

COUNTRY DIAGNOSTIC

Building Digital Bangladesh:
The Way Forward for
Digitizing Payments

NOVEMBER
2016



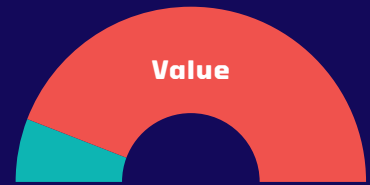
BETTER THAN CASH
ALLIANCE



■ Cash
■ Electronic



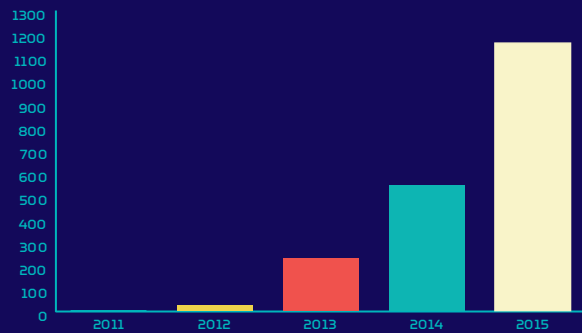
Bangladesh conducts
4.4 billion
 transactions annually.
94% are in cash



\$44 billion
 annually flows through
 electronic channels,
12% of all value

PROGRESS IS BEING MADE

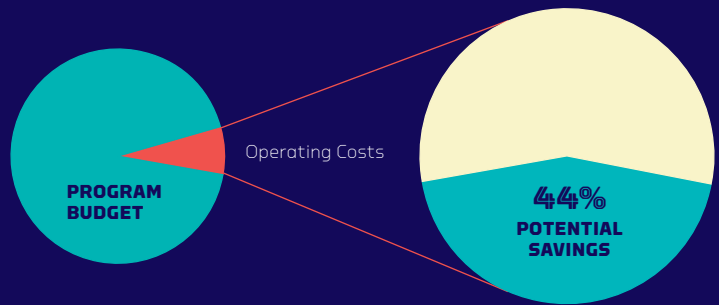
Mobile money transactions have grown from nothing in 2011 to over **1 billion per year**



AND OPPORTUNITIES EXIST TO INCREASE ELECTRONIC PAYMENTS

By digitizing major social transfers, Bangladesh could save **\$146 million annually**

Retail payments make up half of all transactions and less than **3% are made electronically**



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Cover photo: ©Government of Bangladesh

BANGLADESH

Country
Diagnostic

This Diagnostic Report shows Bangladesh is making significant strides toward a digital economy, and outlines specific policy measures that can underpin further digitization of payments into the future. Led by initiatives from the Bangladesh government and supported by private sector innovations, the country has seen impressive growth in mobile financial services in particular, and a rising appetite for digital payments more generally. However, this Diagnostic Study also shows that Bangladesh is just commencing its journey toward a fully inclusive digital payments ecosystem, and that significant barriers remain. To overcome these barriers and support further progress, this report recommends as top priorities the completion of Bangladesh's National ID system, as well as reforms to improve regulation and make it easier for all forms of digital payments to move across channels and platforms. Putting in place these measures can play a powerful role in driving financial inclusion, economic growth, and cost savings for Bangladesh's government, businesses, and individuals at a time of rapid, positive change across the country.

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1. EXECUTIVE SUMMARY

Shifting payments from cash to electronic forms helps drive greater financial inclusion and economic opportunity in many countries. The government of Bangladesh is laying the groundwork through regulatory measures, and an innovating private sector is also driving the shift from cash to digital.

Although all forms of digital payments have been increasing in Bangladesh, the mobile financial services (MFS) industry in particular is notable for its rapid expansion. Government-to-Person (G2P) digital payments have also grown significantly, and further digitization of G2P payments could save an estimated US\$146 million annually across six major social safety net programs, translating to 44% of total operating costs or 3% of the combined annual budget of the six programs.¹

However, the overwhelming majority of payments in Bangladesh are still made in cash. Achieving further progress will require continued efforts by the government to implement policies that create enabling conditions and evolve the regulatory environment in order to overcome key barriers such as the need to achieve more competition, and more interoperability enabling payment transactions between different service providers and platforms.

This report measures the state of the shift from cash to digital payments, assesses the trajectory of Bangladesh's shift, identifies specific barriers to digitization, and recommends specific actions that government and the private sector can take to guide future policymaking.

KEY FINDINGS

- **A major shift to digital payments from governments and businesses to individuals is possible in Bangladesh;**

however, the following needs to be considered:

- The continued transition to digital government and company salary payment is an important step for a successful shift toward a cashless economy
- There is strong justification for the digitization of the social safety net and other government transfer programs, including both program management functions and payments
- Private sector payments are set to shift, but incentives are required to drive full adoption

- **The overwhelming majority of the payments made in Bangladesh are still made in cash.** The analysis of the currently available payment data indicates that government entities, businesses, and individuals make only 12% of payments by value (equating to \$44 billion of \$367 billion total annual payments), and only 6% of payment by volume (around 260 million or 4.4 billion total payments) by electronic means.

- **The increase in the number of MFS (mobile financial services) available indicates a trend in changing consumer behavior regarding digital payments.** According to Bangladesh Bank (the central bank), 18 banks are operating MFS as of December 2015 and transactions have grown an average of 120% since 2011, averaging US\$1.3 billion per month. Although still a small proportion of the overall economy, the data suggests a strong interest among individuals, businesses, and institutions in Bangladesh to transact by a variety of digital forms.

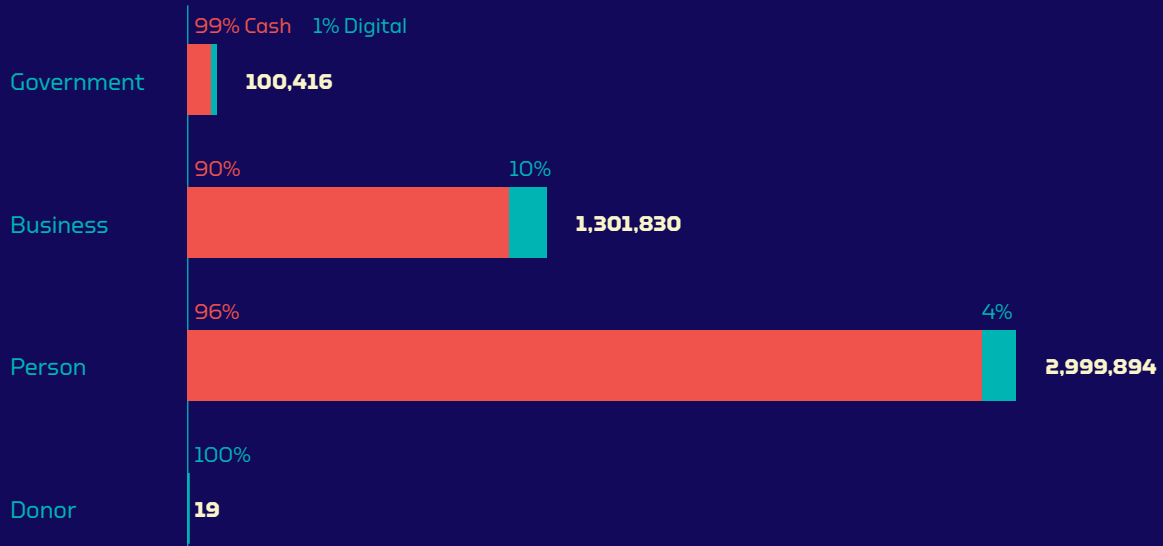
- **MFS are a key driver of the increasing number of person-to-person payments, but availability of appropriate platforms will be critical to more widespread adoption.** The rapid growth of MFS has been in part driven by a significant move toward electronic remittances. However, this growth has slowed the last couple of years due partly to uncertainty related to MFS regulation changes proposed in 2015, particularly in relation to ownership structures, and the need to transition the market from over the counter (OTC) transactions to mobile wallets.

- **There is a need to improve the business case for private sector actors to embrace digital payments.** Cost structures associated with digital payments for private sector actors, including fees charged by banks particularly applied to higher-value transactions, are areas that warrant further examination.

The government of Bangladesh is laying the groundwork through regulatory measures, and an innovating private sector is also driving the shift from cash to digital. However, **the overwhelming majority of payments are still made in cash.**

There is **strong justification for the digitization of the social safety net** and other government programs.

VOLUME (TRANSACTIONS, THOUSANDS)



VALUE (US\$, MILLIONS)





18 banks are operating mobile financial services as of December 2015 and **transactions have grown an average of 120% since 2011.**

Government payments:

- **An estimated 69% of the value of payments made by governments are digital.** This accounts for approximately US\$45 billion but only constitutes around 1.1% of the number of transactions made by government on an annual basis, illustrating the significant potential for further digitization of government payments to help build out the digital payments ecosystem in Bangladesh.
- **While 69% of the value of all payments by government are electronic, the corresponding figure for electronic G2P salary payments is about half that amount, at 36%.** This indicates that the infrastructure for G2P salary payments is already in place, but further measures are needed to enable more employees to be paid digitally, whether through bank accounts or other means.
- **Electronic payment of conditional cash transfers or other social program payments is in its very early stages in Bangladesh, at less than 1% of payments by volume.** Electronic payment of pensions has not yet started, but a database for automated pension payments is under construction.

Business payments:

- **There is an opportunity for businesses to increase the number of payments they make and receive digitally.** Formal business payments represent around US\$150 billion, or about 40% of total value of payments in Bangladesh. However, only an estimated 10% of the number of transactions originating from businesses to individuals (B2P) and 2.6% of all Person-to-Business (P2B) payments are made over electronic channels. There is also an opportunity to incentivize adoption and digitize payments in the informal sector, which currently includes nearly 6 million micro, small, and medium enterprises (MSMEs), accounting for 25% of GDP and employing at least three-quarters of the total workforce.²
- **While most Government-to-Business (G2B) payments (90%) have now transitioned to digital channels, payments from Business-to-Government (B2G) have not transitioned at all (0%).** There is an opportunity for government and businesses to work together to support this latter transition.



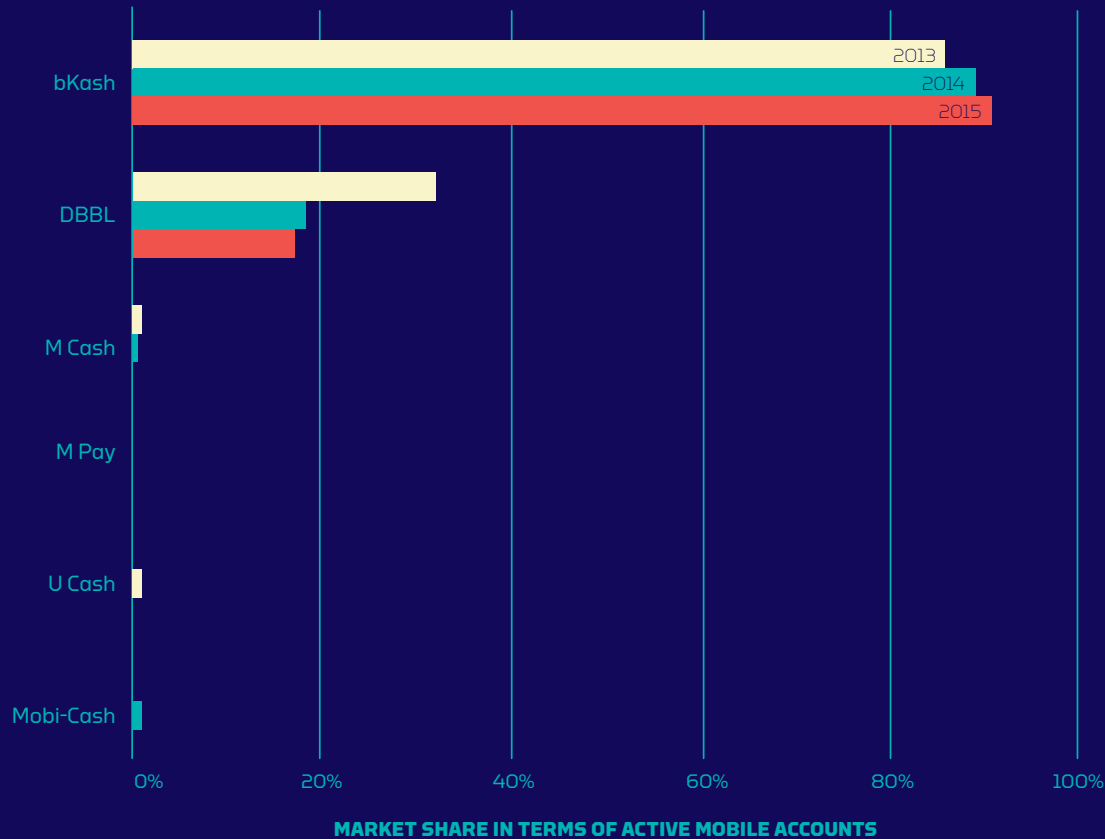
Individuals:

- **At present, over 95% of the overall number of individuals' payments is made in cash.** Payments made by individuals – (P2B), Person-to-Person (P2P), and Person-to- Government (P2G) – account for US\$170 billion.
- **Migration from rural to urban areas has significantly increased domestic remittances in Bangladesh.** However, 90% of this segment of the population is yet to transition to digital payments. To expand adoption, it will be important to increase platform interoperability, improve product innovation across multiple use cases, and address the misperception that cash is a low-cost way to transact.
- **The shift to digitizing payments such as bill payments is likely to be slower and more incremental than the shift for other payment types.** Only 8.4% of all utility bills are paid electronically, and only 2.6% of all P2B payments overall are made over electronic channels in Bangladesh. Individuals make hardly any payments to government electronically. This is in part due to the following factors:
 - Business is driving remote electronic bill payment, but government is not playing a significant role at this stage
 - A lack of confidence in electronic payments from payers and merchants is hampering progress
 - End users are open to using MFS, but do not always find them easy to use, highlighting the need for user-friendly products and improved services across a wide variety of use cases, including for very low-income users and unbanked or under-banked users

Migration from rural to urban areas has significantly increased domestic remittances in Bangladesh. **However, 90% of this segment of the population is yet to transition to digital payments.**

MFS MARKET LANDSCAPE IN BANGLADESH

Source: Intermedia



Bangladesh's mobile financial services market is currently heading toward a damaging monopoly situation, which may lead to price increases and other negative consequences for consumers.

KEY RECOMMENDATIONS

The report highlights three specific actions that government and the private sector can take to further catalyze Bangladesh's shift to digital payments. The report also addresses some of the key barriers such as the lack of platform interoperability and the need to achieve more competition in the market. Importantly, these steps should be viewed as starting points on the payment digitization roadmap. They do not need to be completed in sequence. In fact, the first step of developing a National Identification System is already underway.



Fully implement a National Identification System and integrate it with key services. Bangladesh now has a National ID (NID) database currently holding information on 96 million people in the country.

In 2015-16 it connected to the biometric re-registration of SIM cards. With support from the World Bank, the government has recently embarked on a new project that will issue a smart card containing added biometric information. A lack of shared infrastructure such as an NID has been identified as a key barrier to G2P and B2P payments in Bangladesh as in many other economies. Once NID in Bangladesh is fully implemented and the necessary access is provided to certified government and business entities, it has the potential to greatly improve access to and adoption of digital financial services.



Improve the regulatory environment to achieve more competition in the MFS market. Bangladesh's MFS market is currently heading toward a damaging monopoly situation, which can result in a range of negative consequences for consumers.

This trend currently presents potentially the most significant barrier to Bangladesh developing an inclusive digital payments ecosystem. Improving the regulatory environment to help achieve an adequate level of competition will allow systemic risks to be managed. It will also promote competitive pricing and greater product innovation, and will be a vital step in improving the business case for businesses to move toward digital payments. It will also be important to continue developing a policy framework that supports other digital and non-digital channels and infrastructure, in order to build a vibrant, long-term ecosystem. Digital payment networks, including cards, mobile, and other channels, can play an important role in ensuring access, effective services and scale, as well as building long-term infrastructure.



