointment of its chairman and members in April 2016[149]. The *Competition Act 2012* prohibits agreements that cause or are likely to cause an appreciable significant adverse effect on competition in Bangladesh, including contracts that: (i) directly or indirectly determine purchase or sale prices; (ii) limit or control production, supply, markets, technical development, investment or provision of services; (iii) share the market, source of production or provision of services by way of allocation

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[144] T. Moretaza. 2015. *bKash Customers at Risk.* http://www.theindependentbd.com/printversion/details/16444

[145] C. Oak. 2016. *Could New Regulatory Guidelines in Bangladesh Turn MFS into "Nobody's Baby?* http://digitalmoney.shiftthought.co.uk/could-new-regulatory-guidelines-in-bangladesh-turn-mfs-into-nobodys-baby/

[146] G.Chen. 2014. *Bkash Bangladesh – What Explains its Fast Start?* www.cgap.org/blog/bkash-bangladesh-what-explains-its-fast-start

[147] Interview with Shah-Zia-ul-Haque Bangladesh Bank 11 May 2016

[148] EPAR. 2016. *DFS Consumer Protection Regulations*, EPAR Technical Report #324, p.15

[149] Financial Express. 2016. *Competition Commission to Get Going Next Mont*h. www.thefinancialexpress-bd.com/2016/03/18/21904

of geographical area of the market, type of goods or services, or number of customers in the market (or in any other similar way); and (iv) directly or indirectly result in bid rigging or collusive bidding. Further, abuse of dominant position is prohibited. Abuse may include (i) directly or indirectly imposing unfair or discriminatory conditions or price in the purchase or sale of goods or services; (ii) limiting or restricting production of goods or services or technical or scientific development; (iii) indulging in practices resulting in denial of market access; (iv) concluding contracts imposing irrelevant terms and (v) **u**sing a dominant position in one relevant market to enter into, or protect, the other relevant market. Lastly, there is merger control, as the BCC is missioned to investigate and approve the mergers and acquisitions of entities, including foreign entities that have established a place of business in Bangladesh; the BBC can investigate any such proposal on its own volition or following a complaint by a third party, but there is no mandatory notification of mergers.[150]

The BCC can conduct inquiries on its own or after any complaint into a potential competition law infringement. Once it has completed its inquiry, it can pass interim orders based on a preliminary determination, and once the determination is finalized, issue a final order. Such final orders may include behavioral remedies such as discontinuing anti-competition behavior, monetary penalties, and structural remedies such as division of enterprises. Violation of any order of the BCC will be treated as offence entailing a jail term of one year or a fine of 100,000 BDT per day for every day of violation.[151]

Although at the writing of this report we are not aware of any specific competition infringements or investigations in Mobile Money Services/ MFS (or even in any other related industries), lessons learned from other jurisdictions such as Kenya point to the need to pre-empt such abuses through ex-ante monitoring via a sectorial inquiry and the implementation of a strong merger and acquisition rules.

4.3.9.2 Data Protection

There is no specific privacy or data protection law in Bangladesh. Article 43 of the *Constitution of Bangladesh* grants every citizen the right to the privacy of his/ her correspondence and other means of communication. Anyone intruding on the privacy of any woman is punishable with imprisonment for up to one year and/ or a fine (*Penal Code of Bangladesh*).

Unauthorized entry into any computer system is a punishable offence. In addition, it is a punishable offence to disclose any record, book, register, message exchange, data or file to another person, even if authorized to view or process those materials, without the permission of the concerned person (*Information and Communication Technology Act*).[152] It has been reported that the regulator is preparing an update of

[150] Practical Law. 2015. *Doing Business in Bangladesh* http://uk.practicallaw.com/1-504-7011?q=&qp=&qo=&qe=#a514636; note there is no current copy available of the Competition Act.
[151] A. Raiham. *Newly Enacted Competition Law of Bangladesh and Major Challenges*. www.sdpi.org/summit/contents/ppts/B4%20-%20Md.%20Abdullah%20Raihan.pdf
[152] Practical Law. 2015. *Doing Business in Bangladesh*.http://uk.practicallaw.com/1-504-7011?q=&qp=&qo=&qe=#a949793

Information and Communication Technology Act to deal with the handling of biometric SIM data.[153]

4.3.9.3 Consumer Protection

Bangladesh has no specific independent legislation covering consumer protection. However, there are relevant provisions in various pieces of legislation including the *PPS Regulations*, the *MFS Guidelines,* the *Regulations on Electronic Fund Transfer* and the *Guidelines for Customer Services and Complaint Management*.

The *MFS Guidelines* include a general obligation on banks to issue guidelines for employees on dealing with customer service and customer education.[154] Banks are held responsible for protecting consumer rights and for ensuring that proper grievance redress mechanisms are available and disclosed to customers.[155] Banks are obliged to disclose risk, responsibilities and liabilities of customers on their websites and on printed material.[156]

According to a current *EPAR Technical Report*[157], Bangladesh is quite advanced in its consumer protection laws, among those jurisdictions that legislate Mobile Money Services/ MFS. This conclusion is founded on the basis that Bangladesh has specific regulatory documents that outline customer service, required consumer disclosures (with regulations on consumer fees, allocation of responsibility for losses or harm due to system failure, transfers to wrong recipients and/ or duplicate transfers, prohibition of waiver of consumer rights, and on rendering information accessible to non-primary language speakers) as well as alternative dispute resolution mechanisms for financial services.

It should also be noted that digital signatures are legally recognized, pursuant to *Act No. 39 of the Year 2006*. [158]

4.3.9.4 MFS Specific Taxes

Bangladesh has a 15 percent value added tax on MFS, charged by the National Board of Revenue[159], as well as a tax of 100 BDT on each SIM card registration. In theory this applies to re-registration as well (and thus to the mandatory biometric SIM card registration), but there are on-going discussions with the Ministry of Finance, driven by the MNOs, to remove the tax obligation.[160]

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[153] S. Mayhew. 2015. *Biometric Registration for SIM Cards in Bangladesh Starts Wednesday* www.biometricupdate.com/201512/biometrics-registration-for-sim-cards-in-bangladesh-starts-wednesday

[154] Clause 12 Mobile Financial Service Guidelines 2011

[155] Clause 13 Mobile Financial Service Guidelines 2011

[156] Parvez, I. and Woodard. 2015. *Mobile Financial Services in Bangladesh* p 13

[157] EPAR. 2016. *DFS Consumer Protection Regulations*, EPAR Technical Report #324

[158] Act No. 39 of the year 2006: Act prepared to provide legal recognition and security of Information and Communication Technology and rules of relevant subjects

[159] EPAR. 2016. *DFS Consumer Protection Regulations*, EPAR Technical Report #324, p.15

[160] GSMA. 2016. *Mandatory Registration of Prepaid SIM Cards*, p 27.

4.3.9.5 ICT Security

The *MFS Guidelines* state that the *Guidelines on ICT Security for Banks and Non-Bank Financial Institutions 2015* apply, and in Clause 10, it sets out that all transactions must be authenticated by the account holders using their respective personal identification number (PIN) or similar other secured mechanism. Further, the same clause provides that MFS providers are required to maintain proper protection and security features for PIN issuance, Authentication and service enablement. The regulations also state that a second factor of Authentication for additional security should be built-in.[161]

The *Guidelines on ICT Security for Banks and Non-Bank Financial Institutions 2015* cover such topics as security and risk management, service delivery and provider management, infrastructure security management, business continuity and disaster recovery management, and customer education.

4.3.9.6 G2P

The Bangladesh Bank is working with the government on establishing a regulatory framework for G2P payments. Currently the salaries of the Government employees are paid via the Bangladesh Electronic Fund Transfer Network (BEFTN) or the Automatic Cheque Processing Systems from the National Board of Revenue. They are working on automating these processes.[162]

There are appears to be an unofficial policy that the Government only makes G2P payments through the four Government banks, who select the private banks with which they work. The Dutch Bangla Bank is one of the banks that has been selected, and is currently taking advantage of this.[163]

In a recent strategy paper it was cited that a further key reform was an initiative to transform the G2P payment systems to promote financial inclusivity and prevent leakages. As part of this reform "the Ministry of Finance will undertake a comprehensive review of current G2P payment mechanisms, as well as international experience." The review will make recommendations on how to transform the current payment systems to ensure that they promote greater Financial Inclusion, and will run in parallel with a MIS study, beginning in December 2015. It is expected that by July 2016 a plan will be developed by the Ministry of Finance—in collaboration with key delivery Ministries—to transform the G2P payment system so that it maximizes Financial Inclusion. [164]

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[161] Clause 10 Mobile Financial Service Guidelines 2011
[162] Interview with Shah-Zia-ul-Haque Bangladesh Bank 11 May 2016
[163] Discussion with Abdul Kashem Md Shirin, Deputy Managing Director of Dutch Bangla Bank (DBB) at ITU Conference 27-29 April 2016 Washington DC
[164] Final Draft National Social Security Strategy of Bangladesh, p105

4.3.10 Legislative Reform

It should be noted that Bangladesh is one of the few countries where Mobile Money Services have ignited and seen explosive growth even though the regulatory regime does not allow non-bank actors to lead Mobile Money schemes.[165]

The justification for such a bank-driven regulatory regime, according to the Bangladesh Bank, is the importance of ensuring trust in the system.[166] It should, however, be noted that there may also be a jurisdictional issue at hand, as the Bangladesh Bank solely has jurisdiction over the payment system and Financial Institutions, and cannot regulate telecommunication companies; it may not have the competence to regulate telecommunication companies, even as MFS providers.

The *Draft Guidelines* were produced in July 2015 (but have not yet been enacted). The fundamental difference between the existing guidelines and the *Draft Guidelines* is the proposal for a bank-driven but multi-institutional ownership model. In the current model, an individual bank must hold at least 51 percent of the shareholding of any special purpose vehicle created to manage a MFS business, and the remaining 49 percent shareholding can be held by other investors. In the proposed guidelines, an individual company would be formed (an MFS Platform) that would obtain approval as a Payment Service Provider; this MFS Platform would be led by a bank, and at least 4 banks and 3 non-banks or telecommunication companies may be investors, each with a maximum shareholding of 15 percent. The maximum cap on all telco shareholding would be 30 percent, and "acceptance of an MNO as equity partner in an MFS platform will be conditional on its extending reliable telecommunication access to all licensed MFS platforms at the same effective standard of ease of access and pricing." [167] Further it should be noted that a MFS Platform will act as an Agent only for banks in deposit taking, lending and other financial transactions, and the regulatory compliance (e.g., Cash Reserves Requirement against deposit liabilities, obtaining deposit insurance, maintaining statutory liquidity ratio, advance-deposit ratio, capital charge and provisioning against loans, and so forth) will rest primarily with the banks/ NBFIs/ MFIs etc. engaging the MFS platforms as their authorized Agents.[168] The aggregate of virtual balances in all mobile accounts in an MFS platform must at all times agree with the total real cash balances in nominated custodial accounts of the MFS platform with scheduled commercial banks,[169] and although MFS platforms are not obliged to pay interest on mobile accounts, they may, at their discretion, remunerate certain balances or certain durations from the interest/ profit earned on the custodial deposits of mobile account balances with scheduled banks.[170]

On Interoperability, Clause 12.2 states that "all MFS platforms shall cooperate and work together in promoting Interoperability between the platforms towards ensuring widest possible access by customers. To this end they shall develop linkages with

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[165] D. S. Evans and A. Pirchio. 2015. *An Empirical Examination of Why Mobile Money Schemes Ignite in Some Developing Countries but Flounder in Most*, p.18

[166] Discussion with Subhankar Saha, Executive Director of Bangladesh Bank at ITU Conference 27-29 April 2016 Washington DC.

[167] Clause 5 Regulatory Guidelines for MFS July 2015

[168] Clause 4.2 Regulatory Guidelines for MFS July 2015

[169] Clause 6.4 Regulatory Guidelines for MFS July 2015

[170] Clause 6.7 Regulatory Guidelines for MFS July 2015

the upcoming integration platforms like the National Payments Switch (NPS) through their equity partner payment system member scheduled commercial banks."

The *Draft Guidelines* will have retrospective effect on all current players, as already licensed mono bank/ mono bank-subsidiary MFS platforms will be required to restructure in conformity with regulations, within three years from the date the Guidelines come into effect.[171]

Although one can argue that the cornerstone of these *Draft Guidelines* is competition and the opening of the market to non-banks, it is clear that the real motives behind these Draft Guidelines are (i) to diminish the dominance of bKash (ex. with the requirement that it conform to this multi-bank option), (ii) to force the consolidation of the current fragmented bank offerings in MFS, and (iii) force MNOs to offer fair access to USSD (as acceptance in MFS platform is conditional on MNO extending reliable telecommunication access to all licensed MFS platforms at the same effective standard of ease of access and pricing).

Clearly requiring a minimum of 7 different parties (including 4 banks) to create an MFS platform is unwieldy, and raises the issue of whether practical implementation is feasible. In a recent discussion, current stakeholders argued that it would introduce an ineffective governance model:

*"It now means a mobile banking operation needs to have about 7 different equity partners. Even if you leave out the coordination costs associated with this proposal, getting seven organisations, some of whom will be direct competitors in their traditional businesses, to agree on things will not only be difficult, but it will be an ineffective governance structure. Moreover, with limited equal shares, the incentive for one organisation to take the lead o*n *anything will be almost non-existent. Again it will raise the issue of free riding as everyone has roughly similar share but the question remains who is going to lead. This has the risk of running an operation only half-heartedly*.[172]

There is growing resistance to the *Draft Guidelines* from several camps (the Bangladesh Bank is not truly in favour, and bKash in particular does not want a move to a multi-bank model)[173], so it is unclear if they will be enacted in their current form, or whether there will simply be some amendments to the current *MFS Guidelines*.

The second legislative reform on the horizon is tiered KYC. The Bangladesh Financial Intelligence Unit (BFIU) is working on a policy where the first level requires simply the provision of government ID, the second level requires a government ID plus an indication of one's job/ role, and the top level requires, in addition to what is required for the second level, biometric information.[174]

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[171] Clause 5.4 Regulatory Guidelines for MFS July 2015

[172] Daily Star. 2015. *Regulatory Guidelines for Mobile Financial Services in Bangladesh.* www.thedailystar.net/round-tables/regulatory-guidelines-mobile-financial-services-mfs-bangladesh-133390 Pial Islam, Managing Partner, Pi Strategy Consultancy

[173] Discussion with Shah Zia-ul Haque Bangladesh Bank 12 May 2016

[174] Interview with Shah Zia-ul Haque Bangladesh Bank 11 May 2016 and information provide by M. Rashed, Bangladesh Bank at ITU Conference.

Lastly, it should be noted that the Bangladesh Bank and the BTRC are currently involved in a dispute resolution mechanism relating to the pricing of USSD.

5 Nepal

5.1 Payment Systems

Nepal has a population of 20.8 million that is characterised by a low level of access to financial services (33.8 percent of adults had an Account with a Financial Institution in 2014)[175]—along with a moderate mobile penetration rate compared to most other emerging Asian economies (93 percent in 2016)[176] and a very low Internet penetration rate (17.2 percent in 2016).[177] The retail banking industry is fragmented, with 191 banks and Financial Institutions (of which 30 are commercial banks).

There are four consumer-facing PSPs in operation, none of which appear to have gained major traction in the market as yet.[178] In Layer 2, wholesale payment services, while the country's ACH provider, Nepal Clearing House (NCH), has implemented an RTGS system, Real-Time Payments are not in place and plans for such a system have not been publicly announced.

Despite a high level of development activity at all three Layers, last mile payment, wholesale payment and foundational services, Nepal faces significant challenges in modernizing its payment systems. Low network readiness and Internet penetration among consumers, as well as a shortage of payments and Generation 2 technology expertise, are some of the key factors that are holding the country back in this respect. However, Nepal's steadily growing middle class and falling Smartphone prices may equate to an opportunity for Nepal to "leapfrog" directly to a strong Generation 2 payments ecosystem, given appropriate strategic guidance and financing.

Table 7 rates, at a high level, the maturity and health of the digital payments ecosystem in Nepal. (Please refer to in the Appendix Section 8.3 for an explanation of the evaluation framework). Nepal has a maturity score of 11, and a health score of 11 (both out of a possible total of 21).

Table 7: Payment Systems Evaluation Nepal

Criteria	Maturity	Health
LAYER 1		
Consumer Payers & Payees	1	1
Business Payees & Agents	1	2
Retail Banks	2	2
PSPs/ Acquirers/ MTOs	2	2
LAYER 2		
Clearing Houses, Switches, Hosting	2	2
LAYER 3		
Telcos/ MNOs/ ISPs/ CSPs	2	2

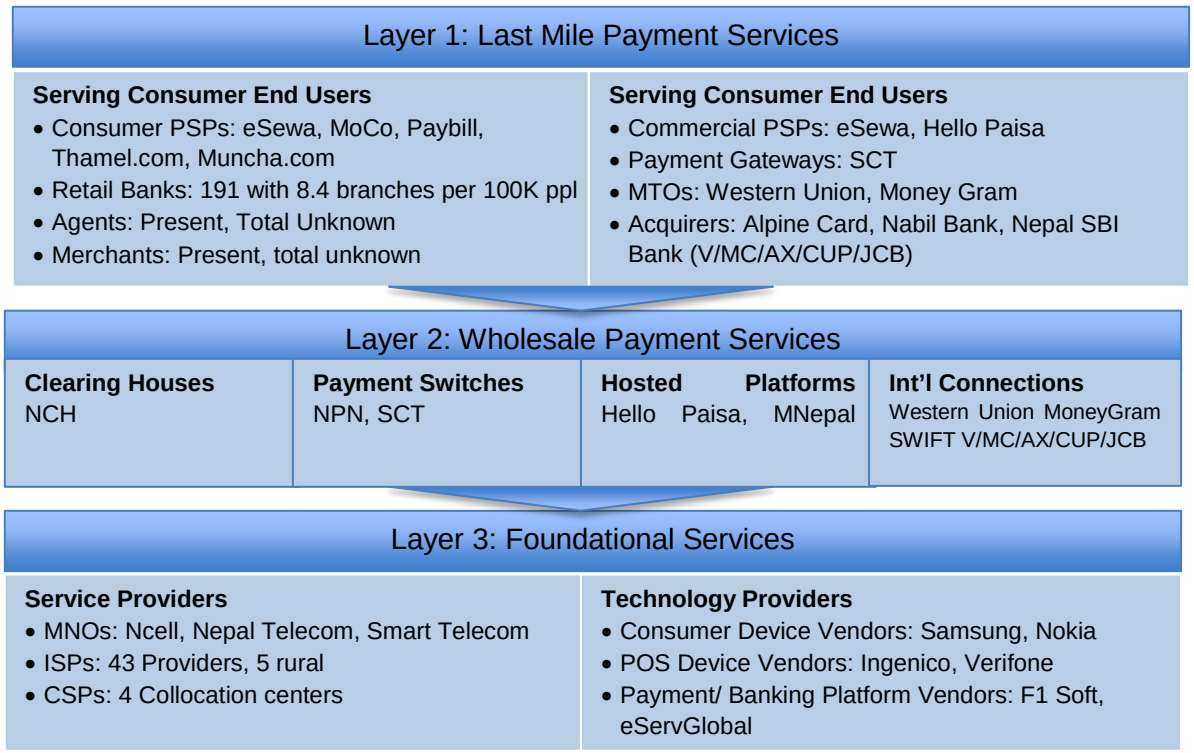
[175] World Bank. 2016. *Findex*. www.worldbank.org/en/programs/globalfindex
[176] GSMA. 2016. Intelligence. www.gsmaintelligence.com/markets/240/dashboard
[177] Internet Live Stats. 2016. Nepal Internet Users. www.internetlivestats.com/internet-users/nepal/
[178] Interview with Ms. Munni Rajbhandari, Operations Manager, Nepal Clearing House, 3 July 2016

Technology Providers	1	1
TOTAL	11	11

5.1.1 Digital Payments Ecosystem in Nepal

Figure 8 below and the narrative that follows describe the digital payments ecosystem in Nepal and its key service providers following the reference model defined in Section 3.1.

Figure 8: Digital Payments Systems Infrastructure Nepal



5.1.1.1 Layer 1–Last Mile Payment Services

The Layer 1 digital payments ecosystem in Nepal includes:

- Consumer PSPs
- Retail banks
- Agents
- Merchants

5.1.1.1.1 Consumer PSPs

We have identified the following consumer PSPs currently operating in Nepal:

- eSewa
- iPay
- MoCo
- Muncha.com

eSewa is discussed in the Mobile Money Services and Agent Banking Section.

MoCo is a consumer payment service jointly operated by FOCUSONE Payment Solutions (a subsidiary of Korea Based FOCUSONE, Inc.) and SmartChoice Technologies (SCT) (see entry under the Layer 2 heading). Launched in 2014, MoCo works via a downloadable Android or IOS mobile Wallet, loaded using an SCT Debit Card (and thus only available to customers with Smartphones and Bank Accounts), for face-to-face and remote (online) retail purchases, bill payments, charity donations, and P2P transfers with cash out services via a nationwide Agent network. Electronic vouchers can be purchased to pay in lieu of cash, and the vouchers can be sent to other MoCo users. MoCo transactions are free of charge to customers with the exception of balance inquiries. New customer enrollment is processed without additional KYC verification, on the basis that the customer's bank already performed KYC when the customer opened the account there.

Muncha.com is a retail ecommerce merchant, which in addition to selling merchandise, offers payment services via its website including inbound International Remittance origination from the US ("send money to Nepal"), bill payment and mobile top-up. Additionally, Muncha.com owns and operates the payment brand iPay, which works for consumers via a downloadable Android or IOS mobile app. Enabled transactions on iPay include bill payments, mobile top-up, transportation and entertainment tickets, and purchases at online merchants. The company states on its website that it will also soon offer educational and insurance fees. The following banks are listed as partners: Bank of Kathmandu, Everest Bank, Global IME Bank, Kumari Bank, Laxmi Bank, Nepal Investment Bank, and Prabhu Bank. iPay's technology platform is MachPay (see entry under the Layer 2 heading).

PayBill is a consumer PSP offering SMS-based payment services for account holders of Citizens Bank, Everest Bank, Nabil Bank, and Rastriya Banijya Bank. Customers' PayBill accounts are funded via their Bank Accounts. Available transaction types include P2P payments, bill payments, mobile top-up, and purchases at online merchants.

Thamel.com is a retail ecommerce merchant, which in addition to selling merchandise offers payment services via its website including inbound International Remittance origination from the US and UK ("send money to Nepal"). Additionally, the company operates Thamel Remit, a consumer payment service offering inbound International Remittance origination via its website, and collection in Nepal at branches of partners Everest Bank and Siddhartha Bank. Thamel Remit's technology platform is MachPay (see entry under the Layer 2 heading).

5.1.1.1.2 Retail Banks

Nepal has a well-diversified financial services sector. Commercial banking went through two major reforms, one in 1985 and another in 2002, to reach its current state. Today the sector is stronger and healthier than in the 1980s, and has established a good foundation for future growth.

As of mid-July 2015, there are 191 Banks and Financial Institutions (BFIs), as classified "A", "B", "C" and "D" class Financial Institutions by the Central Bank; these include 30 commercial banks, 76 development banks, 47 finance companies, and 38 MFIs. Commercial banks make up to 78 percent of total assets in the country's

formal financial system. The sector is seeing slow consolidation from 204 BFIs in 2014, which should result in healthier competition. Moreover, 42 other financial intermediaries licensed by NRB, 26 insurance companies and one each of EPF, CIT and Postal Saving Bank. [179]

Banks are split into three categories – Class A, B and C, based on the level of liquidity requirements, "A" having the highest liquidity requirements. Class A banks are the most active in Agent Banking. NRB has been encouraging banks to open branches to bring the unbanked people to the banking system. However, even though the number of bank branches is increasing every year, banking services are still concentrated in urban areas.[180]

5.1.1.2 Layer 2—Wholesale Payment Services

We have identified the following wholesale payment services currently operating in Nepal:

- Finaccess
- Machnet Technologies
- MNepal
- National Payment Network (NPN)
- Nepal Clearing House (NCH)
- SmartChoice Technologies (SCT)

In addition to domestic players, the following international Layer 2 payments organizations are present in Nepal:

- Interbank payments—SWIFT
- Money transfer—Western Union, MoneyGram
- Payment Card issuing and acquiring—Visa, MasterCard, American Express (issuing and acquiring); China UnionPay, JCB (acquiring only)

Finaccess is the owner and operator of Hello Paisa, a multi-bank MFS Hosting platform for Nepalese banks, also known as Inter Bank Shared System. For its bank clients, Hello Paisa provides white-labeled Layer 1 payment services, mobile account services, and mobile banking services[181]. Hello Paisa merchant services merchants are signed directly with the scheme, and the company provides them with the necessary acceptance processing facilities. Services are not limited to consumers with Bank Accounts, and are available using the SIMs of all Nepalese MNOs. Hello Paisa leverages its shared platform to enable Interoperability across its network (a customer of one participating bank is able to send and receive money with customers of any other participating bank). Available transaction types include mobile top-ups, bill payments, entertainment tickets, in-network P2P transfers and payment requests, and domestic Remittances via a partnership with UPay, to any UPay customer whether in or out of the Hello Paisa network. The Hello Paisa technology platform is developed and maintained by Nepasoft Solutions (see entry

[179] Nepal Rastra Bank, 2016. Financial Stability Report March 2016.
[180] Nepal Rastra Bank, 2015. Financial Stability Report July 2015. p. 49
[181] Hello Paisa partner banks: Bank Of Kathmandu, Civil Bank, International Leasing & Finance Company, Laxmi Bank, Muktinath Bikas Bank, Prabhu Bank, Siddhartha Bank.

under the Layer 3 heading). The company however was not able to scale their business and provide regular technology updates and customers have been leaving.

Machnet Technologies, a joint venture of Thamel.com and US-based Leapfrog Technology, provides MachPay, a hosted payment platform to process inbound Remittance transactions to Nepal from the US for consumer-facing PSPs Muncha.com (and its subsidiary iPay), PrabhuOnline, and ThamelRemit. Customers of these PSPs can send Remittances online to Nepal, with payments funded via ACH, debit/ATM card, prepaid card, and money service providers MoneyGram and Western Union. [182] Machnet's technology platform is licensed from US-based Synapse Payments LLC.

MNepal is a multi-bank Mobile Financial Services (MFS) platform Hosting service for banks in Nepal but the company is currently on hold. The company is a consortium comprised of Nepal Investment Bank, Smart Choice Technologies (SCT), FOCUSONE Payment Solutions, Himalayan Infrastructure Fund (HIF) and individual stakeholders. The company is also partially underwritten by International Finance Corporation (IFC). Participation in the MNepal scheme is open to any bank in Nepal. MNepal's stated target market is the country's unbanked population, and its service model is to provide a hosted, shared back-office Mobile Payments platform for banks that offers them a lower cost, lower risk alternative to operating stand-alone platforms on their own.

Participating banks retain control of the customer-facing (Layer 1) aspects of their mobile offering such as marketing and customer service, while MNepal manages the Layer 2 aspects such as transaction switching, Settlement, risk management, etc.). Product options include a white-labeled mobile Bank Account and hosted mobile Wallet. Enabled transaction types include mobile top-ups, bill payments, domestic transfers and G2P payments. As a shared interbank platform, MNepal enables transaction Interoperability across its member institutions and their Agents, and further country-level Interoperability through links with the two national Switches SmartChoice Technologies (SCT) and National Payments Network (NPN) (see entries under the Layer 2 heading). The platform is not limited to payment services as it supports a broader MFS product set including savings, microfinance and insurance, however the service is on hold.

National Payment Network (NPN) is owned by Nepal Investment Bank and operates an ATM Switch for 18 member banks. [183] Enabled transaction types are cash withdrawals and balance inquiries

Nepal Clearing House (NCH) operates the country's ACH and is co-owned by Nepal Rastra Bank, several commercial banks, development banks and finance companies, and Smart Choice Technologies (SCT) (see entry under the Layer 2 heading). NCH operates NCHL-ECC, an inter-bank electronic Cheque Clearing

[182] Entrepreneurs in Nepal built Machpay.com to Enable Open Network Cross Border Payment Processing. http://techlekh.com/2015/12/08/machpay-cross-border-payment/

[183] NPN member banks: Business Universal Development Bank, Society Development Bank, United Finance, Muktinath Development Bank, Narayani National Finance, Garima Bikas Bank, Agriculture Development Bank, Sewa Bikash Bank, Synergy Finance, Mission Development Bank, Shubhechchha Bikas Bank, Siddhartha Finance, Gandaki Bikas Bank, Nepal Industrial Development Corporation, Civil Bank, Tinau Bikas Bank, Guheshwori Merchant Banking & Finance, Om Finance.

network, and is in the process of establishing a national inter-bank Payment Gateway. Individual banks and Financial Institutions are enrolled within NCHL as participating members, and are responsible for their Clearing operations through NCHL-ECC.

SmartChoice Technologies (SCT) operates SCT-Network—a national ATM and debit Switch for 60 member banks across Nepal supporting 1,149 ATMs for a total of 1.6 million customers[184]. SCT-Network provides authorization, Clearing and Settlement services for debit and ATM card transactions, as well as gateways to the international Card Schemes. SCT has appointed Himalayan Bank (a 20 percent shareholder in SCT) to perform daily Settlement of all inter-bank ATM and POS transactions on the network. In addition to its switching and Clearing operation, SCT operates a consumer Mobile Payments scheme, MoCo (see entry for this organization under the Layer 1 heading), in partnership with FOCUSONE Payment Services (see entry under the Layer 3 heading); nPay, a Debit Card acceptance scheme for online merchants; SCCTM, a domestic PIN-based Debit Card program (which can be used for mobile transactions when the issuing bank participates in MoCo, and ecommerce transactions when it participates in nPay); and a card and PIN production facility for member institutions. SCT is a shareholder in the Nepal Clearing House (NCH) (see entry under the Layer 2 heading), and a member of the MNepal consortium (see entry under Layer 1 heading).

[184] NCH member banks: Nepal Rastra Bank, Ace Development Bank, Agricultural Development Bank, Alpine Dev Bank, Apex Developement Bank, Araniko Dev Bank, Bank of Kathmandu, Bhaktapur Finance, Bhargav Bikash Bank, Bhrikutee Development Bank, Biratlaxmi Bikas Bank, Business Universal Development Bank, Central Finace, Century Commercial Bank, Citizens Bank International, City Development Bank, Civil Bank, Clean Energy Development Bank, Corporate Development Bank, COSMOS Development Bank, Country Development Bank, Deva Bikas Bank, Ekata Bikas Bank, Everest Bank, Everest Finance, Excel Development Bank, Fewa Bikash Bank, Gandaki Bikas Bank, Garima Bikash Bank, Global IME Bank, Goodwill Finance, Grand Bank Nepal, Guheswori Merchant Banking & Finance, Himalayan Bank, ICFC Finance, Infrastructure Development Bank, Innovative Development Bank, International Development Bank, International Leasing & Finance, Janata Bank Nepal, Jebils Finance, Jyoti Bikash Bank, Kabeli Bikas Bank, Kailash Bikash Bank, Kamana Bikas Bank, Kanchan Development Bank, Kankrebihar Bikash Bank, Karnali Bikash Bank, Kaski Finance, Kasthamandap Development Bank, Kathmandu Finance, Kumari Bank, Lalitpur Finance, Laxmi Bank, Lumbini Bank, Lumbini Finance & Leasing, Machhapuchchhre Bank, Mahakali Bikas Bank, Mahalaxmi Finance, Majushree Financial Institution, Malika Vikas Bank, Manaslu Bikas Bank, Mega Bank, Metro Development Bank, Mission Development Bank, Miteri Development Bank, Muktinath Bikas Bank, Nabil Bank, Narayani National Finance, NCC Bank, Nepal Awas Finance, Nepal Bangladesh Bank, Nepal Bank, Nepal Community Development Bank, Nepal Express Finance, Nepal Finance, Nepal Investment Bank, Nepal SBI Bank, NIC Asia Bank, NIDC Capital Markets, NIDC Development Bank, NMB Bank, Om Finance, Paschhimanchal Finance, Paschimanchal Development Bank, Pathibhara Bikash Bank, Pokhara Finance, Prabhu Bank, Premier Finance, Prime Commercial Bank, Professional Diyalo Bikash Bank, Progressive Finance, Prudential Finance Institution, Purnima Bikas Bank, Rapti Bheri Bikas Bank, Rastriya Banijya Bank, Reliable Development Bank, Reliance Lotus Finance, Sagarmatha Finance, Sahayogi Vikas Bank, Sajha Bikas Bank, Sanima Bank, Saptakoshi Development Bank, Sewa Bikash Bank, Shangri-la Development Bank, Shine Resunga Development Bank, Shree Investment & Finance, Siddhartha Bank, Siddhartha Development Bank, Siddhartha Finance, Sindhu Bikash Bank, Society Development Bank, Srijana Finance, Standard Chartered Bank, Subhechha Bikas Bank, Sunrise Bank, Supreme Development Bank Nepal, Synergy Finance, Tinau Bikas Bank, Tourism Development Bank, Triveni Bikas Bank, Union Finance, Unique Finance, United Finance, Vibor Bikash Bank, Western Development Bank, World Merchant Banking & Finance, Yeti Development Bank.

5.1.1.3 Layer 3—Foundational Services

5.1.1.3.1 Service Providers

Three MNOs operate in Nepal, serving some 28.7 million subscribers,[185] all on the GSM platform:[186] Ncell Axiata, Nepal Telecom, and Smart Telecom, under the regulatory authority of the NTA. As per regulation, MNOs were not permitted to provide commercial payment services in Nepal and thus their role in the payments ecosystem is limited to provision of Layer 3 infrastructure. However, new regulation was just passed allowing MNOs to apply for a PSP license.

There are 43 ISPs operating in Nepal,[187] (with 5 providers classified as rural ISPs.[188]) serving 4.9 million Internet users as of 2016 (a penetration rate of 17.2 percent), and up 4.5 percent over 2015's total of 4.8 million—compared to population growth of 1.2 percent during the same period.[189]

As per Data Center Map there are four Co-location centers in Nepal, all in the Kathmandu Valley: Access World, Data Hub, Dataspace Putalisadak (PTS) and Government Integrated Data Center (the latter only hosts government organizations).[190]

5.1.1.3.2 Technology Providers—Fintechs

eServGlobal is a France-based software developer that provides the technology platform for Nepal Telecom Bill Pay's service discussed in the Mobile Money Services and Agent Banking section.

F1Soft is a Nepal-based IT services and Fintech company that provides the technology platform for eSewa (see entry under the Layer 1 heading). Beyond eSewa, F1Soft develops and operates platforms and products for mobile and Internet banking, digital Wallets, cards management, and a card Payment Gateway. The company claims nearly 90 percent of the Nepal financial services industry as its client base.

FOCUSONE is a South Korea-based software developer, active in the Fintech community through its partnership with SmartChoice Technologies (SCT) in MoCo and membership in the MNepal consortium (see entries for both under the Layer 2 heading).

Nepasoft Solutions is Nepal-based a software firm that develops and maintains the technology platform for Hello Paisa (see entry under the Layer 2 heading).

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[185] Nepal Telecommunications Authority. MIS Report, Chaitra, 2072. (14 March, 2016 – 12 April, 2016)
[186] In addition to its GSM services, NDCL also serves some 1.4 million CDMA subscribers.
[187] ISPAN (Internet Service Providers' Association of Nepal) http://ispan.net.np/registered-internet-service-providers/
[188] ISPAN (Internet Service Providers' Association of Nepal) http://ispan.net.np/rural-internet-service-providers/
[189] Internet Live Stats. 2016. Nepal Internet Users. www.internetlivestats.com/internet-users/nepal/
[190] Data Center Map. Colocation Katmandu. www.datacentermap.com/nepal/kathmandu/

5.1.2 Trends And Issues

The following apply specifically to Nepal. We have also identified certain trends and issues that apply globally to all three countries in the study. These are outlined in 7.1.

Low network readiness—Nepal ranked 118th in the world, with an overall score of 3.02 out of a possible 7.00 in the 2015 World Economic Forum (WEF) Global Network Readiness Index of 143 countries.[191] This can be taken as a broad indication that the country's Layer 3 infrastructure remains far from optimal for purposes of enabling a robust digital payments ecosystem, whether for Generation 1 or Generation 2 services.

A budding Fintech movement—Nepal's Fintech Ecosystem—which holds the promise of locally developed and delivered Generation 2 payment services in the country—is nascent and miniscule. However, it exists, as exemplified by a small handful of companies such as home-grown payments software developer F1Soft. While the Fintech movement is currently often associated with the developed world, Fintech has the potential to positively and powerfully affect Financial Inclusion[192] and numerous Fintech start-ups across Asia (and indeed worldwide) are active in this area.[193]

Changing demographics—The poorest segment of Nepal's population is steadily shrinking, while the middle class is concurrently growing. According to the World Bank, the middle class grew from 7 percent of the population in 1995/96 to 14 percent in 2003/04, and 22 percent in 2010/11. In contrast, people at the bottom of the income pyramid made up 64 percent of the population in 1995/96, 50 percent in 2003/04, and 31 percent in 2010/11.[194]

Smartphone-dependent services—As consumers switch from feature phones to Smartphones, they invariably embrace Smart Device-dependent services that are not supported on feature phones. Perhaps the best example of this is Social Media and in Nepal, where 5.7 million people constituting 18 percent of the country's 31.6 million population in 2015 had Internet access, 100 percent were Facebook users.[195] (Note that while 18 percent may not be a spectacular number compared to many countries, it is up from only 50,000 (or 0.22 percent of the population of 27.8 million at the time) in 2000. There are no signs that this level of growth will not continue for the foreseeable future, though obviously at a decreasing rate as penetration

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[191] The WEF has calculated the Global Network Readiness Index annually since 2012. It is composed of the aggregated scores for four different readiness "pillars" that are calculated for each country. The pillars are: 1. Environment, 2. Readiness, 3. Usage and 4. Impact. Global Information Technology Report 2015. http://reports.weforum.org/global-information-technology-report-2015/

[192] See, for example: Lotte Schou-Zbell. May, 2016. *Fintech is the game-changer for financial inclusion in Asia*. http://blogs.adb.org/blog/fintech-game-changer-financial-inclusion-asia

[193] For example Pawn Hero in the Philippines (http://pawnhero.ph), India's Kyash (http://.kyash.com), and Singapore-based Numoni (http://numoni.com). Many more examples abound.

[194] World Bank. 2012. *Moving Up the Ladder: Poverty Reduction and Social Mobility in Nepal* (Executive Summary, p15). World Bank reports that the percentage of Nepal's population at the lowest rung (defined as less income of less than $2 (PPP) per day, shrank from 89 percent in 1995 to 56 percent in 2010.

[195] Internet World Stats. 2016. *Asia internet use, population data and Facebook statistics*, June 2016. www.internetworldstats.com/stats3.htm

increases assuming that Nepal's supporting infrastructure can keep up with demand (which is not a given)[196].

5.2 Mobile Money Services and Agent Banking

Due to the mountainous terrain and poor infrastructure access to bank branches and financial services in Nepal is low. Banking infrastructure is concentrated in and around cities, leaving a large portion of the population without easy access to finance. However, mobile and Agent Banking offer a solution to this problem which translates to increased access to financial services. Currently, Mobile Money Services and Agent Banking in Nepal are still in a nascent development phase. There are a few services in the market but usage and awareness are low.

Access to financial services in Nepal is relatively low even when contrasted with other countries in South Asia. 34 percent of the adult population (15 years of age or older) has access to formal financial services.[197] SMEs[198], low-income households and households in the far-western and mid-western region have particularly limited access to financial services due to complex geographical location and lack of basic infrastructure.[199]

5.2.1 Market Structure

5.2.1.1 Agent Banking

After the release of electronic banking regulations in 2012, Financial Institutions began developing Agent networks in order to reach customers in a more cost efficient manner. The total number of Agents remains small despite the fact that about 15 banks have rolled out Agent networks. Banking Agents have to be full-time bank employees and are allowed to carry out banking services. Agents mainly carry out account opening services and fund deposits/ withdrawals and transfers.

The following banks have Agent Banking:

- Everest Bank
- Rashtriya Banijya Bank
- Mega Bank
- NIBL
- Janata Bank
- Century Bank
- Bank of Kathmandu
- Siddhartha Bank
- Citizen Bank

[196] For example, the country is prone to power outages, which, among other drawbacks, is an inhibitor to Layer 3 infrastructure components such as data centers and WiFi networks which rely on the electrical grid to operate.
[197] World Bank. 2016. *Findex*. www.worldbank.org/en/programs/globalfindex
[198] G. Afram, A. Salvi Del Pero. 2012. *Expanding Firm Access to Finance in Nepal*. http://elibrary.worldbank.org/doi/abs/10.1596/9780821394656_CH06
[199] Central Bank of Nepal. 2015. *Financial Stability Report July 2014*. p. 51

- NMB Bank
- Nepal Bank Ltd
- Laxmi Bank
- Prabhu Bank
- Sanima Bank
- Global IME Bank.

Each bank's number of Agents varies from 5 to 100, but, in general the number of Agents is small. Table 8 shows a sample of banks, type of services and the size of Agent network.

Banks offer Remittance services and Remittance payment locations, which are different from the bank Agent locations as Remittance Agents do not have to be bank employees and can be third parties. The Remittance locations are usually other banks' branches, other Financial Institutions such as MFIs and partner money transfer companies. Banks are starting to look into converting these Remittances users into bank clients, with the caveat that Remittance Agents cannot carry out banking transactions.

Table 8: Sample Agent Banking Services Nepal

	Agent Banking	Mobile Banking	No of Agents	No of Branches	Hello Paisa	eSewa	Remittance payout locations
Rastriya Banijya Bank	Linked card	eSewa	28	163		X	Western Union, Instant Cash, Express Money
Nepal Bank Ltd.	No	SMS	n/a	123			At branch
Global IME Bank	Linked card	App	40	93	X		4,300 plus Yes Remit, Global Remit
Nepal Investment Bank	POS, Card Biometrics	App and SMS	46	n/a			Hundreds
Citizens Bank Int'l	POS, Card Biometrics	eSewa	90	n/a		X	2,600
Laxmi Bank	Yes	SMS	Hello Paisa	48	X		750
Siddhartha Bank	Card "Sajilo Banking Sewa"	Web-based, SMS	65	54	X		3,954
Everest	POS, Card Biometrics	App and SMS	n/a	41		X	696
Sources: Mondato Research and Analysis							

5.2.1.2 Mobile Wallets

Innovative mobile Wallets/ payments in Nepal include companies such as Hello Paisa, eSewa/ FonePay and MNepal. They offer a managed Wallet product linked to

partner Bank Accounts with an Agent Banking network where Agents can register new users. These are not regulated companies. There is debate as to whether they would have to apply for a license from the Payment Systems department of the Nepal Rastra Bank pursuant to the new 2016 licensing policy. Some players believe that they would not need to apply. eSewa, alternatively, has confirmed that they are already in the process of acquiring such a license.

Said Wallets are in partnership with existing banks and facilitate existing customer access to their services. They also allow for new customer acquisition as Agents can open new accounts, however the number of Agents is still limited. Of the Wallets, only eSewa, the biggest, has seen success. eSewa works with 50 banks. Hello Paisa works with eight banks but is currently experiencing problems. Clients are leaving as the business could not scale up or provide technology updates. MNepal focuses on educated urban dwellers. The business, however, is currently on hold due to internal management issues.

eSewa is an Agent aggregator, part of F1 Soft, a Fintech provider. They offer a Wallet in partnership with Nabil Bank where the bank does the KYC and manages the Wallets while eSewa is responsible for the technology and processing of the transactions. Nabil Bank is the licensed entity vis-à-vis the Central Bank and eSewa has no legal standing. eSewa Agents are mainly in urban Katmandu. Segments that use eSewa are banked customers that link their Bank Accounts, thus the contribution to Financial Inclusion is low. eSewa developed an ACH-type Switch allowing their customers to enact almost immediate transfers, thus eSewa Wallets are interoperable among bank clients.

eSewa is the most popular player and although there is a number of Agent Banking players, the small scale and lack of adoption has not led to realistic market competition. However, there is consumer confusion and aversion due to crowded messaging and unclear value propositions.

MNOs have not been able to participate in the space so far but with the regulatory update the playing field has changed and will likely transform the market. The banks may have to take a back seat or get into partnerships to use the Agent points to facilitate banking services or deliver new structured products, similar to MSWARI in Kenya. Ncell has confirmed that they are in the process of applying for a license, while there has not been much interest from NT. Ncell has a business plan on standby and ready to roll out if they secure a license.

5.2.2 Business Model

5.2.2.1 Commercial Model

Due to introduction of a new licensing policy in July 2016, MNOs can now offer payment services, albeit with some conditions (please see the Regulatory section). MNOs can potentially take advantage of their airtime distribution networks and large sets of user data to provide financial services, and benefit from non-direct revenue such as reduction in churn. The market merits further monitoring in order to conceptualize the impact of the new model.

Banks that utilize Agent Banking have the advantage of increased efficiency, as they have the ability to expand geographically at a lower cost via Agents, than by building new “brick and mortar” branches.

5.2.2.2 Service Characteristics

5.2.2.2.1 Distribution network

Agent networks are still limited, considering that branch networks are small even for the biggest banks in the country. Bank Agents usually use POS terminals to carry out their services, paired with smart cards or Debit Cards, some of them Biometrics enabled. Agriculture Development Bank, the largest bank, has 234 branches, no Agent Banking, and the second largest bank Rastriya Banijya Bank Ltd has 163 branches, and 28 Agent Banking offices.

Hello Paisa says that their service is available at the 283 branches of their member banks and the more than 500 Agents appointed by these banks. The service, unfortunately, has not yet proven to be significant as the provider was not able to scale the business.[200]

eSewa has 17,000 Agents focused around the Katmandu area. They have not expanded further due to the high cost of developing an Agents network. The Agent network has two tiers – eSewa Zone and eSewa Point. Each Zone is responsible for 20 to 30 Points. Zones can register new users, carry out KYC verification and activate Wallets, while Points can provide CICO services, P2P transfers, top-up and bill payment. The Agents are usually small merchants, not individuals, from mom-and-pop shops to Internet cafes.

Agents use a smart phone or computer to carry out their activities. Agents are very expensive and 70 percent of eSewa revenue goes to zone and point Agents. About half of eSewa transactions are done via Agents and the rest via mobile interface. Agents are particularly useful for illiterate customers who cannot use a mobile phone and send SMS. eSewa Agents earn a monthly commission between USD 20 to USD 1,500. eSewa is hoping to increase the number of Agents to 30,000 in 2017.

Agents, due to market conditions, are not exclusive. There are between 40 to 50 Remittance companies in Nepal and they do not have exclusive Agents either, as one provider cannot offer them enough revenue.

5.2.2.2.2 User Experience

Due to the small number of users, who also already tend to be from the banked population, the User Interface has not really been a problem in the market given their literacy and ability to use a mobile phone. However, the downside to that is that the services are not really addressing the under- and unbanked populations on a large scale. Mobile banking menus are in both in English and Nepali and Agent Banking processes do not employ a user interface.

Wallet providers have both Smartphone and feature phone interfaces. There have been some software issues with eSewa and service outages have been common.

[200] HelloPaisa. 2016. www.hellopaisa.com.np

New user registration is not onerous but does take some time. In cases where users are illiterate, Agents carry out OTC transactions.

In both remote areas and customer groups where feature phones dominate, eSewa has seen both illiteracy and a lack of capacity to use SMS create barriers to Wallet adoption. To solve that issue and reach customers, they offer OTC services carried out by the Agent.

5.2.2.2.3 Services

Mobile banking services, such as account balance and account-to-account transfer, are offered by several banks. Such services are branchless but they target already banked individuals. Agent Banking provided by banks is also focused on basic use cases such as CICO and transfers. Wallets are used mainly for bill payment.

Sakchyam Access to Finance Programme collaborates with local Financial Institutions and enables them to increase access to financial services by sharing the cost of adding Agents[201] in remote locations and launching new services for market segments such as dairy financing to milk cooperatives[202] and sugarcane farmers[203], among others. These projects have not scaled yet.

There are studies from UNCDF about new potential products that could be successful in the market, however reliable providers with a sizable Agent network must be set up first.

5.2.2.2.3.1 Basic

eSewa is a digital Wallet and funds can be spent online, for utility bills, mobile top-ups and transferring it to various banks. Hello Paisa is set up to be used mainly for withdrawals and deposits, airtime top up, Merchant Payments.

Agent Banking services provided by the banks are focused on withdrawals and deposits, transfers, and airtime top up. Everest Bank Ltd, Rastriya Banijya Bank, Bank of Kathmandu, Mega Bank, Citizens Bank International, Global IME Bank and Siddhartha Bank offer the Agent Banking services using a POS terminal and smart cards or Debit Cards, some of them a Biometrics enabled. Agents are not ubiquitous yet, as lists of Agents on their websites show. Agents are equipped with Point of Sale machines and a magnetic strip card to perform a transaction. They authenticate the user with four fingerprints (thumb and index of each hand) via the biometrically enabled Point of Sale machine. The users can cash in and out, transfer funds, pay utility bills, as well as check their balance and last five transactions.

Nepal Telecom Bill Pay is a mobile top up service that allows Nepal Telecom's approximately 15,000 existing recharge point-of-sale Agents to process postpaid bill payment and carry out person-to-person airtime transfers. The service facilitates

[201] The Himalayan Times. 2016. *At long last, Nagma residents get easy access to financial services.* http://thehimalayantimes.com/business/long-last-nagma-residents-get-easy-access-financial-services/
[202] The Himalayan Times. 2015.*Sakchyam, NMB Bank ink partnership pact.* http://thehimalayantimes.com/business/sakchyam-nmb-bank-ink-partnership-pact/
[203] Business Age. 2015. "At Sakchyam, we want to be a game-changer" www.newbusinessage.com/MagazineArticles/view/1355

phone bill payment for NT's customers and provides the company with a recharge management system.[204] This service is neither Mobile Money nor Agent Banking.

5.2.2.2.3.2 Advanced

There is no evidence of digital micro insurance, savings, loans or other more advanced services.

All Hello Paisa enabled accounts offered by the partner banks are interest bearing/ savings accounts. So they offer different levels of interest rates based on what they perceive as their bank's value proposition and their strengths in the market.[205]

eSewa has a license for domestic Remittances and they do not want to directly provide International Remittances due to the heavy licensing requirements. However, they partnered with seventeen Remittance companies including Western Union, Oordeoo, BICS, HomeSend, MasterCard and others as well as with local banks for Settlement. This allows their users to receive money into an eSewa Wallet after the funds are transferred from a Bank Account.

5.2.2.2.3.3 Commerce

eSewa customers can make online Merchant Payments, while Hello Paisa is supposed to be accepted at certain merchant locations.

5.2.2.2.3.4 Disbursements

Hello Paisa has been used for MFI loans disbursements. An example is Laxmi Bank disbursing and collecting MFI loans for their MFI subsidiary[206] Laxmi Laghubitta Bittiya Sanstha Limited (LxLB).

eSewa is partnering with the Department of Labor. They also allow users to pay the 24 USD fee for the Employment Permit System in South Korea for taking the Korean Language Test.

Siddhartha Bank brands their service as "Sajilo Banking Sewa" or "Easy Banking Service". They use it in combination with a biometric device for disbursement of Government to People (G2P) payments and in 2014 piloted a GB2 disbursements of "school-going child allowance" to over 12,000 mothers in 2 districts of far western Nepal. Siddhartha Bank has done G2P disbursements for the following programs: Enhancing Access to Financial Services Project supported by UNCDF/NRB (2010-20), Food and Cash for Work Project-World Food Programme (2011-2014), Human Development Social Protection Pilot Project-MoFALD/UNCDF (2013-2015), and Gorkha Earthquake Support BLB Project-Sakchyam Access to Finance Project (2015-2018).[207]

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[204] eServGlobal. *Mobile Bill Payment in Nepal*. http://eservglobal.com/solutions/case-studies/
[205] Sanjay B. Shah. 2014. *Hello Paisa! A 'coopetitive' business model for financial inclusion & access*. www.inclusivebusinesshub.org/hello-paisa-a-coopetitive-business-model-for-financial-inclusion/
[206] Sanjay B. Shah. 2014. *Hello Paisa! A 'coopetitive' business model for financial inclusion & access*. www.inclusivebusinesshub.org/hello-paisa-a-coopetitive-business-model-for-financial-inclusion/
[207] Sanjay B. Shah. 2014. *Hello Paisa! A 'coopetitive' business model for financial inclusion & access*. www.inclusivebusinesshub.org/profiles/blogs/hello-paisa-a-coopetitive-business-model-for-financial-inclusion

There are various development programs aiming to improve access to financial services underway in Nepal. Sakchyam Access to Finance Program by UKAID is focused on remote hill and mountainous areas. During the 2005 earthquake they worked with Citizens Bank, Global IME Bank, Nepal Investment Bank Ltd, NMB Bank, Rastriya Banijya Bank, Sanima Bank and Siddhartha Bank to roll out branchless services in the quake-stricken districts.[208]

5.2.2.2.3.5 Government Initiatives

The government has been promoting Financial Inclusion for decades. They also recently started promoting banking outreach.[209] In 2013, the Ministry of Finance announced a plan to make arrangements for delivering allowances of provident fund and social security through bank branches and Agent Banking system.[210] Despite plans and commitments, few actual programs have been launched and none has been scaled.

In January 2014, the government started depositing pension funds of retired civil servants throughout the country in Bank Accounts; the action was based on a directive issued in December 2013.[211]

According to the Ministry of Finance budget speech in 2014, the distribution of social security allowances through the banking system is to be expanded to all districts.[212] In the 2015 speech, the ministry announced that they intend to initiate a program to support the opening of at least one Bank Account per household and to make arrangements for disbursing cash transfers provided by the State through Bank Accounts. The speech iterated that social security allowance distribution through the banking Channel would be enacted nationwide.[213]

The Ministry of Finance is working on a five-year Financial Sector Development Strategy (FSDS), which needs to be approved by the cabinet and is expected to be finalized during the 2016 fiscal year. FSDS has provisions for financial literacy programs and also aims to encourage the banking and insurance sectors, the capital market, non-banking Financial Institutions and cooperatives to diversify their products.[214]

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[208] The Himalayan Time. 2015. *Branchless Banking Points in quake-hit districts.* http://thehimalayantimes.com/nepal/branchless-banking-points-in-quake-hit-districts/

[209] Government of Nepal Ministry of Finance. 2015. *Budget Speech of Fiscal Year 2015/16.*

[210] Government of Nepal Ministry of Finance. 2015. *Budget Speech of Fiscal Year 2015/16.*

[211] The Himalayan Times. 2014. *Govt starts depositing pensions at banks.* www.resconbiz.com/news/15932-Govt-starts-depositing-pensions-at-banks/

[212] Government of Nepal Ministry of Finance. 2015. *Budget Speech of Fiscal Year 2015/16.*

[213] Government of Nepal Ministry of Finance. 2015. *Budget Speech of Fiscal Year 2015/16.*

[214] The Himalayan Times. 2016. *MoF finalising draft of financial sector development strategy.* http://thehimalayantimes.com/business/mof-finalising-draft-financial-sector-development-strategy/

5.2.3 Performance

5.2.3.1 Transactions/Ecosystem

Agent Banking and mobile Wallet transactions in Nepal are very low due to the current market structure. However, with new regulation, we are likely to see a change in the situation. Data is difficult to come by and its provision is not straightforward. The Central Bank reported on branchless and mobile banking transactions in their 2014 Financial Stability Reports but did not define the terms. However, one can see that the number of transactions is low (Table 9).

eSewa reports that they see between 80,000 and 120,000 transactions a day on their platform, with the lowest activity during the weekend. In terms of volume, 65 percent of transactions are for utility bill payment while 35 percent are for other services. In terms of value, 20 percent are indicative of utility payment while 80 percent represent CICO and transfers.

5.2.3.2 Active/Registered Users

User numbers are not clear as well. There are only 41.29 active Mobile Money Accounts per 1,000 people[215] in Nepal, according to the IMF, which is equal to about 4 percent of the population. The Central Bank's numbers are even lower, estimating that about 3 percent of the population has a Mobile or a Branchless Banking account (Branchless Banking not defined in report). Despite the low adoption, the number of users is growing as reported by the Central Bank. In January 2014 there were nearly 600,000 Mobile Banking and Branchless Banking users but the number jumped to 900,000 in June of the same year. [216] Data shows that mainly Class A banks are the providers of branchless and mobile banking in the country (Table 9).

Table 9: Nepal Mobile and Branchless Banking Data June 2014

BFI: Commercial, Dev't Banks, Finance Companies & MFIs	Branchless Banking			Mobile Banking		
	No. of Clients	No. of transact-ions	Transactions (Rs. in millions)	No. of Clients	No. of transact-ions	Transactions (Rs. in millions)
Class A	151,066	110,116	825	768,424	2,521,007	18,201,767
Class B	-	-	-	63	54	2,044
Class C	-	-	-	13	8	1
		110,116		**768,500**	**2,521,069**	
Total Jan	**50,056**	**33,496**	**255**	**528,660**	**757,196**	**665,281**
Sources: Central Bank of Nepal, Financial Stability Report p. 53—July 2014 Report, p23 Jan 2014 Report, Mondato Research and Analysis						

It is not conclusive as to whether or not the reported numbers cover mobile Wallets, but the data suggests they are not included. eSewa, the biggest provider in the

[215] IMF. 2015. *Financial Access Survey*.
[216] Central Bank of Nepal, *Financial Stability Report* p. 153 - July 2014 Report, p23 Jan 2014 Report

market, claims to have over 1 million users. Their subscriber calculations, however, add bank partner customers who are not necessarily using eSewa services. An interview with eSewa revealed that the figure of actual users is closer to 260,000-300,000.

5.2.4 Key Challenges

Nepal is in the nascent stages of Mobile Money and Agent Banking. The key challenges in the sector revolve around building the foundations for new services, such as a strong "ground game," and developing a broader ecosystem of use cases across challenging geographic conditions. Reaching remote areas could make this significantly more expensive than other markets.

1. Market Structure
    a. Few mobile Wallet players, most of them failed and one with limited success
    b. Agent Banking still limited
    c. No cooperation between banks and MNOs
2. Business Model
    a. Regulatory confusion
    b. Lack of investment
    c. No well-developed business model, inclusive business models are expensive to implement and not as lucrative as traditional clients and models
    d. High cost of Agent network hinders market entry and scaling of existing services
    e. Low revenue generated by Agent Banking, lack of interest from players
3. Distribution network
    a. Limited even in cities
    b. No system for Agent onboarding and monitoring
    c. Expensive to grow in remote areas
4. User Experience
    a. Services have not reached beyond banked educated customers to encounter issues
5. Use cases and Products
    a. Low uptake and availability
6. Transactions/ Ecosystem – size is very small, focused on bill payment
7. Active/ Registered Users – size is very small

Suggestions as to how these challenges can be overcome are included in Section 7.2.2.1.

5.3 Regulatory

5.3.1 Regulatory Framework for Mobile Money Services/ Agent Banking

The regulatory framework governing Agent Banking and Mobile Money Services in Nepal is at a pivotal point. Until July 2016, Nepal's Mobile Payments were strategically linked to mobile banking initiatives and thus based on a "bank led"

model. This has all changed with the issuance of a *Licensing Policy for Payment Related Institutions/Mechanisms 2073* (the *"Licensing Policy*")[217] in early July 2016, which allows the licensing of both bank and non-bank entities as Payment Service Providers, thus turning the regime into one based on payment service functionality rather than identity of the institution. There is, however, still much work to be done on subsidiary legislation to flesh out this new regime, especially in regard to Agents and Interoperability. This section looks at both the regulation for Branchless Banking and mobile banking (the domain of Financial Institutions, and until recently, the sole legislation in this area) as well as for newly licensed Payment Service Providers.

The key regulator for Mobile Money Services/ Branchless Banking in Nepal is the Nepal Rastra Bank ("NRB"), which is responsible for overseeing all licensing of Financial Institutions and oversight of financial infrastructure under the authority of *Nepal Rastra Bank Act 2058 of 2002*. Clearing and Settlement mechanisms are overseen by NRB by virtue of the same legislation. The NRB divides the financial sector into four classes as follows: Class A Commercial Banks, Class B Development Banks, Class C Finance Companies, Class D Microcredit and Development Banks.[218] The Payment Systems department of the NRB, created in 2015, is now responsible for digital and Mobile Payments, while Branchless Banking is the responsibility of the Regulation department.[219]

The specific regulation for Branchless Banking and mobile banking (both which are solely in the ambit of the banking sphere) is found in the *Unified Directive 2072 ("UD 2072*").[220] Please note that as we were not able to obtain an English translation of the *UD 2072*, we have cited the relevant parts of the *Final Directives on E banking July 3 2012* (the "*E-banking Directives*"), which are incorporated within the *UD 2072*. Under the *E-banking Directives*, all banking and Financial Institutions who have a license from the NRB may make available Branchless Banking[221], while all Class A, Class B and Class C Banks may provide Internet and mobile banking services[222]. In both cases, the Board of Directors of the relevant banks must approve the policy and procedural arrangements.[223] Class D micro finance institutions may be able to undertake mobile banking if they prescribe to additional terms and conditions, as per NRB approval[224] Those mobile banking services that were operating prior to the issuance of the *E-banking Directive*s had 3 months from issuance to obtain approval.[225]

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[217] Please note that at the time of drafting, there was only a Nepali version of this legislation available, and this report is based on an unofficial translation provided by Ncell, as well as information provided by Nephil Matangi Maskay, Ph.D., Executive Director of the Payment Systems Department of the NRB in an interview on 29 June and an article published by the Himalayan Times on 12 July 2016: http://thehimalayantimes.com/business/nepal-rastra-bank-makes-licence-mandatory-payment-service-providers/

[218] IFC. 2013. *IFC Mobile Money Scoping Report- Nepal* p 12

[219] Interview Nephil Matangi Maskay, Ph.D., NRB 29 June 2016

[220] As of time of drafting, the Unified Directive 2073, which would contain the Licensing Policy, has not been issued.