Improve interoperability to create an unrestricted flow of money among user accounts from different institutions or service providers and across multiple channels.

Agent interoperability in Bangladesh allows a single agent to act for more than one service provider, as well as customer interoperability that allows one customer to access multiple accounts using one SIM card. However, a lack of platform interoperability in Bangladesh currently inhibits payment transactions between different service providers, and therefore severely limits the scope of different payments that can be made digitally. Given the increasingly monopolistic trend in the MFS market, there is not currently sufficient incentive for the market leader (with 90% of customers) to encourage interoperability. Moreover, the smaller players do not have a sufficiently strong voice to advocate effectively for interoperability. Given market forces by themselves are unlikely to drive sufficient progress in a reasonable timeframe, improving interoperability is a key policy focus of the Bangladesh government. Success in these efforts will help drive further adoption of digital payments. More active participation of Mobile Network Operators (MNOs), as well as the Bangladesh Telecommunication Regulatory Commission (BTRC), could facilitate faster and wider adoption of digital financial services.

Broader interoperability of this type allowing transactions across different kinds of accounts will ultimately deliver the greatest long-term benefit for users.

The interoperability needed includes the ability for payments to move across MFS, bank, and other platforms. This will also serve to improve the use cases described in this report because it increases choice leading to the most optimal method of payment. This report shows that Bangladesh has made significant progress in a short period of time in driving the adoption of digital payments, led by the a2i Programme of the Prime Minister's Office, Bangladesh government, and key innovators in the private sector. Further progress requires action to address key barriers and spur growth. Through its analysis and recommendations, this report aims to help policymakers and other stakeholders better understand and to take action to accelerate Bangladesh's path toward a responsible, effective, and inclusive digital ecosystem. This will help stakeholders in Bangladesh fully unleash the power of digital payments to drive economic opportunity and financial inclusion in a country in rapid transition, and with significant opportunities ahead to improve living standards and drive new sources of economic growth.

The smaller players do not have a sufficiently strong voice to advocate **effectively for greater interoperability.**



2. COUNTRY CONTEXT

THE ECONOMIC LANDSCAPE: RESILIENCE AND GROWTH IN THE FACE OF GEO-POLITICAL CHALLENGES

Bangladesh is a Lower Middle Income Country (LMIC) with a market-based mixed economy, which is the third largest economy in South Asia.³

It is the world's eighth most populous country and among the most densely populated with 1,252 people per square kilometer.⁴ This populace also represents one of the key challenges that Bangladesh faces – that of deep and widespread poverty (approximately 45 million people live in poverty on less than \$2 per day).⁵ 85% of the country's poor live in rural areas.⁶ Furthermore, Bangladesh is also one of the most environmentally vulnerable countries in the world, ranking 6th in the Global Climate Risk Index.⁷ Despite being subject to these and other geopolitical issues, Bangladesh remains an outstanding example of a country that has overcome the odds in the face of numerous crises, both externally and internally driven.

Bangladesh has large foreign exchange reserves driven by both remittances from the diaspora as well as the Ready Made Garments (RMG) industry – where Bangladesh is second to China in terms of exports. These two sources account for more than 20% of the country's GDP (see Figure 2.1).

FIGURE 2.1
Contribution of
personal remittance
and RMG to GDP in
percentage

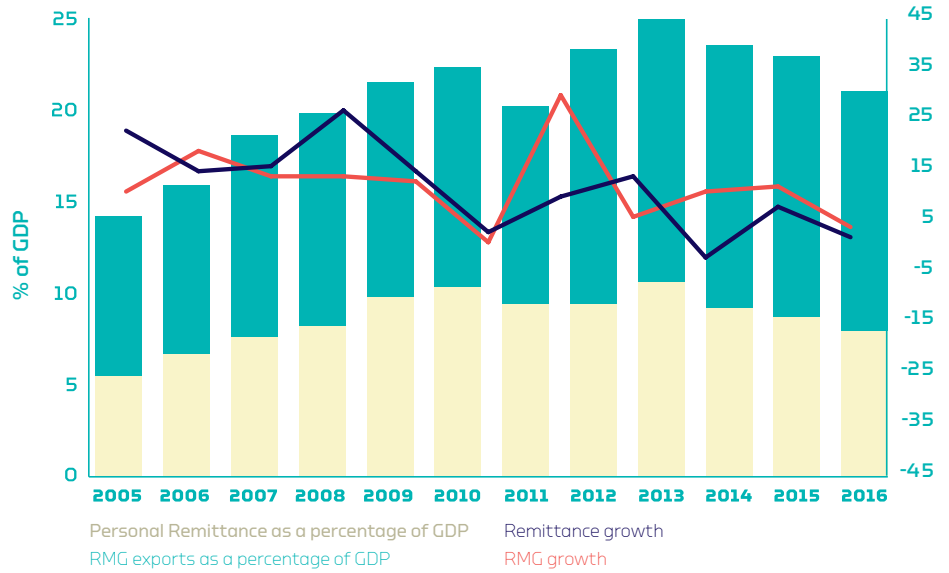


FIGURE 2.2
Financial deepening ratio

Source: World Bank Databank

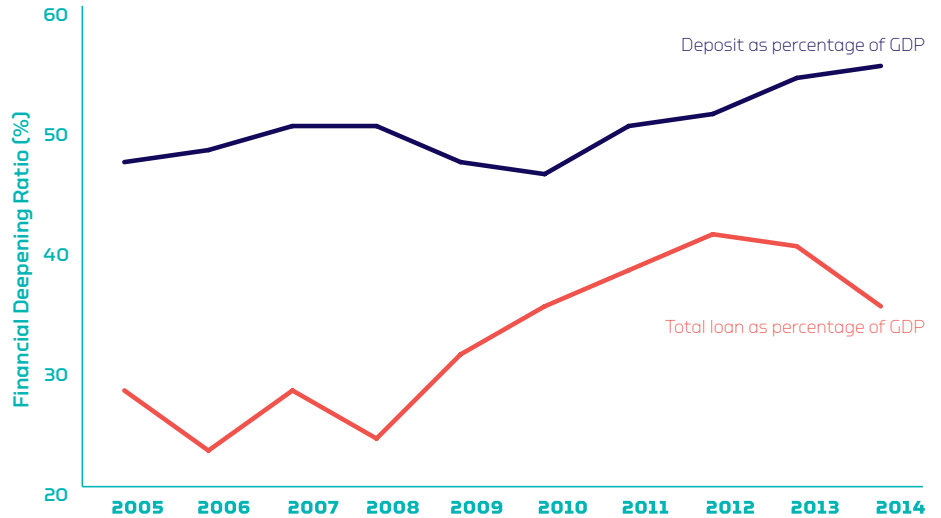
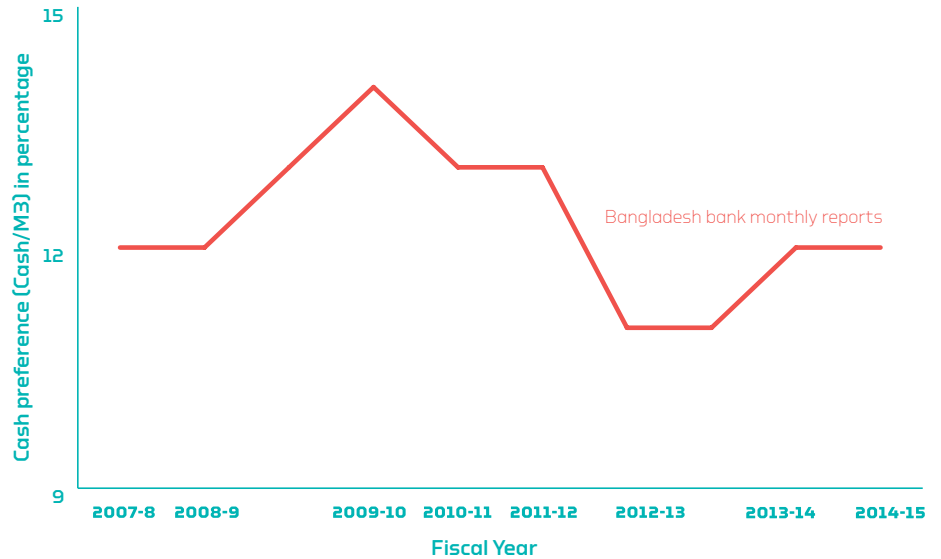


FIGURE 2.3
Cash preference
(Cash/M3)



The changing Deepening Ratio (please see Figure 2.2) is indicative of this economic shift. As GDP starts to increase, the ratio also trends upwards, reaching 50% by FY 2014-15.⁸ Interestingly, during this timeframe, an increase in cash preference was observed (Figure 2.3) while the ratio steadily increased. Some argue that this phenomenon can be attributed to a phenomenon known as the Bangladesh Paradox that was first observed in 2008. The paradox is that despite the onset of global and local economic downturns, as well as the presence of political unrest and natural calamities, Bangladesh manages to achieve 6% GDP growth⁹ year-on-year over a long period of time.

There are two popular schools of thought that attempt to explain the Paradox:

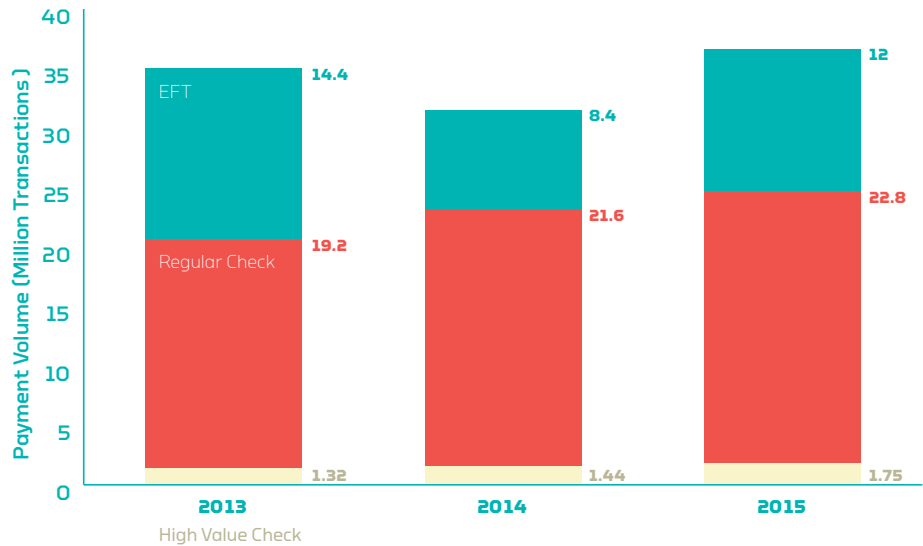
- 1) The growth of GDP was fuelled by three aspects of the economy: personal remittance, ready-made (RMG) garments export, and the inclusion of women into the workforce in the real economy. During the global recession following the global financial crisis starting in 2008, it is hypothesized that Bangladeshi emigrants sent the bulk of their life savings back home, bolstering the ever-growing GDP. In addition, the RMG sector of Bangladesh caters to lower-income consumer markets globally and therefore received a boost in demand as purchasing power declined globally. This narrative, however, is undermined by the fact that both remittances and the RMG sector declined in 2008 and the following two years.
- 2) Alternatively, some posit that there exists a muscular informal sector whose contributions supported GDP when the formal sector faltered. However, as tends to be the case, the informal sector is hard to measure and as such, it is difficult to prove this theory accurate beyond anecdotal evidence.

Economists and commentators have yet to land on a definitive explanation. It is hoped that, as the payment ecosystem becomes more digital, more market participant behavior-related data would be available in the long run, and that may shed new light to further understand the Bangladesh Paradox.

THE PAYMENTS LANDSCAPE: FRAGMENTED BUT RAPIDLY GROWING ELECTRONIC PAYMENTS

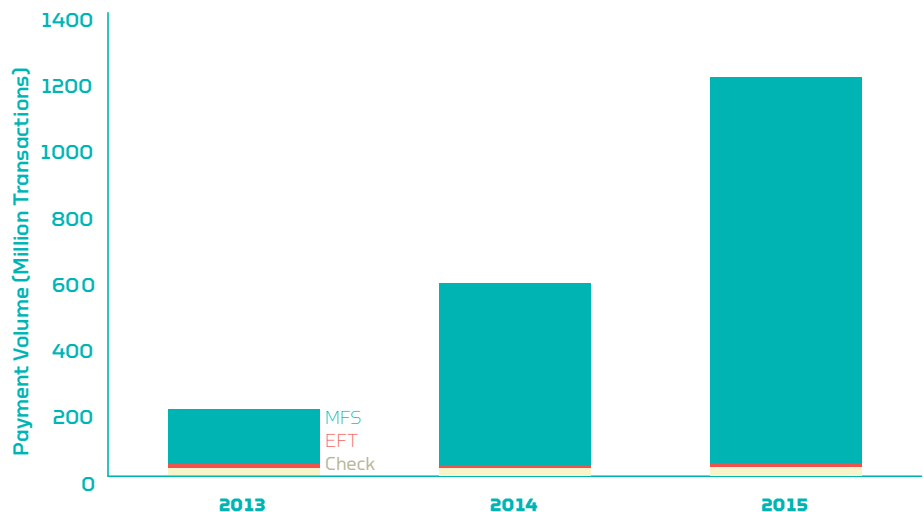
The most common payment mechanisms in use beyond cash are checks, Electronic Fund Transfers (EFT), and Mobile Financial Service (MFS). These have been accompanied by Real Time Gross Settlement (RTGS) since last year (please see Figure 2.4).

FIGURE 2.4
Payment volume by instrument without MFS
 (million transactions per year)



Checks are categorized as either “high value” (BDT 500,000 or upper) or “regular” (below BDT 500,000) and are used for over 20 million transactions each year.¹⁰ The shift from paper based to electronic has not been observed to a significant degree. Although the number of check transactions is steadily increasing, EFT transactions continue to fluctuate. MFS, on the other hand, shows substantial growth in terms of number of transactions – with more than 1 billion transactions per year in 2015¹¹ (Figure 2.5).

FIGURE 2.5
Payment volume by instrument
 (million transactions per year)



Another relatively small but crucial shift toward digital transaction can be observed by the volume of POS transactions and the relative growth of debit and credit cards, representing an average of 140 million transactions a year.¹² The number of POS transactions via credit cards surpasses debit card usage, though the latter is catching up quickly. There is a similar shift when considering POS transactions in terms of amount/value as well. Cumulatively, these elements amount to around BDT 120 Billion (US\$1.52 billion) per year.¹³ This reflects a meager 1.27% of the total P2B universe (Figure 2.6 and 2.7).