[221] Clause 1(a) of Final Directive on E-banking

[222] Clause 2(a) of Final Directive on E-banking

[223] Clauses 1(a) & 2(a) of Final Directive on E-banking

[224] Clause 2(e) of Final Directives on E Banking

[225] Clause 2(c) of Final Directives on E Banking

The following "Branchless Banking" services can be provided by the relevant authorized banks or their Agents through the use of a "point of transaction machine having used smart card/magnetic stripe card[226]" to current clients: (i) cash deposits in an account, payments or cash transfers; (ii) balance and statement inquiry; and (iii) payment of approved loan and deposit instalment amounts.[227] However, approval of such services shall be granted only in rural areas (i.e. excluding Metropolitan cities, sub-metropolitan cities and municipalities) and transactions can only be made in Nepalese currency (NPR).[228]

Mobile banking services, on the other hand, include the following services provided on a mobile handset: (i) balance inquiry, (ii) transfer to a third party; (iii) SMS transaction alerts; (iv) account statement; (v) Cheque book requests; and (vi) payment for purchase of goods or services.[229] There is no geographical restriction on the use of such services.

The *Licensing Policy,* which came in effect on the date it was published on the NRB website, sets out the regulatory framework for payment functions, including mobile and electronic payments. Two different entities can be licensed: consumer-facing Payment Service Providers ("PSP") and intermediary Payment System Operators ("PSO");[230] these licenses cannot be cumulative except for Class A, B and C banks.[231] Both licensed banks and non-banks, including telecom companies, are eligible to apply for such licenses. Telecom companies, however, will need to set up subsidiary firms to provide such services[232] as well as provide a commitment paper of provision non-discriminatory of access to its telecom network to other PSPs.[233] Non-compliance to the latter obligation can result in cancellation of the PSP license.[234] PSPs that will be offering services over mobile/ telecom networks are in all cases required to provide a copy of the agreement with the MNO to the NRB.[235]

All current operating Payment Service Providers and operators, including domestic money transfer companies, e-Sewa, Clearing Houses and companies such as Visa, MasterCard and SCT, must now obtain a license from NRB if they wish to continue operating their businesses.[236]

Pursuant to a PSP license, entities can offer, through electronic cards and/or mobile telecommunications, domestic P2P, retailer/Merchant Payments, and the bill payment;[237] loans and the paying of interest on the other hand are prohibited.[238] A licensed PSO can provide (i) Clearing related to payment, (ii) Automated Clearing

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[226] This means either POS terminal or ATM
[227] Clause 1(a) of Final Directives on E Banking
[228] Clause 1(e) of Final Directives on E Banking
[229] Clause 2(a) of Final Directives on E Banking
[230] Clause a (i) Licensing Policy for Payment Related Institutions/Mechanisms 2073
[231] Clause b (4) Licensing Policy for Payment Related Institutions/Mechanisms 2073
[232] Clause h (23) Licensing Policy for Payment Related Institutions/Mechanisms 2073
[233] Clause h (24) Licensing Policy for Payment Related Institutions/Mechanisms 2073
[234] Clause h (25) Licensing Policy for Payment Related Institutions/Mechanisms 2073
[235] Clause l (33) Licensing Policy for Payment Related Institutions/Mechanisms 2073
[236] The Himalayan Times. 2016. *NRB Makes License Mandatory For Payment Service Providers* http://thehimalayantimes.com/business/nepal-rastra-bank-makes-licence-mandatory-payment-service-providers/
[237] Clause b(2)(i) Licensing Policy for Payment Related Institutions/Mechanisms 2073
[238] Interview Nephil Matangi Maskay, Ph.D., NRB 29 June 2016

House services, (iii) large value/retail payments; (iv) networking of electronics cards and (v) a payment Switch/gateway.[239]

The *Licensing Policy* has been introduced in order to "legitimize" and regulate firms that for years have been providing online and Mobile Payment services in Nepal using the Internet or cellular phones without any sort of permission/ license, and thus which have raised customer fund protection issues.[240]

5.3.2 Capital Requirements

In regard to branchless and mobile banking, the relevant capital requirements are those the relevant bank is required to hold pursuant to its banking license (Class A, B, C and D).

In regard to payments, pursuant to the *Licensing Policy*, all firms providing payment services and operating payment systems are required to deposit one percent of their proposed paid-up capital in a security deposit account of NRB.[241] Further, all firms providing payment services are to maintain a minimum paid-up capital, the amount of which is determined by the payment instrument they use. For instance, minimum regulatory paid-up capital for firms providing payment services through electronic cards has been fixed at 50 million NPR[242], while firms that are issuing electronic cards that can be used abroad for payment purposes must maintain minimum regulatory paid-up capital of 250 million NPR[243], and foreign firms providing payment services in Nepal must maintain a minimum paid-up capital of 300 million NPR.[244] Telecom operators are required to maintain paid-up capital of only 10 million NPR.[245] The minimum paid-up capital for payment system operator has been fixed at 100 million NPR across the board. [246]

There are special provisions for licensed banks and for foreign companies providing payment services or operating payment systems in 10 or more countries, which allow for a waiver on the need to maintain minimum paid-up capital and the deposit of one percent of the paid-up capital as security deposit at NRB, plus provides a shortened application procedure.[247]

5.3.3 Safeguarding of Funds

For Branchless and mobile banking, there is no need for specific safeguarding of customer funds given the capital requirements. The *Licensing Policy,* on the other hand, requires that for all Payment Service Provider (PSP) license holders an e-float be kept equivalent to customer funds that will be settled in real-time, with the

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[239] Clause b(2)(ii) Licensing Policy for Payment Related Institutions/Mechanisms 2073
[240] The Himalayan Times. 2016. *NRB Makes License Mandatory For Payment Service Providers* http://thehimalayantimes.com/business/nepal-rastra-bank-makes-licence-mandatory-payment-service-providers/
[241] Clause e(16) Licensing Policy for Payment Related Institutions/Mechanisms 2073
[242] Clause g(19) Licensing Policy for Payment Related Institutions/Mechanisms 2073
[243] Clause g(21) Licensing Policy for Payment Related Institutions/Mechanisms 2073
[244] Clause g(22) Licensing Policy for Payment Related Institutions/Mechanisms 2073
[245] Clause g(19) Licensing Policy for Payment Related Institutions/Mechanisms 2073
[246] Clause g(20) Licensing Policy for Payment Related Institutions/Mechanisms 2073
[247] Clauses i(26) & (27), j(28) & (29) Licensing Policy for Payment Related Institutions/Mechanisms 2073

amounts deposited either in individual accounts for each customer, or a lump sum in the name of the PSP, at the Settlement bank of the PSP.[248]

In the event of a bank's insolvency (as a holder of e-float or as a Payment Service Provider) there exists deposit insurance of individual current accounts of up to 200,000 NPR per account. All banks pay a premium to this fund, and it is managed by the Deposit and Insurance Credit Guarantee Corporation.[249] It is unclear whether this insurance will pass through to funds held by non-bank PSPs.

5.3.4 AML/ CTF/ KYC

In regard to mobile banking, KYC checks are undertaken at the time of Bank Account opening. For Branchless Banking, KYC is undertaken by the authorized Agent, and according to the *E-Banking Directives*, these services "shall have to be operated subject to the prevailing laws, preventing money laundering and terrorist financing and as per Directives issued by this Bank."[250]

In both cases, the relevant legislation relating to AML is the *Asset (Money) Laundering Act 2008*. In terms of customer identification, a bank or Financial Institution "shall maintain a clear identity of a person while establishing any kind of business relationship or transacting the amount more than the limit of one or several transactions as prescribed by Rastra Bank from time to time by publishing notice."[251] The documents required for an individual are (i) name, (ii) family title, and (iii) copy of citizenship or passport including documents evidencing permanent residential address and profession or business.[252] With respect to a firm or company, the documents required are: (i) a copy of the certificate of incorporation, establishment or registration of the institution and (ii) documents that evidence title, address, profession or business of the board of directors and executive director or proprietor of firm or partners of a partnership firm.[253] There are additional requirements for transactions undertaken on behalf of a third party, and transactions made through negotiable instruments.

In reality, the basic KYC/ CDD process is as follows: provision of ID card with citizenship number, plus proof of address e.g. electricity bill and two passport photos. If a transaction amount is greater than 500,000 NPR, the customer has to provide the citizenship number of his or her father.[254] [255] All the documents are verified at the bank branch, and then the customer's account is activated. The time to activate an account varies from an hour to a maximum of 15 days, depending

[248] Clause I(38) & (39) Licensing Policy for Payment Related Institutions/Mechanisms 2073
[249] Interview with Mr Dhakal 22 June, Managing Director Centre for Social and Economic Studies in Nepal
[250] Clause 1(e) of Final Directives on E Banking
[251] Clause 6(1) Asset (Money) Laundering Act 2008, Chapter 3
[252] Clause 6(2) Asset (Money) Laundering Act 2008, Chapter 3
[253] Clause 6(2) Asset (Money) Laundering Act 2008, Chapter 3
[254] Interview with Jaspreet Singh UNCDF May 23 2016
[255] Pursuant to Mr Dhakal, the requirements are: Location of where you live, proof of where you are working, utility bills, passport or citizenship certificate and passport phones.

upon how fast the bank processes the documents and activates the account, with the average time being 3 days.[256]

The *Licensing Policy* states that the PSPs and PSOs "shall have duty to implement and comply with the *Money Laundering Prevention Act, 2063 (2008), Money Laundering Prevention Rules, 2066 (2009),* other prevailing laws and by-laws, policy and directives issued by Nepal Rastra Bank,"[257] and that they must obtain the KYC details set out in Annex 11 of the *Licensing Policy*. Further, it has provisions for simplified KYC: the telephone number of a registered customer is sufficient for the identification of customers doing single transactions of 500 NPR or to open accounts with a 5,000 NPR monthly transaction limit.[258] Unfortunately, we have not been able to obtain a translation of the Annexes, and thus do not know exactly what KYC details are required for the opening of normal accounts.

5.3.5 Agents

There is no one piece of comprehensive legislation for Agents; rather specific regulation for Agents of Branchless Banking and mobile banking is currently found in *UD 2072*, but as we do not have an English translation, we have cited the relevant parts of the unofficial version of the *E-banking Directives,* which are incorporated within the *UD 2072*, as well as the *Payment and Settlement Bylaws 2015 (the "Payment and Settlement Bylaws")*.

Pursuant to the *Payment and Settlement Bylaws*, the principal institutions/ mechanisms carrying out services related to payment systems or the issuer of payment instruments can mobilize external Agents, but the following factors require prior approval by NRB: (a) detailed business and personal descriptions with name and address of the Agent, (b) a detailed description with the scope of authority and functions to be carried out by the Agent, (c) details of obligations of the Agent with regard to AML, and internal control mechanism adopted thereon, (d) a detailed description of payment institution/mechanism, services and instruments used by the Agent together with letter of agreement between the Agent and the Party appointing such Agent, (e) the personal details of key responsible persons involved in the management of Agent, with work experience of minimum three years, and (f) adequate liquidity risk management measures together with a mandatory provision as specified by Nepal Rastra Bank for securing the minimum collateral.[259] It is unclear how these provisions relate to payment service operators licensed under the *Licensing Policy*. We are aware, however, that new Agent legislation is currently being discussed that will be analyzed further in the section on legislative reform.

Mobile banking as defined by the NRB does not use Agents, in that it is just the use of the mobile phone to undertake certain services. In regard to Branchless Banking in particular, there is no approval process of the Branchless Banking Agents by the NRB, but the Branchless Banking location can be no more than 20 km from the

[256] Interview with Mr Dhakal 22 June, Managing Director Centre for Social and Economic Studies in Nepal.
[257] Clause l(41) Licensing Policy for Payment Related Institutions/Mechanisms 2073
[258] Clause l(36) Licensing Policy for Payment Related Institutions/Mechanisms 2073
[259] Clause 36 Payment and Settlement Bylaws 2015

controlling bank location.[260] Clause 8 of the *E-banking Directives* sets out the due diligence factors for the selection of the Agent that the bank needs to take into account: (i) the capacity to manage risk; (ii) basic minimum criteria and selection procedures; and (iii) arrangement for assessing the work performance of the Agents in time intervals.[261] Further, Clause 1 (c) (2) of the *E-banking Directives* sets out that in the application for Branchless Banking approval, if Agents will be used, then the bank must provide documentation on the criteria for selection of Agent, provisions of training to the Agents as well as a copy of agreement with the Agent.

It is clear from the *Payment and Settlement Bylaws* and the *E-banking Directives* that ultimately it is the banks that remain liable for the actions of their Agents.[262]

In the *Licensing Policy*, PSPs can appoint Agents and sub-Agents to undertake payment transactions "pursuant to the standard prescribed by Nepal Rastra Bank."[263] In such a situation, the PSP shall furnish "information along with detailed description of the appointment of Agents and sub-Agents" to the Payment Systems Department within 15 days of appointment.[264] It is unclear what the prescribed standard of the NRB relates to—i.e. whether it is making reference to what is set out above in the *Payment and Settlement Bylaws*. We have been informed anecdotally that the NRB applies the agent provisions of the *Payment and Settlement* Bylaws to all types of agents, which is effectively resulting in a restriction of the number of districts, and thus may be partially a cause of the current market fragmentation.

5.3.6 Interoperability

There is currently no identified mandate for Interoperability in the legislation.[265] There is, to a certain extent, Interoperability in practice as eSewa, an online payment platform and Agent aggregator[266], is used by 18-20 banks, and many banks are connected to each other through banking Settlement infrastructure, which results in a certain degree of Interoperability.[267]

With the introduction of non-bank payment systems, this de-facto Interoperability is even less assured, and the NRB will need to consider how it will best achieve such Interoperability. It is our understanding that the NRB plans to issue legislation/ policy in the near future in this regard.

5.3.7 Telecom Regulation

The telecoms regulator in Nepal is the Nepal Telecommunications Authority (NTA). The NTA requested guidance in February 2013 in developing regulations to govern mobile commerce, which at the time suggested that there may have be some need

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[260] Interview with Mr Dhakal 22 June, Managing Director Centre for Social and Economic Studies in Nepal
[261] Clause 8 of Final Directives on E Banking
[262] Clause 36 (4) Payment and Settlement Bylaws 2015; Clauses 1(e) and 5 of Final Directives on E Banking
[263] Clause l(34) Licensing Policy for Payment Related Institutions/Mechanisms 2073
[264] Clause l(34) Licensing Policy for Payment Related Institutions/Mechanisms 2073
[265] IFC. 2013. *IFC Mobile Money Scoping Report- Nepal* p 10
[266] MNepal offers similar services, but we are not aware of which banks it currently connects.
[267] Interview with Jaspreet Singh UNCDE May 23 2016

for clarity on institutional roles and responsibilities.[268] However, it is clear in the Mobile Money Services / Branchless Banking arena that the NRB is the dominant regulator directing the agenda, given the new provisions concerning telecom operators in the *Licensing Policy*.

As of April 2016, mobile phone handset registration is mandatory under the *'Interim Directives for the Implementation of National Equipment Identity Registry (NEIR)-2072*' as a measure against counterfeits and in order to meet national and consumer security requirements.[269] Operators of mobile phones have to register with NTA the International Mobile Equipment Identity (IMEI) number, Electronic Serial Number (ESN) or Mobile Equipment Identifier (MEID) of every handset imported as of 13 April, and they will have to register mobile phones, which are already in use, within six months. The NTA, after this deadline, will send a warning message to all mobile phones not registered with it and make them inoperable if the owner doesn't register the IMEI accordingly. Persons using international roaming services through SIM-card belonging to a foreign mobile operator, however, are exempted.

In order to register the mobile phone, consumers are to complete a one-page form, and provide photo ID.[270] MNOs seem to be unsure about the quality of the data captured, as it is difficult to manage the data in-house, and it is not clear if you can use the data for KYC of Branchless Banking/ Mobile Payment services.[271]

5.3.8 Cross-border Payments

Nepal is among the top five countries in the world in terms of the flow of inward Remittances as a proportion of GDP. Most banks provide Remittance services which, in the case of the larger banks, are based on correspondent relationships with Financial Institutions in the source countries. In addition, Money Transfer Operators (MTOs), both international operators and domestic providers, are extensively used.[272]

Based on discussions to date, we believe that MTOs need a license from the Foreign Exchange Department of the NRB pursuant to the *Money Transfer Operator Guidelines* and the *Foreign Exchange (Regulation) Act, 2019 (1962),* but we have not been able to review this legislation as they only exist in Nepali. All Remittances go through the banking Channel, as MTOs must have an account in a commercial bank. All Remittances are OTC. [273]

Sending money out of Nepal on the other hand is difficult, as an individual must provide where/ how they obtained the money they are sending (to show its not illegally obtained) as well as of proof of why they are sending the money (invoice/

[268] IFC. 2013. *IFC Mobile Money Scoping Report- Nepal* 2013 p 7
[269] S; Dhungana. 2016. *Government Makes Phones IMEI Registration Mandatory from Wednesday*. http://admin.myrepublica.com/economy/story/40362/govt-makes-imei-registration-mandatory.html
[270] Annex 2, Interim Directives for the Implementation of National Equipment Identity Registry (NEIR)-2072
[271] Interview with Jaspreet Singh, UNCDF, May 23 2016
[272] 2071-72 Nepal National Payment Systems Development, p13
[273] Interview with Jaspreet Singh, UNCDF, May 23 2016

education admission letter and if it is to family, proof of relations and that they are dependant etc.).[274]

It should be noted that Branchless Banking can only be done in NPR, and thus any currency exchange must be done by authorized MTOs. The *Licensing Policy* does not allow for reception/ dispatch of foreign Remittances through the licensed payment systems (and thus via mobile), although firms that issue electronic cards that can be used abroad for payment purposes are able to become PSPs, as long as they remain subject to the provisions of *Foreign Exchange (Regulation) Act, 2019 (1962).*

5.3.9 Other

5.3.9.1 Competition

The Competition Promotion and Market Protection Board is the competent authority that investigates anticompetitive behaviour under the Competition Promotion and Market Protection Act, 2063 (2007), including anti-competitive agreements, abuse of dominant position, anticompetitive mergers, bid-rigging, exclusive dealing, market restrictions, tied selling and misleading advertisements.

Currently the Nepali financial services market is extremely fragmented, with the two main big banks (Rastriya Banijya Bank Ltd and Agriculture Development Bank Ltd) having 7-10% percent market share, and all the other banks (nearly 200) having between 2-3% percent, if not much less. It is highly likely with the issue of further lcenses under the *Licensing Policy* that there will be further market fragmentation. It would thus appear that the market is ripe for consolidation and we are likely to see mergers and acquisitions in the long term.[275] In regard to Mobile Payments, outside of the mobile banking solutions, the rest of the services until now have been working outside the regulatory framework. With the introduction of the new *Licensing Policy,* we should expect to see even more increased competition as these solutions enter the legitimate market, possibly forcing increased consolidation amongst banking providers.

5.3.9.2 Data Protection

There is no separate data protection legislation (although arguably it has a data privacy law for the public sector[276]). However, there are certain relevant provisions in the *Nepal Rastra Bank Information Technology Guidelines 2012 (the "IT Guidelines")* that deal with data security. Clause 2(20) of *IT Guidelines* says: '(the) Bank should have data security policy and procedure in place to ensure security of data stored or transmitted electronically. This should cover, among other things appropriate data disposal procedure, storage of data in portable devices, security of media while in transit or in storage, physical and environmental control of storage media, encryption

[274] Interview with Mr Dhakal 22 June, Managing Director Centre for Social and Economic Studies in Nepal
[275] Interview with Mr Dhakal 22 June, Managing Director Centre for Social and Economic Studies in Nepal
[276] "Nepal's unknown data privacy law; No Shangri-la, but a first for South Asia," Graham Greenleaf, International Data Privacy Law (OUP), Vol 3 Issue 4, 2013

of customer's critical information being transmitted, transported or delivered to other locations.'

The *Electronic Transaction Act 2063 BS (2006*), which ensures the legal validity of the electronic data, documents, information or records, has provisions regarding the protection of electronic data, including the prohibition of the unauthorized access to computer materials.[277]

Further, there are further provisions in *Licensing Policy* concerning data protection, data security and system security in regard to payment services[278] (which we have not been able to review).

5.3.9.3 Consumer Protection

In relation to consumer protection, there is the *Consumer Protection Act 2054 (1998)* which deals with such matters as the setting up of a Consumer Protection Council, the protection and promotion of consumer rights, and a prohibition on influencing demand, supply and unfair trade practices. Complainants may take unresolved grievances to a compensation committee.

IT Guidelines contains regulations in regard to security breaches, including a requirement that providers publish clear information in terms and conditions about who bears losses—between customers and providers—in particular situations related to security breaches.[279]

The more specific consumer protection principles for electronic banking are set out in the *E-Banking Directives*. The following topics must be addressed in the bank's contract with the customer: (i) the agreement shall be drafted in simple Nepali language or English if a customer requests that, (ii) information regarding charges applicable for transactions between the electronic banking services provider bank and Financial Institution, (iii) information to be given to clients as to how long services are available and information when services are not available, (iv) compensation for loss incurred to the client because of weakness or fault of the electronic banking services provider bank, (v) special measures to be followed for security, (vi) information as to maintaining confidentiality of transactions, and (vii) procedures relating to Settlement of complaints.[280]

In the *Licensing Policy*, Clause l (37) obliges PSPs and PSOs to publish publically on the web and through other Channels the service fees charged to customers, to be updated every 6 months and whenever there is a fee change. The detailed description of service charge shall have to be submitted at Payment Systems Department of the NRB.[281]

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[277] http://unpanelearning.wordpress.com/tag/nepal/
[278] Interview Nephil Matangi Maskay, Ph.D., NRB 29 June 2016
[279] Clause 4 (1) Nepal Rastra Bank Information Technology Guidelines 2012
[280] Clause 6 Final Directives on E-Banking
[281] Clause l (37) Licensing Policy for Payment Related Institutions/Mechanisms 2073

5.3.9.4 IT Security

The *IT Guidelines* is the main legislation in this area. The objectives are "to promote sound and robust technology risk management and to strengthen system security, reliability, availability and business continuity in commercial banks of Nepal."[282]

The *Guidelines* cover the following types of subjects: IT governance, information security, Information security education, information disclosure and grievance handling, outsourcing management, IT operations, information systems acquisition, development and implementation, business continuity and disaster recovery planning, IS audit, and fraud management.[283] The NRB is responsible for determining compliance with the *IT Guidelines* by onsite/ offsite inspection and supervision. See sections on data protection and consumer protection for more detail.

In the *Licensing Policy*, the PSO that is issuing cards has to comply with Payment Card Industry-Data Security Standards (PCI-DSS) within three years from enforcement of the Policy, in order to guarantee secrecy of transaction and customer's information.[284]

5.3.9.5 G2P Payments

Government transactions form a significant percentage of all transactions in the national payment system. It is hoped by the NRB that "in time the bulk of collections and disbursements of the public sector will be executed electronically using the envisaged systems."[285]

As per the *Nepal National Payments System Development Strategy*, the NRB is currently working with the Ministry of Federal Affairs and local government in promoting and developing a pilot scheme for distribution of funds in relation to a number of different social protection programmes via electronic transfers across commercial banks' Agent networks. In the longer term, the NRB will work with all relevant public sector institutions to implement and exploit modern innovative payment systems for the disbursement of government payments.[286]

5.3.10 Legislative Reform

There are currently two pieces of legislation being discussed. Firstly, there are new Agent guidelines for payment services which should bring uniformity to the treatment of Agents such as commission structure, facilities, etc.[287] and which is a subsidiary legislation to the new *Licensing Policy.*

Secondly, the *National Payment Systems Act* is currently being reconsidered; it is still in draft form, but has been approved by NRB. It is not clear whether this will be

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[282] Clause 2 Nepal Rastra Bank Information Technology Guidelines
[283] Nepal Rastra Bank Information Technology Guidelines
[284] Clause I (35) Licensing Policy for Payment Related Institutions/Mechanisms 2073
[285] 2071-72 Nepal National Payments System Development Strategy Nepal Rastra Bank p36
[286] 2071-72 Nepal National Payments System Development Strategy Nepal Rastra Bank, p36
[287] Interview with Mr Dhakal 22 June, Managing Director Centre for Social and Economic Studies in Nepal

issued as separate legislation, or whether it will form part of *Bank and Financial Institutions Act*.[288]

[288] Interview with Mr Dhakal 22 June, Managing Director Centre for Social and Economic Studies in Nepal

6 Sri Lanka

6.1 Payment Systems

Sri Lanka has a population of 20.8 million has a high rate of access to financial services (83 percent of adults had an Account at a Financial Institution in 2014) [289]—along with a high mobile penetration rate (125 percent in 2016)[290] and a moderate but steadily growing Internet penetration rate (29.3 percent in 2016).[291]

Bank and mobile coverage is similarly high, with 25 banks and 5 MNOs respectively. Of the three countries examined in this study, Sri Lanka is the only one to have implemented Real-Time Payments, which Lanka Clear did in 2015.[292] The country is characterized by a small number of service providers at both Layers 1 and 2, the last mile and foundational payment services, with only one mobile PSP with a large customer base and mature payment products—eZ Cash. Usage of existing digital payment services, however, is low, with 24.9 percent of adults holding Debit Cards but only 10.4 percent actually using them. Internet payment usage stands at a very small 1.6 percent.[293] As may be expected, the bright spot here is Mobile Payments, which grew in transaction volume by 190 percent from Q414 to Q415, albeit from a base of only 253,063 transactions (to 733,308 in Q415).[294] Usage in all digital Channels, then, remains a long way from reaching its potential. The most effective contributors to this outcome in terms of infrastructure development would likely be implementation of a national Real Time Payments system at Layer 2, and for Generation 2 communications infrastructure, along with building a robust Fintech Ecosystem (and the enhanced ability to innovate that this implies) at Layer 3 of foundational services. Generation 1 initiatives would also need to be considered in parallel to ensure sufficient access for lower income segments.

Table 10 rates, at a high level, the maturity and health of the digital payments ecosystem in Sri Lanka. (Please refer to in the Appendix Section 8.3 for an explanation of the evaluation framework). Sri Lanka has a maturity score of 14, and a health score of 13 (both out of a possible total of 21).

Table 10: Digital Payment Systems Evaluation Sri Lanka

Criteria	Maturity	Health
LAYER 1		
Consumer Payers & Payees	2	1
Business Payees & Agents	2	2
Retail Banks	2	2

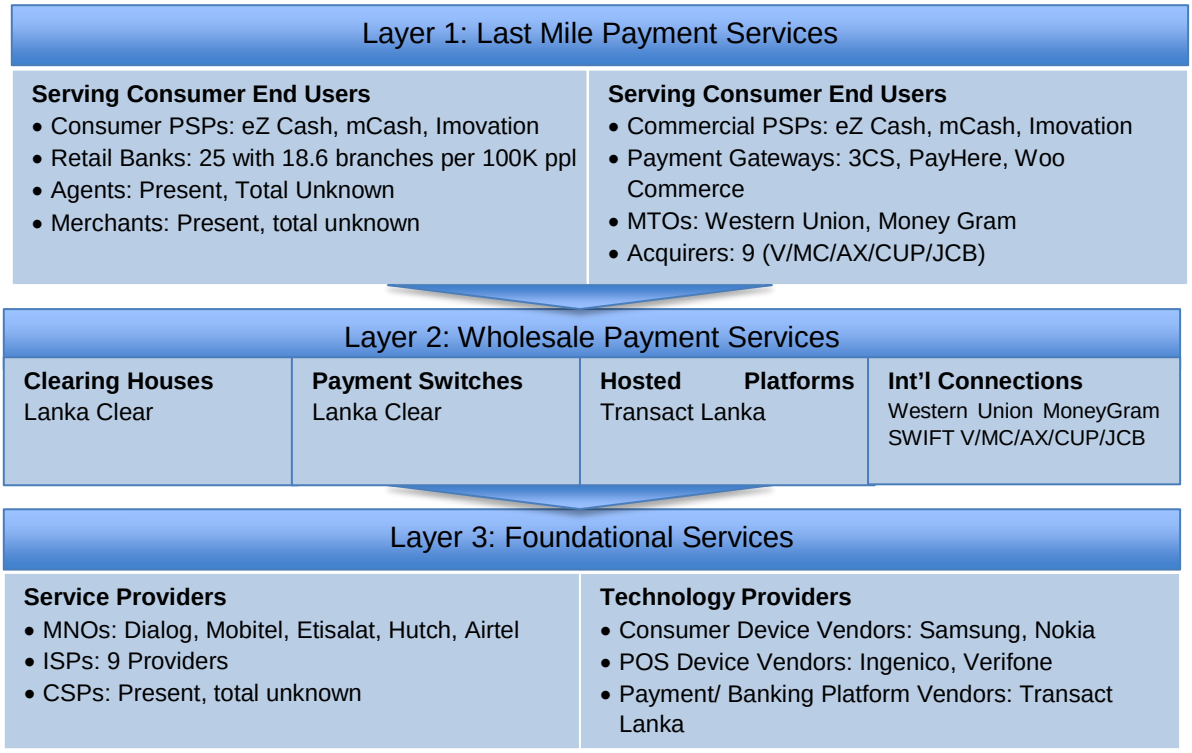
[289] World Bank. 2016. *Findex*. www.worldbank.org/en/programs/globalfindex
[290] GSMA. 2016. Intelligence. www.gsmaintelligence.com/markets/240/dashboard
[291] Internet Live Stats. 2016. Sri Lanka Internet Users. www.internetlivestats.com/internet-users/sri-lanka/
[292] Sunimalee Dias. 2015. *Sri Lanka goes live this week on real time fund transfers.* The Sunday Times. www.sundaytimes.lk/150809/business-times/sri-lanka-goes-live-this-week-on-real-time-fund-transfers-159737.html
[293] World Bank. 2016. *Findex*. www.worldbank.org/en/programs/globalfindex
[294] CBSL. 2015. *Payments Bulletin*, 4th Quarter 2015

PSPs/ Acquirers/ MTOs	2	2
LAYER 2		
Clearing Houses, Switches, Hosting	3	3
LAYER 3		
Telcos/ MNOs/ ISPs/ CSPs	2	2
Technology Providers	1	1
TOTAL	14	13

6.1.1 Digital Payments Ecosystem in Sri Lanka

Figure 9 below and the narrative that follows describe the digital payments ecosystem in Sri Lanka and its key service providers following the reference model defined n Section 3.1

Figure 9: Digital Payments Infrastructure Sri Lanka



6.1.1.1 Layer 1–Last Mile Payment Services

The Layer 1 digital payments ecosystem in Sri Lanka includes:

- Consumer PSPs
- Retail banks
- Agents
- Merchants

6.1.1.1.1 Consumer PSPs

We have identified the following consumer PSPs currently operating in Sri Lanka:

- eZ Cash
- Imovation

- mCash

eZ Cash and mCash are discussed in the Mobile Money Services and Agent Banking Section.

Imovation is a PSP operating the zPay service, which offers P2P payment, Merchant Payment, bill payment, and entertainment tickets. The service also features virtual gift cards as well as mobile coupons and loyalty programs. All transactions appear to be initiated at a dedicated zPay-only merchant terminal. The company claims Interoperability across all FIs and MNOs in Sri Lanka.[295]

6.1.1.1.2 Retail Banks

Sri Lanka's banking sector is dominated by state-owned and large banks. Banks cover the entire island and the country has some of the highest branch and ATM penetration in South Asia: 17 and 18.6 per 100,000 individuals, respectively.[296] Although a large part of the population has access to financial services, usage of digital instruments such as mobile and Internet banking are still low.