FIGURE 2.6
POS transactions
(number) via debit
and credit card

Source: Bangladesh Bank Data

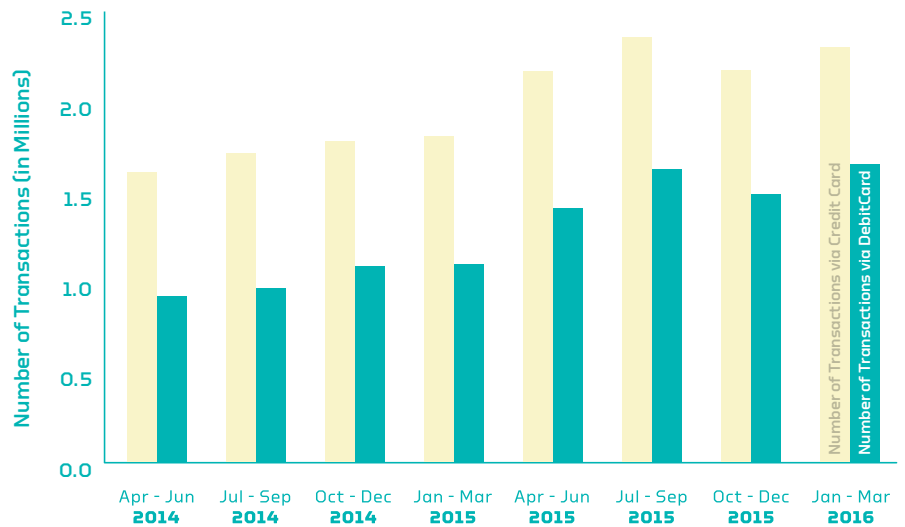


FIGURE 2.7
POS transaction value
(billion USD)

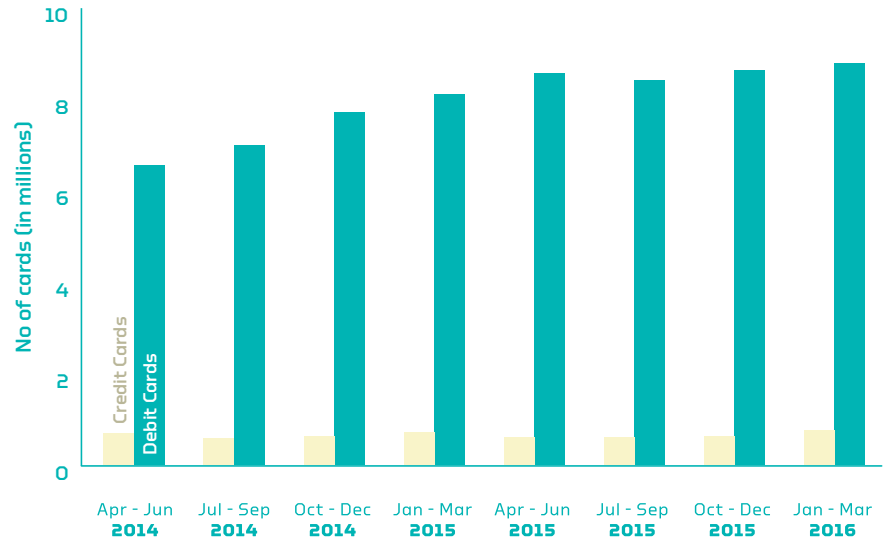
Source: Bangladesh Bank annual reports



8.62 million debit cards and 0.62 million credit cards have been issued so far (Figure 2.8).¹⁴ Banking regulations require the issuance of debit cards with personal accounts.

FIGURE 2.8
No of cards (in millions)
vs. the growth (%)
in quarters

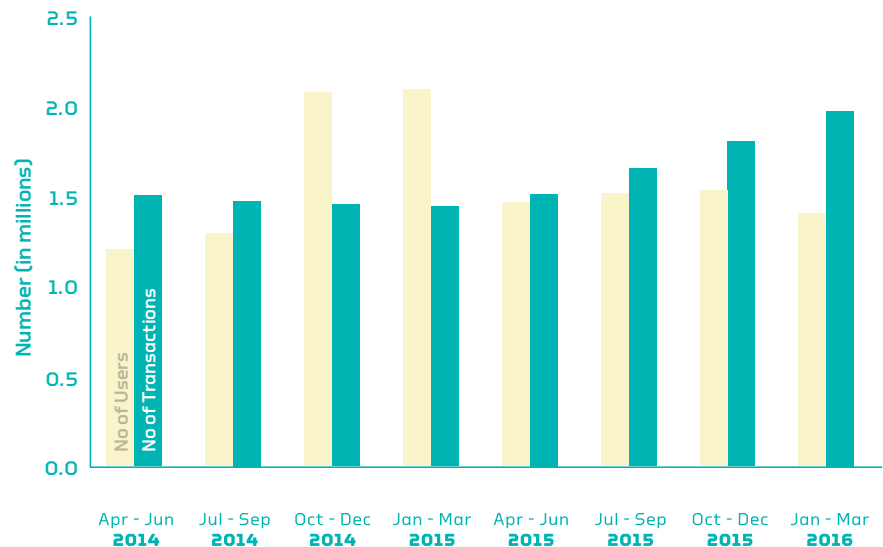
Source: Bangladesh Bank Data



Internet banking is a relatively new concept in Bangladesh – led by private commercial banks (PCB) such as Standard Chartered Bank, Dutch-Bangla Bank Limited, and others. Internet banking offers relatively basic functions, such as balance checking, fund transfer, etc. Several PCBs have also rolled out dedicated platforms (such as smartphone applications and/or web portals). The number of transactions through this channel is steadily increasing over time (Figure 2.9 and 2.10). However, the number of users

FIGURE 2.9
Internet banking
user landscape

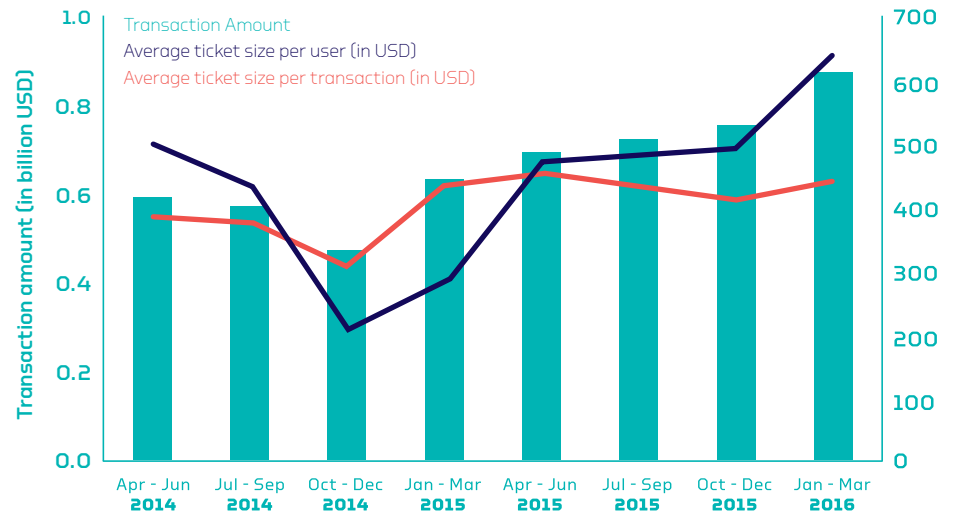
Bangladesh Bank Monthly report June 2016
 Bangladesh Bank Monthly report April 2015



seems to be somewhat stagnant. (The data shown for the 6-month period October 2014 – March 2015 is characterized by an unusual spike. This may be the result of some data reporting anomalies.)

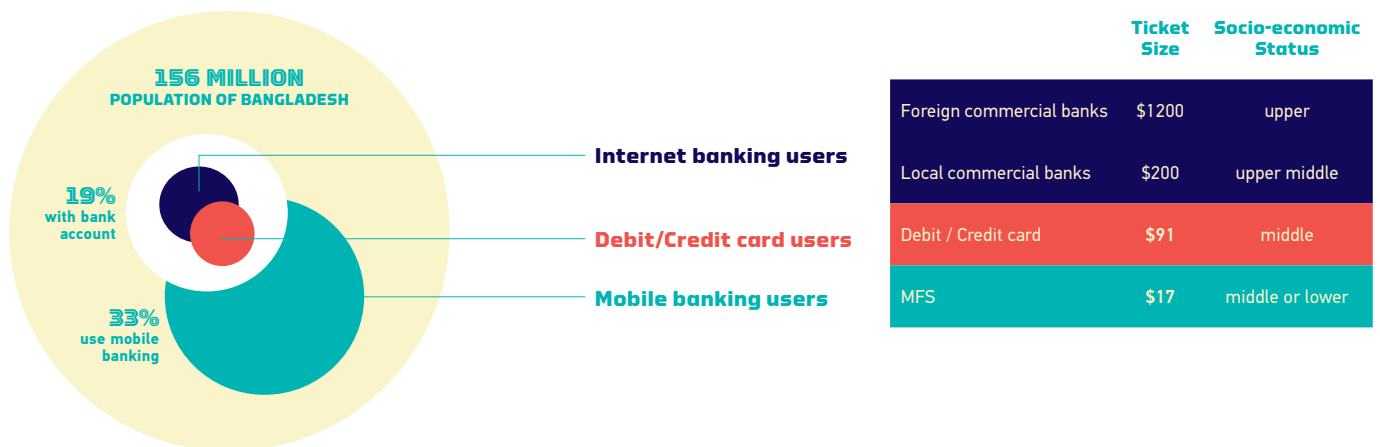
FIGURE 2.10
Average ticket size for internet banking

Bangladesh Bank Monthly report June 2016
Bangladesh Bank Monthly report April 2015



Internet banking growth is being driven principally by socio-economic status (SES¹⁵) groups A and B as the users need access to smartphones or personal computers with internet access. SES A and B groups represent a small proportion of the populace resulting in materially fluctuating data (0.5% of total number of transactions and 1.2% in terms of volume of transactions¹⁶). The average ticket size for internet banking is \$400. (see Figure 2.11).

FIGURE 2.11
Electronic payments across channels

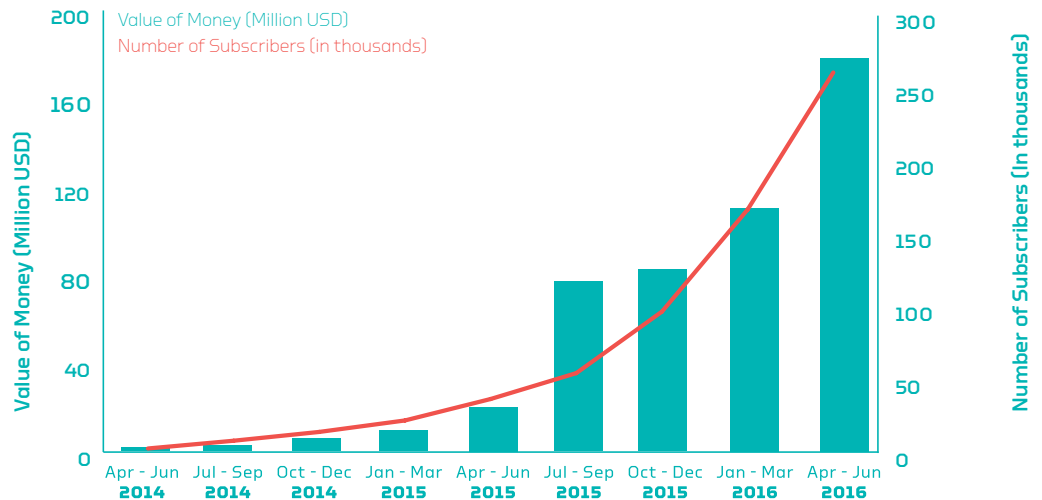


There is a strong correlation between electronic payment system and socio-economic status. It is evident that internet banking is popular among the affluent. The average ticket size for internet banking was disaggregated to depict the fact that people who bank with foreign banks have a significantly higher average ticket size (6X) than those who bank with local banks. Moving down the channels shows increased number of card and MFS users, with decreasing ticket size.

Agent banking is a new addition to the payment ecosystem in Bangladesh. In its simplest form, agent banking extends the reach of a core set of traditional banking services through preselected and well-trained agents to geographic areas where a brick-and-mortar branch network or an ATM network is not currently financially feasible. Since the launch of agent banking in 2014, largely through the initiative of two private commercial banks (DBBL and Bank Asia), the growth of this service has been significant. As of June 2016, around US\$75 million worth of transactions take place through agent banking per month through a little over 600 agent points to serve 261,000 subscribers¹⁷ (see Figure 2.12).

FIGURE 2.12
Agent banking
usage landscape

Bangladesh Bank Monthly Economic Trends, June, '16, June '15 and Dec '14 edition



ACCESS TO THE DIGITAL PAYMENT ECOSYSTEM

The formal Financial Inclusion (FI) access points show steady growth. MFS, on the other hand, show impressive expansion. For a 3% CAGR in cash handling points per 10,000 adults, the growth of MFS access points has increased at a 93% CAGR. MFS also enjoys a higher number of transactions, understandably so since the average ticket size through MFS is lower. It is important to note that this growth of MFS could be a function of a number of dimensions, including where MFS is in terms of its maturity cycle, and the resulting capacity for growth that is available (please see Figure 2.13).

FIGURE 2.13
Access to and usage of
electronic payments

	2015	2014	2013
Cash Handling points/10,000 Adults	1.56	1.37	1.42
Branches	0.87	0.82	0.8
Agent Banking	0.07	NA	NA
ATM	0.62	0.55	0.57
POS/100,000 Adults	2.73	1.93	NA
Mobile penetration (Subscription per 100 people)	83%	80%	74%
% of individuals using internet	33%	26%	22%
MFS USAGE			
Agents / 10,000 adults ¹⁸	51	28	7
No of Transactions (in millions)	1,166	549	175
Total volume of Transactions in USD Billions	19.7	13.2	6.63

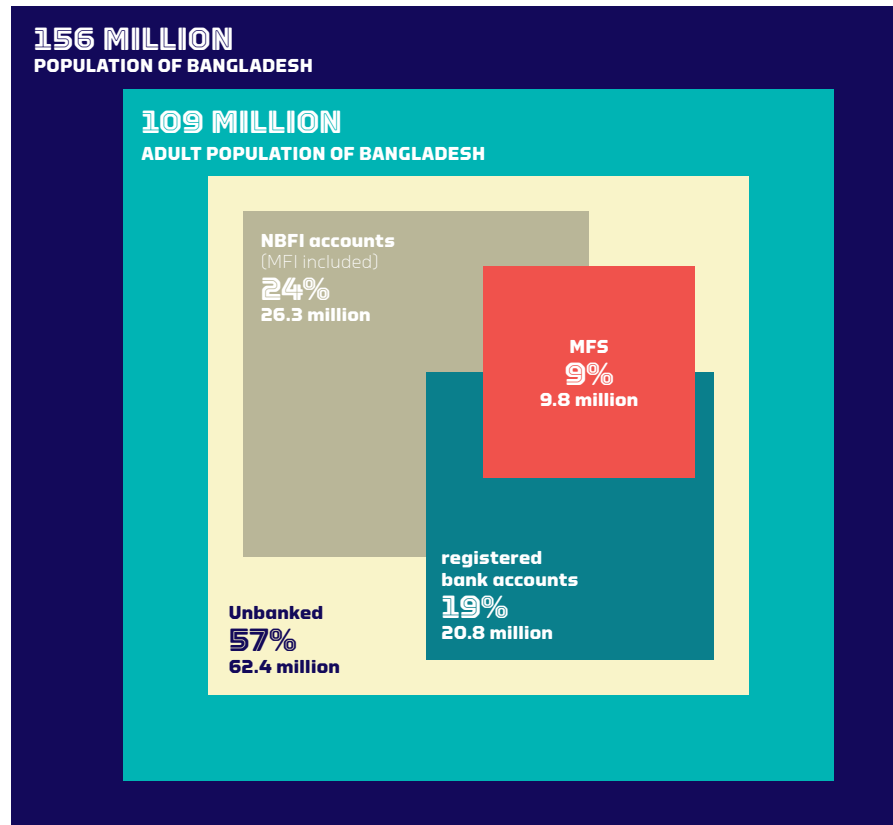
Although Bangladesh also has one of the highest mobile phone penetration rates (of 82%)¹⁹ among LMICs, internet access (through mobile networks or otherwise) has not seen a commensurate rate of growth. It has been observed that with the introduction of low-cost smartphones and decreasing cost of mobile data, this is changing.

THE FINANCIAL INCLUSION LANDSCAPE: DRIVEN BY MFS

Bangladesh represents one of the better narratives of improving financial inclusion in the region. MFS has made a commendable contribution in this narrative over the last five years (please see Figure 2.14), bringing nearly 10 million people within financial inclusion during this period of time.

The latest Intermedia research in 2015 showed that the percentage of the unbanked population was 57%.²⁰ The percentage of bank account ownership drops to 33% among the population groups (such as SES classifications C, D, and E) who are the focus of Bangladesh's Financial Inclusion strategy. Males represent a higher percentage of bank account ownership compared to females. Furthermore, bank account ownership in the urban population is twice that of the rural populace. Interestingly, this is also the case for MFS, where twice as many people in urban areas are covered by MFS than in rural areas. The account ownership of non-bank financial institutions (NBFI), which primarily includes MFIs, however, shows a more rural-focused coverage pattern (with 17% urban compared to 21% for rural)²¹ although the difference between urban and rural is not as large (Figure 2.15 and 2.16).

FIGURE 2.14
Financial inclusion



To meet the challenges represented by some of these emerging trends, the government has established laudable and ambitious goals around expanding digital empowerment for the mid and low income population (such as SES classifications C, D, and E) as part of its flagship “Digital Bangladesh” vision.

FIGURE 2.15
Financial inclusion (percentage of active use) based on gender

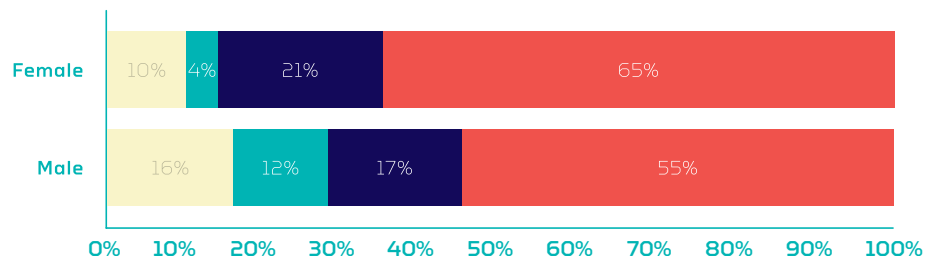
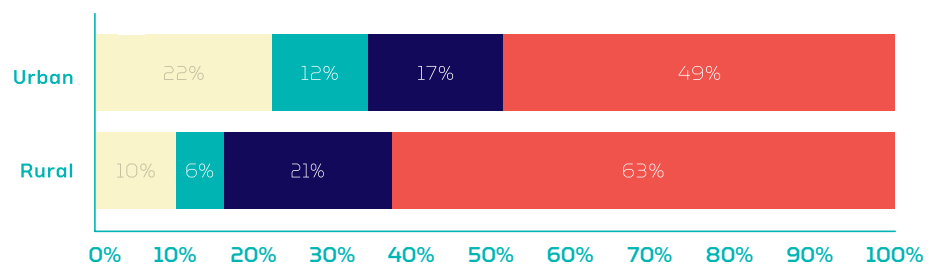


FIGURE 2.16
Financial inclusion (percentage of active use) based on region



Financial Inclusion

Bangladesh has had a different journey toward financial inclusion compared to other comparable countries. The “first phase” began with the state-owned banks (SOB) after the country’s independence in 1971. In the 70s, it was recognized that SOB-driven financial inclusion was not sufficient. Consequently, licenses were granted for a number of private commercial banks (PCBs), non-banking financial institutions (NBFIs), and insurance companies. Over time, it was apparent that the expansion of players did not sufficiently bring the majority of the population into the financial system.

This necessitated the introduction of financial institutions dedicated to micro-credit and micro-lending (such as Grameen Bank and BRAC), initiating the “second phase.” These institutions provided collateral-free loans to the poor by way of the Self-Help Group model. By the mid-90s, a small portion of the population had bank accounts with a similar number having access to Micro Financial Institutions (MFI).

The “third phase” was ushered in by the introduction of mobile money services on the back of an already expansive mobile phone network. (Bangladesh has over 100 million people²² who have access to mobile phones with one of the lowest telecommunication charges and arguably better call quality compared to other developing countries.) MFS began its journey in Bangladesh about a decade ago when Grameenphone introduced a special purpose mobile wallet product that allowed stored value to pay for utility bills and railway tickets under its brand MobiCash. Subsequently in 2011, the central bank put in place MFS Guidelines, and a number of banks obtained licenses to offer MFS services more formally.

By early 2016, over 30 million people in Bangladesh have used mobile money services at one point or the other. Among them about 9.8 million have mobile money accounts.²³ The Bank of Bangladesh estimates the value of the payment to be about US\$2 billion per month, as of December 2015.²⁴ This number in reality is more likely to be significantly lower (US\$1.35 billion²⁵) after factoring in multiple counting for cash-in, cash-out, and other sub-components. Nonetheless, this figure still is a materially significant amount. Over-the-counter (OTC) transactions remain a dominant part of the MFS growth story for Bangladesh, with 73% of total MFS transactions conducted via OTC.²⁶

Agent banking is another new avenue for extending financial services to previously unreached market segments in Bangladesh. About US\$75 million per month flow through this new avenue currently to serve 261,000 users through a network of around 600 agents.

In some ways, it can be said that financial inclusion progressed in Bangladesh in essentially three steps thus far: through government-only initiatives in the early days; through NGO and government initiatives subsequently; and through private sector, government, and NGO initiatives combined in more recent times.

Over-the-counter

Over-the-counter (OTC) transaction is one of the most widely talked about phenomena in the Bangladesh mobile money landscape. According to MFS regulations, a mobile money end-user is supposed to open a personal mobile wallet, which is similar to having a limited account with a bank, and use the mobile wallet to transfer stored value electronically to mobile wallets of other users or merchants. OTC transactions occur when people do not use their own mobile wallets but instead hand over cash to agents who execute transfers on behalf of senders and receivers.²⁷

OTC transactions have both benefits and drawbacks. OTC allows senders and receivers with no mobile wallets to transfer money instantly without going through the process of opening a mobile wallet first. OTC allows mobile money providers to reach and serve customers without mobile wallets with a view to transitioning those customers to opening a mobile wallet later on. It has been observed in recent studies, such as those from Intermedia, that 73% of all MFS transactions in Bangladesh are through OTC²⁸ – practically about 3 out of every 4 transactions fall into this category currently. Low levels of literacy (understanding USSD menu in English) and tech-savviness (navigating multiple steps of USSD menu) perhaps contribute to Bangladesh's mobile wallet usage challenge. OTC can help mobile money providers from three perspectives: (1) scale; (2) throughput; and (3) yield.²⁹ Furthermore, it has also been observed that the shift from OTC to wallet can be expected once the market is mature.³⁰

While OTC serves customers and mobile money providers well under certain circumstances, it has some drawbacks as well. From the service provider perspective, OTC users by definition cannot be considered to be loyal customers, since they do not have any KYC information on them. From the customer perspective, they remain in a predominantly cash dependent ecosystem. From a macro perspective, the broader financial inclusion objectives are not met to the full extent since OTC does not necessarily mean financial inclusion.

Furthermore, if OTC prevails in a country, it facilitates untraceable and fast transfer of illicit money in that country, which is riskier via mobile wallets because mobile wallet users can be traced back with KYC information.

Bangladesh Bank's MFS Guidelines indicate "transactions in MFS platforms will be conducted only through non-checking limited purpose accounts termed 'Mobile Accounts' in names of customers, accessible with their mobile phone devices."³¹ This, in effect, prohibits OTC. However, as indicated earlier, the ground reality is such that about 3 out of every 4 MFS transactions take place via OTC. MFS agents typically sign up for a plethora of (non-agent) personal mobile wallets and use those to facilitate OTC.

3. EVOLUTION OF POLICY TOWARD ELECTRONIC PAYMENT

USHERING IN OF “NON-PAPER” MONEY AND TRANSACTIONS

The first ever debit card and ATM machine were launched by Standard Chartered Bank in 1994³² (followed by their introduction of credit card payment three years later).³³ Now, Bangladesh has close to 7,839 ATM branches, 30,336 POS terminals, 8.62 million debit cards, and 0.62 million credit cards in circulation.³⁴

By the end of the 90s, as the populace was being introduced to banking without going to the bank itself, the demand for electronic payments started to increase. This demand was met in part by the launch of Qcash (by ITCL) in 2000 (Figure 3.1). Qcash was designed to provide interoperability among partner banks – by supporting those with small ATM and POS networks to allow their customers to pay digitally via the Qcash network. Qcash started with five banks and now has more than 35 banks as partners with more than 2,000 ATMs and about 12,000 POS terminals in its network.³⁵

THE BIRTH OF MOBILE FINANCIAL SERVICES (MFS)

The country’s first foray into digital wallets started about a decade ago in 2006.³⁶ Grameenphone started an initiative for utility bill payments via its mobile phone network. It was the first limited purpose mobile wallet experience for end users which allowed the customer to use stored value for utility bill payments initially. This was expanded to railway ticket and sports ticket purchases in later years. This Grameenphone service was branded as a distribution network offering under the name MobiCash with 61,000 agents.³⁷ The a2i Program of the Prime Minister’s Office of Government of Bangladesh helped craft the Electronic Utility Bill Payment Guideline in 2008. This facilitated further growth of electronic bill payment in the country.

As the sector grew, the need for banking regulation became more pressing. As the central bank reflected on the shape of banking regulation for MFSs, the government moved ahead with implementing a nationwide identification database.

NATIONAL ID

In 2008, the Bangladesh government launched the National Database of Citizens that included biometric fingerprint registration. One of the key drivers for this was the upcoming National Elections in 2009 and the need to verify the identity of the electorate. Although the process faced scepticism during that time, as with the recent biometric SIM card registration process, the process as well as the results opened up significant new opportunities regarding the payment digitization, tracking, and data collection.

UPGRADING OF INTER-BANK CLEARING ARRANGEMENTS

Also in 2008, the central bank started a project to address the challenge of accurate and efficient clearing faced by the banking system. Working with DFID, the central bank focused on how to optimize the check clearing process, monitoring the activities of the local banks and ensuring greater transparency. The objective was to automate the clearing process and form an Automated Clearing House (ACH) for Bangladesh. This resulted in the launch of Bangladesh Automated Check Processing System (BACPS) – which went live in 2010. Prior to that, Bangladesh Bank introduced MICR (Magnetic Ink Character Recognition) checks to facilitate the BACPS process. At present, around 1.90 million regular and around 0.143 million high-value checks³⁸ and other instruments are cleared per month through BACPS. The total amount of regular value instruments cleared is approximately US\$7.27 billion per month and that of high value instruments is approximately US\$9.67 billion per month.³⁹

On February 28, 2011, Bangladesh Electronic Fund Transfer Network (BEFTN) was introduced. It consolidated a number of manually managed clearing houses into one single digitally managed entity – making the system both more efficient and manageable. At present, approximately 1 million EFT credit and debit transactions are processed per month and this number is increasing. The combined value of EFT credit and debit transactions is approximately US\$784 million per month.⁴⁰

Concurrently with BACPS, the Post Office launched Electronic Money Transfer Service (EMTS) in 2010. This service was designed largely to meet the consumer demand of domestic instant money transfer. It was launched initially in 104 post offices. Currently, 2,750 post offices⁴¹ provide EMTS (covering all districts, sub-districts, and busy rural Post Office locations).

THE REBIRTH OF MOBILE FINANCIAL SERVICES (MFS)

In order to put in place a more formal arrangement, Bangladesh Bank in 2011 issued guidelines on “Mobile Financial Services for Banks.” At its core the guidelines required MFS to be led by banks; however, partnership with other players was also allowed. The bank-led model and its implementation in Bangladesh over the last five years have uncovered a number of challenges. (Please see Annex E)

This need for bank-led MFS resulted in two major entrants in the market, namely Dutch-Bangla Bank Limited and BRAC Bank, offering Dutch-Bangla Mobile Banking and bKash respectively. In particular, bKash followed the MobiCash approach by establishing an agent network leveraging the existing “airtime top-up” agent network, while DBBL began establishing its own agent network in the early days.

In the initial stage, the MFS industry (consisting largely of these two players) experienced impressive growth – amassing 500,000 new mobile wallet accounts and 9,000 new agents⁴² within a very short time. According to the Central Bank, as of December 2015, there are 18 banks in the MFS space, processing 3.8 million transactions per day totalling US\$66 million per day.⁴³ The Bangladesh Bank also reports that the total MFS agent number is 573,857.⁴⁴ pi Strategy estimates that the total number of MFS agent points was a little over 100,000⁴⁵ in mid-2015 and likely around 150,000 a year later.

The reason behind the considerably wide estimates is the methodology used to arrive at the agent number estimates. The Central Bank’s methodology is simply an addition of all agents as reported by various MFS deployments. This does not take into account the fact that a single agent often serves multiple MFS providers. The methodology used by pi Strategy leverages three facts: (a) nearly 95% of the MFS agents serve the market leader, bKash; (b) total number of bKash agents as of June 2016 is about 140,000; (c) there are about 5%-7% agents who do not serve bKash – as seen from surveys conducted by pi Strategy during this BTCA study (Annex F). When these three facts are taken into consideration, pi Strategy estimates that there are about 150,000 MFS agents in Bangladesh today.

The total number of agent points in Bangladesh seems to have reached a plateau, hovering around a 2% growth rate over the last few quarters (see Figure 3.2). The number of registered MFS accounts has been experiencing a strong growth rate: from 3% in 2013 to 9% in 2015.⁴⁶ Since this growth in usage is happening despite the nearly stagnant growth of agent points, the country perhaps has reached an adequate level of agent infrastructure for the time being.

FIGURE 3.1
Payment System
milestones

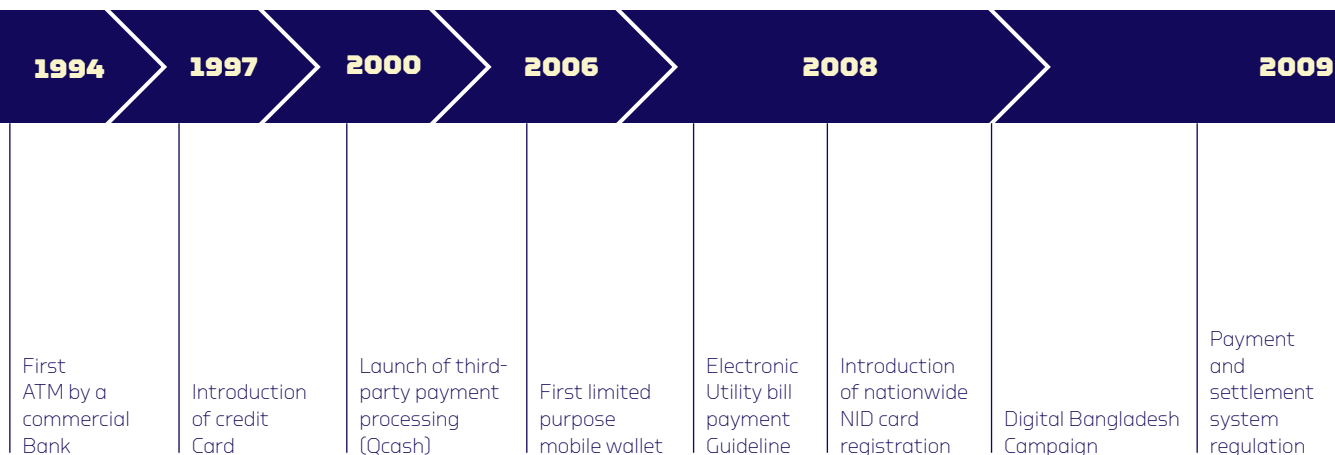
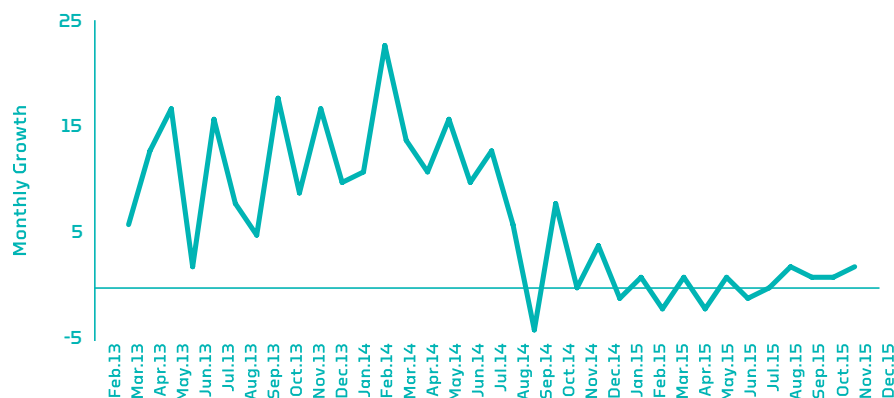


FIGURE 3.2
The Comparison of
monthly growth rate of
MFS agents for the last
three years



The 2011 central bank regulations were revised in 2015. The guideline sought to achieve two goals: (a) create an environment where more players, including Mobile Network Operators, are able to participate more actively in MFS; and (b) encourage interoperability among the MFS players. However, the 2015 Guidelines sought to achieve these goals by proposing a significant rethink of ownership structures. According to the new guidelines, one MFS platform needed at least four banks and three non-bank entities to meet the proposed guidelines. This complicated matters considerably, and with the proposed changes facing sharp criticism from the industry, eventually the proposed guidelines were not enacted. (See Annex E).