The banking sector in Sri Lanka comprises Licensed Finance Companies (LFCs) and Specialized Leasing Companies (SLCs). There are 25 LCBs and 9 LSBs. These Financial Institutions accounted for 58 percent of the total assets of the country's financial system at the end of 2014.[297]

At the end of 2015, LCBs had 51 percent of the entire financial system's assets.[298] The health of the Sri Lankan financial system depends heavily on the soundness of the LCBs. They are the most important category of Financial Institutions in terms of asset base and services provided.

The three largest banks, in terms of market share by deposits, are Bank of Ceylon, People's Bank and National Savings bank (Table 11) and all three are state owned. Thus, the banking sector is government-dominated. Because of implicit government support, the banking sector is stable but also government ownership can stifle their growth due to crony lending and overstaffing. There are 12 foreign banks including HSBC, Citi and Standard Chartered, but their market share is small.

In terms of competitiveness, larger banks tend to have a clear advantage for universal banking services due to their established franchises. Mid-sized banks, rather, focus more on niche services where they have a competitive advantage, while the smallest banks have sometimes struggled to sustain or develop their franchises.[299] Digital finance could potentially provide a lower-cost path to increased competitiveness for smaller banks, with their size and agility possibly making it easier to enter into strategic partnerships to launch innovative services and try to disrupt the status quo.

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[295] Imovation. Why You Need It?. www.imovation.lk/why-you-need-it.html
[296] IMF. 2014. *Financial Access Survey*.
[297] Central Bank of Sri Lanka. *Financial System Stability*. www.cbsl.gov.lk/htm/english/05_fss/f_1.html
[298] Central Bank of Sri Lanka, 2015. *Annual Report*
[299] Rukshana Thalgodapitiya. 2015. *Sri Lankan Banking Sector Update*

Banks are increasingly looking at branchless and virtual banking, and MNO partnerships could be useful here. MNOs such as Mobitel are looking to cooperate with banks as well, but they have not seen much success to date.

Table 11: Sri Lanka Banks Ranked by Market Share

Rank	Bank Name
1	Bank of Ceylon
2	People's Bank
3	National Savings Bank
4	Commercial Bank of Ceylon
5	Hatton National Bank
6	Sampath Bank
7	National Development Bank
8	DFCC Bank
Sources: Rukshana Thalgodapitiya. 2015. Sri Lankan Banking Sector Update. Mondato Research and Analysis	

6.1.1.2 Layer 2—Wholesale Payment Services

Wholesale payment services in Sri Lanka are primarily provided by Lanka Clear, under the authority of the Central Bank of Sri Lanka (CBSL)—See entry below. In addition, the following international Layer 2 payments organizations are present in Sri Lanka:

- Interbank payments—SWIFT (39 FIs connected)[300]
- Money transfer—Western Union, MoneyGram
- Payment Card issuing and acquiring—Visa, MasterCard, American Express (issuing and acquiring); China UnionPay, JCB (acquiring only)

Lanka Clear is the primary operator of several switching and Clearing services for Sri Lanka, of which two (the Sri Lanka Interbank Payment System (SLIPS), and the Common Card and Payment Switch (CCAPS)) provide critical support to the country's existing and future Layer 1 Mobile Money Services and Branchless Banking services. Lanka Clear is jointly owned by CBSL and several of Sri Lanka's commercial banks. SLIPS processes EFT transactions such as customer transfers, standing orders, insurance payments and low value Bulk Payments such as salaries with a maximum individual transaction value of LKR 5 million, among 41 FIs on a daily (T+0) basis. [301] In 2015 the system cleared an average of 112,000 transactions per day.[302] CCAPS, branded as LankaPay, was launched in 2013 and functions as the national payment Switch for Sri Lanka. CCAPS is, in fact, an umbrella name for 6 specialized and dedicated Switches that service different key cases—including ATM transactions with LankaPay Common ATM Switch (CAS) and the LankaPay Shared ATM Switch (SAS); domestic Payment Cards with the LankaPay National Card Scheme (NCS); EFT transactions with the LankaPay Common Electronic Fund Transfer Switch (CEFTS); POS transactions with the LankaPay Common POS Switch (CPS); and mobile transactions with the LankaPay Common Mobile Switch

[300] Rukshana Thalgodapitiya. 2015. *Sri Lankan Banking Sector Update*
[301] Rukshana Thalgodapitiya. 2015. *Sri Lankan Banking Sector Update*
[302] Lanka Clear. 2016. Services Overview. www.lankaclear.com/product_service/6-overview

(CMobS). In August 2015, Lanka Clear implemented Real-Time Payments in CEFTS, with 8 banks initially joining the scheme (more have joined since).[303]

6.1.1.3 Layer 3—Foundational Services

Five MNOs operate in Sri Lanka, having a total of 25.9 million SIM accounts (a penetration rate of 125 percent), all on the GSM platform. The five MNOs, Dialog Axiata, Mobitel, Airtel, Etisalat and Hutch are all under the regulatory authority of the TRCSL. As per regulation, MNOs are permitted to provide commercial payment services in Sri Lanka. Two are currently doing so as PSPs: Dialog, with eZ Cash, and Mobitel, with mCash.

There are 9 ISPs operating in Sri Lanka[304], serving 6.1 million Internet users as of 2016 (a penetration rate of 29.3 percent) and up 4.2 percent over 2015's total of 5.8 million—compared to population growth of 0.4 percent in the same period. [305]

Several Co-location centers are present in Sri Lanka. The total number is unknown, and would likely include lower tier or less formal colocation facilities offering interconnects. Sri Lanka Telecom announced plans to build the country's first Tier 4 data center in early 2016. [306]

6.1.2 Trends and Issues

The following apply specifically to Sri Lanka. We have also identified certain trends and issues that apply globally to all three countries in the study. These are outlined in Section 7.1.

Sri Lanka does not appear to have much of a functioning Fintech Ecosystem at present. Many would-be entrepreneurs from Sri Lanka, even those hoping to launch products locally, have often gone to Fintech Hubs such as Singapore to begin their ventures, leading to some drain on talent and resources.[307]

6.2 Mobile Money Services and Agent Banking

Sri Lanka has the highest share of adults with an Account at a Financial Institution in South Asia, [308] dwarfing the rate of its neighbors India, Pakistan, Nepal, and Bangladesh. Frequent use of financial services and adoption of digital Channels is low, however. [309] Sri Lanka has a wide range of Financial Institutions providing

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[303] The 8 launch banks were Commercial Bank, Union Bank, Bank of Ceylon, People's Bank, NDB, HNB, Lanka Orix Finance PLC and Commercial Leasing, and Finance PLC.
[304] Telecommunications Regulatory Committee Sri Lanka. Internet Service Providers. www.trc.gov.lk/internet-service-providers.html
[305] Internet Live Stats. 2016. Sri Lanka Internet Users.www.internetlivestats.com/internet-users/sri-lanka/
[306] Heather Wright. 2016*. Sri Lanka Telecom to open country's first Tier 4 data center.* http://datacenternews.asia/story/sri-lanka-telecom-open-countrys-first-tier-4-data-center/
[307] Inteveiw with Rakhil Fernando, CEO of Kashmi (a Singapore-based fintech startup founded by Sri Lankans), 14 July 2016.
[308] World Bank. 2016. *Findex*. www.worldbank.org/en/programs/globalfindex
[309] S. Kelegama, G. Tilakaratna. 2014. *Financial Inclusion, Regulation, and Education in Sri Lanka.*

individuals financial services such as savings, loans, pawning, leasing and finance services, insurance, money transfer, and Remittances. However, there are gaps in the current system particularly in relation to cost and quality of the services as well as financial education.[310]

6.2.1 Market Structure

Mobile Money Services, also known as mobile phone based E-Money systems in Sri Lanka, are available to 90 percent of mobile phone subscribers in Sri Lanka. However, the adoption level has been relatively low. Current mobile money transactions tend to be transacted on an OTC basis, and primarily for bill payment. Agent Banking is nascent with Sampath Bank, having just launched the first service in the country in mid-2016.[311]

There are two Mobile Money players in the market. In June 2012, Dialog obtained a license from the Central Bank of Sri Lanka (CBSL) to operate the first mobile phone based E-Money system. The second license was issued to Mobitel's mCash in November 2013. Dialog Axiata eZ Cash is the biggest player followed by mCash. Besides urban dwellers, the two providers reach about 50 percent of rural population. [312]

Currently eZ Cash is interoperable with Hutch and Etisalat. Hutch and Etisalat promote eZ Cash to their customers thus increasing awareness and adoption across a wider number of subscribers. Etisalat customers can also subscribe to mCash. This type of Interoperability is a first of its kind. It is different from the operator-agnostic models that we have seen previously in other markets, as the players have joined forces to drive an existing brand and product together.

This benefits Dialog given the network effects of increasing the number of unique users that can participate in eZ Cash, while Hutch and Etisalat are able to offer Mobile Money Services directly to their customers at a much lower cost. This is one of the few examples globally where operators are proactively seeking interoperability to benefit individually, a concept often discussed elsewhere but seldom undertaken.

6.2.2 Business Model

6.2.2.1 Commercial Model

Mobile Money Services was first launched in Sri Lanka in 2007, with the so-called bank-driven model. However, the service failed to take off and the Central Bank changed the regulation to allow for an MNO-driven model.

The CBSL initially required all Mobile Money customers to have a traditional Bank Account. When Dialog, in partnership with the National Development Bank, launched eZ Pay in 2007, only 13,000 customers signed up as users had to open a full Bank

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[310] S. Kelegama, G. Tilakaratna. 2014. *Financial Inclusion, Regulation, and Education in Sri Lanka.*
[311] Daily FT. 2016. *Sampath Bank selects EPIC Lanka to implement 'Agent Banking' for first time in Sri Lanka.* www.ft.lk/article/551780/Sampath-Bank-selects-EPIC-Lanka-to-implement--Agent-Banking--for-first-time-in-Sri-Lanka
[312] Rejaul Karim Byron. 2016. *Sri Lanka: a star in mobile banking*. www.thedailystar.net/business/sri-lanka-star-mobile-banking-207985

Account. Of the registered users, 90 percent were active[313], but the overall subscriber numbers were very low.

In 2012, the CBSL changed regulation to allow customers to register a Mobile Money Account without having a Bank Account and allowed for remote customer registration through a mobile phone. The regulatory update changed the playing field and eZ Cash launched in 2012, reaching one million registered users a year after launch.[314]

As the main providers of Mobile Money Services are MNOs, in addition to direct revenue from fees, they also benefit from indirect revenue such as customer retention rates and cost savings from airtime sales. The mobile money business units, however, are still not profitable on a standalone basis, and have difficult building business cases to acquire the necessary funding to expand product development, or field education and demand generation.

6.2.2.2 Service Characteristics

6.2.2.2.1 Distribution network

Agent networks are relatively well developed in Sri Lanka, with a heavy urban concentration. eZ Cash has about 20,000 merchant outlets that can be used for CICO. These include Dialog and Etisalat service point stores, and a list of merchants available on their website.[315] There are 16,000 eZ Cash points in Sri Lanka that can be used for CICO, sending and receiving money and bill payment.[316]

mCash has over 13,000 Agents, including Mobitel branches, Sri Lanka Telecom teleshops, Agency Post Offices, Abans, Singer, Star United, selected Sanasa outlets, supermarkets, other retail Channel partners, rural banks as well as a range of other outlets located across the island.[317]

The Agent network in Sri Lanka is not always the initial entry point for new user registration. New user registration can be executed online for customers who intend to open a Classic Account with up to Rs 10,000. Power Accounts are also available which have an account limit of Rs 25,000, and require the users to then go to an Agent to complete the process.

eZ Cash allows for cardless ATM withdrawals through 400 Commercial bank ATMs, as does mCash. mCash is connected to 2,500 bank branches for cash withdrawals. eZ Cash has also connected to banks for online top-up of Wallets and ATM Switches to withdraw cardless ATM money. There is no ATM fee information available on the

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[313] Interview with Fariq Cader, Vice President - Digital Services at Dialog Axiata, 4 May 2016
[314] Dina Gerdeman. 2015. *6 Lessons From Mobile Money Ventures In Developing Countries.* www.forbes.com/sites/hbsworkingknowledge/2015/09/28/6-lessons-from-mobile-money-ventures-in-developing-countries/#7a999a1625d4
[315] Ez Cash. 2016. *Merchant List*. www.ezcash.lk/merchants.php
[316] Ez Cash. 2016. *Merchant List* www.ezcash.lk/merchants.php#ServiceP
[317] Sri Lanka Telecom. 2015. *Now reload your Citylink phone with ease and convenience through Mobitel mCash.* www.slt.lk/en/content/now-reload-your-citylink-phone-ease-and-convenience-through-mobitel-mcash

eZ Cash website. That said, even if the fees are higher than Agent Cash Out, the ATM allows users to access their funds at any time.

6.2.2.2.2 User Experience

The User Experience for Mobile Money customers of both providers is relatively good. Although USSD menus are limited to the Latin alphabet, services are in the three main languages English, Sinhala, and Tamil, and use the English phonetic alphabet to represent Sinhala and Tamil characters. Users can change the preferred language between Sinhala, Tamil and English.

The longest transactions take up to seven steps plus SMS confirmation. The menus are not the most intuitive, but users have been able to manage as they can navigate the menu in their native language, even if only phonetically.[318]

Both Mobile Money providers have launched Smartphone apps due to the growing number of Smartphones in the market. These apps make the User Experience much easier.

Most transactions, from cash in, bill payment, to person-to-person, are free, except for cash withdrawals and utility bill payments.[319]

6.2.2.2.3 Services

The most common use case is utility bill payment, predominantly MNO bills and electricity, accounting for 83 percent of all transactions, followed by money transfer with 14.4 percent. Institutional payments account for 1.8 percent and product purchases and Internet transactions are 0.5 percent and 0.3 percent respectively.[320]

Besides basic offerings, there is a wide variety of supplemental products in the market including Merchant payments, bill payments, insurance and International Remittances. However, despite the seemingly large number of services people can carry out via Mobile Money, the ecosystem is nascent and, for the most part, only basic services are being used. Mobile Money Accounts cannot currently bear interest, and Mobile Money companies cannot give loans or offer companion cards.[321] Operators are interested in offering these services, which would deepen access to finance.

Currently, the services offered fall in two categories, mobile Wallet and merchant initiated transactions, also known as Over-the-Counter. Currently, OTC dominates the market with 80 percent of all Mobile Money transactions.[322] The main reason for OTC dominance is that it is easier to use and that customers do not trust SMS confirmation and want a printed receipt. Providers believe that the increasing

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[318] Ez Cash. 2016. I*nstructions*. www.ezcash.lk/instructions.php and mCash. 2016. Instructions www.mobitel.lk/mcash#How%20to%20use?

[319] Ez Cash. 2016. *Pricing* www.ezcash.lk/pricing.php and mCash.2016. Pricing. www.mobitel.lk/mcash#Transaction%20Limits%20&%20Charges

[320] Central Bank of Sri Lanka .2016. *Payments and Settlement Department, Central Bank of Sri Lanka, Payments Bulletin, Third Quarter 2015*

[321] Interview with Kalhara Gamage, Head of Mobile Money at Mobitel 16 May 2016 .

[322] Interview with Kalhara Gamage, Head of Mobile Money at Mobitel 16 May 2016

number of young people using the service, paired with the increasing number of Smartphones, will lead to a decreased number of OTC transactions in the future.

6.2.2.2.3.1 Basic

Both providers offer basic services such as P2P and bill payment for mobile bills, Internet bills, and utility bills (water, electricity). These transactions comprise the bulk of payments in Sri Lanka. Utility bill payment and person-to-person transfers make up 97.4 percent of all transactions.[323] For example, the majority of households in Sri Lanka are connected to the electricity grid and Dialog saw significant uptake of its electricity bill payment product in rural areas as it reduced travel time and costs for rural customers. [324]

mCash shared that 70 percent of their transactions are for bill payment, 15 percent for institutional payments, 2 percent for P2P transfers, 2 percent for top up, 6 percent for CICO, and 5 percent other.

6.2.2.2.3.2 Advanced

Mobile Money loans are not allowed and Mobile Money Accounts cannot bear interest currently.

Both Mobile Money providers offer insurance services and premium payments. EZ Cash offers Mobile Insurance in partnership with BIMA. Both prepaid and postpaid subscribers of Dialog can get a personal accident insurance cover of Rs1 million for Rs1 per day.[325] mCash offers health insurance with Golden Key Hospitals where users can choose from three packages.[326] Customers can make insurance premium payments to several insurance companies.[327] Insurance services are currently few, but these are early days for providers.

eZ Cash users can receive Remittances from abroad sent via World Remit, Skrill and MoneyGram. mCash is currently looking to launch a Remittance service, but does not have anything live yet.

The WorldRemit and Skrill partnerships have targeted blue-collar workers in the Middle East, but have not seen much uptake as the amounts workers send are small, and users do not have access to official channels. It is too early to see significant results from the latest partnership with MoneyGram.

Conversely, the Skrill partnership has targeted a different segment using the service: freelancers such as university students doing work on the web. Skrill linked to eZ Cash Wallet payments is a relatively cheap method for oversea customers to pay freelancers in Sri Lanka. This is a very recent development, and eZ cash currently

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[323] Central Bank of Sri Lanka. 2016. *Payments and Settlement Department, Central Bank of Sri Lanka, Payments Bulletin, Third Quarter 2015*

[324] GSMA. 2016. *State of the Industry, Mobile Money 2015*

[325] BIMA*. Bima Launches Mobile Insurance With Dialog In Sri Lanka.* www.bimamobile.com/news-and-media/news/bima-launches-mobile-insurance-with-dialog-in-sri-lanka

[326] mCash. 2016. *Services*. www.mobitel.lk/services-0

[327] mCash. 2016. *Pay insurance bills via 'mCash'.* www.mobitel.lk/press-releases/pay-insurance-bills-mcash

has 43,000 Skrill account holders in their system, which demonstrates the demand for cross-border disbursements observed more broadly in other markets.

Mobile Money Accounts have Rs 10,000 and Rs 25,000 limits for Classic Account and Power Account, respectively, or about USD 170 maximum. These amounts may be low for incoming Remittances, where the average value is about USD 300 per month.[328]

6.2.2.2.3.3 Commerce

Customers can use their Wallet for online purchases and at physical merchants. eZ Cash customers can make large purchases including televisions, fridges, electronic products, cell phones or motorcycles across 4,000 retail shops.[329] There is also a wide range of everyday services or smaller transactions such as couriers, taxis, charitable donations, or domain registrations.[330] Users can also make installment payments for vehicles and buy transportation tickets.[331] eZ Cash offers merchants a unique ID number that allows them to collect institutional payments such as electricity payments, loan Settlements, microloan payments, school fees, and even taxes (Colombo municipal taxes).

Linked cards are, however, not allowed. This could, given the relatively well-developed payments infrastructure, be a useful future extension for Mobile Money usage in Sri Lanka if it were to be allowed.

6.2.2.2.3.4 Disbursements

There are 1.4 million recipients of social disbursements every month in Sri Lanka. However, there are not many Mobile Money disbursement schemes, despite the large size of government subsidies and welfare programs.

Pensioners in Sri Lanka can receive their pensions into a mobile Wallet. A 2016 partnership between eZ Cash and the Department of Pensions allows any pensioner connected to the Dialog, Etisalat or Hutch mobile networks to receive a self-defined portion of up to Rs 25,000 from their pension payment to be deposited to their mobile phone.[332] mCash also works with the Department of Pensions for pension disbursement.[333]

Uptake to date has not been significant, and few pensioners are actually exploiting the service. Interestingly, whether truly a major factor or not, one reason cited by pensioners was the social aspect of waiting in line with like-minded people while picking up their money. Regardless of the reasons, Mobile Money providers believe adoption may increase as new, more tech savvy individuals begin to retire.

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[328] The World Bank, 2016. *World Migration Factbook*. Value of Remittances divided by number of senders.
[329] Rejaul Karim Byron. 2016. *Sri Lanka: a star in mobile banking*. www.thedailystar.net/business/sri-lanka-star-mobile-banking-207985
[330] mCash. 2016. *Institutional Payments*. www.ezcash.lk/business.php
[331] Etisalat. 2016. *M-Seat*. www.etisalat.lk/vas/e-services/m-seat/
[332] eZ Cash. 2016. *Pension Funds Directly to Your Mobile Phone via eZ Cash*. www.ezcash.lk/news.php
[333] Explore Sri Lanka. 2014. *Mobitel Launches Pension Disbursements Through Mobitel Mcash*. http://exploresrilanka.lk/2014/12/mobitel-launches-pension-disbursements-mobitel-mcash/

mCash, as part of a government-owned MNO, is currently in discussions with public sector institutions to disburse subsidies. However, the talks are in an early phase, and the scope and specifics are still to be determined.

mCash has developed a microfinance solution that uses a mix of B2B and B2C transactions and supports transaction backbone of microfinance implementations in the country. The product was launched in June 2015 together with Alliance Finance Ltd and results are not available yet. [334]

6.2.3 Performance

6.2.3.1 Transactions/ Ecosystem

No official data has been released on the number of Mobile Money transactions in the country. mCash did mention, though, that the average monthly transaction values are Rs 750 million, but would not provide any concrete values on volumes. Dialog, in contrast, did not provide any data. However, in light of the number of active users (see the Active/ Registered Users section), the movement of transactions in Sri Lanka is estimated to still be quite low.

6.2.3.2 Active/ Registered Users

The number of registered and active users in Sri Lanka is relatively low. Out of a possible customer base of over 14 million, eZ Cash currently has 2.4 million registered Mobile Money users, including those from the interoperability arrangements with Hutch and Etisalat. [335] Meanwhile, mCash only has 750,000 registered accounts. mCash expressed that its active customer base is 10 percent. If the active user rate of eZ Cash is approximated to be 20 percent, that would place the number of active clients in Sri Lanka at about half a million.

6.2.4 Key Challenges

The majority of Sri Lankans have an account with a financial institution, though usage levels of both traditional instruments and Mobile Money are limited. The main use case is bill payment carried out over the counter and there are still regulatory constraints to offering certain more advanced Mobile Money Services, and creating a deeper ecosystem. Lack of profitability, and thus investment, is another issue impeding further sector development.

1. Market Structure
    a. Lack of Interoperability between two Mobile Money Wallets. This is not a big issue at the moment as use rate of Wallets is low but expect it to become an issue as the ecosystem develops.
    b. Low usage of traditional financial services
2. Business Model
    a. Lack of profitability for Mobile Money providers hinders product development and service updates

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[334] Daily Mirror. 2015. *Mobitel's money platform mCash celebrates 2nd anniversary.* www.dailymirror.lk/99041/mobitel-s-money-platform-mcash-celebrates-2nd-anniversary#sthash.OoWrceZy.dpuf

[335] Interview with Fariq Cader, Vice President - Digital Services at Dialog Axiata, 4 May 2016

3. Distribution network
    a. Rural areas could benefit from further developed service offerings
4. User Experience
    a. Lack of trust in e-Channels leads to the high use of OTC, as people want printed receipts.
    b. Low Wallet limits—the current government-set limits obstruct certain use cases such as agribusiness supply chain payments, Remittances, B2B payments and B2C disbursements i.e. salaries.
5. Use cases and Products
    a. Low uptake of use cases beyond bill payment
    b. No Mobile Money saving—prohibited by regulation
    c. No Mobile Money loans—prohibited by regulation
    d. Remittances— Wallet limit may be too low
    e. No linked cards
6. Transactions/ Ecosystem
    a. Size is still small, focused on bill payment
7. Active/ Registered Users
    a. Adoption is low, especially number of active users
    b. Low usage of e-Channel for brick and mortar providers

Suggestions for how these challenges can be overcome are included in Section 7.2.3.1.

6.3 Regulatory

6.3.1 Regulatory Framework

Of all the countries in our study, Sri Lanka represents the most flexible and progressive established regulatory regime as both banks and non-banks are entitled to offer Mobile Payment services under two separate pieces of legislation introduced in 2011—the *Mobile Payment Guidelines No 1 for the Bank-led Mobile Payment Services* (the "*Mobile Payment Guidelines No1*") and the *Mobile Payment Guidelines No 2 for Custodian Account Based Mobile Payment Services* (the "*Mobile Payment Guidelines No 2*").

The Central Bank of Sri Lanka ("CBSL") has exhibited a progressive approach to policy in regard to Mobile Payments, and is relatively agnostic to market players (i.e. mobile operators vs. banks) in its support of the development of an inclusive and effective financial sector for Sri Lanka.[336] The regulatory framework in Sri Lanka can be seen as both institutional and functional, as which of the two *Mobile Payment Guidelines* applies depends solely on the type of institution. Overall, the combined legislation focuses on the ability to provide Mobile Payments, as more fully set out below.

The relevant regulatory authorities in regard to Mobile Payments are, in addition to the CBSL, the Telecom Regulatory Commission of Sri Lanka (TRCSL), the

[336] S. Stefanski. 2013. *IFC Mobile Money Scoping Report-Sri Lanka* p8

Consumer Affairs Authority and the Information and Communication Technology Agency of Sri Lanka.

Licensed commercial banks are licensed under the *Banking Act No 30 1988*. They are permitted to accept demand deposits from the public (operate current accounts for customers) and are "Authorised Dealers" in regard to foreign exchange, which entitles them to engage in a wide range of foreign exchange transactions.[337]

The *Payment Cards and Mobile Payment Systems No. 1 Regulations 2013* set out the eligible entities who can apply for a license as a Service Provider: (i) a licensed commercial bank, (ii) a licensed specialized bank, (iii) a finance company, (iv) an operator who provides cellular mobile telephone services under the authority of a license issued in terms of the *Sri Lanka Telecommunications Act*, and (v) a company registered under the *Companies Act No 7 of 2007* having an unimpaired capital of 150 million LKR.[338] Such Service Providers are licensed to undertake the following businesses/ services: (i) an issuer of Payment Cards, (ii) financial acquirer of Payment Cards, (iii) an operator of a customer account based Mobile Payment system, and (iv) an operator of mobile phone based E-Money system.[339] The CBSL may issue a license subject to conditions specified in the license.[340]

Under *Mobile Payment Guidelines No 1,* only Licensed Commercial Banks licensed under the Regulations can offer Bank Account-based Mobile Payment services to their customers.

The *Mobile Payment Guidelines No 1* specify the types of services banks are entitled to offer in regard to Mobile Payments/ e-Wallets:

(i) basic type; facility to obtain information on account balance, and a record of previous transactions and payment orders which do not relate to fund transfers;
(ii) standard type; facility to make fund transfers (including utility bill payments, own account fund transfers and third party fund transfers) and stop payments in addition to the basic type services;
(iii) extended type operated through Agents: in addition to the basic and standard type services, facility to deposit/ withdraw cash through Agents appointed by the respective banks.[341]

Note that banks providing only basic type services (type I above) are exempted from obtaining a license under the *Mobile Payment Guidelines No 1*, provided that such banks adhere to provisions in the *Banking Act No 30 of 1988*.[342]

A license to provide Mobile Payments under the *Mobile Payment Guidelines No 2* can be granted to any "Licensed Service Provider", which is any Payment Service Provider licensed under the *Service Providers of Payment Cards Regulations No. 1 of 2009* (this includes banks and non-banks) to function as service providers of Payment Cards. According to section 5 (a) of these regulations, four types of entities

[337] See the section on Regulation & Supervision of Banks on the website of the CBSL: www.cbsl.gov.lk/htm/english/05_fss/f_2.html#4
[338] Clause 5 a Payment Cards and Mobile Payment Systems Regulations 2013
[339] Clause 5 b Payment Cards and Mobile Payment Systems Regulations 2013
[340] Clause 6 Payment Cards and Mobile Payment Systems Regulations 2013
[341] Clause 2.1 Mobile Payment Guidelines No 1 for the Bank-led Mobile Payment Services
[342] Clause 2.1 Mobile Payment Guidelines No 1 for the Bank-led Mobile Payment Services

qualify for this license: (i) any licensed commercial bank; (ii) any licensed specialised bank; (iii) any registered finance company and (iv) any public company with unimpaired capital of at least 75 million LKR.[343] Licensed Service Providers operating a Mobile Payment systems shall operate a custodian account/s with Licensed Commercial Bank, and shall maintain the cumulative sum collected from all e-Money Account holders in the custodian account/s at all times.[344]

Under the *Mobile Payment Guidelines No 2*, a Licensed Service Provider (non-banks who use custodian accounts) may issue E-Money by accepting physical money from customers/ merchants (Cash-Ins) and may convert E-Money into physical money for E-Money holders (Cash-Outs) on their request directly or through appointed merchants.[345] Such licensed service providers may not, however, (i) grant any form of credit to E-Money holder, (ii) pay interest or profit on the e-Money Account balances that would add to the monetary value of E-Money, (iii) issue E-Money at a discount, i.e. provide E-Money that has a monetary value greater than the sum received; or (iv) any other facility that exceeds the monetary value of the deposit made by the E-Money holder.[346]

For both Licensed Banks and Licensed Service Providers, all Mobile Payment services shall be in Sri Lanka rupees, used only for domestic transactions, and only provided to residents of Sri Lanka who are above 18 years of age.[347] [348] Equally, both institutions must obtain the approval of their respective boards before offering services to customers[349] [350]. Licensed Banks can only offer Mobile Payment services to their own customers[351], while for Licensed Service Providers, it is mandatory that the e-Money Accounts are updated on real-time basis.[352]

It should be noted that in practice, the CBSL has exhibited flexibility in its application of the above rules, allowing, for example, product-by-product authorization for new Dialog products, sometimes outside of the strict legal framework (ex. Internet payments) with the issue of a letter of approval.[353]

6.3.2 Capital Requirements

The minimum capitalization requirements are a 75 million LKR for Licensed Service Provider,[354] while a Licensed Commercial Bank has a minimum capital requirement of 5 billion LKR[355].

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[343] Clause 5(a) Service Providers of Payment Cards Regulations No. 1 of 2009
[344] Clause 1.3 Mobile Payment Guidelines No 2 for Custodian Account Based Mobile Payment Services
[345] Clause 1.3 Mobile Payment Guidelines No 2 for Custodian Account Based Mobile Payment Services
[346] Clause 5.3 Mobile Payment Guidelines No 2 for Custodian Account Based Mobile Payment Services
[347] Clauses 2.2 & 2.3 Mobile Payment Guidelines No 1 for the Bank-led Mobile Payment Services
[348] Clauses 2.2 & 2.3 Mobile Payment Guidelines No 2 for Custodian Account Based Mobile Payment Services
[349] Clause 9.1 Mobile Payment Guidelines No 1 for the Bank-led Mobile Payment Services
[350] Clause 10.1 Mobile Payment Guidelines No 2 for Custodian Account Based Mobile Payment Services
[351] Clause 3.1 Mobile Payment Guidelines No 1 for the Bank-led Mobile Payment Services
[352] Clause 1.3 Mobile Payment Guidelines No 2 for Custodian Account Based Mobile Payment Services
[353] Interview with Pamodha Subsainghe, Dialog, 15 June 2016
[354] Clause 5(a) (iv) Service Providers of Payment Cards Regulations No. 1 of 2009
[355] IFC/ Microsave. 2011. *Deposit Assessment in Sri Lanka* p.17

6.3.3 Safeguarding of Funds

In regard to the safeguarding of customers' funds from a Licensed Service Provider's insolvency, the provider must have equivalent funds held in a custodial account in one (or more) licensed commercial banks.[356] [357] It should be noted that such funds are blocked in case of a Licensed Service Provider's bankruptcy/ close of business, and the Licensed Service Provider has no claim to the funds lying in the custodian account in such a scenario.[358]

Further, in the case that the Licensed Service Provider is a Mobile Network Operator, it must additionally ensure that the mobile phone accounts and mobile e-Money Accounts of customers are maintained separately. The monetary value of the airtime stored in the mobile account is not permitted to be transferred to the e-Money Account, but a customer may purchase airtime using the balance in the e- Money Account.[359]

Clause 6 of *Mobile Payment Guidelines No 2* also contains detailed provisions concerning the maintenance of the custodian account, with an allocation of various responsibilities between the Licensed Service Provider and custodian bank, to ensure funds are transparent, and a proper monitoring of the Licensed Service Provider in regard to KYC/ CDD, supervision of appointed merchant Agents, transactions, reconciliation of funds, reporting of suspicious transactions, audits, CBSL reporting requirements, dormant accounts and consumer protection.

In regard to the funds themselves, the custodian bank may be authorized to invest them in an interest bearing account (the Licensed Service Provider cannot access these funds)[360]. Further, the custodian bank may open an interest-bearing custodian account for the Licensed Service Provider, but the interest earned through the custodian account must be credited to a separate account.[361] It is not clear in the legislation what happens with this interest (whether it's retained by the custodian bank/ Licensed Service Provider.)[362]

It should be noted there are no similar safeguarding provisions for Licensed Banks undertaking Mobile Payments under the *Mobile Payment Guidelines No 1*, as the basis of this regulation is just to allow Mobile Payment facilities to link to standard customer Bank Accounts, and thus the rules concerning customer Bank Accounts, including provisions in regard to interest, apply.

To safeguard customer funds in case of insolvency of the Licensed Banks and custodian banks, there exists, since October 2010, a mandatory deposit insurance scheme—the Sri Lanka Deposit Insurance Scheme (SLDIS)—under the provisions

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[356] Clause 1.3 Mobile Payment Guidelines No 2 for Custodian Account Based Mobile Payment Services
[357] Note in addition to the custodian account with Hatton Bank, the eZ Cash customer funds are further secured via a trust instrument with Deutsche Bank AG.
[358] Clauses 6.8 & 6.9 Mobile Payment Guidelines No 2 for Custodian Account Based Mobile Payment Services
[359] Clause 5.6 Mobile Payment Guidelines No 2 for Custodian Account Based Mobile Payment Services
[360] Clause 6.4 Mobile Payment Guidelines No 2 for Custodian Account Based Mobile Payment Services
[361] Clause 6.5 Mobile Payment Guidelines No 2 for Custodian Account Based Mobile Payment Services
[362] Pursuant to an interview with Pamodha Subsainghe of Dialog on 15 June 2016, in regard to eZ Cash, interest is earned on the funds held with their custodian bank, Hatton National Bank Plc, but this is kept, and not passed on to the customer.

of the *Monetary Law Act*. The members of the SLDIS comprise all licensed banks and registered finance companies. In the event that the license or registration of a member institution is suspended or cancelled by the Monetary Board, depositors will be compensated up to a maximum of 200,000 LKR per depositor.[363] Further, according to the Compliance Officer of Dialog, this deposit insurance "passes through" to amounts deposited in Mobile Money Accounts, as equivalent sums are being held in a custodian account.[364] We have not, however, been able to independently verify the latter statement.

6.3.4 AML/ KYC

With respect to Mobile Payment services provided by Licensed Banks, each customer opting for mobile phone-based banking services needs to provide the KYC information that is required for classic Bank Account openings, as per Clause 2.5 of the *Mobile Payment Guidelines No 1.* These include: (i) legal name, (ii) permanent address, (iii) telephone number, fax number, and e-mail address, (iv) date and place of birth, (v) nationality, (vi) occupation, public position held and/or name of employer; (vii) official personal identification number or other unique identifier contained in an official document with photo (e.g. passport, identification card, residence permit, social security records, driving license), and (viii) signature.[365]

In a Gazette published in June 2016, the CBSL added two more the requirements for KYC identification—source of funds, and reason for account opening—effective as of August 2016.[366]

The Licensed Bank is required to verify this information by at least one of the following methods: (i) confirming the date of birth from an official document (e.g. birth certificate, passport, identity card, social security records); (ii) confirming the permanent address (e.g. utility bill, tax assessment, bank statement, letter from a public authority); (iii) contacting the customer by telephone, by letter or by e-mail to confirm the information supplied after an account has been opened (e.g. a disconnected phone, returned mail, or incorrect e-mail address should warrant further investigation); or (iv) confirming the validity of the official documentation provided through certification by an authorized person (e.g. embassy official, notary public).

With respect to custodian based accounts, abidance by KYC/ AML is also required by Clause 2.5 of *Mobile Payment Guidelines No 2.*[367] However, there exists self-regulation of the KYC implementation for these accounts, with Dialog having negotiated proportionate KYC verification in 2012. Until recently, MFS providers using the eZ Cash platform (including Dialog) were allowed to register a minimum "classic" Wallet (under 10,000 LKR) based only on SIM card registration, thereby allowing for non-face to face account opening. For transactions up to 25,000 LKR, customer had to go to a merchant point to do face to face KYC verification and

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[363] *As per Press Release dated 30 September 2010 on CBSL website*
[364] Interview with Navinie Pramadige Compliance Officer Dialog 1 July 2016
[365] Section 2(3) of Financial Transactions Reporting Act No 6 of 2006 (FTRA). Know Your Customer and Customer Due Diligency (sic) Rules.
[366] Interview with Navinie Pramadige Compliance Officer Dialog 1 July 2016
[367] Clause 2.5 Mobile Payment Guidelines No 2 for Custodian Account Based Mobile Payment Services

present picture ID e.g. drivers license, NIC, passport. And for transactions up to 100,000 LKR (i.e. for merchant who accept bill payments), they also needed to also provide company registration documents.[368]

According to a spokesperson from Dialog, it was after much lobbying to the CBSL for alternate KYC procedures that they finally agreed to these relaxed requirements. The rationale for doing so was that if the existing KYC process remained, the product would not be available to the un-banked community[369] Before CBSL revised its policy, Dialog customers who wanted to subscribe to eZ Cash were required to already have accounts with banks in the eZ Cash network, so the KYC check was conducted when they originally opened their Bank Account.[370]

It should be noted that with CBSL's revamp of the KYC requirements, in August 2016, now even Dialog will be required to obtain occupation, source of funds and reason for opening account, for all types of accounts including the minimum "classic" Wallet, and this requirement is retrospective to all accounts (currently 2 million existing customers and counting).[371] Dialog fears that this will create a barrier to entry for most of its current and future clients, as customers do not like providing such information, as well as the IT development issues it raises (the new policy is effective immediately, but it will take significant time and resources to redevelop the platform first for face-to face KYC and then for remote, phone based KYC, and then to capture the same information from its existing customers).[372]

The other MNOs in the eZ Cash network, as they ride on the back of Dialog's license, have the same KYC requirements (and challenges). As these limits were agreed on a bilateral basis between Dialog and the CBSL, it is unclear what agreement is in place for Mobitel (only operator not on the eZ Cash network).

6.3.5 Agents

There is currently no separate legislation dealing with Agents, rather there are provisions in both the *Mobile Payment Guidelines No 1 and Mobile Payment Guidelines No*. There is a significant oversight by the CBSL of Agents.

Under the *Mobile Payment Guidelines No 1,* a Licensed Bank, via the 'extended type Mobile Payment service', can offer customers the facility to deposit and withdraw cash through appointed Agents.[373] Banks providing extended type Mobile Payment services must, however, ensure that the Agents appointed by them only perform Cash-In and Cash-Out services, and only for their customers. Anything beyond this requires prior approval from the CBSL. Banks also need to specify transaction and daily limits for Agents, with the approval of the CBSL.[374] Clause 9 of the *Mobile Payment Guidelines No 1* sets out the supervisory obligations of the banks in regard to Agents: to ensure that deposits and withdrawals are accounted for on a real-time basis; to ensure that appointed Agents do not engage in unauthorized activities; to

[368] GSMA. 2016. *Mandatory Registration of Prepaid SIM Cards*, p10
[369] Interview with Pamodha Subsainghe, Dialog, 15 June 2016
[370] S. Castri. 2013. *Enabling Mobile Money Policy in Sri Lanka -The Rise of EZ Cash* p 10-11
[371] Interview with Navinie Pramadige Compliance Officer Dialog 1 July 2016
[372] Interview with Navinie Pramadige Compliance Officer Dialog 1 July 2016
[373] Clause 2.1iii Mobile Payment Guidelines No1 for the Bank-led Mobile Payment Services
[374] Clause 9.3 Mobile Payment Guidelines No 1 for the Bank-led Mobile Payment Services

implement a robust security risk management framework; and to take all necessary steps to address, mitigate or eliminate Agent-related risks such as credit risks, operational risks and legal risks.

Similarly, in the *Mobile Payment Guidelines No 2* there is significant oversight by the CBSL of Agents used by Licensed Service Providers. Licensed Service Providers may appoint merchants/ Agents to perform mobile phone based payments.[375] Pursuant to Clause 7, Licensed Service Providers shall sign agreements with the merchant/ Agents to accept funds and make Cash-Outs on their behalf, with all duties, roles and responsibilities to be set out in such an agreement.[376] Merchant's limits and day limits shall be decided with the approval of the CBSL. Any subsequent amendments to such limits may also be made only with the approval of the CBSL.[377] The Licensed Service Provider must perform CDD when registering merchants, and must take all necessary steps to address, mitigate or eliminate merchant-related risks i.e. credit risks, operational risks, legal risks, and liquidity risks.[378]

There is, in general, no specific notification requirement of individual Agents to the CBSL, as long as the Agent activity remains within the ambit set out in the regulation (i.e. Cash-In, Cash-Out); however, where a Licensed Service Provider has an Agent that generates more than 250,000 LKR of revenue (an "A Grade outlet"), such Agent needs to be notified to the CBSL.[379]

6.3.6 Interoperability

Neither *Mobile Payment Guidelines* mandate Interoperability with competing mobile networks on Mobile Payment products.[380] According to Clause 5.1 of the *Mobile Payment Guidelines No 1,* when a bank offers Mobile Payment services, "it *may be ensured* that customers having mobile phones of any network operator will be in a position to request for (sic) the service." Ultimately, given that the long-term goal of the CBSL is to ensure real-time Interoperability between Bank Accounts, regardless of which mobile network that is being used by the customer, it advocates that banks shall "note this objective while developing solutions or entering into agreements with Mobile Payment solution providers.[381] There are no similar provisions for Licensed Service Providers in the *Mobile Payment Guidelines No 2*.

However, in 2014 a majority of MNOs interconnected their services.[382] There is de facto Interoperability on the eZ Cash platform (which current has 76 percent of all registered Mobile Money users), as Dialog is the license holder, and all the other participating MNOs that are connected to the platform ride on the Dialog license and are interconnected. If other MNOs wish to interconnect and join the platform, Dialog

[375] Clause 7.1 Mobile Payment Guidelines No 2 for Custodian Account Based Mobile Payment Services
[376] Clause 7.2 Mobile Payment Guidelines No 2 for Custodian Account Based Mobile Payment Services
[377] Clause 5.4 Mobile Payment Guidelines No 2 for Custodian Account Based Mobile Payment Services
[378] Clauses 7.3 and 7.4 Mobile Payment Guidelines No 2 for Custodian Account Based Mobile Payment Services
[379] Interview with Navinie Pramadige Compliance Officer Dialog 1 July 2016
[380] S. Stefanski. 2013. *IFC Mobile Money Scoping Report-Sri Lanka* p7
[381] Clause 5.2 Mobile Payment Guidelines No1 for the Bank-led Mobile Payment Services
[382] GSMA 2014. *State of the Industry Report Mobile Money* p 8

must inform the CBSL in writing and share the commercial agreement, within which the CBSL may insert provisions.[383]

Mobitel has its own license, and is not interoperable with the eZ Cash platform. Thus, an eZ Cash customer cannot currently send money to a Mobitel Wallet (or vice versa). Dialog has, however, been talking to Mobitel about Interoperability.[384]

6.3.7 Telecom Regulation

There is mandatory SIM card registration in Sri Lanka since September 2008, pursuant to a directive of the TRCSL.The SIM card registration process includes making a physical copy of the customer's original national identity (NIC) card (the photocopy is later digitized and uploaded to the internal database), which is stored with the signed contract, and providing proof of billing address, if it is different from the address on the NIC. All Sri Lankans are required to apply for an NIC card by their 16th birthday.[385] The number of SIMs distributed is limited to five per person.[386]

Dialog has obtained authorization to use the KYC information already stored in its database from the SIM card registration to verify identities for the opening of a basic eZ Cash account (10,000 LKR or less). These same customers can then upgrade their account to remove the LKR limit by reconfirming their identity with a Mobile Money Agent. Thus remote, non-face to face accounting opening is possible for Licensed Service Providers, although since August 2016 they must now also obtain, in addition, certain pieces of supplementary information, as set out in the section on AML/ KYC.

6.3.8 Cross Border Payment

In general Sri Lankan nationals are permitted to import or export up to LKR 20,000 in domestic currency banknotes.[387]

Inward Remittances require, however, a special license from the CBSL, while outward Remittances are prohibited by the *Foreign Exchange Control Act*. Further, pursuant to Sampath Bank, small and medium businesses cannot make nor receive payments to and from abroad through their Bank Account (even PayPal is prohibited).

Pursuant to the both *Mobile Payment Guidelines*, Mobile Payments must only be in Sri Lankan rupees and can only be used for domestic transactions.[388]

However, it appears that the regulators are flexible with their interpretation of these regulations in practice, as Dialog launched with MoneyGram, in June 2016, the acceptance of International Remittances via eZ Cash.[389] MoneyGram has a specific

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[383] Interview with Pamodha Subasinghe, Dialog, 15 June 2016
[384] Interview with Pamodha Subasinghe, Dialog, 15 June 2016
[385] S. Castri. 2013. *Enabling Mobile Money Policy in Sri Lanka -The Rise of EZ Cash* p 9
[386] B; Sirimanna. 2010*. Sri Lanka to tighten mobile phone regulation* www.sundaytimes.lk/101031/BusinessTimes/bt32.html
[387] HSBC Report. 2015. *Country Profile Sri Lanka* p 5
[388] Clauses 2.2 & 2.3 of Mobile Payment Guidelines No 1 & Mobile Payment Guidelines No 2
[389]Finextra.2016. *Mozido partners MoneyGram on mobile remittances to Sri Lanka*

money transfer license, and Dialog has specified that the CBSL approved their partnership agreement.[390] Further, there seems to be in place a relationship between MTO Skrill and Dialog to ensure reception of International Remittances into eZ Cash Wallets.[391]

Consumers often devise their own ways to circumvent these rules. According to Dialog, to circumvent the rule that businesses cannot be paid from abroad, some developers working for foreign companies are paid via Skrill directly into their eZ Cash account, probably saying it is a Remittance.[392]

6.3.9 Other

6.3.9.1 Competition

The *Consumer Affairs Authority Act No.9 of 2003* is the governing and applicable law in relation to competition law in Sri Lanka, prohibiting anti-competitive practices including collusive agreements and abuse of dominant position. There is no separate law on control of mergers and acquisitions. The Consumer Affairs Authority (CAA) monitors and investigates anti-competitive practices as well as has limited jurisdiction in merger control, while the Consumer Affairs Council, on the recommendation of the CAA, has the power to terminate or authorize any anti-competitive practice.[393]

In regard to Mobile Payments, in should be noted that in the telecommunications sector all operator licenses issued under the *Sri Lanka Telecommunications Act* contain provisions prohibiting telecommunications operators from engaging in anti-competitive practices. Although there are no explicit provisions allocating jurisdiction to the CBSL for competition infringements in regard to financial services, it is clear in CBSL's mission that it, too, is interested in maintaining competition in the sector.[394]

6.3.9.2 Data Protection

There is currently no national data protection legislation in Sri Lanka, nor has the government introduced any specific legislation that protects individual privacy or the collection of personal information. The government has, since 2006, been rumored to be in the preliminary stages of introducing a new data protection law, which critics say is badly needed.[395]

According to Sections 53 and 54(1) of *Telecommunication Act No. 27 of 1996*, which regulates the interception of communications, the interception of telecommunication transmissions and the disclosure of their contents is an offense subject to penalties,

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www.finextra.com/pressarticle/64826/mozido-partners-western-union-on-mobile-remittances-to-sri-lanka

[390] Interview with Pamodha Subsainghe 15 June 2016

[391] See Skrill's website: www.skrill.com/en/send-money-to-Sri-Lanka/

[392] Interview with Head of E-Channels Sampath Bank 23 June 2016

[393] http://antitrustasia.com/competition-law?region=south+asia&country=sri+lanka

[394] See the section on Financial Systems Stability on the website of the CBSL: www.cbsl.gov.lk/htm/english/05_fss/f_1.html

[395] R. Jayarathna. 2015. *Sri Lanka Needs All-inclusive Data Protection Act* www.thesundayleader.lk/2015/10/25/protecting-information/

including imprisonment.[396] Further, Clause 7.2 of *Mobile Payment Guidelines No 1* and Clause 8.3 of the *Mobile Payments Guideline No 2 state* that in regard to Mobile Payments, the Mobile Payment provider shall maintain the confidentiality of customer information and shall be responsible to ensure that their service providers also treat customer information as confidential.

6.3.9.3 Consumer Protection

There is no separate consumer protection legislation. Rather, it is contained within each of the *Mobile Payment Guidelines,* which requires Licensed Banks or Licensed Service Providers providing Mobile Payments to respond to customer inquiries and complaints via a call centre, and to develop an appropriate resolution mechanism for handling of disputed payments, transactions and loss of mobile phones.[397] [398] Customers are allocated a reference number, and complaints must be resolved within 3 days. The regulations also require that the terms and conditions for a Mobile Payment service must be provided in Sinhala, Tamil or English, and include the following provisions: authorized types of payments, rights and responsibilities of banks, account holders and Agents, all applicable fees and charges, benefits, incentives and rewards of Mobile Payment services, provisions for dispute resolution, procedure for reporting a lost or stolen mobile phone, procedure for stop payments and customer service contact numbers.[399] [400]

Both types of Mobile Payment providers must also ensure that the terms and conditions are not altered without prior written notice, that they will institute appropriate and adequate measures to manage the risk of liability for loss of data, and that they adhere to the laws and regulations applicable to the security procedure adopted to authenticate users as a substitute for obtaining their signature.[401] [402]

It is of note that the *Electronic Transactions Act No 19. Of 2006* provides for the legal recognition of electronic/ digital signatures.

6.3.9.4 IT

With respect to the regulation of information technology, the *Information and Communication Technology Act No 27 2003* sets up the Task Force on Information and Communications Technology, the National Committee on Information and Communication Technology and the Information and Communication Technology Agency of Sri Lanka (ICTA). ICTA is the single high-level coordinator involved in information and communication technology policy and e-government in Sri Lanka. It is wholly owned by the government of Sri Lanka, and is the implementing organization of the e-Sri Lanka Initiative, the country's overarching electronic

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[396] EPIC. 2006. *Privacy and Human Rights Report – Sri Lanka* www.worldlii.org/int/journals/EPICPrivHR/2006/PHR2006-Republic-28.html
[397] Clause 8.2 Mobile Payment Guidelines No 1 for the Bank-led Mobile Payment Services
[398] Clause 9.2 Mobile Payment Guidelines No 2 for Custodian Account Based Mobile Payment Services
[399] Clause 7.1 Mobile Payment Guidelines No 1 for the Bank-led Mobile Payment Services
[400] Clause 8.1 Mobile Payment Guidelines No 2 for Custodian Account Based Mobile Payment Services
[401] Clauses 7.2, 7.3 & 7.5 Mobile Payment Guidelines No 1 for the Bank-led Mobile Payment Services
[402] Clause 8.2 & 8.5 Mobile Payment Guidelines No 2 for Custodian Account Based Mobile Payment Services

development project that harnesses information and communication technologies to achieve socio-economic development.[403]

ICTA's focus is on the Interoperability among different government services and organizations. It has created a gateway or portal for electronic information and electronic interactions with government, generally referred to as the Lanka Gate initiative. Lanka Gate is a messaging platform and portal that provides a short code for all government-based information services, such as railway timetables. The vision is to integrate all the banks and government departments, as well as include a Mobile Payment platform linking to the national central Switch.[404]

6.3.9.5 G2P

There are no specific mobile G2P policies currently, but there exist several electronic G2P projects, including the eSamurdhi Project, which has been launched by the ICTA and whose aim is to modernize Sri Lanka's main poverty alleviation program, Samurdhi, that distributes grants and microloans and which was established by the *Samurdhi Authority of Sri Lanka Act of 1995*. [405] ICTA is working on several other projects, including piloting a credit card payment system as part of the online vehicle license registration process.[406]

Dialog is currently looking at G2P with respect to pension disbursements.

6.3.10 Legislative Reform

The *Microfinance Act*, aimed at small mobile loans, has been passed but has not yet published, so we do not have visibility into the licensing regime under it.

Regulators are also looking at revising the *Foreign Exchange Control Act* to allow outward Remittances, [407] and a new data protection law has been in the works since 2006.[408]

Generally, the CBSL has exhibited a progressive approach to regulation of Mobile Payments, both in allowing bank and non-bank actors to compete in the Mobile Payment sector, as well as its flexible application of the regulations themselves on a bilateral basis. For example, CBSL has agreed, on a case by case basis, to tiered KYC verification for Mobile Payments, acceptance of Remittances in Mobile Payment Wallets, and product-by-product authorization for services outside the legal framework.

This flexibility bodes well in the adaptiveness of the regime, but does raise issues about legal certainty and fairness across the sector (see Part II for further development of this issue).

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[403] IFC. 2011. *Mobile Money Study Report Sri Lanka* p 7
[404] IFC. 2011. *Mobile Money Study Report Sri Lanka* p 7
[405] IFC. 2011. *Mobile Money Study Report Sri Lanka* p 7
[406] IFC. 2011. *Mobile Money Study Report Sri Lanka* p 7
[407] Interview with Pamodha Subasinghe, Dialog, 15 June 2016
[408] EPIC. 2006. *Privacy and Human Rights Report – Sri Lanka* www.worldlii.org/int/journals/EPICPrivHR/2006/PHR2006-Republic-28.html

7 Conclusion and Recommendations

7.1 Payment Systems

This section outlines potential ADB strategy considerations and recommendations for payment system modernization in Bangladesh, Nepal and Sri Lanka. Note that many recommendations are applicable across these three countries given the relative lack of variation among core Layer 2 and Layer 3 technology platforms and their associated business processes—as discussed in Section 3.1. Substantial differences in regulations, demographics, Layer 1 business models, product design, costs, pricing implementation details and, consequently, required investment levels and approaches will, of course, be present in individual country initiatives. The differences in terms of implied overall strategy are far fewer, however.

The assumed objective is to move towards a mature digital payments ecosystem in each market that is consistent with ADBs Financial Inclusion goals. To this end, we recommend an investment strategy that accelerates the development (in the form of direct investment, loans, grants, technical assistance and other appropriate vehicles) of:

- Generation 2 national payments infrastructure, while continuing to support the country's existing Generation 1 infrastructure during the transition period.
- Fintech Ecosystems to conceive build and operate next-generation Layer 1 financial services, which are locally sourced to the extent possible.
- At Layer 2, interbank Real-Time Payments facilities, and movement towards full bank participation in these facilities.
- At Layer 3, next-generation infrastructure to support Layer 1 (last mile) and Layer 2 (wholesale) payment services.

Note that while out of scope for this study, it is our opinion that these strategies have far broader implications than for the payments industry alone—indeed, if well executed they could contribute to economic activity more broadly.

In support of the above, we recommend that ADB consider supporting the following initiatives (in an order to be prioritized individually per country):

(1) Support Infrastructure Development

a. Establishment of a national Interoperability switch for Mobile Money providers, which can be operated by the Mobile Money providers or the Central Bank. This switch should clear and settle transactions in real time, should enable payment to and from proxy financial account numbers such as mobile numbers, and could potentially be co-located with a broader Real-Time payments facility that handles a variety of bank-to-bank transactions beyond Mobile Money Services and

Branchless Banking, and which none of the three countries currently have in place (Sri Lanka being the closest to date).

b. Countrywide deployment of G2 foundational infrastructure such as 3/4/5G and WiFi wireless networks, femtocells, broadband Internet access for consumers and businesses, cloud services and data centers (Layer 3).
c. Improvement of continuous electrical power availability (Layer 3)—most significant in Bangladesh and Nepal.

(2) Capabilities Development

a. Programs to build the local Fintech Ecosystem including venture capital funds, loan and grant programs, investment consortiums, venture accelerators, bank and regulatory outreach programs, as well as general programs to level the playing field for entrepreneurs to innovate such as tax incentives, easing the process to start a company, obtain work visas, etc.[409]
b. Education and training programs in Generation 2 job skills at all layers such as payment operations, software development, cyber security, data science, UX design, and similar.

(3) Research

a. Primary research on consumer needs and attitudes around payments and technology usage (Layer 1).
b. Research to explore the feasibility of "Financial Inclusion" focused Smartphone acquisition (including data pricing) programs in the three countries. Such programs might subsidize or provide other financial incentives for low-income customers to acquire and use smartphones.
c. Consideration of where Generation 1 services and access is required to supplement the transition to G2, or fill market gaps.
d. Research to evaluate the potential for implementing a national cryptocurrency (and possibly other blockchain based technologies) to stimulate economic growth and financial inclusion. (Layer 2).
e. Feasibility study for implementation of a national real-time payments facility which includes (but may not be limited to) clearing and

[409] Two strong models for national or city-level Fintech ecosystems can be found in London and Singapore. Both cities are notable for their conscious efforts to develop positive conditions for Fintech startup ventures to thrive, such as (for example) a streamlined process to form companies, tax incentives for startups, proximity of venture capital and other funding sources, presence of venture accelerators and incubators that can host and mentor nascent startups, recruiting firms that specialize in attracting Fintech talent and, perhaps most significantly, a proactive financial regulator that engages in a dialog with the industry to promote appropriate regulations for emerging Fintech business models. Among developing nations, India may be the most advanced and proactive country when it comes to Fintech, as exemplified by recent initiatives of the Central Bank (Reserve Bank of India) to form a new category of bank that only engages in payment services, and to implement a system for phone numbers to be used as a proxy for bank accounts anywhere in the country, so that consumers need not have a traditional bank account to send and receive payments.

settlement of inter-bank Mobile Money Services and Branchless Banking transactions (Layer 2).

f. Infrastructure readiness gap analysis for a Generation 2 payments ecosystem (Layer 3).
g. Research to understand the implications of Generation 3 (Internet of Things) infrastructure on the country's payments ecosystem (All layers), and general market readiness or niche focus areas for such initiatives.

(4) Industry Dialogue

a. Facilitate the formation of executive and technical forums, comprised of key payments ecosystem stakeholders, to jointly address key multi-party issues, (for example security, Interoperability and next-generation technology platforms).

7.2 Mobile Money Services and Agent Banking Market Recommended Actions and Regulatory Reform

7.2.1 Bangladesh

7.2.1.1 Mobile Money Services and Agent Banking Recommended Actions

The analysis undertaken in Part I identified some key challenges and issues in Mobile Money Services and Agent Banking in Bangladesh. These could potentially be addressed through the following:

(1) Increasing competition

a) Shared platform and agent aggregation: Launching Mobile Money Services and Agent Banking is expensive. Smaller organizations, such as smaller banks, do not have the resources for such a business. The market could benefit from an out-of-the-box Mobile Money platform and agent aggregators so that providers can share efficiencies, contingent on if there is appropriate regulatory change implemented to allow such partnerships. ADB could provide information on the benefits of such an entity to the market and also provide financing.
b) Market Information: Some providers are not fully aware of the intricacies of Mobile Money Services and Agent Banking. They could benefit from best practices information as well as business diagnostics tools and business model advice. Workshops or company diagnostics, self-administered or carried out by third parties, could help new entrants as well as existing providers grow their business. ADB could facilitate such programs.
c) MNO Participation: Also see Regulatory Reform (1). It is important to understand what the implications will be of a Robi Axiata and Trust Bank partnership, which could create regulatory issues and market pressures from other players to allow MNO participation or to ban it. However, in the short term it may be a useful to just leave them be and see if this works and its impact, if any.

(2) Growing Distribution Networks

a. Also see Regulatory Reform (3).
b. Agent Loans: In order to sustain agents during the initial days in the business, they could benefit from operating cost loans. ADB could help providers better understand the ecosystem complexities and provide technical or financial assistance.
c. Financing to institutions willing to expand in rural areas:
    i. Grants
    ii. Tax cuts–ADB could discuss with local government
    iii. Loans
    iv. Public sector/ government financed rural Mobile Money Services and Agent Banking network development. For example, provide grants, loans, tax cuts or other incentives to develop a rural agent network. Support agent-training programs.
d. Decreasing OTC activity: ADB could provide technical assistance to devise a phased approach to decrease OTC transactions at par with growth of consumer education and ability to use services beyond OTC, as well as supporting partnership development with existing players such as MFIs. See Regulatory Reform (5).

(3) Improving Consumer Education

Illiteracy and ability to use a mobile phone beyond calls limits consumer adoption. These can be dealt with in several ways:

a. Education–ADB to support programs related to the development/ deployment of:
    i. Door-to-door personalized customer education where an Agent helps the user better understand services available to them and how to use them
    ii. Education via electronic channels such as SMS
    iii. Class room style
    iv. Agent based (it would be difficult especially because of OTC)
b. Product design–ADB to support programs related to the development/ deployment of:
    i. Picture explanations/ menus
    ii. User centric design
    iii. Biometric authentication so users do not have to remember PIN
    iv. Options beyond the mobile phone that users can operate easily such as pre-paid or debit biometrics and NFC enabled cards. Transactions would be carried out by an agent and not remotely, but at least they will be recorded.

(4) Increasing Adoption

a. Existing services:
    i. Increase awareness of Mobile Money Services beyond a money transfer mechanism

ii. Build the capacity of current and potential users to make full use of those services by education and marketing campaigns
iii. Expand beyond basic OTC and P2P services to include savings, payments, and insurance especially at critical life moments

b. Consumer education (see Section (3) above).
c. Agents: Well incentivized and well trained agents to promote other services. ADB could provide technical assistance to providers.
d. M-Insurance: Allow small ticket transactions from airtime Wallets for m-insurance. In order for m-insurance to be successful and have diversified offerings, providers need the ability to make and collect micro payments cheaply via mobile. Currently, providers have to go through bKash and other providers but the cost is prohibitively high. This does not make a good business case for the Wallet providers. One option for the short term is to allow small ticket transactions from airtime Wallets. Currently, MNOs customers can use BDT 50 from their airtime Wallet for in-app payments. If that amount were increased to BDT 100 or 200 it could make a difference for the m-insurance sector. This would require a separate regulatory arrangement.