DEVELOPMENTS IN RECENT YEARS

The National Board of Revenue (NBR) has been planning to launch an online tax filing capability for individuals and businesses as well as an electronic value added tax (VAT) payment process for businesses for some time. The registration process started in 2011. However, due to NBR's logistical challenges as well as limited enforcement, the programs are yet to gain traction. NBR has reportedly launched the capability to file income tax returns online in July 2016. No data is available on this yet.

2010		2011		2012		2015		2016		
MICR check Issue started	Postal Service launches EMTS	BACH operational	Online registration and payments of VAT	MFS Launched	MFS Guidelines BB. Stating only Bank led MFS	NPSB	Social safety Net policy	Inter Bank POS Transaction through NPSB	RTGS service	Online payment of TAX launched by NBR

The next substantial initiative in the path to electronic payments was the National Payment Switch Bangladesh (NPSB). This was launched in December 2012, roughly one and a half years after the launch of Bangladesh Automated Clearing House (BACH). The main objective of NPSB is to facilitate the expansion of the retail payment networks along with the promotion of e-commerce. Currently, it is being managed by Bangladesh Bank. While the central bank is best suited to perform the supervisory functions for a National Payment Switch, global experiences indicate central banks often create and promote independent bodies to implement the switch itself and manage the day-to-day operations.

Currently, payments via 46 banks go through NPSB – with transactions at 7,839 ATMs and 30,336 POS terminals (through 0.62 million credit cards and 8.62 million debit cards).⁴⁷ NPSB has processed 455,518 transactions in April 2015 amounting to US\$33.4 million. As per the latest data available from Bangladesh Bank (April 2015), the average number of transactions through NPSB is 15,184 per day and daily transaction value is US\$1.1 million⁴⁸ on average.

Real-Time Gross Settlements (RTGS) was launched in October 2015 by the central bank. This utilizes Society for Worldwide Interbank Financial Telecommunication (SWIFT) as an alternative channel to the Virtual Private Network (VPN) connectivity. A check worth BDT 100,000 or more is cleared within a minute as opposed to a day under the previous system. The use of RTGS, however, is limited to high value transfers only.

SOCIAL SAFETY NET IN BANGLADESH

Bangladesh has shown good progress in improving the situation of those who live in extreme poverty. There is, however, more to do.

The National Social Security Strategy 2015 estimates that 64% of households do not have access to social safety net programs.⁴⁹ A large portion of expenditures of major Social Safety Net Programs (SSNP) is borne by Ministry of Disaster Management & Relief. Collectively, SSNP required around 12% of the budget and slightly more than 2% of GDP.⁵⁰

In recognition, the government initiated the National Social Security Strategy in March 2015. The a2i Program and pi Strategy with support from CGAP conducted a feasibility assessment in 2015 to estimate the benefit of digitization across 14 major SSNP programs. The report concluded that the digitization of G2P payment disbursement would save an estimated US\$146 million annually which can be translated to 44% of the total operating cost, or 3% cost reduction with respect to the total budget of the six social safety net programs studied.⁵¹

The government has initiated a pilot project on the Employment Generation for the Poorest Program (EGPP) – where 15,000⁵² beneficiaries received the payment through different electronic channels such as EMTS, mobile

wallet, etc. to assess the feasibility of technology adoption regarding the social safety net program payment disbursement. More recently, the government conducted a number of pilots with the Department of Social Services (DSS) to test and deploy electronic SSNP disbursements at scale.

DIGITAL BANGLADESH

Digital Bangladesh started out as a component of “Charter for Change” as well as “Vision 2021.” The former is a policy platform of the governing party of Bangladesh and the latter is a document to commemorate the golden jubilee of independence of Bangladesh.

The core idea is the promotion of digitization, meaning the application of suitable technology to give effect to the commitments of the government regarding education, employment, social welfare, and corruption reduction. At its core, Digital Bangladesh is composed of promoting e-governance, e-literacy, e-commerce, and e-citizenry.

The Access to Information (a2i) Program of the Prime Minister’s Office of the Government of Bangladesh is leading Digital Bangladesh and assisting with the policy formation activities and implementation facilitation.

There have been a number of guidelines and policies in development to facilitate digitization of government sectors as promised in Digital Bangladesh. Among those contributions, dedicated ministries constructed the ICT Policy of 2009, ICT Policy of 2015, Cyber Security Act 2010, Mobile Banking Policy, etc. while a2i focused on policies such as Strategic Priorities of Digital Bangladesh (2011-15).

a2i helped construct more than 5,000⁵³ digital centers in many rural and urban institutions of government across Bangladesh. These centers, at present, provide an average of 4.5 million⁵⁴ citizens per month with more than 60 digital services. The e-centers by Bangladesh Post Office and MNO agent points are also contributing to both digital and financial inclusion.

There is an underlying theme running through all these initiatives that is supporting the shift toward a digital payment ecosystem. The government feels that digital payment instruments need to be as versatile as cash. Consequently, Digital Bangladesh is focused on constructing a network of financial access points leveraging the already existing “Upazila Information Centres.” They are planning to introduce digitized forms of payments and to encourage stakeholders to accept digital instruments of payment once the network is established.

4. CURRENT STATE OF TRANSITION TO ELECTRONIC PAYMENTS

HEADLINE INDICATORS

The analysis of the currently available payment data in Bangladesh indicates that the overwhelming majority of the payments made in Bangladesh are still made in cash.

- About 5.88% of the total 4.4 billion payments (transactions) are made through electronic means annually
- About 11.84% of BDT 29,419 billion (US\$367.74 billion total) value of payments are made through electronic means annually

In percentage terms, the value of payments through electronic means is approximately twice the number of payments through electronic means.

This suggests that transactions for large ticket sizes are typically more likely to be in electronic form. Furthermore, it also points to the practice of “lumping together” multiple small ticket size items into a single large ticket size item (e.g., import duties collected throughout the day in non-electronic form that are lumped together into a single transaction at the end of the day for record reporting). However, with growing usage of electronic payments (internet banking EFT, card payments, mobile wallet-based MFS), we may expect to see the current 2X difference change over the coming years.

Through the course of conducting this study, it was apparent that much of the data that is tracked by various elements of the payment ecosystem are only compiled at an aggregate level. The lack of more granular data remains an analytical challenge. For example, when import duties are tracked, the total amount of duties collected over a period (a day or a week) is currently tracked. However, even during a day, there are many transactions that take place which are not tracked individually. Therefore, when sourcing the data, all that was provided was a single large daily number rather than smaller value multiple transactions. The impact of this is twofold: (1) lacking granular data creates challenges when undertaking validations, and (2) it is difficult to parse the usage dynamics at a more meaningful level.

PAYMENTS DATA BY PAYER AND PAYEE

As Figure 4.1 shows, government entities, businesses, and individuals together make an estimated 4.4 billion payments per year in Bangladesh. Of these, spend by individuals (P2B and P2P) accounts for the lion's share of the number of payments (68%). Over 95% of the overall number of individuals' payments is made in cash. An estimated 68.97% of the value of payments originating from the government are made using electronic means. However, this constitutes around 1.17% of the number of transactions on an annual basis. An estimated 10% of the volumes of transactions originating from businesses are made using electronic means.

Payments from individuals to individuals (P2P) account for the largest volume of payments in Bangladesh. This is not surprising given the fact that remittances (both international and domestic) constitute a significant part of Bangladesh's economy (Chapter 2).

Businesses make over 1.2 billion payments to individuals (B2P) annually. However, the number of payments they make to the government is significantly lower. This may be due to a number of reasons, such as the fact that tax revenue in Bangladesh is modest and because there is a high prevalence of lump sum payments that reduce the transaction number.

Figure 4.2 shows the number of payments by payer and payee type. Figures 4.3 and 4.4 show the percentage of electronic payments by volume and value respectively. In Bangladesh, for both volume and value of payments, government payments (G2X) are the most cash lite in percentage terms. On the other hand, individual payments (P2X) are the least cash lite in percentage terms.

**FIGURE 4.1:
Payments data by
payer and payee**

Payer	Total payments per year	% volume electronic	Total value BDT. (bil)	Total value US\$ (bil)	% value electronic
Government	100,416,264	1.17%	3,557	44.46	68.97%
Business	1,301,830,378	10.09%	12,032	150.40	3.29%
Individuals	2,999,894,154	4.22%	13,527	169.09	2.45%
Donor	18,624	100%	303	3.79	100%
Total per year	4,402,159,420	5.88%	29,419	367.74	11.84%

**FIGURE 4.2:
Number of monthly
payments by payer and
payee type**

PAYER	PAYEE		
	Government	Business	Individuals
Government	101,337	15,652	8,251,032
Business	117,317	2,764,547	105,604,000
Individuals	112,972	185,273,805	64,604,401
Donor	517	1,035	-

**FIGURE 4.3:
Percentage of
electronic payments
by volume**

PAYER	PAYEE		
	Government	Business	Individuals
Government	35.52%	62.21%	0.63%
Business	0%	7.73%	10.16%
Individuals	0%	3.63%	8.79%
Donor	100%	100%	-

**FIGURE 4.4:
Percentage
of electronic
payments by value**

PAYER	PAYEE		
	Government	Business	Individuals
Government	65%	90.62%	10.01%
Business	0%	0.87%	10.16%
Individuals	0%	1.27%	9.87%
Donor	100%	100%	-

5. TRAJECTORY OF SHIFT

Better Than Cash Alliance country diagnostics seek to assess the trajectory of the shift to electronic payments through the lens of particular payment use cases (see Annex D for more information).

This section explains the current state and momentum of the shift to electronic payments across certain cells of the payment grid. The use cases selected for analysis provide a general view of the forces driving the shift in Bangladesh today:

- A.** Few-to-Many (Mass electronic credit or mass bulk payments)
- B.** Many-to-Many (First-hand payments)
- C.** Many-to-Few (Remote bill payment or payment collection)

FIGURE 5.1
Use cases and payment types in Bangladesh

		PAYEE		
		Government	Business	Person
PAYER	Government	G2G Central government disbursements to local level, Social Security contributions	G2B Supplier payments, Utility payments	G2P Welfare programs, Salaries, Pensions
	Business	B2G Taxes, Fees for licenses and permits	B2B Supplier payments, Utility payments	B2P Salaries and benefits
	Person	P2G Taxes, Debit card payment of taxes	P2B Utilities, School fees, Credit card payments, Pension contributions, Debit card payment at stores	P2P Remittances
	Donor	D2G Loans and grants	D2B Grants	D2P Cash transfers

Note:

- A. Few-to-Many: Mass Electronic Payments (or bulk payments)
- B. Many-to-Many: First-Hand Payments
- C. Many-to-Few: Remote Bill Payment (or, bulk payment collection)

Not applicable for Bangladesh, or insignificant amount for which data is not available

FIGURE 5.2
Overview of use cases

	Bulk payers (G, B, D)	Non-bulk payers (P, B)	
Use case defined	A. Few-to-Many (Mass Electronic Credit)	B. Many-to-Many (First-Hand Payments)	C. Many-to-Few (Remote Bill Payment)
(a) Store of value from/to which payment is made	Bank account or Mobile wallet	Bank account or Mobile wallet	Bank account or Mobile wallet
(b) Payment instrument category	Credit transfer	Credit transfer, Debit card payment	Credit transfer
(b1) Transaction type	Batch transfer and Real-time clearing for mobile wallet	Cleared in real time against payer's account balance, for debit card settled within 1 day	Bill Pay (Batch) and Real-time clearing for mobile wallet
(c) Channel used to initiate and authorize	Internet banking, Secure File transfer	Card, POS, mobile wallet, internet	ATM, mobile wallet, internet, POS
Is there a range of providers who offer this?	Yes	Yes	Yes
Time to credit value received	For intra-bank within the daily cut-off period the transaction is credited the same day, for transactions after the cut-off period, it is settled the following day. For inter-bank, it is usually T+1, but can take up to T+2. Real-time for mobile wallet	Up to 1 day for settlement, Real-time for mobile wallet	T+1, Real-time for mobile wallet
% of all accounts which can use this instrument from any bank	100%	9% of the adult population those who own mobile wallet, ⁵⁵ 24% of accounts ⁵⁶ with debit cards ⁵⁷	100%
Indicative cost range per average transaction size	Mobile wallet: for P2P transfer no charge. For cash out, 1-2% For EFT: no charge	For mobile wallet: \$0.06-\$0.16, For debit card, officially no charge, but some merchants charge 1-2%	For mobile wallet: \$0.06-\$0.3, For online: \$0.06-\$0.35 ⁵⁸
As % of average transaction amount	Mobile wallet: 1-2% EFT: 0%	For mobile wallet: 1-2%, For debit card: 0%	1.25% to 0.06%

TRAJECTORY ASSESSMENT MODEL

This paper adopts the model previously developed by the BTCA for other diagnostic studies of assessing the prospective trajectory of the transition to digital payments of specific use cases. The model's methodology is set out in Annex B of this paper. In summary, the model ranks the prospective trajectory of each use case on a scale of 1-5, detailed below. The assessments made by this diagnostic study using this model are set out thereafter.

Rating	Conditions & incentives are such for this use case that it is:
1	Highly likely to support a full shift
2	Possible to achieve a full shift
3	Likely to lead to slow incremental progress
4	Likely to drift without clear upward trend
5	Unlikely to lead to shift

USE CASE A: **FEW-TO-MANY (MASS ELECTRONIC CREDITS)**

Trajectory Assessment: 2.6

Full shift possible with some effort

The majority of formally employed people in government and business are banked but few are paid electronically.

Efficiencies from MFS payments in Social Welfare cannot be ignored.

This use case refers to the disbursement of funds from one or few entities to multiple individuals or firms through a single payment transaction (few-to-many) and it exemplifies the main mechanism of payments behind Shift 1. The most common examples of this use case are shown in figure 5.3 below.

In percentage terms, this use case represents three main components (supplier payments, salary payments, and intra-government payments) with the highest percentage of electronic payments by volume across the payment grid. Although the percentage of the total number of transactions that is electronic is not high across all the types of payment, the percentage of total value of the transactions that is electronic is indeed the highest by far.

There are efforts underway to implement the already existing policy of digitizing all salary payments.⁵⁹ The policy emphasizes that salary disbursements at all the government offices should be made using EFT into individual bank accounts. For senior-level government employees, many payments follow this directive. However, at the divisional and local levels where the overwhelming majority of government employees work, this is largely not the case. Most of the salary payments at the non-federal levels are made in some variety of the following process: A government department requests payment from CGA; CGA approves payment and instructs the Deputy Commissioner to process payment; payments made through checks are drawn against the Deputy Commissioner's local bank account (while most of these payments are in non-electronic formats, EFT is beginning to show up in some of these payments); CGA reimburses the Deputy Commissioner's local bank account.