(5) Introducing New Services

Every industry in Bangladesh has a potential use case for mobile Wallets, presenting a massive opportunity in this still relatively underdeveloped market. ADB could finance a technology lab or program to write proof of concept software for these use cases, which would then be shared with the stakeholders. However, the market needs providers with large distribution networks. (See Section 1 & 2). Some promising preliminary examples include:

a. Alternative lending: Support Fintech alternative lending providers to enter the market.
b. Gov't Payments:
    i. Disburse and collect all government payments electronically, which would kick-start usage of Mobile Money Services beyond current use cases
    ii. Need software for monitoring and to make government systems electronic
    iii. Create a feasible fee model
c. International Remittances: bKash's registered customers can receive money from abroad via Western Union since April 2016 however uptake is low and one of the main reasons is the low number of registered bKash users. Migration from OTC should foster usage. Working with market players to understand how they can be supported to provide international remittances beyond OTC would be useful.
d. M-Agri – ADB could provide technical or financial assistance for:
    i. Product development
    ii. Agent networks development
e. SMEs Financing: Big and underserved sector, easily accessible especially in urban areas. Due to risk models, banks do not tend to favor SMEs, however alternative lending models could be helpful, see Section (5.a).

f. Informal sector:
    i. Salary payment
    ii. Digital payment acceptance
    iii. Supply chain payments.
g. Solar panels: Due to sizable demand, pay-as-you-go (PAYG) models could be successful. One of the current issues is the high fees for the payment by service providers.

(6) Improving Access for Women

Usage is especially low and options to increase their participation include:

- Door-to-door women agents to help women become familiar with the service
- Increase the number of women agents
- Provide agents in areas where women are, in the village, as few travel
- Develop women-centered products

7.2.1.2 Regulatory Reform

The analysis undertaken in Part I identified some key challenges and issues in the regulatory environment for Mobile Money Services and Agent Banking in Bangladesh. These can be addressed as follows:

(1) Going beyond the current bank-driven model

Although Mobile Money Services growth has been explosive in Bangladesh, to get to the next stage of market development, the regulatory framework needs to embrace and empower all stakeholders in the market, including non-financial institutions, so that they are all invested in its success, as well as the next stage of technology development. Further, given the dominance of one current provider plus the high fragmentation of the rest of the market (with the existence of several MNO solutions still in a grey area), policies that incentivize consolidation or collaboration in the industry would be highly beneficial.

In this context, the current bank-driven model, which only foresees an ancillary role for many non-financial institutions, may be too restrictive and not sufficiently 'enabling' for the next phase of development. The *Draft Guidelines*, despite its shortfalls (as highlighted in Part I), are a step in the right direction, as they recognize the need to provide incentives to non-bank actors such as MNOs and Fintechs in order that they invest in the industry beyond service provision. It is submitted, however, that the 15 percent cap on individual investment is not practically workable, nor does the 30 percent cap on all telco participation achieve the desired incentive dynamic.

It is clear from discussions with officials that the Bangladesh Bank does not currently want to move away from the bank-driven model (possibly due to current issues with USSD access, and the potential conflict of interest that arises if MNOs provide both MFS services and inputs to such services), but there are solutions that would allow greater telco and non-financial sector involvement even in such a context. One would be to continue to require 51 percent shareholding of a bank of MFS company, but to allow the minority shareholding to be determined by market demand and

supply, including the possibility of 49 percent minority holding by a single MNO or Fintech (which is the case in South Africa). This would require just a small tweak to current regulations, and would significantly strengthened partnerships between banks and non-banks. Alternatively, to increase the incentive for MNOs/ Fintechs to invest, joint ventures between banks and non-banks could be authorized, so that the non-bank entity has at least an equal say in the running of the business, with the bank remaining responsible for regulatory compliance. Both scenarios could motivate the three MNOs (Grameenphone, Banglalink and Robi) that had started offering mobile Wallets before the passage of the current regulations to partner with a bank and expand their services, rather than windup their activities.

(2) Strengthening the safeguarding and isolation of customer funds

Although Bangladesh has comparatively reasonable safeguards in place to protect customer funds given its bank-driven model, more regulatory guidance would be welcomed in certain instances, as this could strengthen further these safeguards.

First, in regard to safeguarding of funds—the requirement that MFS providers maintain unencumbered liquid assets equal to the amount of issued electronic value[410]—the *MFS Guidelines* are silent on exactly how the virtual balance (or e-float) needs to be reconciled, and it is not clear how each bank is managing this process. It is recommended that this process be set out specifically in the regulations so that there is a uniform application by the banks. For example, one proposition for the reconciliation process could be as follows: "Bank Balance = Customer Wallet Balance + Agents Wallet Balance + Super Agents Wallet Balance + Merchants Wallet Balance + Commission Wallet Balance + ATM Wallet Balance" [411]

With regard to fund isolation—the requirement that the funds underlying issued e-money be insulated from institutional risks of claims by issuer creditors, such as claims made in the case of issuer bankruptcy[412] – it should be noted that although Bangladesh has deposit insurance, it only covers each account up to 100,000.00 BDT (approximately USD 1300).[413]. As current regulations do not specify whether the e-float needs to be held in individual or pooled trust accounts, this could leave customers potentially exposed in the case of bank failure if the MFS provider holds the entire e-float in one pooled trust account, as it is our understanding that those funds are only insured up to the maximum amount of one account. Given the relative weakness of the banking sector, it is recommended that the Bangladesh Bank renders the diversification of e-float fund holdings obligatory, as is the case of Afghanistan, where regulations require that when any e-money issuer's e-float exceeds a specified amount, no more than 25 percent of the cash funds backing such float may be held in a single financial institution.[414]

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[410] as per M. Tarazi and P. Breloff. 2010. *Nonbank E-money Issuers-Regulatory Approaches to Protecting Customer Funds* CGAP Focus Note 63, p. 2
[411] Parvez,I. and Woodard. 2015. *Mobile Financial Services in Bangladesh,* p 33
[412] as per M. Tarazi and P. Breloff. 2010. *Nonbank E-money Issuers-Regulatory Approaches to Protecting Customer Funds* CGAP Focus Note 63, p. 2
[413] Information provided by Shah Zia-ul Hague, Joint Director, Payments Systems Department, Bangladesh Bank as follow up to interview 16 May 2016
[414] M. Tarazi and P. Breloff. 2010. *Nonbank E-money Issuers-Regulatory Approaches to Protecting Customer Funds* CGAP Focus Note 63, p. 6

Further, due to the specificities of Bangladesh law, deposit insurance only applies to the e-floats held directly by banks as deposits, and does not pass through to e-floats held by MFS providers that are subsidiaries of banks. For bKash, who holds its e-floats for customers in its own accounts (except in areas where there is no physical presence of bKash, where it holds the funds in an account of another bank), this creates inequalities in protection for its own customers as well as an unsatisfactory situation in comparison to its bank competitors. It is recommended that Bangladesh consider the implementation of pass-through insurance (for example, the US Federal Deposit Insurance Corporation "Pass Through" model for omnibus custodial accounts holding pooled funds underlying stored value cards [415] or the "Pass Through Deposit Insurance Scheme" of the Central Bank of Nigeria[416]) in order to extend deposit insurance to customers of e-money accounts held by bank subsidiaries. Such a model may also solve the issue raised above concerning the maximum that can be insured in an account, as such a model, if properly implemented, allows the deposit insurance coverage to "pass through" to each e-money customer whose funds are held in that account.

(3) Treating bank agents and MFS agents proportionally

Given the fact that bank agents are often allowed to provide a much larger range of financial services than MFS agents, it is often argued that the restrictions on MFS agents should be less given the lower risk of transactions involved i.e. the application of the proportionality principle.

Bangladesh has specific legislation for both bank and MFS agents, and possibly given the fact that its bank-driven, many of the provisions are identical or similar. Notably, the bank agents cannot provide many more services than an MFS agent, the main additional services being the facilitation loans and collection of loan documentation (but not the actual appraisal of the loan). Interestingly, rather than loosening the requirements for MFS agents, such agents are actually more tightly regulated; for an entity to be eligible to work as a MFS agent, it needs to be part of a network with country-wide reach (which is not the case for bank agents, who just need to be a registered company). It is unclear from existing literature what the justification of such restriction is based on. One scenario may be that this is a way of ensuring that MFS agents have sufficient liquidity, as country-wide networks often are able to manage liquidity amongst its different branches. If this is the case, it is submitted that the regulation both for banking agents and MFS agents should contain a certain minimum liquidity threshold for agent selection, rather than using a wide-sweeping restriction such as country-wide presence, which has the ancillary effect of needlessly restricting the pool of potential agents, and thus the spread of MFS.

(4) Need for Tiered KYC Procedures

Due to the bank-driven nature of the MFS regulatory regime, there is a one-size fits

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[415] B. Muthiora. 2014. *Reinventing the Wheel: Pass Through Deposit Insurance Coverage for Mobile Money in Kenya* www.gsma.com/mobilefordevelopment/programme/mobile-money/reinventing-the-wheel-pass-through-deposit-insurance-coverage-for-mobile-money-in-kenya

[416] B. Komolafe. 2016. *NDIC Issues Deposit Insurance Guidelines for Mobile Money.* www.vanguardngr.com/2016/01/ndic-issues-deposit-insurance-guidelines-for-mobile-money/

all approach to KYC verification, regardless of the value of the transaction or the risk profile of the customer. Thus the fact that the BFIU is working on tiered KYC verification is a step in the right direction. However, the issue remains that even a basic account opening under this new policy will require in-person presentation of government ID. Allowing for non face-to-face KYC checking permits remote activation of basic accounts, and is a key step towards extending adoption of MFS to the rural population.

One approach to ensuring adequate and proportional KYC for basic accounts yet allowing remote activation is to allow SIM card registration to be considered sufficient for initial KYC purposes (as is the case in Sri Lanka). The BTRC has already embarked on a mandatory biometric registration process of SIM cards, which will connect a biometric identity to a particular individual's registration on the national identity card database of the Election Commission, as well as to a particular SIM card. The resulting biometrically verified database is much robust than a simple SIM card registration database and could easily be used to meet KYC obligations. In fact, the standard of verification used to link a person with their SIM card— biometric data—is one of the highest standards of identity verification available and surpasses the current standard used for bank account opening in Bangladesh, whereby a photocopy of a national ID card, a copy of citizenship certificate or copy of driving license/ passport is provided in conjunction with the completion of a specific KYC form, and the entire process is recorded solely on paper.

Thus, in principle, there should not be much resistance to allowing remote basic MFS account openings on the basis of such biometric SIM registration[417], and possibly even the increase of the maximum balance of such basic accounts as well as of the daily and monthly transaction limits (as is now the case in Pakistan due to usage of biometric SIM registration for branchless banking KYC)[418]. The reality, however, is not as clear cut, as there were issues raised about the "quality" of such registration, the security of the data, and the liability for hacks/ security breaches in our interviews, and there are still ongoing discussions between the regulators on this issue. It is highly likely that such issues cloud a jurisdictional power struggle between the Bangladesh Bank and the BTRC. As more evidence arises in other jurisdictions (such as Pakistan[419]) that shows the potential of remote activation and the relative low risks that are encountered via biometric SIM registration, this may allow both regulators to more easily embrace this practice.

(5) Tackling OTC

Bangladesh Bank has already tried to tackle the AML/ CTF security risk that pure OTC transactions raise through legislation (prohibiting outright pure OTC, but also

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[417] Another method could be for a customer to take a picture of their ID and send it to the PSP to validate, allowing for initial account activation, but with restricted transaction amounts and activity levels until the ID is verified. This method is accepted currently in Singapore for remote KYC.

[418] L. Gidvani. 2015. *The Promise of Biometric KYC and Remote Account Opening for Branchless Banking in Pakistan* www.gsma.com/mobilefordevelopment/programme/mobile-money/the-promise-of-biometric-kyc-and-remote-account-opening-for-branchless-banking-in-pakistan

[419] . Gidvani. 2015. *The Promise of Biometric KYC and Remote Account Opening for Branchless Banking in Pakistan* www.gsma.com/mobilefordevelopment/programme/mobile-money/the-promise-of-biometric-kyc-and-remote-account-opening-for-branchless-banking-in-pakistan

with low limits on daily number of transactions per account and the restriction, for each MFS service, of one MFS account per agent). But, as has already been stated, there is no mechanism in place to properly monitor agents and take actions accordingly. For instance, it is not yet possible to detect a fake customer as MFS providers do not have access to the national ID database, nor is it possible to verify that one user has only one account.

Beyond orchestrating possible market incentives (such as making OTC transactions less profitable than MFS account openings, or giving agents more incentives to steer customers to MFS accounts) and legally authorizing electronic processing for account opening (including paperless KYC) that would diminish the processing time for account opening to hours or even minutes (which is currently between 2 and 7 days[420], and is a disincentive for those who want to send money immediately), the utilization of biometric SIM registration for KYC purposes of MFS would introduce the possibility to monitor agent transactions in real–time, and thus facilitate Agent compliance to the legislation already in place. Utilization of the biometric SIM card registration, which is tied with the national identity card database of the Election Commission could also assist agents in detecting fake customers and ensure better risk control. This provides another reason why regulators may be motivated in the future to embrace biometric SIM registration for MFS.

(6) Access Pricing for USSD

Given the bank-driven regulatory framework, MNOs in Bangladesh are not very incentivized to offer cheap USSD access (which is currently crucial to provision of MFS services in low-technology countries such as Bangladesh) or to enter into partnerships with banks.[421] In particular, in Bangladesh there are complaints that wholesale USSD prices are too high[422]. Thus, it is not surprising that one of the main challenges of bKash's competitors is fair access to the USSD channel from the MNOs, especially as their current individual negotiating power is small given their high fragmentation[423]. bKash, however, given its large market share, has a much better bargaining position and should be able to secure more competitive rates to USSD access, which in effect reinforces bKash's dominance. This is also one of the issues the *Draft Guidelines* tries to tackle by making a telco's equity participation in an MFS provider dependant on its extending reliable telecommunication access to all licensed MFS platforms at the same effective standard of ease of access and pricing.

Although the Bangladesh Bank initially identified the issue via complaints from the financial institutions it regulates, it is currently engaging the BTRC and other stakeholders through a dispute resolution mechanism ("DRM", see section on Telecom regulation above for more details). Ultimately, it will be for the BTRC to intervene if the mechanism does not result in a satisfactory outcome and access to USSD still remains an issue, given the BTRC's jurisdiction over the

[420] Parvez, I. and Woodard. 2015. *Mobile Financial Services in Bangladesh* p 24
[421] There are several other reasons MNOs may price access high, including network congestion, lack of operational billing facilities to charge for USSD or strategic reasons to protect their license investment.
[422] CGAP. 2015. *Promoting Competition in Mobile Payments: The Role of USSD*, p 2
[423] Parvez, I. and Woodard. 2015. *Mobile Financial Services in Bangladesh* p 33

telecommunication services of MNOs.

The result of the DRM would ideally be a facilitated, mutually acceptable, agreement, but in the scenario that the DRM is unsuccessful, there may be a case for mandating access to USSD, preferably without regulating the price. Only in extreme cases "should regulators set minimum quality standards and pricing rules (such as requiring that USSD prices are applied in a nondiscriminatory fashion) to foster healthier competition", as in the case of Peru.[424]

As this latter option involves a direct regulatory intervention in the market, such a decision should only be taken if there is a concrete competition issue at hand. To determine this, a proper regulatory inquiry should be undertaken based on information from all providers that would clarify (i) the commercial terms between MNOs and providers for USSD channel access across sectors, firm size and product type and (ii) the fixed and incremental costs to MNOs of delivering USSD. Lastly any direct regulatory intervention must be made by the BTRC in coordination with the Bangladesh Bank and Competition Commission.

(7) Mandating Interoperability

As Mobile Money Services have already been successfully established in Bangladesh by bKash, it would seem that the timing is right now to ensure Interoperability between it and its smaller competitors. The question at hand, then, is how to achieve this. Regulators have several possible approaches: (i) simply "supporting" the private sector in reaching bilateral agreements on Interoperability; (ii) mandating Interoperability in legislation according to global standards but allowing the private sector to determine the technical and commercial details (through a private Mobile Payments switch or a web of commercial agreements); or (iii) mandating the creation of a Mobile Payments switch based on specific technology, even going as far as funding this switch or holding an equity stake therein. This latter option would allow the state even to dictate the commercial terms of access.

Currently the proposed Interoperability requirement in the *Draft Guidelines* goes down the middle path—it requires MFS platforms to cooperate and work together in promoting Interoperability and to develop linkages with the National Payments Switch, but it allows the private sector to iron out the details. It is submitted that this may not go far enough in the case of Bangladesh. bKash's current market dominance would allow it to ensure a regime most favourable to its interests in any commercial discussions with its competitors. If the Bangladesh Bank is serious in its interest to prevent an abuse of dominant position, then it will need to be more proactive in establishing Interoperability, by mandating a specific switch and dictating its operational rules (that specify settlement, time frames, liquidity, etc.). A successful example of a similar proactive regulator approach that could provide a model is the Mobile Payments switch currently being established by the Republic of Jordan.[425]

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[424] M. Hanouch. 2015. *What is USSD & Why Does it Matter for Mobile Financial Services?* www.cgap.org/blog/what-ussd-why-does-it-matter-mobile-financial-services

[425] Anecdotal, ITU Conference 27-29 April 2016 Washington DC

(8) Bolstering Competition Law Competence

The dominance of bKash in the MFS market may not currently be problematic, but the fact that it has a stronger bargaining power with suppliers such as the MNOs for USSD reinforces this dominance, and the stronger it is in one particular service, such as P2P, the easier it can leverage this market strength in expanding its market power in new products such as mobile insurance or mobile lending, which then facilitates the further strengthening of its market position. Secondly, with limited competition, it has less incentive to offer consumer lower prices, which is a concern when the aim of the MFS policy is to facilitate financial inclusion of the bottom of the pyramid. Certain types of commercial practices, however, are prohibited by such dominant entities if they entail an abuse (see section on Competition Law). The Bangladesh Bank is currently monitoring the situation, and is probably best placed, through "moral suasion", to educate bKash on what is considered acceptable market behavior and to try to prevent abuses from arising. Equally, the BTRC is best placed to deal with the competition issues that are resulting from access to USSD as it has clear jurisdiction to intervene even without proof of any anti-competitive activity.

However, what will be crucial in ensuring that the MFS market expands with new services and providers is the existence of a strong competition authority. The Competition Commission in Bangladesh has only recently started functioning and will have a steep learning curve in regard to implementing the *Competition Act*. This, however, could also be seen as an opportunity to optimise institutional competence, if a sufficient investment is made up front in the training of its members, both in regard to the economic theory that underpins competition law and to the technical specificities of complex markets such as MFS. Further, best practices both from developed countries on competition law analysis of financial services and developing countries which have faced competition issues in MFS (such as Kenya) could offer useful lessons to all the regulators involved—financial, telecom and competition.

It is clear that effective monitoring of competition issues requires intervention from at least three authorities, and thus an MOU between these regulators would be recommended to clarify competencies and jurisdiction, and facilitate fruitful collaboration.

Further, we recommend the undertaking of a proper competition analysis (including market definition, and primary consumer and agent research) of the access to USSD market if the DRM proves unsuccessful, and of the MFS market(s) themselves if there is any hint of bKash taking advantage of its market position. Lastly, Bangladesh should consider reinforcing sanctions of the Competition Commission, to ensure it is not a toothless tiger from the get go.

(9) Strengthening Data Protection Legislation

ICT security of transactions and the IT and business process infrastructure that supports them has been a key area of focus for Bangladesh after the recent security hack. However, we should not overlook that the KYC for opening MFS accounts and also the transactions themselves generate large amounts of sensitive data[426] (such

[426] This amount of data will greatly augment once the uptake of Smartphones increases.

as identity card numbers, dates of birth, and individual financial worth) that needs to be securely stored and whose access must be limited only to persons and entities who are required to know this data. This is to prevent fraud, identity theft, data breach, denial of service attacks as well as unconsented targeting of customers for marketing purposes. The data generated from introduction of a biometric SIM registration is particularly sensitive, as a breach could have serious repercussions on the identifies of individuals and may be very difficult to remedy.

Currently, data protection is defined only at a very high level (in the *Constitution* and in certain sectoral legislation such as *ICTA*) and not systematically enforced. An overall general framework for data protection, as is found, for example, in the EU, is lacking. It is a step in the right direction that regulators are preparing an update of *Information and Communication Technology Act* to deal with the handling of biometric SIM data, but it is submitted that the introduction of a specific framework for data protection, that spans all industries, would be the best approach. Such a framework would ensure consistent and homogenized treatment of data collected in all sectors, including telecommunications data, health data, and employment data in addition to financial services data, and if underpinned by a data protection regulator, who would have jurisdiction on the data collectors, then it could ensure effective protection of the end consumer.

7.2.2 Nepal

7.2.2.1 Mobile Money Services and Agent Recommended Actions

The analysis undertaken in Part I identified some key challenges and issues in Mobile Money Services and Agent Banking in Nepal. These can be addressed as follows:

(1) Monitoring MNO Market Entry

a. Licensing new entrants could kick-start Mobile Money Services and Agent Banking in the country. See Regulatory Reform Section (1). It is important to monitor developments and work with the regulator and stakeholders to support market development. There are concerns that the licensing process would be biased, thus the establishment of a monitoring facility and transparent processes are recommended.
b. Market: Monitor banks and other providers on how they respond to competitive pressures from MNOs.

(2) Developing Business Models

a. Technical Assistance: Assist in developing business models that could work in Nepal for banks, MNOs and third party providers. Identify at what point a business can breakeven/ become profitable. Develop a self-sustaining and profitable proposition for both providers and agents.
b. Grants: Provide grants or other forms of finance to service providers that can offset the cost/ risk of investment associated with new, more inclusive business models that are expensive to implement and not as

lucrative as traditional clients and models. Competition from MNOs with more resources could be threatening to smaller players.

(3) Increasing Government Involvement

a. The government has committed to increasing Financial Inclusion and has implemented various programs. However, it could benefit from a cohesive plan. Work with the government and stakeholders to create a roadmap for the sector development.
b. In order for a government, or any organization, to make and collect digital payments, they need underlying infrastructure such as an electronic tax system. Identify ways to support the different ministries and departments to digitise.

(4) Improving Agents Efficiency

a. There are a large number of Remittance receivers in Nepal who just spend the funds. Banks are looking to convert them to banking customers. A first step in that direction would be to allow Remittance agents to become banking agents.
b. Cash management in remote locations is an issue, and a viable model must be created.

(5) Introducing New Services

New Services: Allow service providers to have flexibility, from a regulatory standpoint, in the development of new solutions such as lending, insurance, disbursements etc. Introducing new use cases and products would create demand as well as a business case for investment in the space, and thus would incentivize growth of the agent network.

a. M-Agri: Farmers could benefit from information services delivered by mobile phones, that could also provide financial services such as payments, input disbursements, loans and savings.
b. G2P: Government mandated transfers and payments via Mobile Money Services and/ or Agent Banking could jumpstart adoption.
c. There are a number of studies on new products for Nepal, work with stakeholders to launch them.
d. Foster cooperation and dialogue among players to create an ecosystem.

Due to the small number of services in the market, consumer awareness is low, and the players must invest in order to increase product awareness. The market can benefit from external support in this regard in the form of consumer education and marketing know-how, best practices information and market segmentation.

7.2.2.2 Regulatory Reform

The analysis undertaken in Part I identified some key challenges and issues in the regulatory environment for Mobile Money Services and Agent Banking in Nepal. These can be addressed as follows:

(1) Managing the Opening of the Payments Market

The issuance of the *Licensing Policy* by the RNB is a very welcomed move, as it shows that the RNB is learning the lessons of other emerging market jurisdictions in payment regulation. The *Licensing Policy* has changed Nepal from a bank-driven framework to one focused on the functionality of the services, thereby allowing it to regulate services that previously have fallen outside any sort of regulation as well as opening the market to several different types of competitors. We applaud the fact that non-banks have lower capital requirements, particularly for MNOs[427], that the legislation is technologically neutral, and that simplified KYC for low value single transactions and basic accounts has been introduced. Further, we support that the general provisions concerning the functioning of the payments systems, including the e-float, agents, and KYC, apply across the board to all payment service providers (with no distinction as to the institution providing the service).

We do note that the services that can be offered under the *Licensing Policy* are rather limited (domestic P2P, retailer/ merchant payments, and the bill payment) and may not assure rapid adoption, nor fulfill the needs of the population. Also given the lax track record of legislative enforcement, we caution that the application of the Licensing Policy may be arbitrary, creating a defacto regulatory vacuum that could favour the rise of PSPs and thus further market fragmentation.

We further note that as a counterbalance to opening the market to MNOs, the RNB is attempting to ensure fair access to USSD and other communication channels of the MNOs by requesting a binding commitment of the MNOs to providing non-discriminatory access to its telecom network to other PSPs, and sanctioning non-compliance with cancellation of the PSPs license. Although in principle the requirement, on its face, seems fair, we note that as legislated, without further guidance as to what "non-discriminatory access" is in the particular market, it will be very difficult for the RNB to implement in a transparent manner. For example, it is not clear whether this criterion relates solely to pricing or includes other contractual terms and conditions, whether all PSPs need to be treated exactly the same or the terms can be adapted to the individual PSP's size/ sophistication, nor what happens in the situation where the PSP, as a subsidiary of an MNO, is using the MNO's own network.

We also question whether the RNB is best placed to make such a determination; the NTA has the given expertise and competence in reviewing telecom supply contracts as well as a strong understanding of the relevant technical and commercial considerations. The NRA is probably best suited to make such a decision, equally from a jurisdictional perspective. The NRB can still remain responsible for the cancellation of the PSP license based on a negative finding from the RNB. We would, however, then suggest an MOU is put into place between the two regulators to clarify jurisdiction and scope of action.

Lastly, we query whether the RNB even needed to insert such a provision, as there is no current market evidence of MNOs hampering access to networks or offering artificially high access prices. This may be an example where the NRB is

[427] Though query whether any minimum capital should really be required give the obligation of an e-float as well as one percent surety.

prematurely trying to pre-empt a problem that has arisen in other markets with different market contexts. In all cases, we recommend that a proper regulatory inquiry should be undertaken of the current access conditions to telecommunications networks by current and potential payment providers as well as its effect on the downstream market of mobile financial services[428], preferably by the NTA. If it is found that such discrimination currently exists, and then more detailed regulations could be issued, to provide guidance on the criteria for determining "non-discriminatory access". If the conclusion is there is no danger of discrimination in the present nor the future, we then submit that this provision should be removed from the *Licensing Policy,* and thus the private sector be allowed to determine the access conditions based on bilateral negotiations. As championed by CGAP, the best outcome for any market is for commercial agreements to emerge between MNOs and third parties for the provision of telecom service, as this "would advance competition and the development of the MFS market without placing restrictions on MNOs."[429]

(2) Evolving the Framework for Mobile and Digital Payments

Although the *Licensing Policy* is a tremendous positive change for the Nepali regulatory framework, there is still more to be done to ensure that the framework is truly enabling for financial inclusion. The key points that need to be fleshed out in separate, subsidiary legislation (as well as possibly an amendment of the current *Licensing Policy*) include use of agents and the safeguarding and isolation of customer funds. It should, however, be noted that due to the long-winded nature of the Nepalese legislative process and that fact that enforcement is often weak even after legislation is in place, there may remain a de-facto vacuum in these areas for a long period of time, and thus a self-imposed industry code may be a short-term solution.

(a) Agents under the *Licensing Policy*

Under the *Payment and Settlement Bylaws*, there is an unwieldy approval process for agents of the principal institutions/ mechanisms carrying out services related to payment systems or issuing payment instruments, which includes prior approval of the individual agent and of its key responsible managers, as well as of the agency agreement. Under the *E-banking Directive*, there is no prior approval process for branchless Agents, although the banks must provide further documentation on how it plans to select and train the Agents, and provide a sample agency agreement to apply for a Branchless Banking license.

In the *Licensing Policy*, PSPs can appoint agents to undertake payment transactions pursuant to the "standard prescribed by NRB." In such a situation, the PSP shall provide detailed information on the agents to the NRB within 15 days of appointment. It is not unclear what the prescribed standard of the NRB relates to nor how the *Payment and Settlement Bylaws* provisions relate to payment service providers licensed under the *Licensing Policy*.

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[428] The regulatory inquiry should be based on information from all providers and clarify (i) the commercial terms between MNOs and payment providers for USSD channel access across sectors, firm size and product type and (ii) the fixed and incremental costs to MNOs of delivering USSD.
[429] CGAP. 2015. *Promoting Competition in Mobile Payments: The Role of USSD*, p 3

We have been informed that the NRB is considering issuing agent guidelines for PSPs. We support such an action, and recommend that this separate agent policy clarify the points raised above. Further we would recommend that the NRB consider that the agent notification requirements be proportionate to the risk entailed by the limited services such agents will be offering (mainly P2P, merchant payments and bill payment), i.e. to allow for bulk notification ex post facto or even waiving such a notification, if the PSP's agent selection criteria, training and standard agency agreement are approved beforehand. Further, we recommend no unnecessary restrictions on agent eligibility (no need for a specific legal status, staffing or security requirements).

(b) Safeguarding of funds – e-float

The *Licensing Policy* requires all PSP license holders, including banks, to hold an e-float equivalent to customer funds at the settlement bank of the PSP. This e-float is to be settled in real-time, with the amounts deposited either in individual accounts for each customer, or a lump sum in the name of the PSP. Although interest is clearly prohibited from being paid to customers on their payment account balances, there is no provision dealing with whether interest can be earned on this e-float, and if yes, who can benefit (whether it is retained by settlement bank or the PSP as profit, passed on to the customer by being reinvested in the PSP business or paid as "profit distribution", or even given to charity.)

We recommend, for reasons of legal certainty and transparency, that it is clarified in legislation (as an amendment to the current *Licensing Policy*) whether interest can be earned on the e-float and if yes, what is to occur with the interest. We believe that as mobile payment is a very low margin business, it would be beneficial for financial inclusion that the PSP may reinvest the interest in its operations, as this will augment the PSP's ability to invest in new products and services, and thus facilitate the expansion of the Mobile Payments industry.

(c) Safeguarding of funds – deposit insurance

With regard to the protection of customer funds from bank insolvency, it is unclear whether the current deposit insurance of individual current accounts (of up to 200,000 NPR per account) will extend to the funds held by non-bank PSPs in the e-float and if so, whether it will be limited to 200,000 NPR if the PSP decides to retain all customer funds in a lump sum account in its name at the settlement bank.

In this context we recommend that the NRB renders the diversification of e-float fund holdings obligatory (as an amendment to the current *Licensing Policy*). In addition, we suggest a further study of Nepal's deposit insurance system is undertaken to understand what the current level of protection is for the e-floats under the *Licensing Policy*, and if necessary, consider the implementation of pass-through insurance (ex. the US Federal Deposit Insurance Corporation "Pass Through" model for omnibus custodial accounts holding pooled funds

underlying stored value cards [430] or the "Pass Through Deposit Insurance Scheme" of the Central Bank of Nigeria[431]).

(3) Interoperability

There is, to a certain extent, de-facto Interoperability in the payments space in Nepal as the online platform eSewa is used by 18-20 banks, and many banks are connected through the banking settlement infrastructure. However, with the introduction of non-bank payment systems through the *Licensing Policy*, this de-facto Interoperability is no longer assured. As this has not been addressed in the *Licensing Policy,* the NRB will need to consider how it will best achieve the Interoperability of the payment systems under this new regulatory framework. It is our understanding that the NRB plans to issue legislation/ policy in the near future in this regard.

Currently the Nepali financial services market is a fragmented, and the introduction of new competitors to the payments industry will only augment this trend. Thus *a priori* Interoperability between these providers will be key in the success of the Mobile Payments market.

On the other hand, as mobile financial services are still in a nascent phase in Nepal, the timing of the introduction of Interoperability will be crucial to ensure both the creation of value for customers and providers as well as the identification and mitigation of regulatory risks. Mandating Interoperability too soon may result in compliance costs increases, making the business case more challenging from an operational cost perspective for providers, especially in the start-up phase. Further, the technical implementation of Interoperability can be complex and distract the mobile payment service provider from focusing on the basics of the service, such as building the distribution network.

In this context the NRB should consider carefully whether it requires to undertake any intervention in regard to Interoperability. We recommend that at this early stage, the NRB may simply annunciate a policy "supporting" the private sector in reaching bilateral agreements on Interoperability, as has been the case in Tanzania. It could use "moral suasion" to achieve Interoperability that will be led by private sector objectives. Only if this approach is not fruitful would we suggest that the NRB consider intervening more directly by mandating Interoperability in legislation in broad terms, based on global standards, possibly with a deadline for full Interoperability.

(4) Mobile phone registration

As of April 2016 mobile phone handset registration is mandatory. The International Mobile Equipment Identity (IMEI) number, Electronic Serial Number (ESN) or Mobile Equipment Identifier (MEID) of a mobile handset must be registered with the NTA, as well as the relevant customer's name, citizenship/ ID number, address, contact

[430] B. Muthiora. 2014. *Reinventing the Wheel: Pass Through Deposit Insurance Coverage for Mobile Money in Kenya* www.gsma.com/mobilefordevelopment/programme/mobile-money/reinventing-the-wheel-pass-through-deposit-insurance-coverage-for-mobile-money-in-kenya

[431] B. Komolafe. 2016. *NDIC Issues Deposit Insurance Guidelines for Mobile Money.* www.vanguardngr.com/2016/01/ndic-issues-deposit-insurance-guidelines-for-mobile-money/

phone number and email address, plus a copy of the citizenship or other ID document. This procedure clearly links a particular handset to an individual, but not a specific SIM card, which makes such a registration not very useful for remote activation of mobile financial services.

On the other hand, the NRB has introduced simplified KYC for the identification of customers doing single transactions of 500 NPR or opening accounts with a 5000NPR monthly transaction limit under the *Licensing Policy*, allowing the provision of a "telephone number" of a registered customer to be sufficient. It is not clear how this will operate in practice – will the customer just need to insert his telephone number in a particular form? How will this cross-reference with the mobile phone handset registry? Without some sort of cross reference, the phone number will not provide much proof of identification, and given that it will cross reference to a physical handset, it will be impossible to do this remotely, which may dampen any efforts to roll-out non-face to face activation of accounts.

Ideally, we would recommend that the NTA revisit this mobile phone handset registration obligation, and convert it to a SIM card registration policy, possibly as the roll out of a second phase of the registration drive. This would then solve the issue of how to use this registration to allow for simplified KYC identification under the *Licensing Policy.* If this is not possible, the NRB needs to, at the very least, clarify how the simplified KYC process will work, possibly by issuing separate legislation on KYC.

(5) Translate Key Legislation into English.

As our study can attest, there are several pieces of key financial services legislation in Nepal that have not been officially translated into English. These notably include the *UD 2072*, which contains the main provisions on branchless and mobile banking, but also the *Licensing Policy*, which is changing the payments regulation framework.[432] It is clear, however, that Nepal views foreign companies as crucial to the development of its mobile and digital payments systems and to its efforts to achieve financial inclusion. This can be evidently seen in the *Licensing Policy*, which sets out special provisions for foreign companies providing payment services or operating payment systems in 10 or more countries.

Both foreign investors and foreign companies interested in entering the Nepalese market need to make informed decisions on the value and potential of the payments, and Mobile Money, ecosystems in Nepal, as well as on the ease of access. Lack of English legislation may hamper investment/ involvement, as they will not have necessarily the legal certainty that the activities they wish to undertake/ invest in are authorized nor have a good grasp on what the barriers to entry are, without expensive recourse to local lawyers/ translators.

We have also noted that where translations do exist, some of the quality is variable.

[432] A full list of legislation which we would have liked to have reviewed, but for which no translation was available is set out in the methodology section.

We therefore recommend that ADB invest in the translation of these key legislative documents, and that generally there is a priority placed on issuing English versions of future updates as they come up.

7.2.3 Sri Lanka

7.2.3.1 Mobile Money Services and Agent Banking Recommended Actions

The analysis undertaken in Part I identified some key challenges and issues in Mobile Money Services and Agent Banking in Sri Lanka. These can be addressed as follows:

(1) Increasing Adoption of Existing Digital Instruments

Increase adoption of existing mobile and other digital instruments such as cards, POS, ATM and Internet banking.

a. Carry out an in-depth study to identify discreet reasons for low adoption per segment, service and instrument.
b. Increase trust in e-channels via user education.
    i. SMS consumer education platforms
    ii. Door-to-door campaigns
    iii. Agent-led campaigns

(2) Increasing Provider Profitability

a. Central Bank and MNOs work together to build consensus on the best way to introduce savings, loans, linked cards and other advanced services. See Regulatory Reform Section (1) & (3).
b. Provide external financing to Mobile Money units whether that is in the form of grants or loans for discreet purposes or bringing in external investors.
c. Provide financial assistance for financial institutions that should offset the cost/ risk of investment associated with new, more inclusive business models.

(3) Growing Rural Areas Distribution Network

a. Provide financial help to providers including grants, or tax cuts.
b. Provide support for new rural service introduction:
    i. Agribusiness supply chains
    ii. Government payments
    iii. Fast Moving Consumer Goods (FMCG) supply chains as rural bases have become greatest driver of FMCG growth
c. Decreasing OTC activity: ADB could provide technical assistance to devise a phased approach to decrease OTC transactions at par with growth of consumer education and ability to use services beyond OTC. See Regulatory Reform (5).

(4) Supporting Ecosystem Development

a. Government: Government mandated usage of Mobile Money Services, Agent Banking and other digital channels for social disbursements and government payments such as taxes and fees. Develop a business model and identify a feasible solution to absorbing the cost of transactions and who would bear it.
b. Wallet Limits: Increase Wallet limits to allow for more use cases. Exact amounts that would make an impact on adoption must be identified by evaluating the use cases impacted and minimum and maximum amounts. This would positively impact international Remittances.
c. Dialogue: Facilitate ecosystem development by working with stakeholders to increase dialogue. Create a forum where players can share their needs and plans and demonstrate advantages to each player of ecosystem development.
d. Collaboration: Facilitate collaboration between banks and MNOs
    i. Develop products together similar to MShwari in Kenya
    ii. Partnerships for branchless and virtual banking as MNOs have the knowhow of agent network development and management
    iii. Provide Mobile Money linked cards in order to take advantage of existing infrastructure

7.2.3.2 Regulatory Reform

The analysis undertaken in Part I identified some key challenges and issues in the regulatory environment for Mobile Money Services and Agent Banking in Sri Lanka. These can be addressed as follows:

(1) Balancing Flexibility with Legal Certainty and a Level Playing Field

As pointed out in Part I, the CBSL has exhibited a progressive approach to regulation of Mobile Payments, both in pro-actively allowing bank and non-bank actors to compete in the Mobile Payments sector through the issuance of two sets of *Mobile Payment Guidelines*, as well as its flexible application of the regulations themselves on a bilateral basis (proportional KYC for basic accounts of MNOs, acceptance of Remittances in mobile payment Wallets, and product by product authorization for MNO services that are outside the legal framework.)

Although this flexibility has been applauded by some, such as the GSMA, in ensuring the rapid rise of Mobile Payments in Sri Lanka and can be considered to a certain extent as “enabling” for financial inclusion, this approach ultimately creates an uneven playing field for all actors in the market and may prevent the industry from achieving the next phase of growth. First, it creates unequal obligations between banks and non-banks, with the banks actually at a disadvantage as they are forced to undertake standard, face to face KYC verification for all account openings even if the customer only wants a “mobile” payment account, while MNOs have negotiated, through bilateral agreements with the CBSL, a proportional KYC process for basic accounts and the use of SIM card registration as a proxy for face to face KYC checking, allowing for remote activation. Second, the use of bilateral negotiations on a case-by-case for areas not clearly legislated on (for example, new innovative products that fall out of the scope of the *Guidelines)* means that not all the same terms or conditions may be imposed by the regulator even though the use case may be similar or even identical, and entities with strong market power may obtain better conditions or have a more privileged relationship. Further, it creates an element of legal uncertainty, which may prevent or inhibit new competitors from entering the

market with innovative services, or potential investors in investing in the industry. Lastly, the need for bilateral negotiations means that obtaining approval for new products and services can result in lengthy delays in the rollout process (of which even Dialog is critical[433]).

It is recommended, therefore, that certain of these areas be clarified clearly in the legislation, rather than being dealt with on an ad hoc, bilateral basis. In particular, we would recommend the introduction of proportional KYC procedures and the authorization of SIM registration as a proxy for KYC checking in opening all basic Mobile Payments Wallets, irrespective of the institution offering the services. This will truly turn Sri Lanka's regulatory framework into a functional one.

Further, the CBSL should consider clearly authorizing a wider scope of financial service products to be accessed via mobile, beyond cash in, cash out and retail payments that is currently in scope under the *Mobile Payment Guidelines*. Such products could include m-loans and m-insurance.

Concurrently, in order to retain the flexibility that allows new products to be introduced while promulgating a fair playing field, we would recommend that the legislation sets out clearly that services outside of the scope may still be approved on a bilateral basis (between the entity and the CBSL), while setting out specific objective criteria or a framework that will underlie this approval process. In addition, it would assist in transparency if these individual bilateral authorizations were made public on the CBSL website, as then other market actors could easily replicate requests for authorization of similar or identical products and services.

Another option in a similar vein is a "regulatory sandbox", which are regulatory arrangements that allow entities with innovative ideas, that have applied to the regulator, to experiment with Fintech/ payment solutions in a protected production environment within a well-defined space and duration. Such a "sandbox" would include appropriate safeguards to contain the consequences of failure, and maintain the overall safety and soundness of the financial system. The regulator would, in return, for the duration of the "sandbox", relax certain specific legal and regulatory requirements which the entity would normally be subject to. The UK[434], Australia[435] and Singapore[436] have a formal "regulatory sandbox" programs for financial services. Given CBSL's progressive attitude, this may be an innovative yet fair and transparent solution to bolster Mobile Payments (and other types of financial technology)

Lastly, we suggest that activities that seem to be prohibited on the face of the legislation or are in a grey area but are allowed in practice be clearly authorized for reasons of legal certainty. For example, the reception of Remittances in a mobile payment Wallet should be specifically authorized in the context of a partnership with an authorized MTO, and wording that seems to clearly prohibit such a situation

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[433] Interview with Pamodha Subasinghe, Dialog, 15 June 2016

[434] FCA. 2016. *FCA's Regulatory Sandbox Opens to Applications*. www.fca.org.uk/news/fca-regulatory-sandbox-opens-to-applications

[435] C. Pash. 2016. *Australia's Fintech Industry Gets a Sandbox in its Budget*. www.businessinsider.com.au/australias-fintech-industry-gets-a-sandbox-in-the-budget-2016-5

[436] Monetary Authority of Singapore. 2016. *Consultation Paper on Fintech Regulatory Sandbox Guidelines*. www.mas.gov.sg/~/media/MAS/News%20and%20Publications/Consultation%20Papers/Consultation%20Paper%20on%20FinTech%20Regulatory%20Sandbox%20Guidelines.pdf

(Clauses 2.2 & 2.3 of *Mobile Payment Guidelines No 1 & Mobile Payment Guidelines No 2*) be therefore deleted/ amended.

(2) Consolidating and Supplementing Current Legislation

Best practice for enabling Mobile Money Services regulation often calls for a single overriding piece of legislation that creates the regulatory framework, followed by the issuance of certain subsidiary regulations that deal with individual specialized topics (KYC, Interoperability, Agent) but which are applicable to all entities licensed under the framework. This can ensure legal clarity, comprehensiveness and certainty.

Given that certain modifications are recommended of the *Mobile Payment Guidelines No 1 & Mobile Payment Guidelines No 2* as set out above, it is suggested that the two Guidelines be merged in the process, in order to remove duplication, and to make clear exactly what the different obligations and criteria are for each type of institution (where such distinction makes sense, and does not unjustifiably create an uneven playing field, such as the need for a custodian account for non-bank providers). Ultimately this will render the framework functional in focus and thus more open to competition. Second, we then recommend that the following individual regulations be issued subsequent to the creation of a single framework: (i) AML/ CTF for Mobile Payments, on the premises of proportional KYC for all entities involved in Mobile Payments, with clear authorization of SIM registration as a proxy for basic KYC verification[437]; (ii) approval process for innovative products or services outside the initial framework and (iii) Interoperability (see below). Often agent regulation is seen as a separate policy, but as it currently forms an integral part of the *Mobile Payment Guidelines,* in this instance these provisions can logically remain in the consolidated version.

(3) Clarifying Interest

As set out in Part 1, Licensed Service Providers are required to hold funds equivalent to customer balances in a custodial account in one (or more) licensed commercial banks (Banks are absolved of this obligation due to their capital requirements). The custodian bank is authorized to invest these funds in an interest bearing account, which the Licensed Service Provider cannot access. Further, the custodian bank may open an interest bearing custodian account for the Licensed Service Provider, but the interest earned through the custodian account shall be credited to a separate account.[438]

The legislation does not give any direction as to what happens with this interest—whether it's retained by the custodian bank or Licensed Service Provider—but the Licensed Service Provider is, in all cases, prohibited from paying interest on the e-money account balances to the final customer (to ensure that there is a clear delineation between banking activity and payment services). With regard to Dialog, the interest received on custodial accounts is below market rate and is treated by Dialog as revenue.[439]

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[437] This legislation could then also deal with issues specific to Mobile Payments in Sri Lanka, such as the high level of third party ownership of mobile phones and the KYC compliance issues this raises.
[438] Clause 6.5 Mobile Payment Guidelines No 2 for Custodian Account Based Mobile Payment Services
[439] S. Castri. 2013. *Enabling Mobile Money Policy in Sri Lanka -The Rise of EZ Cash* p 9

First, it is recommended that the CBSL clarify, for reasons of legal certainty and transparency, what is to occur with the interest in the legislation. Options include allowing the Licensed Service Provider to reinvest the interest in its operations or to donate the interest to charitable purposes, as is the case in Kenya[440]. Mobile Payments is a very low margin business, and the latter option may increase a Licensed Service Provider's ability to invest in new products and geographies, and thus fuel the expansion of the industry.

Further, as CGAP argues, this distinction between payments and banking activity is of questionable legal merit.[441] Regulators have embraced the argument that non-bank e-money issuance is simply a payment mechanism and not a bank deposit. However, collecting repayable funds from the general public is arguably a "deposit" regardless of whether it is collected by a bank or payment services provider[442], and therefore this distinction is both artificial and unjustified. Another argument advanced by regulators is that they fear that "permitting an e-money issuer to pay interest could encourage e-money issuers to make unsound investments with its working capital in order to pay out competitive rates of interest."[443] However, as argued by CGAP, it is unclear why paying interest would encourage unsound investment any more than any other cost of the issuer. Further, such risk to end users is greatly diminished if the e-money float is adequately safeguarded and isolated, as is the case in Sri Lanka.

Further, recently both the central banks of Tanzania and Ghana have reconsidered the payment of part of the interest to customers, although with very varying end results. In Tanzania, the Central Bank has allowed payments of the interest to customers that are based on average balances (Tigo in Tanzania), or level of activity (Vodacom in Tanzania), rather than as straight interest on their Mobile Money balance.[444] In Ghana, the Bank of Ghana mandated in 2015 that banks pay interest on float accounts similar to that on other account types and that e-money issuers must pass through not less than 80 percent of the interest to their end customers (though it should be noted that the implementation of this policy has not yet been completed.)[445]

CBSL is already a progressive regulator, and given that many consumers already use such e-Wallets as a saving tool, it is not far-fetched that the CBSL may be open to reconsidering their position on this point.

(4) Mandating Interoperability

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[440] M. Tarazi and P. Breloff. 2010. *Nonbank E-money Issuers-Regulatory Approaches to Protecting Customer Funds* CGAP Focus Note 63 p 7

[441] M. Tarazi and P. Breloff. 2010. *Nonbank E-money Issuers-Regulatory Approaches to Protecting Customer Funds* CGAP Focus Note 63, p 7

[442] M. Tarazi. 2009. *E-Money Accounts Should Pay Interest, So Why Don't They?* http://technology.cgap.org/2009/03/17/e-moneyaccounts-should-pay-interest-so-why-dont-they/

[443] M. Tarazi and P. Breloff. 2010. *Nonbank E-money Issuers-Regulatory Approaches to Protecting Customer Funds* CGAP Focus Note 63, p 7

[444] C. Mackay. 2016. *Interest Payments on Mobile Wallets –Bank of Tanzania's Approach*.

[445] B. Buruku, S. Staschen. 2016. *How Ghana Set Its Rules on Interest Payment on e-Money Accounts*. www.cgap.org/blog/how-ghana-set-its-rules-interest-payment-e-money-accounts

Sri Lanka has been identified by the GSMA as one of the jurisdictions where Mobile Payments are "interoperable" between Mobile Money accounts from different providers.[446] The reality is less clear-cut. Within the eZ Cash platform, there is indeed Interoperability between the services of Dialog, Etisalat and Hutch, which all use the same platform and had a combined approximately 71 percent market share in July 2013 in telecom services, and approximately 75 percent in regard to Mobile Payments[447]. There is, however, no Interoperability between Dialog and the second largest MNO, Mobitel, in regard to Mobile Money, although we are aware that bilateral negotiations are underway between Dialog and Mobitel, and that Etisalat has recently launched Interoperability with Mobitel regarding MCash.[448]

The eZ Cash platform, if seen as an entity in its own right, was expected to reach 5 million users in 2016 [449] and constitutes a substantial market force in any Interoperability negotiations, which may place Mobitel at a disadvantage. It is our understanding that Dialog, as the owner of the platform and license holder, undertakes all the negotiations with regard to the CBSL, and thus it is likely that it too would negotiate on behalf of the platform Interoperability (though this does not prevent individual MNOs from negotiating Interoperability between individual MNOs, as it appears that Etisalat, which is part of the platform, has an agreement with Mobitel).

Although until now Interoperability has been left to the private sphere by the CBSL, given its long term aspirational goal to ensure such Interoperability and the disproportionate weight of eZ Cash platform, there is an argument that the CBSL should consider taking a stronger position to ensure a fair playing field, especially if new entrants are being promoted.

In this context, we would recommend the mandating of Interoperability according to global standards in a specific legislation, but allowing the private sector to determine the technical and commercial details through commercial agreements. A good model would be India with their IMPS.[450] This may be the added impetus required to get Mobitel connected to eZ Cash, and thus to ensure 100 percent Interoperability across MNO platforms, as well as setting the scene for new entrants and banks currently offering Mobile Payments to easily integrate.

(5) Introducing Overreaching Data Protection Legislation

Mobile Payment transactions generate an extensive amount of sensitive data, from the information provided for the KYC process during account opening to the transactional data, such as identity card numbers, dates of birth, and individual financial worth, all which need to be securely stored and whose access must be

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[446] F. Pasti. 2015. A2A interoperability: What is happening between banks and mobile money providers? www.gsma.com/mobilefordevelopment/programme/mobile-money/a2a-interoperability-what-is-happening-between-banks-and-mobile-money-providers

[447] S. Castri. 2013. *Enabling Mobile Money Policy in Sri Lanka -The Rise of EZ Cash* p 2

[448] See the website of Mobitel: www.mobitel.lk/mcash

[449] J. Hathiramani. 2015. *eZ Cash users to reach 5 mln by 2016* www.sundaytimes.lk/150531/business-times/ez-cash-users-to-reach-5-mln-by-2016-150883.html

[450] www.npci.org.in/aboutimps.aspx

limited to persons and entities who are required to know this data. This data will greatly increase once Smartphone usage takes off.

Currently, data is protected in a minimal, piecemeal fashion in sectorial legislation, with the *Telecommunication Act No. 27 of 1996* regulating the interception of communications and telecommunication transmissions and the disclosure of their contents, while the *Mobile Payment Guidelines No 1* and the *Mobile Payments Guideline No 2* require that the Mobile Payments provider simply maintain the confidentiality of customer information and be responsible that their service providers also treat customer information as confidential.

The government of Sri Lanka has been considering an overreaching data protection law since 2006. We recommend that such efforts be escalated, especially given the Smartphone revolution that has already begun to take off in the region. Such a general framework for data protection is a crucial step not only in providing the payment system with the security it needs to expand and grow while effectively protecting the end consumer, but also to pave Sri Lanka's next phase of development, as it would ensure consistent and homogenized treatment of data collected in all sectors of the economy.

8 Appendix

8.1 Abbreviations

A2i	Access to Information
ADB	Asian Development Bank
ACH	Automated Clearing House
AML	Anti-Money Laundering
API	Application Programming Interface
ATM	Automated Teller Machine
B2B	Business-to-Business
B2C	Business-to-Consumer
B2P	Business-to-Person
BFI	Banks and Financial Institutions
BKB	Bangladesh Krishi Bank
BDT	Bangladesh Taka
BLE	Bluetooth Low Energy

BTRC	Bangladesh Telecommunication Regulatory Commission
CBSL	Central Bank of Sri Lanka
CICO	Cash-In Cash-Out
CSP	Cloud Service Provider
CTF	Counter Terrorist Financing
CUP	China UnionPay, Ltd.
DFI	Development Financial Institutions
DBBL	Dutch Bangla Bank
DFID	Department for International Development
DMC	Developing Member Country
DTMF	Dual Tone Multi-Frequency
e-Check	Electronic Check
E-Commerce	Electronic Commerce
EMV	EuroPay, MasterCard, Visa
FSDS	EuroPay Financial Sector Development Strategy
FCB	Foreign Commercial Banks
Fintech	Financial Technology
FI	Financial Institution
D2P	Donor-to-Person
DGP	Gross Domestic Product
FY	Fiscal Year
Gates	Bill and Melinda Gates Foundation
GNI	Gross National Income
GPS	Global Positioning System
GSM	Global System for Mobile Communications
G2P	Government to Person
HCE	Host Card Emulation
ICT	Informational and Communication Technology
ID	Identity

IFT	Immediate Funds Transfer
IMF	International Monetary Fund
IVR	Interactive Voice Response
IP	Internet Protocol
IPS	Internet Protocol Suite
IT	Information Technology
JCB	JCB Company, Ltd.
KYC	Know-Your-Customer
LBS	Location Based Services
LFC	Licensed Finance Companies
LKR	Sri Lankan Rupee
LTE	Long Term Evolution
M-agri	Mobile Agriculture
MFI	Micro Finance Institution
MFS	Mobile Financial Services
M-insurance	Mobile Insurance
MSME	Micro Small and Medium Enterprises
MST	Magnetic Secure Transmission
M-loans	Mobile Loans
MNO	Mobile Network Operator
MPOS	Mobile Point of Sale
M-savings	Mobile Savings
MTO	Money Transfer Operator
NFC	Near Field Communication
NPR	Nepalese Rupee
NRB	Nepal Rastra Bank
NT	Nepal Telecom
NTA	Nepal Telecommunications Agency
OTC	Over-the-Counter

OS	Operating System
P2P	Person-to-Person
PCB	Private Commercial Bank
PSP	Payment Service Provider
PIN	Personal Identification Number
POS	Point of Sale
Q	Quarter
QR	Code Quick Response Code
RAKUB	Rajshahi Krishi Unnayan Bank
RMG	Ready Made Garments
RTGS	Real-Time Gross Settlement
SB	Scheduled Banks
SCB	State Owned Commercial Banks
SLC	Specialized Leasing Companies
SME	Small and Medium Enterprise
SMS	Short Message Service
SIM	Subscriber Identity Module
TCP	Transmission Control Protocol
UI	User Interface
UN	United Nations
UNCDF	United Nations Capital Development Fund
USAID	United States Agency for International Development
USD	US Dollar
USSD	Unstructured Supplementary Service Data
UX	User Experience
VAS	Value Added Service
ACH	Automated Clearing House
AML	Anti-Money Laundering
API	Application Programming Interface

ATM	Automated Teller Machine
B2B	Business-to-Business
B2C	Business-to-Consumer
B2P	Business-to-Person
BFI	Banks and Financial Institions
BKB	Bangladesh Krishi Bank
BDT	Bangladesh Taka
BLE	Bluetooth Low Energy
BTRC	Bangladesh Telecommunication Regulatory Commission
CBSL	Central Bank of Sri Lanka
CICO	Cash-In Cash-Out
CSP	Cloud Service Provider
CTF	Counter Terrorist Financing
CUP	China UnionPay, Ltd.
DFI	Development Financial Institutions
DBBL	Dutch Bangla Bank
DFID	Department for International Development
DMC	Developing Member Country
DTMF	Dual Tone Multi-Frequency
e-Check	Electronic Check
E-Commerce	Electronic Commerce
EMV	EuroPay, MasterCard, Visa
FSDS	EuroPay Financial Sector Development Strategy
FCB	Foreign Commercial Banks
Fintech	Financial Technology
FI	Financial Institution
D2P	Donor-to-Person
DGP	Gross Domestic Product
FY	Fiscal Year

Gates	Bill and Melinda Gates Foundation
GNI	Gross National Income
GPS	Global Positioning System
GSM	Global System for Mobile Communications
G2P	Government to Person
HCE	Host Card Emulation
ICT	Informational and Communication Technology
ID	Identity
IFT	Immediate Funds Transfer
IMF	International Monetary Fund
IVR	Interactive Voice Response
IP	Internet Protocol
IPS	Internet Protocol Suite
IT	Information Technology
JCB	JCB Company, Ltd.
KYC	Know-Your-Customer
LBS	Location Based Services
LFC	Licensed Finance Companies
LKR	Sri Lankan Rupee
LTE	Long Term Evolution
M-agri	Mobile Agriculture
MFI	Micro Finance Institution
MFS	Mobile Financial Services
M-insurance	Mobile Insurance
MSME	Micro Small and Medium Enterprises
MST	Magnetic Secure Transmission
M-loans	Mobile Loans
MNO	Mobile Network Operator
MPOS	Mobile Point of Sale

M-savings	Mobile Savings
MTO	Money Transfer Operator
NFC	Near Field Communication
NPR	Nepalese Rupee
NRB	Nepal Rastra Bank
NT	Nepal Telecom
NTA	Nepal Telecommunications Agency
OTC	Over-the-Counter
OS	Operating System
P2P	Person-to-Person
PCB	Private Commercial Bank
PSP	Payment Service Provider
PIN	Personal Identification Number
POS	Point of Sale
Q	Quarter
QR	Code Quick Response Code
RAKUB	Rajshahi Krishi Unnayan Bank
RMG	Ready Made Garments
RTGS	Real-Time Gross Settlement
SAPM	South Asia Public Management
SB	Scheduled Banks
SCB	State Owned Commercial Banks
SLC	Specialized Leasing Companies
SME	Small and Medium Enterprise
SMS	Short Message Service
SIM	Subscriber Identity Module
TCP	Transmission Control Protocol
UI	User Interface
UN	United Nations

UNCDF	United Nations Capital Development Fund
USAID	United States Agency for International Development
USD	United States Dollar
USSD	Unstructured Supplementary Service Data
UX	User Experience
VAS	Value Added Service

8.2 Glossary

1G/2G/3G/4G/5G	Refers to the evolution of mobile voice and data network infrastructure, where 'G' stands for 'generation'. By design, each generation deployed provides faster, more reliable, and more secure mobile network services than the previous one.
Active Agent	An Agent outlet that facilitated at least one transaction within the past 30 days.
Agent	An authorized person or entity that facilitates transactions for users, such on behalf of a commercial service provider. The service provider may be a bank or, in some countries, a non-bank provider of digital financial services.
Agent Banking	Providing limited scale banking and financial services through engaged Agents under a valid agency agreement. Agent Banking is a type of Branchless Banking.
Airtime Topup	Purchase of airtime via Mobile Money, funded from a Mobile Money Account.
App	A software application that runs on a Mobile Device, which the user obtains via download from an App Store.
Application Programming Interface	A standard method for one software component to automatically interact with another.
App Store	An online consumer distribution facility for Apps. App stores are operated by Smart Device manufacturers, MNOs, and others. They usually restrict App downloads to devices running an OS supported by the operator.
Authentication	The process by which a service provider checks identity information declared by an entity (a person, device, or application) against the identity information that it has on file for that entity. Authentication checks are done for the purpose of identifying who an entity is (if a person), or on

	whose behalf the entity is requesting access (if a device or application). A successful Authentication check results in a level of trust being established between the service provider and the entity, such that a personalized service can proceed to be delivered.
Automated Telling Machine	An unattended, networked device that dispenses cash.
Automated Clearing House (ACH)	A payment Clearing network that provides Clearing and Settlement services for DDA transactions. Many countries today have at least one ACH in operation to service their domestic payments industry. An ACH handles either (or both) Credit Push or Debit Pull (also called Direct Debit) payments. Most banks in the country will typically belong to the ACH, either directly or through intermediary banks. The ACH Switch moves transactions from one bank to another, and either provides, or interfaces with, a Net Settlement system.
Bank Account	The arrangement between a depositor and a bank, where the depositor has entrusted the bank to safeguard its funds, and the bank provides access to those funds through various Channels.
Barcode	A series of lines of varying widths, presented with a series of numbers, which have standard meanings that can be read by a Barcode scanner as a form of data capture. Among other applications, Barcode technology can be used to initiate payments at the POS.
Batch Processing	A method of data processing where information is accumulated as it is initiated, and then updated or transmitted in a batch—in contrast with Real-Time Processing.
Beacon	Small, often inexpensive electronic devices that enable Geofencing with a high degree of accuracy. Beacons transmit small amounts of data via BLE up to 50 meters. They are often used for indoor location technology, although they can also be used outdoors.
Bluetooth Low Energy	A recently introduced version (Version 4.0) of the Bluetooth protocol that features very low power consumption.
Behavioral Analytics	The statistical analysis of data patterns to understand and predict future behavior.
Bill Payment	A payment made by a person to a biller or a billing organization in exchange for services provided.
Biometrics	An Authentication technology that employs digital values

	derived from the human body, which a service provider captures for Checking from users via sensors. A wide variety of biometric technologies exist, including input derived from the user's fingerprint, palm, face, iris, retina, ears, gait, heartbeat, and others.
Bitcoin	An open-source, decentralized digital currency that allows P2P transactions to take place without an intermediary. Bitcoin transactions are recorded in the Blockchain, a publicly distributed ledger, with no identifying information attached to the Payer or Payee.
Blockchain	A distributed, publicly available ledger that is securely updated when a Bitcoin transaction takes place. Blockchain technology has been found to have wider applicability beyond Bitcoin—as a way to digitally verify identities and execute contracts, without the need to involve a third party.
Bluetooth	A wireless technology standard for low-power data exchange over short distances.
Branchless Banking	The delivery of financial services outside conventional bank branches, often using Agents and relying on information and communications technologies to transmit transaction details – typically card-reading point-of-sale (POS) terminals or mobile phones. [451]
Bulk Payment	A set of similar payments made by an organization to multiple people's Wallets or accounts. For example: salary payments made by an organization to their employees, payments made by a government to a recipient, or payments made by development organizations to beneficiaries.
Business-to-Business	Services provided by a business entity to another business entity.
Consumer-to-Business	Services provided by a business entity to a consumer.
Call Center	A facility operated by a service provider for the purpose of handling customer service requests via telephone. It is also a Channel for providing remote financial services.
Cardholder	A person holding a Payment Card account.
Card Schemes	Collective term for the major international Payment Card networks: Visa, MasterCard, American Express, China UnionPay and JCB.