EFT payments are only being used in a limited number of ministries and government offices today. There is growing interest and experimentation in using electronic payments for social welfare and pension payments.

Approximately 10% by value of business salaries (US\$4 billion out of around US\$40.44 billion) are paid electronically. Government salary payments by value represent 36.4%. (US\$330 million out of US\$890 million).

While a large number of government and business employees have bank accounts, the payment of salaries remains dominated by check payments despite the higher cost and delays in check processing. Checks issued are typically deposited by payees into their bank accounts with checks having

FIGURE 5.3:
Use Case A payment streams

Mass electronic credits	Exists currently (Infrastructure)	% electronic by volume
Salary payments (G2P, B2P)	<p>Yes. Although the policy is in place for digitizing the whole process for G2P salaries, but the implementation is limited to only senior-level executives in government offices.</p> <p>Currently all government employees are instructed to register in a central database,⁶⁰ upon completion of which direct fund transfer of salaries for all government employees will be possible.</p> <p>As for the private sector, there is no such binding regulation to disburse the salaries digitally; the adoption is yet to gain traction.</p>	36.4% for Government, 10.16% for Business
Conditional cash transfers, other government/ social programs or subsidies (G2P)	Yes. To a very limited extent. The scope of digitization was reflected in the recent NSSS 2015 framework.	0.81%
Supplier Payments (B2B, G2B)	Yes	87.16% for Government and 0.5% for Business
Payment of Pensions (G2P)	<p>No.</p> <p>A complete database of automated pension disbursement system by EFT is under construction.⁶¹</p>	0%
Disbursements of fiscal resources from central government to ministries and local government bodies; and from ministries and local government bodies to central government (G2G)	Yes	62.2%
Social Security Contributions (G2G)	Yes	87.2%

to clear before the bank releases the associated funds. As a result of these clearing delays and increased costs, given the choice, Bangladeshis often prefer payment in cash, which is instantly usable and seemingly has a “zero” transaction cost. It follows that because government policy supports the desire for a shift and a large number of government and business payment recipients are banked, if EFT payments clear more quickly than checks and are cheaper, then the market should be amenable to a significant shift.

Because of the large values involved, and the potential to bring employees into the digital economy, B2P salary payments represent the biggest opportunity for a shift in bulk payments.

Traditionally G2G payments have been entirely check based. With the introduction of BEFTN, by value, 65% of G2G payments are now electronic. This segment of the payment matrix thus displays a significant shift and the likelihood of a complete shift is high.

Key findings:

The transition to digital government salary payment has all the right ingredients

Government policy in support of digitized salary payments has been in place to a significant degree. The majority, 65% of G2G payments and 90% of G2B payments, have already transitioned. Even though a significant portion of government employees are formally banked, only one-third of the total amount is paid electronically. In terms of people receiving the payment electronically, the percentage is 7%. It follows that the continued transition to digital payments across all sectors is on a positive trajectory and the shift is thus highly probable.

Private sector payments are set to shift but incentives are needed

The private sector appears to be well positioned for a shift. Government guidelines are in place encouraging business entities to use electronic and hence traceable payment instruments for payments that exceed BDT 10,000 (US\$128). With over 10% of B2P payments already electronic and with the majority of employees being banked, the possibility of further transition is likely. That said, employees who are not banked and/or want to avoid paying personal taxes are intrinsically motivated to receive payments that are less easily traceable.

The largest opportunity for digitization with regard to business payments is in B2B payments that are unusually low – currently at below 1% of total value of payments. It is likely that due to the higher average transaction value of B2B payments the use of checks remains popular for two reasons. First, check payments afford the payer an extended time period before funds clear, thus supporting better cash flow for payers. Second, checks offer the payer a well-accepted and indisputable proof-of-payment.

It follows that despite the existence of both regulation and the availability of several digital payment platforms, the adoption rate of electronic payments by business is likely to demonstrate slow incremental progress unless stronger incentives manifest. It might seem that charges associated with digital payments (e.g., MFS charges, credit card charges) are acting as disincentives, and if those are discarded the adoption of digital payments might increase. However, the business case of the digital payment service providers rests in the fee structure as well. Therefore, before recommendations are made on a set of incentive structures, a deeper analysis of these factors after due consultation with all key stakeholders is a necessary first step.

There is strong justification for the digitization of social safety net programs

A study conducted by pi Strategy for a2i in 2015, with support from CGAP, on opportunities for innovations among the top 14 Social Safety Net Programs, most of which use cash-based payments currently, estimated the leakage to be about BDT 7.73 billion (US\$100 million). The research concluded that corruption and inefficiency in cash-based systems could be better addressed if the payments are digitized. The government conducted a number of pilots, such as with the Ministry of Food and Disaster Management (MoFDM) and the Department of Social Services (DSS), to test and deploy electronic SSNP disbursements at scale.

Not much traction yet for wage payments through Mobile Financial Services

Despite strong encouragement by government to pay wages electronically through mobile wallet solutions in various sectors such as the Ready Made Garments (RMG), there has not been meaningful traction to date. Currently, 175,000 RMG workers⁶² (less than 0.5% among the 3.6 million RMG workers) are being paid through MFS. Furthermore, among all salary payments, only 0.6% are currently disbursed via MFS. It is, however, commendable that some early experimentation in this area has already begun.



USE CASE B: MANY-TO-MANY (FIRST-HAND PAYMENTS)

Trajectory Assessment: 2.7

Full shift possible with some effort

In only five years 33% of the bankable population now make use of an MFS product compared to the banked population of 19% that operate a formal bank account.

Considering that MFS has only been available for five years, the market has experienced exponential growth, growing by over 120% year on year since inception, transacting US\$1.3 billion per month in 2015.

Debit card use and acceptance is upward.

This use case reflects the transactions among independent payers and payees and hence can be categorized as Many-to-Many payments. Since no formal name has been associated with this use case previously, pi Strategy is calling this use case First-Hand Payments – since the majority of these payments are made by end-users first-hand, whether to other individuals as P2P payments or to other businesses as P2B payments. This includes one of the major components of payments in Bangladesh – international and domestic remittances paid through MFS and debit card payments at merchant points (see Figure 5.4).

Compared to other country diagnostics, Bangladesh differs in the segment in that the extent of remittances flow (both international and domestic) is quite extensive in terms of percentage contribution to the GDP. From that perspective, the inclusion of domestic personal remittances is deemed necessary from two perspectives: (a) to understand the payment ecosystem from a more holistic lens, (b) to recognize Mobile Financial Services as one of the major driving factors while assessing the trajectory toward digital payment ecosystem in general.

FIGURE 5.4:
Use Case B payment streams

Many-to-Many	Exists currently (Infrastructure)	% electronic by volume
Debit Card Payments at Merchant	Yes	100%
Domestic Remittance	Yes	10.79%
International Remittance	Yes	11.07%

The estimation of personal domestic remittances for Bangladesh stands at US\$11.31 billion, of which roughly 10.79% is digitized, which in terms of volume of payments translates to US\$1.22 billion per year. The figure for international remittances is US\$14.72 billion, 11.07% of which is transacted digitally. International remittance has always been a considerable part of GDP. Remittance comes largely from two segments of migrant workers: skilled and unskilled. It has been observed that a larger percentage of skilled workers use digital modes of remittance compared to modes used by unskilled workers. The unskilled group is the majority among the migrant workers and is less likely to have formal bank accounts at their current places of residence. Since most of the latter segment of migrants typically walk into a money sender (e.g., Western Union) to send remittances, the percentage of international remittances via electronic means is low. However, it is expected that a greater number of remittances from migrant workers may come through digital means on the back of newly launched services such as the joint MasterCard and bKash service. But, it is also important to note that because most of the unskilled workers do not have bank accounts or easy access to cards, this shift is going to be dependent on the ease of access to formal financial institutions in the countries of their current employment.

From the user adoption perspective, it is observed that introduction of MFS is largely driving the shift toward digital payment, while the other modes of digital payment like EMTS and internet banking remain popular but do not play a driving role.

Debit card use is an important Many-to-Many payment channel because the payment instrument itself replaces cash 1-to-1, is issued en-masse to 8,652,215 people and accepted at 30,285 merchant points of sale in Bangladesh.⁶³ Pervasive use by consumers has a direct correlation to acceptance and vice versa.⁶⁴ That is, an upward trend in usage is dependent on the premise that any card can be used for payment at any merchant. The growth in usage of debit cards is also self-fuelling. That is, the more people that use cards increases the pressure (incentive) for merchants to accept them; and the more merchants that accept cards, the more likely consumers will use them.

Annually around US\$790 million worth of transactions are made via debit card at POS (this is only 0.72% of all consumer spending). However, it grew by 32% from 2014 to 2016⁶⁵ and is thus showing an upward trend and hence an indicator of a shift, albeit limited in volume to date.

Remittances still remain the main driver of Shift 2. The most common characteristics of this use case are:

- Person-to-person payments are between family members and acquaintances
- Payments that typically flow from urban areas to rural areas
- Domestic remittances are not high in value (\$17) but frequent (five times per month)
- In percentage terms, 33% of adults in the country have used an MFS⁶⁶ product, with over 1.2 billion transactions in 2015.⁶⁷ However, OTC transactions continue to dominate: 73% of total transactions as reported in recent Intermedia studies.

Key findings:

As the percentage of mobile wallet usage increases, percentage of remittance through MFS is expected to go up

The rapid adoption rate of mobile wallets (3% of adult population in 2013, escalates to 9% in 2015; 3X increment in two years),⁶⁸ suggests that the trajectory of the shift to digital remittances through mobile money will most likely continue.

Interoperability would increase the rate of wallet adoption

The absence of policy guidelines and implementation prescribing MFS wallet interoperability will inhibit possibilities to the detriment of the market shift and ultimately citizens. First, because only about one-third of the adult population today have used MFS and about one-tenth have used MFS with their own m-wallets, people in general can send money through their own m-wallets to every 10th person they meet. This means that the percentage of transactions lost to cash is incrementally higher and thus significantly large. Second, interoperability among MFS wallets would likely normalize the current fee structure. Conversely, a monopoly-driven market will distort fee structures at the cost of the consumer. Interoperability is not a silver bullet. Furthermore, in properly functioning competitive market environments, it is often something best left to the industry to figure out on their own and without government intervention. But the current condition of the Bangladesh MFS market is such that a single player owns over 90% of the customers. (See Chapter 6 for more discussion on this.)

Urban centric debit card usage is increasing

Debit card usage data provided by Bangladesh Bank for the period of 2014 to 2016 shows increasing usage of 33% or more. The increased use correlates to the increasing deployment of PoS devices with merchants. However, this increased PoS deployment effort has been concentrated in the metropolitan cities, for example Dhaka and Chittagong. The growth that is seen in this particular segment is missing out on the large consumer market outside metropolitan cities. Therefore, these can only be categorized as pockets of increasing trend in debit card payments.

The perception of “low cost of cash” is the challenge

Cost of cash has two components: perceived cost of cash and real cost of cash. Most people do not take into account the opportunity cost of time, travel costs, or inherent risks with cash (e.g., from theft) when thinking about cost of cash for their daily transactions. This contributes to a perception of low cost of cash.⁶⁹

Sole proprietors, small, and medium size businesses constitute a large portion of the Bangladesh economy. These small businesses traditionally accept cash only and pay their suppliers predominantly in cash. Excess cash on hand is deposited into bank accounts at no cost and when cash is required to purchase further stock there is no cash withdrawal fee from the bank. For example, there is no fee when a person withdraws BDT10,000 from their bank account, but that individual needs to pay BDT185 if they wish to cash out the same amount from an m-wallet. This contributes to a real cost – for the digital transaction, and an experienced reality of cash being a low-cost option.

It follows that if cash is universally accepted, unlike debit cards and mobile money, if cash has no cost unlike mobile money, if it represents immediate value unlike EFT and debit cards, and if there is acceptable level of risk, then there is limited incentive to replace it in favor of digital payments.

USE CASE C: **MANY-TO-FEW (REMOTE BILL AND SERVICES PAYMENT)**

Trajectory Assessment: 3.2

Likely to lead to slow incremental progress

A few banks, telcos, and payment service providers offer electronic bill payment of taxes and utilities, most of which are under-utilized.

Remote bill payment happens when a firm, such as a utility company, issues individual invoices to individual customers at scale (Person or organization) and customers pay through predefined channels (electronically) or prearranged infrastructure (agents). This use case can be considered as Many-to-Few payments where government departments and businesses are payees. This use case comprises the main flows that need to be transformed from cash to electronic. Once materialized this would be construed to be as the third and final shift toward pervasive digital payment.

Please note that based on the narrow definition of electronic payments,⁷⁰ this report considers the use of an agent that accepts cash payments on behalf of a utility as non-electronic, since the entity initiating the payment is using cash (non-electronic instrument) to pay. The agent in this case is merely acting as a (third party) payment collection point. Only those utility payments that are initiated by the end-user in electronic form (e.g., “bill pay” from someone’s own mobile wallet, or EFT through internet banking) are considered electronic payments in this report.

One of the most common examples of remote bill payments is the payment of utility providers that enable customers to pay their bills via a bank, agent, or a Payment Service Provider with whom said utility providers have concluded payment collection service agreements. Examples of such and their current state of shift are summarized in Figure 5.5.

FIGURE 5.5:
Use Case C payment streams

Remote Bill Payments	Exists currently (Infrastructure)	% electronic by volume
Collection of Taxes (P2G, B2G)	Yes	Almost 0% since the channels are yet to be considered a viable option from the payers
Utility Payments (G2B, B2B, P2B)	Yes	8.3% of all utility payments
Collection of School Fees (P2B)	Yes	3.71%
Credit Card Payments (P2B)	Yes	Credit card transfers by definition are real-time balance transfer, so 100% electronic. But during payback, almost 70% are paid via fund transfers; ⁷¹ hence, electronic. The rest is via cash or checks.

The National Board of Revenue (NBR) is the governing authority for the collection of taxes. All consumer tax payments are paid or routed to NBR via Sonali Bank, a state-owned commercial bank. Various PSPs, such as Qcash, act as payment routing agents for persons wishing to meet their tax obligations electronically. While available, few people pay their taxes electronically. NBR has, however, stated that infrastructure and policy will be put in place to encourage and facilitate the digital payment of taxes to the revenue board within the next five years.

What is evident is that a plethora of service providers offer electronic bill payment channels in Bangladesh. Banks including DBBL, BRAC, SCB, various telco service providers including MobiCash and Robi, MFS providers including Bkash, DBBL etc., and third-party PSPs including Qcash, Shurjomukhi, etc. all provide electronic payment channels. Moreover, the bill payment method offered through MFS is not always end-to-end electronic. For instance, a person who wants to pay a utility bill via MFS has two options: (a) giving agent cash and ask them to pay (OTC); (b) transferring funds from an m-wallet to pay the bill. In the latter case, the user first needs to fund their m-wallet. While it is possible to fund an m-wallet directly from a bank account, this is only possible for a maximum of 20% of the m-wallet owners today (only those with DBBL and mCash wallets). For the majority (4 out of 5) MFS wallet owners, who are bKash users, this is not possible. They would need a trip to an agent with cash for cash-in. If someone is walking to an agent with cash anyway, it is simpler to follow option-A (OTC) than to first do a cash-in into their m-wallet and then to pay the bill digitally.

Utility companies in Bangladesh are mostly privately run. The utility companies provide post-paid electronic bill payment but few, if any, offer prepaid metering service delivery. Most utility companies offer agent-based bill payment facilities allowing for the payment of bills at convenient locations.

Excluding the value of prepaid airtime purchased electronically via mobile wallets, only 8.36% of utility bills are paid electronically, amounting to US\$640 million per year. US\$10 million of school fees are paid digitally and 70% of the credit card bills are paid through electronic funds transfer.