[451] CGAP. 2010. *Branchless Banking Diagnostic Template*. www.cgap.org/publications/branchless-banking-diagnostic-template

Cart	A web application that allows a user to initiate payment, following selection and review of items to be purchased, and the payment amount due. Payment is initiated by providing the appropriate account information (which may be automatically populated), then pressing a 'pay' button on the web page, which signifies the user's approval for the transaction to take place. A Cart is one of four common UIs for Mobile Payment initiation, the other two being Wallets and In-App Payments.
Cash-In	The process by which a customer credits his account with cash. This is usually via an Agent who takes the cash and credits the customer’s account with the same amount of E-Money.
Cash-Out	The process by which a customer deducts cash from his account. This is usually via an Agent who gives the customer cash in exchange for a transfer of E-Money from the customer’s account.
Central Bank	A government agency responsible for supervising and operating banking activities for the national governs ment. Central Bank activities generally include maintaining reserve accounts required of depository institutions, regulating money supply, transferring funds, and acting as fiscal Agent for the government.
Channel	A point of transaction (that is, the place where a transaction is initiated or terminated), which can be either face-to-face or remote. Examples of face-to-face Channels include branch offices, shops, and mobile transaction points such as airliners and taxis. Examples of remote Channels include websites, Call Centers, IVRs, and ATMs. Each remote Channel is associated with a specific method of data transport, each of which has unique communication, performance, and security characteristics. For example, websites are associated with HTTP, and Call Centers with GSM voice services. Modern computing devices are typically enabled with multiple transport methods. For example, a Smartphone may feature GSM voice, GSM data (SMS, USSD), Internet data (HTTP, SMTP), and Bluetooth. Channels on Mobile Devices are additionally differentiated by the UI (mobile app, browser, STK app, SMS, USSD), and by service provider type (payment network, bank, Social Media, messaging, gaming, video, music, and others).
Check	A paper Payment Instrument which allows a Payer to pay a Payee with monies drawn against the Payer's Bank Account. Alternately spelled as 'Cheque'.
Cheque	See 'Check'

Clearing	The process in a payment system whereby the paying bank or PSP posts individual transactions to their customer accounts. Clearing may be done in Batch or Real-Time. Often referred to in conjunction with Settlement.
Clearing House	An organization formed to handle payments in an open loop bank transfer system. A Clearing House may handle transaction switching, or facilitate Clearing and interbank Settlement. The term is most typically used for Check or ACH systems.
Cloud Computing	The practice of providing access to software applications and data over the Internet, as opposed to these resources being stored locally on the user's device.
Cloud Service Provider	An organization that offers IT infrastructure or applications as a commercial service.
Co-location Center	A data center that functions as a shared facility for Cloud Service Providers.
Counter Terrorist Financing	The rules and business processes required of Financial Institutions (typically via their country's banking regulator), which aim to disrupt the financing of terrorist activities. Typically referred to together with AML (as in AML/CTF), as the business processes needed to carry them are the same or similar.
Credit Card	A Payment Card, where the Cardholder account with the Issuer features a line of credit against which payments can be initiated.
Cryptocurrency	A fully digital currency that uses cryptographic techniques to secure both generation of the currency and transactions which use the currency. Bitcoin is perhaps the best-known example of a cryptocurrency.
Donor-to-Person	Services provided by a donor agency to a consumer.
Debit Card	A Payment Card where transactions create a debit to the Cardholder's Bank Account.
Developing Member Country	Asian Development Bank term for the following member countries: Afghanistan, Armenia, Azerbaijan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, Cook Islands, People’s Republic of China, Georgia, India, Indonesia, Fiji, Hong Kong, China, Kazakhstan, Kiribati, the Republic of Korea, Kyrgyz Republic, Lao People’s Democratic Republic, Malaysia, Maldives, Marshall Islands, Federated States of Micronesia, Mongolia, Myanmar, Nauru, Nepal, Pakistan, Palau, Papua New Guinea, Philippines, Samoa, Singapore, Solomon Islands, Sri Lanka, Taipei, China, Tajikistan,

	Thailand, Timor-Leste, Tonga, Turkmenistan, Tuvalu, Uzbekistan, Vanuatu and Vietnam.
Disbursement	See Bulk Payment
Dual Tone Multi-Frequency	Signaling via audible tones generated from a telephone keypad. DTMF is used to dial phone numbers and to send commands to switching equipment and connected servers (for example, Phone Banking platforms).
Electronic Check	A Payment Instrument that functions like a Check but is in electronic, rather than paper, form.
Electronic Commerce	Usually referred to as E-Commerce. Commerce transacted via electronic networks, rather than paper media.
Electronic Float	Also known as “E-float”. The maintenance of liquid assets equivalent to the total value of the customer funds collected.
Embedded Device	A computer system with a highly specialized function that is located or "embedded" within an object.
Electronic Money	Often referred to as "E-Money". Stored value held in the accounts of users, Agents, and the provider of the Mobile Money service. Typically, the total value of E-Money is mirrored in (a) Bank Account(s), such that even if the provider of the Mobile Money service were to fail, users could recover 100 percent of the value stored in their accounts. That said, bank deposits can earn interest, while E-Money traditionally cannot.
EMVCo	A company owned by American Express, Discover, JCB, MasterCard, UnionPay, and Visa that manages the EMV specifications as well as testing processes for card and terminal evaluation, security evaluation, management of Interoperability issues, and other related matters.
Eurocard, MasterCard, Visa	A set of payments industry standards, managed by EMVCo, which provide technology and data specifications for contact chip, contactless chip, and common payment application transactions, as well as card personalization and Tokenization.
Fast Payments	See 'Real-Time Payments'
Feature Phone	A Mobile Device with rudimentary computing and data communications capability—including, in later versions, Internet connectivity. Feature phones represent the generation of Mobile Device technology after voice-only phones, and before Smartphones. While they peaked in popularity globally in the mid-2000s, Feature Phones are still

	in widespread use, particularly in developing countries. Due to their considerably lower prices in comparison to Smartphones, they often still account for a large majority of Mobile Device market share in developing countries. Early-generation Mobile Payment services used—and continue to use—Feature Phones as both the Payer and Payee devices.
Femtocell	A small, low-powered cellular base station, connected to the mobile network via Internet, and typically deployed in areas where the mobile signal is weak.
Financial Inclusion	The concept of enabling access to financial services for disadvantaged populations, which otherwise may be excluded from partaking of these services.
Financial Institution (FI)	A bank or other institution authorized under applicable law to provide Bank Account services, and possibly other types of financial services, to individuals or organizations.
Fintech	Financial technology. Fintech can be any technology that supports the delivery of financial services. However, the term also typically carries the connotation of innovation and disruption of legacy financial services business models with new, technology-driven ones.
Fintech Ecosystem	The group of organizations that support the development and adoption of Fintech for a given market, the core of which comprises startup enterprises, venture capitalists and other funding sources, financial institutions and regulators.
Form Factor	With respect to payment systems, the physical form taken by a token or device from which payment can be initiated: for example, plastic cards, mobile phones, Wearables, or cash.
Geo-Fencing	A Location Based System that allows creation of virtual geographical boundaries for networked devices. When Geo-Fencing is active, physical movement of the device across the virtual boundary triggers a pre-defined event. For example, if a Smartphone is geo-fenced within a certain shopping mall, retailers can push promotions to the phone as long as it is physically inside the mall.
Global Positioning System	A satellite-based navigation system that provides real-time location and time information to client devices.
Global System Communications	An open, digital cellular technology operated by MNOs for transmitting mobile voice and data services.
Government -to-Person	Services provided by a government agency to an individual (sometimes also referred to as G2C (government to consumer).

Government-to-Consumer (G2C)	See 'Government-to-Person'
Gross Settlement	The process used by a payment system to settle financial obligations among Participants. The face value of each transaction is debited or credited to an account, typically at the country's Central Bank. Gross Settlement contrasts to Net Settlement.
Host Card Emulation (HCE)	A technology that allows so-enabled Smart Devices to initiate NFC transactions with payment credentials that are stored and processed in the cloud, rather than the SE on the device.
Hosted Platform	A PSP or FI transaction processing facility whose physical location and/ or operations are outsourced to a specialized service provider (a hosting service). Hosted Platforms may be single-institution (operated on behalf of a single institution) or multi-institution (operated on behalf of two or more institutions).
Immediate Funds Transfer	See 'Real-Time Payments'
Immediate Payments	See 'Real-Time Payments'
In-App Payment	A feature that allows a user to initiate payment contextually from within an application, enabled by an API to a PSP's Wallet or Cart. Payment is initiated by selecting a 'pay' button or menu item, which invokes the payment API and opens the Wallet or Cart. Upon completion of the transaction, the user is returned to the main application environment. In-App Payment is one of four common UIs for Mobile Payment initiation, the other three being Wallets, SMS/USSD interfaces, and Carts.
Interactive Voice Response	A customer access Channel and technology that accepts user input via spoken or DTMF commands, and provides synthetic voice prompting and response. IVRs are commonly used as a front end for Call Center Branchless Banking services.
International Remittance	A cross-border payment from one consumer to another.
Internet Protocol Suite	Better known as TCP/IP: the collective name for the two most important data communications protocols that enable the Internet: Transmission Control Protocol (TCP) and Internet Protocol (IP).
Internet	A data communications network that connects electronic

	devices all over the world using the Internet Protocol Suite.
Internet Banking	Access to banking services over the Internet from any connected device.
Interoperability	The ability of an end-user dealing with one bank or PSP to exchange a transaction with an end-user who is dealing with a different bank or PSP. Interoperability may be achieved either through Participants all using the same system, or through inter-system networking agreements.
IP Suite	See 'Internet Protocol Suite'
ISO 20022	The international standard that defines the ISO platform for development of financial messages.
Know-Your-Customer	The process of identifying and authenticating a customer, for purposes of risk management and regulatory compliance.
Location Based Services	IT services that use location data to drive features and functions on a networked device. The location data is derived by triangulating sensors on the device against GPS satellites or nodes on a wireless network (cell towers, WiFi, Bluetooth or RFID nodes, iBeacons, NFC readers, or a combination of these). Examples of LBS include digital maps, assisted navigation, asset tracking, and Geo-Fencing.
Long Term Evolution	A version of 4G telecommunications connectivity
Magnetic Secure Transmission (MST)	A proprietary technology of Samsung Electronics that emits a magnetic signal that mimics the magnetic stripe on a traditional Payment Card.
Merchant	Generally used in the payments industry to describe receivers of funds, where payments are made for goods and services. Such recipients are a broad group, and include stores, service providers (often referred to as billers), not-for-profit enterprises, and governments.
Merchant Payment	A payment made from a mobile Wallet via a Mobile Money platform to a retail or online merchant in exchange for goods or services. It can help Mobile Money providers facilitate customer adoption and increase Financial Inclusion, especially in rural areas.
Mobile Device	A portable electronic device. Examples include feature phones, Smartphones, and Wearables.
Mobile Financial Services	Financial services, including payments, loans, savings, insurance and others, provided to customers via the mobile Channel.
Mobile Insurance	Mobile insurance uses the mobile phone to provide

	microinsurance services to the underserved.
Mobile Lending	Using the mobile phone to provide credit services to the underserved.
Mobile Money	Monetary value that is: • Available to a user to conduct transactions through a Mobile Device; • accepted as a means of payment by parties other than the issue; • issued on receipt of funds in an amount equal to the available monetary value; • electronically recorded; • mirrored by the value stored in an account(s) usually open in one (or more) bank(s); and • redeemable for cash. [452]
Mobile Money Account	An e-Money Account that is primarily accessed using a mobile phone and that is held with the E-Money issuer. In some jurisdictions, e-Money Accounts may resemble conventional Bank Accounts, but are treated differently under the regulatory framework because they are used for different purposes (for example, as a surrogate for cash or a stored value that is used to facilitate transactional services). An active Mobile Money Account is a Mobile Money Account that has been used to conduct at least one transaction during a certain period of time (usually 90 days or 30 days).
Mobile Network Operator	A telecommunications company that operates a market-facing mobile voice and data network, which customers access using Mobile Devices.
Mobile Payment	A payment transaction initiated or received on a Mobile Device.
Mobile Point of Sale	A Smart Device or dedicated wireless device that performs the functions of a POS Terminal.
Money Transfer Operator	An organization that remotely transfers cash value between geographically separated Payers and Payees through the use of Agents, where the Agents manage the physical cash, accepting it from Payers and disbursing it to Payees.
Near Field Communication	A set of communication protocols that enable two electronic devices, one of which is usually a Mobile Device such as a Smartphone or Wearable, to establish communication and exchange data by bringing them within about 4 centimeters of each other.

[452] Simone di Castri. 2013. *GSMA Mobile Money for the Unbanked: Enabling Regulatory Solutions*. p 6

Net Settlement	The process in an open loop bank transfer system in which the obligations of one bank to another are fulfilled, inclusive of the face value of the transactions and any reversals or fees. A Settlement process requires an entity (the Settlement Agent) to compute on an ongoing basis the net position of the Participants in the system. At the end of the Settlement period, the Agent calculates the net position and advises Participants of their need to fund, or ability to draw from, a Settlement account that they hold at a common institution.
Over-the-Counter	Some Mobile Money services are being offered primarily Over-the-Counter. In such cases, a Mobile Money Agent performs the transactions on behalf of the customer, who does not need to have a Mobile Money Account to use the service.
Operating System	The "master" software on a computer, which manages functioning of the hardware and all other software (the applications) on the device.
Participants	Commercial entities that join a payments system and provide payment services to end-users (i.e. consumer or business customers). Typically, these Participants are banks, but this is changing. Some countries have an already-existing system that opens membership to non-banks. New systems in development may allow participation by banks and non-banks. Participants are bound to follow system rules.
Payee	The person or organization receiving payment in a transaction. Synonyms include 'Merchant' (in card-based payment systems) and Receiver (in Remittances). In all payment systems other than currency (including digital currency), the Payer holds an account with a PSP or FI, which is credited when a payment is received.
Payment Card Industry Data Security Standard (PCI-DSS)	A set of comprehensive requirements for enhancing payment account data security, developed by the founding payment brands of the PCI Security Standards Council, including Visa, MasterCard, American Express, Discover Financial Services, JCB International, to help facilitate the broad adoption of consistent global data security measures. The global Card Schemes' operating rules require all information systems that store or transmit payment card account data to maintain compliance with PCI-DSS.
Payment Gateway	A Cloud Service Provider that enables merchants to accept payments over the Internet.
Payment Service	A commercial entity that operates all or part of a payment service. Examples include Visa, Western Union, and PayPal

Provider	(not to be confused with 'Platform Security Processor', which has the same acronym).
Payment Switch	B2B facility, often operating as a consortium, which routes and switches payment authorization and Clearing messages among a group of participating PSPs or banks.
Personal Identification Number	A numeric password, usually 4-6 digits in length, which is used to authenticate a user to a system.
Phone Banking	A method of electronic banking that uses the IVR Channel combined with DTMF commands to initiate transactions.
Point of Sale Terminal	An electronic device used by Merchants to capture payment transaction data from a Payer device, and transmit and receive related authorization and Clearing data to and from payment networks. Commonly used methods for POS Terminals to communicate with Payer devices include reading of the magnetic stripe, EMV chip, NFC chip, QR code, or Barcode on a Payment Card or Mobile Device. Communications with the payment network take place across a fixed-line or wireless network.
Push Transaction	A type of payment transaction initiated by the paying person or entity's bank or PSP, who sends a message to the Payee's bank or PSP.
Quick Response Code	A machine-readable code consisting of an array of black and white squares, typically used for storing URLs or other information for reading by the camera on a Smartphone.
Real-Time Gross Settlement	Funds transfer systems where the transfer of money takes place from one bank to another on a "real time" and on a "gross" basis. The 'Real Time' aspect is that Settlement of the payment transactions is not subject to any waiting period. RTGS systems are typically used to clear high-value, bank-to-bank transactions. Note the distinction between RTGS and Real-Time Payments (see separate entry) .
Real-Time Payments	A payment system in which the processing and Clearing of transactions occurs in Real Time. This system may be an ACH, or may be independent of the ACH. Real-Time transactions are usually Push Transactions. Participant or interbank Settlement may occur at the same time (as in an RTGS system) or later, on a net basis. Real-Time Payment systems are typically used to clear lower value retail transactions. Note the distinction between Real-Time Payments and RTGS (see separate entry).
Real-Time	Data processing where information is updated or transmitted immediately and continuously as it is initiated, in contrast

Processing	with Batch Processing.
Remittances	Transfer of funds between individuals
Settlement	The exchange of monetary value to settle a payment transaction between FIs. Settlement may be on a gross basis, where only the face value of the transaction is settled and exception items (such as fees or reversals) are deferred to a later time—or on a net basis, where associated fees and exception items are settled all at once.
Sharing Economy	An economic model where owners of an asset (such as a house or a car) rent out that asset's excess capacity to earn income. Owners are connected with customers via a website established for that purpose.
Short Message Service	An asynchronous messaging service, included in the GSM specification, which allows text to be exchanged between Mobile Devices and a software application hosted by the MNO. Several Mobile Payment services employ SMS as the Transaction Medium.
Shopping Cart	See “Cart”
Smart Device OS	An OS capable of driving Smart Devices. The dominant Smart Device OSs today are Android (developed by Google) and IoS (developed by Apple).
Smart Device	Collective term for Mobile Devices or Embedded Devices, distinguished by their use a Smart Device OS. Examples include Smartphones, Tablets, Wearables, “smart” TVs, “smart” vehicles, and a growing list of other devices. Smart Devices, among other things, are increasingly payment enabled.
Smart Mobile Device	A Smartphone or a Wearable.
Smartphone	A Smart Device that combines the functionality of a mobile phone and a computer. Smartphones are distinct from Feature Phones, which are mobile phones with rudimentary computing and interactive capability, but lacking the advanced computing power, rich feature set, and UX provided by Smartphones.
Smart Assistant	A consumer-facing service that uses Cloud Computing, data analytics, artificial intelligence, location awareness and voice activation to answer questions and perform tasks or services. Productized examples include Apple's Siri™, Amazon.com's Echo™, Google's Home™, and Microsoft's Cortana™.

Social Media	Services that enable users to interact with one another by creating and sharing digital content over a network.
Switch	A processing entity in a payments system that routes a transaction from one Participant to another. A system may operate its own Switch, or this function may be done by one or more third parties.
Tablet	A type of Mobile Device with a touchscreen display, circuitry, and battery in a single unit.
Transaction Medium	The network protocol over which transactions are conducted for a given payment service. Transaction media in use today include SMS, USSD, SMTP, and proprietary messaging protocols from Social Media messaging providers such as Facebook, WhatsApp, WeChat, Twitter, and others.
Tokenization	A technology used in the payments industry to secure sensitive data such as a Payment Card account number, which exchanges the sensitive data value for a "token", which is usable only in a limited context, and is useless if stolen.
Unbanked	Users who do not have a Bank Account or a transaction account at a formal Financial Institution.
Underbanked	Users who may have access to a basic transaction account offered by a formal Financial Institution, but still have financial needs that are unmet or not appropriately met.
Unstructured Supplementary Service Data	A real-time messaging service, included in the GSM specification, which allows text to be exchanged between Mobile Devices and a software application hosted by the MNO. Several Mobile Payment services employ USSD as the Transaction Medium
User Experience	An end-user's emotions, attitudes, and behaviors relative to using a particular product or service.
User Interface	The point at which interaction takes place between an electronic device or software application, and its human end-user.
Wallet	A software application that functions as a secure repository for: (a) storing and managing a Payer's payment credentials, and (b) initiating payment transactions. Additional features and functions may be included, such as coupons, loyalty account management, and management of non-payment forms of ID such as digital drivers' licenses and passports. A Wallet application may reside in hardware or software on a PC or PC peripheral, a Mobile Device, or in the cloud. There are multiple ways to initiate payment from a Wallet,

	depending on the payment system in use, and the available Payee interface. Common methods include: (a) the Payer physically holding a Smart Mobile Device to a reader (as with NFC and Barcode payments), (b) the Payer opening the Wallet application directly and setting up a payment transaction (as with PayPal), and (c) invoking the Wallet from another application via API. Wallets are one of three common UIs for Mobile Payment initiation, the other two being Wallets and Carts.
Wearable	A type of Smart Mobile Device that can be worn on the user's body. Wearables come in a variety of Form Factors, the most common at present being watches, glasses, and finger rings. Other Form Factors can be expected in the future.

8.3 Evaluating a Country's Payments Ecosystem

The payments ecosystem maturity and health of Bangladesh, Nepal and Sri Lanka are briefly evaluated in the respective country reports. A description follows of the criteria used for this summary evaluation, and which can be used for similar evaluations in the future. Note that in the absence of credible primary research data for most of the criteria, the evaluation is subjective, high-level and rough, based on data that is available from open source research and our discussions with players in each country.

Scoring: Each country is evaluated as to the general maturity and health of its digital payments ecosystem per indicator, using a rating scale where:

- 1 = Low
- 2 = Moderate
- 3 = High

Evaluation Criteria: In order to identify appropriate development objectives for a country's payments ecosystem (where the agenda is Financial Inclusion and the core services are Mobile Money and Branchless Banking), we need to understand what a mature and healthy ecosystem looks like, within the context of that country's overall society and economy.

The following criteria are fundamental to ecosystem maturity:

At Layer 1 (Last Mile)

- For Payers and Payees who are consumers:
  - Regulatory support—Consumer protection rules such as for commercial dispute resolution and data privacy;
  - Access—to account services (Bank Account or e-Money), payment instruments (a mobile device with wallet functionality to access the applicabe account services), and transaction services (providing the ability to initiate a payment at transaction points such as Agent, ATM and Merchant locations);

network services (GSM and/ or Internet). More advanced access technology (e.g. Smartphones as opposed to Feature Phones, Internet as opposed to basic GSM) implies greater ecosystem maturity, to the extent that the technology is vetted by the market and by regulators; and

- For Payees or Agents that are businesses:
  - Regulatory support—(Agents only) the legal authority to accept and disburse digital payments from/to consumers;
  - Access—to account services (a PSP Agent or Merchant account), payment instruments (a mobile device with wallet functionality or a POS terminal); network services. More advanced access technology (e.g. Smartphones as opposed to Feature Phones or Contactless POS Terminals as opposed to Magnetic Stripe reading terminals) implies a more mature ecosystem, to the extent that the technology is vetted by the market and by regulators;
- For retail Banks (consumer-facing):
  - Regulatory support—the legal authority to provide digital payment services to consumers;
  - Access—to account services (the applicable Layer 2 Clearing Houses) network services (Internet and possibly leased line) for both front-office (customer-facing) and back-office (partner-facing) operations; and
  - Technology platform—from which to provide digital payment services. A more advanced technology platform (e.g. Real-Time Payments as opposed to batch payments) implies greater ecosystem maturity, to the extent that the technology is vetted by the market and by regulators.
- For PSPs, Acquirers and Money Transfer Operators (Agent-facing):
  - Regulatory support—the legal authority to provide digital payment services to Agents;
  - Access—to network services (Internet and possibly leased line) for both front-office (customer-facing) and back-office (partner-facing) operations;
  - Technology platform—from which to provide digital payment services. A more advanced technology platform (e.g. Real-Time Payments as opposed to batch payments) implies greater ecosystem maturity, to the extent that the technology is vetted by the market and by regulators; and

At Layer 2 (Wholesale Services)

- For Clearing Houses, Switches and hosted multi-bank platforms:
  - Regulatory support—the legal authority to provide Clearing, Settlement, switching and/ or hosting payment services to banks and/ or PSPs;
  - Access—to Central Bank or settlement Bank account services
  - network services (Internet and possibly leased line) for both front-office (customer-facing) and back-office (partner-facing) operations; and
  - Technology platform—from which to provide digital payment services. A more advanced technology platform (e.g. Real-Time Payments as opposed to Batch Payments) implies greater ecosystem maturity, to the extent that the technology is fully vetted by the market and by regulators.

At Layer 3 (Foundational Services)

- For Telcos/ MNOs, ISPs and CSPs:
  - Regulatory support—the legal authority to provide network or Cloud services;

- Access—to network services (Internet and possibly leased line) for both front-office (customer-facing) and back-office (partner-facing) operations and electric power; and
- Technology platform—from which to provide network or Cloud services. A more advanced technology platform (e.g. 4G as opposed to 3G) implies greater ecosystem maturity, to the extent that it is fully vetted by the market and by regulators.

The following criteria are fundamental to ecosystem health:

At Layer 1 (Last Mile)

- For payers and payees who are consumers:
  - Usage—including: (1) registration and (2) effecting payment transactions. Drivers of usage include affordability, user experience (UX) in interactions with the service provider (PSP, Agent, Merchant), trust (in the payment method, the service provider and the industry), and cultural acceptance of the payment method.
  - Low incidence of exceptions—service outages, fraud, commercial disputes, security incidents, and all other events requiring customer support from the PSP, Bank, MNO, Agent or Merchant.
- For payees or Agents that are businesses:
  - Usage—including: (1) registration (obtaining an active Agent or Merchant account with a PSP or Acquirer) and (2) volume of payment transactions accepted from customers. Drivers of usage include customer acquisition, transaction revenues, cost (both operating and Capex) and time to break-even; and
  - Low incidence of exceptions—service outages, fraud, chargebacks, returns, commercial disputes, security incidents, and all other events requiring customer support from the PSP, Acquirer/ Bank, network services provider (MNO or ISP) or equipment provider.
- For PSPs, Acquirers and Money Transfer Operators (Agent-facing):
  - Usage—including (a) signed Agent registrations/ partnerships and (b) volume of payment transactions processed for Agents;
  - Low incidence of exceptions—service outages, fraud, chargebacks, returns, commercial disputes, security incidents, and all events requiring customer support from a Layer 2 or Layer 3 service provider.
  - Ability to innovate services and products—presence of robust, in-country Fintech and Financial Inclusion ecosystems, and a culture of innovation with positive regulatory support.

At Layer 2 (Wholesale Services)

- For Clearing Houses, Switches and hosted multi-bank platforms:
  - Usage—including (a) registered Banks or PSPs and (b) volume of payment transactions processed for Banks or PSPs (note that as a part of the national critical infrastructure, operations may be subsidized);
  - Low incidence of exceptions—service outages, security incidents, Bank failures, regulatory intervention, and all events requiring customer support from a Layer 3 service provider.

    - Ability to innovate services and products—presence of robust, in-country Fintech and Financial Inclusion ecosystems, and a culture of innovation with positive regulatory support.

At Layer 3 (Foundational Services)

- For Telcos/ MNOs, ISPs and CSPs:
    - Usage—including (a) registered subscribers/ customers and (b) volume of network traffic (note that as a part of the national critical infrastructure, operations may be subsidized);
    - Low incidence of exceptions—service outages, security incidents, regulatory intervention
    - Ability to innovate services and products—presence of a robust development assistance ecosystem, and a culture of innovation with positive regulatory support.
- For Technology Providers (consumer device, POS device, banking/ payment platform vendors):
    - Sales: signed customers and revenues
    - Ability to innovate services and products—presence of robust, in-country Fintech and Financial Inclusion ecosystems, and a culture of innovation with positive regulatory support.

8.4 Interviews

8.4.1 Bangladesh

- Asif Ahmed, Director & Head of Mobile Financial Services, Banglalink, June 2016 21
- Shah Zia-ul Haque, Joint Director, Payment Systems Department, Bangladesh Bank, 11 & 16 May 2016
- Md. Abul Hossain (Emon), Head of Sales and Marketing, Executive Vice President, Mobility i Tap Pay (Bangladesh) Ltd. 22 July 2016
- Rashed Hossain, Country Managed, Bangladesh. Micro Ensure 21 June 2016
- Mr. Major General Sheikh Md. Monirul Islam, bKash at ITU Conference 27-29 April 2016 Washington DC
- Jakirul Islam, Senior Manager, Country Business Development, MicroSave, 17 May 2016
- Manzur Rahman, Country Head, Digital Services Robi Axiata Limited, 9 May 2016
- Mohammad Rashed, Deputy Director, Bangladesh Bank at ITU Conference 27-29 April 2016 Washington DC
- Abdul Kashem Md. Shirin, Deputy Managing Director, Dutch-Bangla Bank at ITU Conference 27-29 April 2016 Washington DC
- Kamal Quadir, CEO, bKash at ITU Conference 27-29 April 2016 Washington DC
- Saha Subhakar, Executive Director, Bangladesh Bank at ITU Conference 27-29 April 2016 Washington DC

- Josh Woodard, Regional ICT & Digital Finance Advisor, Asia-Pacific, FHI 360, 3 May 2016

8.4.2 Nepal

- Biswas Dhakal, CEO, F1 Soft, 21 July 2016
- Nara Hari Dhakal, Ph. D., Managing Director, Centre for Social and Economic Studies (CenSES) Nepal, 22 June 2016
- Nephil Matangi Maskay, Ph.D., Executive Director (Acting), Payment and Settlement Department, Nepal Rastra Bank, 29 June 2016
- Vladislav Nimerenco, Mobile Financial Services Manager, Ncell, 28 April 2016 and 1 August 2016
- Ms. Munni Rajbhandari, Operations Manager, Nepal Clearing House, 3 July 2016
- Aditi Shrestha, Investment Officer, IFC, 19 July 2016
- Jaspreet Singh, Regional Technical Specialist at UNCDF, 17 & 23 May 2016
- Chinta Mani Siwakoti, Deputy Governor Nepal Rashthra Bank, 27 July 2016

8.4.3 Sri Lanka

- Fariq Cader, Vice President, Digital Services at Dialog Axiata, 4 May 2016
- Dushyantha Dassanayake, Chief Manager Electronic Delivery Channels, Sampath Bank, 23 June 2016
- Kalhara Gamage, Head of Mobile Money at Mobitel, 16 May 2016
- Rakhil Fernando, CEO, Kashmi, 14 July 2016
- Rajinda Jayasinghe, Head of Operations, Kashmi, 14 July 2016
- Thilak Piyadigama, COO, Nation’s Trust Bank, 20 June 2016
- Navinie Pramadige, Compliance Manager, Dialog Axiata PLC, 1 July 2016
- Pamodha Subasinghe, Senior Manager Regulatory, Dialog Axiata PLC, 15 June 2016