If we consider credit card payments as 100% digital, since the merchants are paid digitally, on aggregate 5.45% of the entire Many-to-Few bill payments annually are paid digitally.

Key findings:

The versatility of cash currently trumps electronic value in Bangladesh

Bangladesh society remains largely cash based. Cash is accepted everywhere and attracts no transaction fee. If consumers of utilities have cash on hand and need to deposit such to generate e-money in order to pay a bill; or, deposit the same value directly with the utility provider, then most people choose to pay the provider directly. When paying directly, the payer is also issued with a payment receipt showing that the bill in question has been paid which is arguably superior to an SMS as a proof-of-payment when needed. There is no incentive to pay bills electronically bar for those consumers that may already have been paid electronically into bank accounts to whom electronic payment may be more convenient than drawing the cash and then paying. The volume of Many-to-Few payments is thus correlated with the number of people that hold the majority of their funds electronically.

Private sector driving remote electronic bill payment but not government

Consistent with most developing markets, utility bill payment via digital channels is being driven by the private sector acting as collection agents. Billing utilities carry the cost of the collection agents because they are motivated to minimize bad debt and maximize cash flow. Government, on the other hand, is not as motivated to drive remote payment services because nonpayment of government bills (taxes) is illegal and cash flow is not a significant consideration.

A lack of confidence in electronic payments by payers and payees

The shift to electronic payments requires two committed parties: payers and payees. Apart from the obvious challenge of convincing consumers to exchange cash for e-money and then to pay bills electronically, business owners and government departments need to be convinced too. The reason for this reluctance of payees and payers revolves around the traceability of electronic payments or the lack thereof. Simply put, it is easier for a consumer or small business owner to prove to a government or business employee that they have paid their bill by presenting an en-cashed check or a cash receipt than if paid by EFT or MFS. Schools in particular, appear to prefer receiving cash. Expert opinion in the research suggested that there is general scepticism by school management in regard to being paid electronically. This may have something to do with limited traceability of cash revenues and opening up opportunities for mal-governance. It is exactly to reduce such kinds of leakage that electronic payments ought to be instituted.



End users find Digital Financial Services are preferable, but not easy to use

In the primary research conducted within the scope of this particular ecosystem assessment, it has been found that while the perception about the safety through digital means is very positive, the user experience tells a different story. 94% of the survey population would prefer sending money via digital means, but only 28% find it easy to use. Issues such as literacy (properly understanding an English USSD menu) and tech-savviness (navigating a multi-step USSD menu) present challenges that create usability barriers. If these usability barriers are appropriately addressed, the adoption rate of m-wallet usage is likely to improve.

LESSONS ABOUT SEQUENCING AND PRIORITIZING THE SHIFT

The journey toward cash lite is hypothesized in the BTCA whitepaper to be driven by three distinct use cases, i.e., Few-to-Many payments, Many-to-few-payments, and Many-to-Many payments and the shift is hypothesized to take place in that sequence. While the Many-to-Few payments lead the shift toward electronic transactions, in Bangladesh, Many-to-Many payments have taken precedence over the Many-to-Few ones. The major reason behind this shift is the significant role remittances (both international and domestic) play as well as the rapid adoption of Mobile Money in Bangladesh in recent years (2011-16). A growing percentage of domestic remittance (US\$11.3 billion) is now flowing through MFS. The socio-economic dynamic in Bangladesh, urban migrant workers supporting families in rural areas, is not too dissimilar to other markets where domestic remittance through MFS has seen strong uptake (such as Kenya). Further supporting the shift in Many-to-Many payment is the steady upward trend of the adoption of debit and credit cards and POS infrastructure deployment.

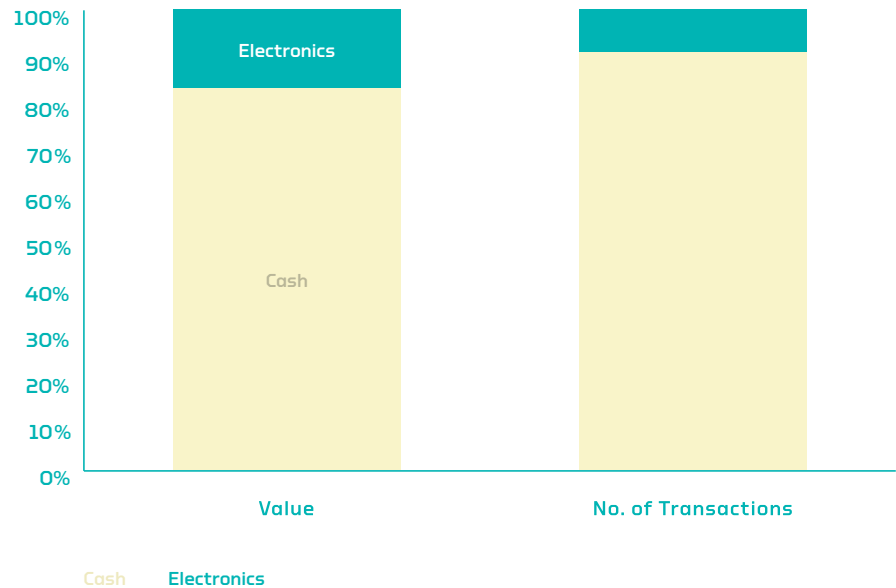
The shift of Few-to-Many bulk payments is well underway in Bangladesh where 68.97% of all government payments in terms of value are done via electronic means. There is one notable exception: G2P payments are yet to shift at scale. A series of government-driven infrastructure developments and policy decisions have facilitated the bulk payments shift to date.

Shift 1: Few-to-Many payments

At present, 17.25% of payments worth US\$175 billion are paid electronically accounting for 9.48% by volume, which are approximately 130 million transactions (see Figure 5.6). The preconditions for the pervasive use of electronic payments, namely infrastructure and policy, are already mature. Several studies and pilots have concluded that electronic payments will have far-reaching benefits pointing to a positive outlook for the digitization of this important payment stream.

An important area of opportunity is in the conversion of the informal sector comprising almost 6 million MSMEs that contribute to 25% of GDP and employ 75-85% of the workforce.⁷² The shift to electronic salary and supplier payments in this segment would indicate a significant shift of the bulk payments segment, making this a major area of opportunity.

FIGURE 5.6:
Few-to-Many payments



Shift 2: Many-to-Many payments

Bangladesh has seen a significant shift to electronic consumer spending and electronic remittances. Furthermore, the migration of rural people to urban areas in search of livelihoods and consequently, continuous flows of money from breadwinners working in urban environments to their families living at home in rural areas, is the primary reason for the large volume of domestic remittances. The introduction and dominance of MFS changed the trajectory of Bangladesh compared to other country diagnostics to date. Anecdotal evidence from Kenya points to similarities with Bangladesh where Many-to-Many MFS transactions seem to have dominated the shift.

The current trajectory of Many-to-Many payments has only been evident in the last three years. In particular, debit card payment usage has grown by 24% year on year from 2013 to 2015 and the value of transactions through MFS has grown by around 100%⁷³ year on year in the same period.

While the shift to electronic payments is notable, it comprises only 73 million transactions and just below 10% of all Many-to-Many payments per annum (see Figure 5.7). It follows that with 90% of the segment to still transform, if the current trend continues, then the shift could be significant within a few years.

Card payment interoperability between a selection of banks facilitated by Qcash from 2002 and more recently between all issuing and acquiring banks with the deployment of the National Payment Switch in 2012 has contributed largely to the increase of card usage. With greater acceptance comes increased consumer convenience with the result that more cardholders use their cards, which in turn drives the demand for greater acceptance. As such, the cyclical growth pattern becomes self-fulfilling.

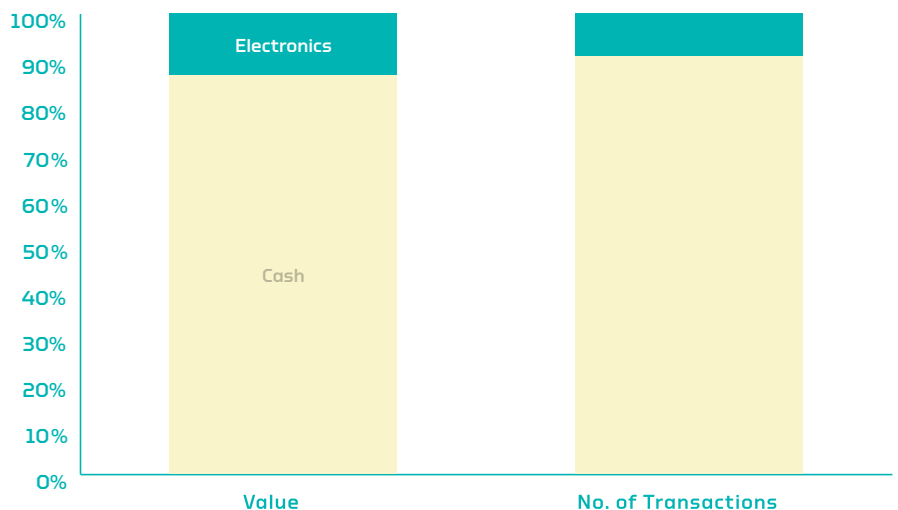
Similarly, mobile money usage would follow a parallel trend to acceptance by merchants. Despite some efforts in merchant payment activations, sufficient uptake is not yet observed. Not evident in card, one of the key barriers in MFS is the lack of platform interoperability. For MFS to truly catalyze Many-to-Many transactions, Bangladesh needs to attain pervasive acceptance and this would be much more achievable if all MFS users made use of their own m-wallets and those m-wallets became interoperable.

Electronic payments by definition require a store of value via various payments instruments such as bank accounts, MFI accounts and mobile wallets – not surprisingly this is also correlated to financial inclusion. At present, approximately 43%⁷⁴ of citizens are financially included. A drive to increase electronic payments will positively influence financial inclusion. It might be worth mentioning the point that within the segment of formally banked population, a majority do not have access to digital means of payment. For instance, 1 out of every 2 people with bank accounts possess a digitally accessible bank account. For NBFIs, this scenario is even more extreme, with 1 out of every 24 people. In a country where 26.3 million adult people are banked through NBFIs, this avenue requires attention if digital financial inclusion were to be achieved.

Shift 3: Many-to-Few payments

Only a fraction of bill payments are made electronically in Bangladesh today. This amounts to US\$1 billion or 5.45% of the total value, corresponding to 5.94% by volume (see Figure 5.8). Only 8.36% of all utility bills are paid electronically. Per the narrow definition of this study, utility bills paid at agents in cash are not considered electronic payments. Even for

FIGURE 5.7:
Many-to-Many payments



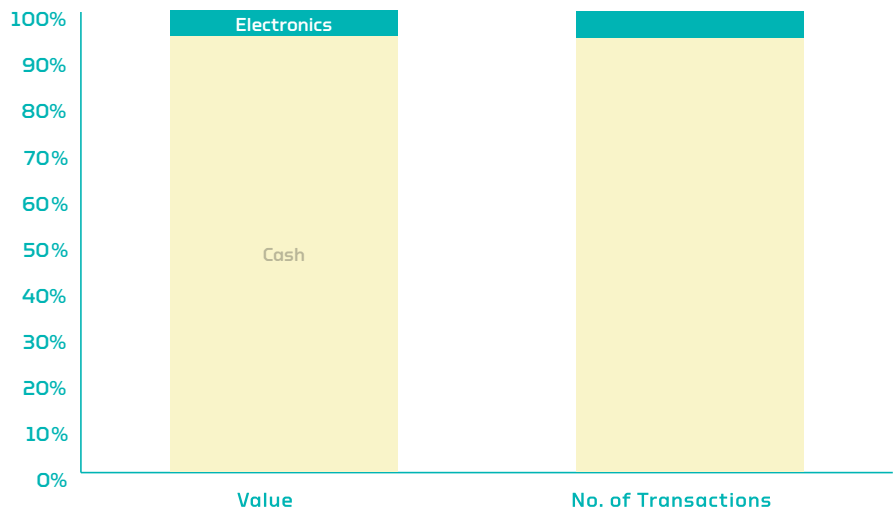
the largest MFS provider, bKash, which charges no cash-in fee and no fee to make merchant payments through m-wallets, the user adoption of utility bill pay is not high.

Individuals make hardly any government payments electronically. While there are various channels for paying taxes electronically, including Qcash, cards, and EFT, usage by taxpayers is low.

Perhaps the low adoption in both these instances is the result of a general lack of trust in electronic payments, further complicated by the lack of traceability of such payments. It is difficult for people (paying utility bills or taxes) to verify and/or dispute electronic transactions, where a cashed check or a cash receipt serves as indisputable proof of payment.

For government revenue collection, there is very limited infrastructure built by the government itself. The avenue that is in place is provided by third-party Payment Service Providers and lack push from the supply side. NBR, the authority for tax collection in Bangladesh, has plans to build the required infrastructure to drive collection of taxes electronically in the coming years to ensure accountability, traceability, and transparency. Overcoming the general reluctance of individuals to pay electronically will remain a big barrier in the short term.

FIGURE 5.8:
Many-to-Few payments



6. ROADMAP

This chapter provides a high-level roadmap for Bangladesh with regards to payment digitization. Throughout the diagnostic and specifically in chapter 4 and chapter 5, a number of barriers and issues related to the digitization of payment in Bangladesh have been flagged. This chapter takes those into account and introduces a few new ideas to present the roadmap. The roadmap is a composite of three key subsections: accelerators, scenarios based on a high-level roadmap and potential future use cases, and researches to be explored in the DFS space. This chapter ends with potential coalition partners and recommendations.

The roadmap presented in this chapter attempts to identify the opportunities that are likely to yield the greatest value toward payment digitization within the next 10-year horizon. As such, instead of identifying an extensive list of activities across a plethora of dimensions, it focuses on a small number of specific actions which can be taken by government and the private sector that are likely to have the biggest impact. Bangladesh already has sufficiently strong policy frameworks and necessary infrastructure in place, for example, with automated check clearing capabilities, payment switches, real-time gross settlement systems, and electronic banking channels, to name a few. Such initiatives will no doubt contribute to improving the digital payment ecosystem. But, such contributions will likely follow an incremental improvement path. Conversely, the MFS ecosystem is currently characterized by many improvement opportunities on the regulatory front which, once implemented, present a significant opportunity to make considerable contributions to the digital payment ecosystem.

FAST-TRACKING AN INCLUSIVE DIGITAL PAYMENTS ECOSYSTEM THROUGH RECOMMENDED DIGITAL PAYMENTS ACCELERATORS

The Better Than Cash Alliance report: Accelerators to an Inclusive Digital Payments Ecosystem (released October 2016) studied 25 countries to identify the 10 most effective methods of accelerating the journey from cash to digital payments, as follows:

- Developing a Unique Identification Program in a centralized database that both public and private sector players can access to verify identities can drive digital payments and financial inclusion.
- Establishing regulation that promotes innovation and responsible practices, by understanding the gaps and barriers of existing regulation, and engaging all stakeholders.
- Establishing interoperability in a digital payments ecosystem to reduce barriers that confine digital transactions to a single payment platform.
- Promoting merchant acceptance infrastructure across Micro, Small, and Medium Enterprises to boost adoption among both consumers and large players higher in the value chain.
- Establishing shared digital infrastructure to reduce barriers to entry and promote innovation.
- Leveraging existing networks, such as social media platforms to quickly extend digital payment services to far-reaching user bases, improve the business case, and reduce costs.
- Identifying and digitizing use cases that individuals frequently use for transactions to increase comfort with digital payments and increase digital transaction volumes.
- Digitizing government and corporate payments to advance a digital payments ecosystem.
- Digitizing government receipts to advance digital payments ecosystems and build familiarity with digital payments among individual users and businesses, as well as raise revenues for government.
- Implementing policies that incentivize and improve the convenience of digital payments to drive faster and more widespread access and adoption of digital payments.

As one of the objectives of the country diagnostics for Bangladesh was to put forward a high-level roadmap for the digitization, this study examined possible actions that could be taken in Bangladesh to advance digital payments in the context of the BTCA's 10 accelerators. This analysis is set out in more detail in the following section of this diagnostic.

Accelerator #1: Fully implement a national ID system and integrate with key services

National ID (NID) is the government-issued identification card for the citizens of Bangladesh. Initially conceived as the Voter ID card just prior to the national election in 2009, this ID presented itself with numerous applications, most notably the opportunity to act as the de facto national population registry that captures all the necessary information of a citizen within one platform, thus enabling access to information, as well as robust and simplified services from both the government's and citizens' perspectives.

The NID database currently holds information on 96 million people in Bangladesh. In 2015-16, it was tied with the biometric re-registration of SIM cards. With support from the World Bank, the government has recently embarked on a new project that will issue a smart card containing added biometric information.

Once NID is fully implemented and the necessary access is provided to certified government and business entities, it will catalyze the shift to payment digitization in a meaningful way. For instance, it will significantly reduce the time required to validate KYC information for new accounts with financial service providers. It may also help with added layers of authentication for certain digital modes of payment where the current security measures need improvement. For example, in some of the social safety net programs in Bangladesh where postal card-based payments have been implemented, the 2-factor authentication (the card itself and a thumb print) is often reduced to a single-factor authentication since the thumb prints are on paper registers with no real ability to verify the person. Studies indicate this leads to collusion and malgovernance at points of payment.⁷⁵ If instead, the smart NID that is in development is used under such circumstances, the fingerprint could be digitally verified, ensuring that the rightful owner of the card is receiving the payment and thereby reducing the levels of leakage in the social safety net programs.

The impact of a well-functioning NID system is expected to support the shifts across all three use cases in Bangladesh because the requirement for account opening is KYC and with an ID, KYC validation is significantly more streamlined.

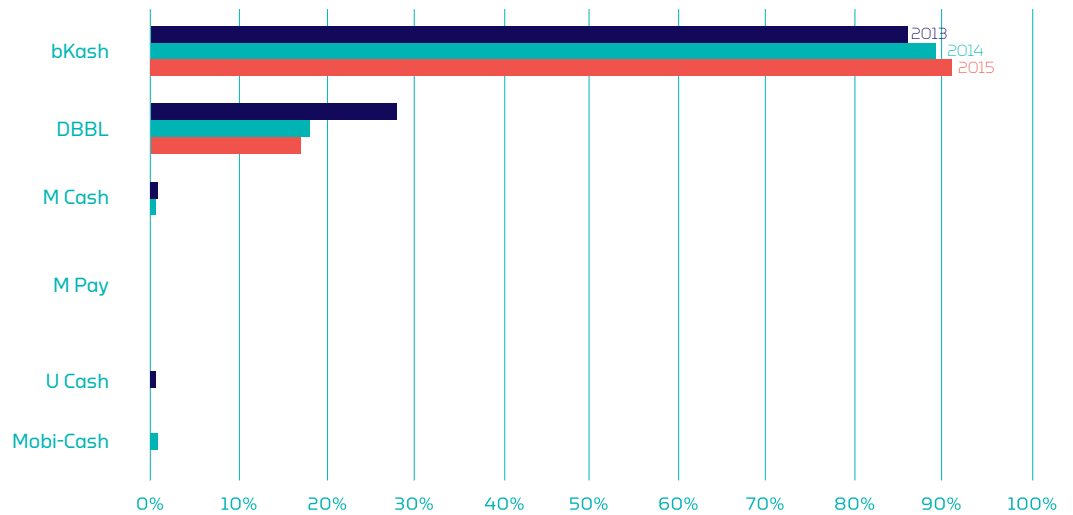
As a point of reference, progress has been made in India through implementation of the "eKYC" system – which forms part of India's Aadhaar nation-wide identification program. eKYC is designed to bypass any forms of paper-based KYC requirements for special purpose accounts. Its effectiveness is closely correlated with a strongly functioning back-end NID database open to third-party vendors, and a specialized institution providing NID verification as a service.

Accelerator #2: Improve the regulatory environment

The MFS market in Bangladesh is characterized by a market leader, a follower, and a group of other players. Over the last three years, for the market leader, every player's market share (other than the market leader) has eroded (Figure 6.1).

FIGURE 6.1:
The comparative market shares
of MFS providers in Bangladesh
(In terms of number of registered users)

Source: Intermedia



Clearly, this market is heading toward a monopoly situation. Monopolies are detrimental for many reasons. From a consumer perspective, monopolies tend to increase prices subject to market elasticity. This has already been observed in Bangladesh. In 2012, the charge per P2P transaction was BDT 2 (US\$0.025).⁷⁶ The current market price for the same service is BDT 5.⁷⁷ In the last three years the price has soared 250%. P2P transfers currently constitute US\$337 million worth of transactions per month.⁷⁸

It is worth noting, however, that bKash's market prevalence does not arise from a systemic advantage such as a dominant mobile network operator; it is accessible across multiple networks. Rather, market prevalence has arisen from a combination of factors including having a specialized organization built to deliver mobile financial services and a shared vision for scale among a diverse investor group.⁷⁹

From an overall market perspective monopolies carry systemic risks. In the financial sector, when a single entity becomes a monopoly it has the lion's share of customers, transactions, and deposits. If that single entity fails for any reason, the repercussions are deep and wide, affecting the market itself as well as consumers. It is the role of the regulator to encourage healthy competition and take measures to circumvent the creation and entrenchment of monopolies.⁸⁰ In the MFS space, there are currently 20+ banks that have obtained license to launch an MFS platform. Interestingly, all of them leverage the existing top-up agent network of MNOs. While the market is open for any licensed bank or non-bank institutes, only bKash seemed to have capitalized the first-to-scale advantage. The fact that strong monopolistic behavior persists in the MFS market demonstrates that more regulatory work is needed to encourage competitiveness.

Improving the regulatory environment to provide a sufficient level of competitiveness is thus viewed as an essential accelerator for the growth of the MFS market. This will not only allow monopoly-related systemic risks to be managed, but will also allow competitive pricing mechanisms and greater product innovation, and thereby catalyze the overall payment digitization journey in Bangladesh.

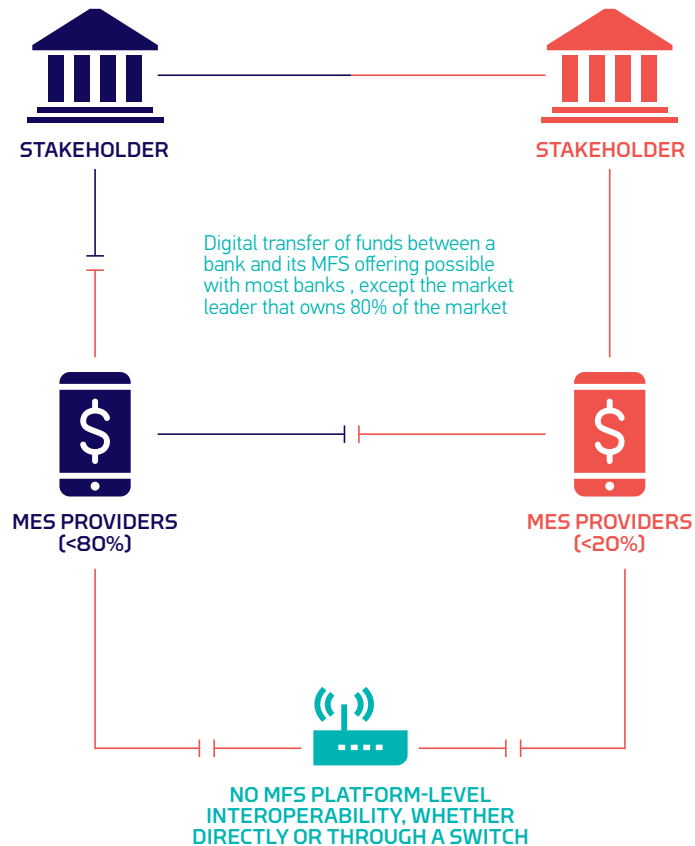
There are a number of other regulatory areas that should also be addressed (e.g., the Payment System Act, PSP licensing). However, the discussion in this section focuses on MFS because it is viewed as an essential accelerator.

Accelerator #3: Implement interoperability in Mobile Financial Service (MFS)

Interoperability in the payment ecosystem basically constitutes the unrestricted flow of money among user accounts from different institutions/service providers and across multiple channels. Interoperability in mobile financial services can happen in three basic forms: agent interoperability, customer interoperability, and platform interoperability.⁸¹

FIGURE 6.2:
Platform interoperability
dimension in Bangladesh

Source: pi Strategy analysis



Agent interoperability allows a single agent to act for more than one service provider. Customer interoperability allows one customer to access multiple accounts using one SIM card. In Bangladesh, both these forms of interoperability exist.

However, there is no platform interoperability in Bangladesh (see Figure 6.2). Platform interoperability allows for payment transactions between different service providers. Platform interoperability can be further broken down into two sub-components: the interoperability between the MFS provider and its majority stakeholder bank and the interoperability among the MFS providers themselves.

In Bangladesh, the first component of interoperability does not exist for most MFS providers, with a handful of notable exceptions, such as DBBL and mCash. However, the collective market share of this group of providers is less than 20%. This means that for less than 20% of the users, it is possible to transfer funds electronically between their mobile wallets and their bank accounts since the mobile wallets are linked to the core banking system. However, for more than 80% of users, it is not possible to transfer funds electronically between their mobile wallets and their bank accounts.

The second component of interoperability does not exist at all in Bangladesh. For example, a bKash mobile wallet user cannot send or receive money from a DBBL mobile wallet user. In order to make this possible, it would be necessary for MFS providers to connect to the existing national payment switch for MFS transaction.

Interoperability in MFS, like interoperability in the financial sector and interconnection in the telecommunication sector, is traditionally industry-led for competitive market situations. Interoperability is also not a “magic bullet” that can solve all MFS challenges in a market. Furthermore, the timing of introduction is a critical component. In Bangladesh, however, where the MFS market is displaying an increasingly monopolistic environment, there is not sufficient incentive for the market leader that has 90% of customers today to encourage interoperability, nor is there sufficient voice among the significantly smaller players to push interoperability. Therefore, if the government does not intervene to drive forward interoperability, the market on its own is less likely to achieve interoperability. There are a number of other areas within the payment ecosystem with interoperability issues that need to be addressed (e.g., ATM/POS interoperability, banking interoperability). In some of these sectors interoperability is already operational, but perhaps not to the full extent possible. However, the discussion in this section focuses on MFS because it is viewed as an essential accelerator toward an inclusive and effective digital payments ecosystem.

SCENARIOS MAPPED ON A HIGH-LEVEL ROADMAP

According to the BTCA white paper, the use cases in this diagnostic are categorized into three main clusters, typically in the following sequence: Few-to-Many, Many-to-Few, and lastly Many-to-Many. In Bangladesh, the transition to a digitized payment ecosystem seems to be following a different path: Many-to-Few (Bulk payments), followed by Many-to-Many (First-hand payments) and lastly, Many-to-Few (Remote bill payments). As the white paper rightly points out, those shifts are not necessarily linear; and can occur simultaneously to make the actual shift, albeit in different stages.

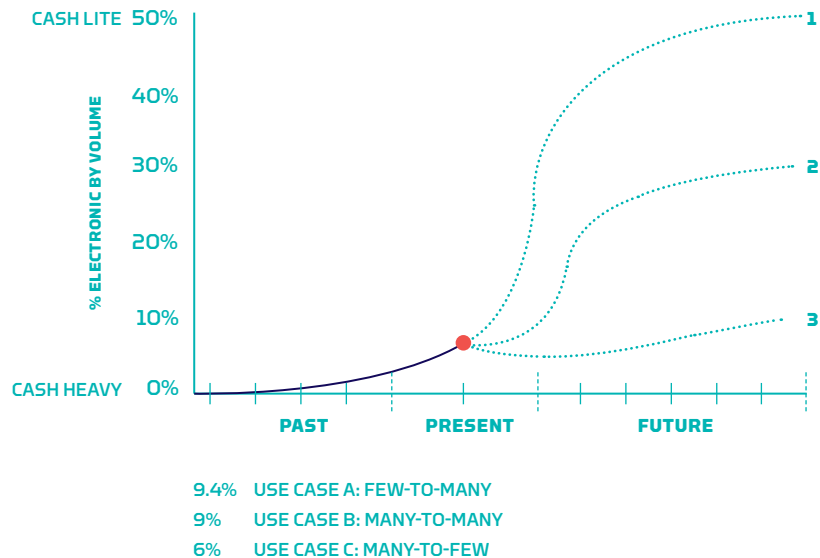
The percentage of electronic payments by volume for Bangladesh for each of the use cases is as follows: Many-to-Few (9.4%), followed by Many-to-Many (9%), and lastly, Many-to-Few (6%). Figure 6.3 depicts the total shift graphically, by plotting the transitions of the use cases in terms of time and percentage of electronic transactions by volume (See Annex B).

Since progress toward a digital payment ecosystem seems to have taken an alternate path compared to the previous country diagnostics, pi Strategy adapted the framework to map the shift slightly differently without sacrificing comparability with previous diagnostics. The original model had two components: (a) cash heavy to cash lite, and (b) three shifts in a certain sequence. The first component is more like a universal goal. However, the second component, which articulates a hypothesis for the shifts to take place in a certain sequence, cannot be validated for Bangladesh. Therefore, the second component is replaced with varying degrees of transition in percentage terms, decoupling the shifts from the sequence.

The adaptation of the framework began with deciding on the proper metric used for either axes. Various leading practices on how to estimate the trajectory to electronic payments were taken into consideration. Since the term “% electronic” can mean either the volume or the value, pi Strategy explored both options. While there are different views on which to follow,⁸² pi Strategy decided to reframe the trajectory using the BTCA white paper approach of measuring transactions by volume. According to this metric, the “tipping point” toward cash lite takes place at the 50% threshold (when at least 50% of the transactions by volume are being conducted via electronic means). As for the timing dimension, the X-axis represents a two to three year horizon for the present, a five to ten year horizon for the past, and five to ten year horizon for the future. (See Figure 6.3)

FIGURE 6.3:
Trajectory scenarios
in relation with the
current diagnostic

Source: pi Strategy analysis,
 adapting BTCA framework



Based on these metrics, this diagnostic explored three scenarios at a high level. Scenario 1 depicts reaching a tipping point of digital payments by volume within five to 10 years. It is the best-case scenario and assumes full implementation of the three recommended accelerators identified in this report. While the payment digitization landscape in Bangladesh has experienced strong growth in the past five years, sustaining this growth in the years ahead will be very challenging. Nonetheless, if the three accelerators listed earlier are implemented fully, not only will Bangladesh have the right measures in place to maintain this strong growth rate, but may actually experience a faster growth trajectory.

Scenario 2 assumes partial implementation of the accelerators identified in this report. This scenario describes the situation where the market continues to grow, but not with as high a growth rate as in scenario 1.

Scenario 3 assumes none of the accelerators identified in this report are implemented, or some undesirable phenomenon comes into play that has a negative impact on growth. For example, if the MFS market evolves into a stronger monopoly situation, scenario 3 could well take hold. This scenario is therefore considered to be the worst-case scenario.

Figure 6.3 above depicts these three scenarios. The red dot represents the current situation (as of July 2016) and the dotted circle around the dot represents DQI index.

POTENTIAL FUTURE USE CASES

This diagnostic identifies several future case studies that may be explored to better understand the journey to a cash-lite payment ecosystem in Bangladesh. These suggestions were derived from the preceding discussions on the use cases in chapter 4 and chapter 5. The prioritization of case studies is based on work in progress, ease of implementation, and likely impact on the shift to digitization. This is why, for example, G2P salary payment is ranked #1 in this list.

Case Study #1: Making G2P salary payments via electronic means

The Bangladesh diagnostic indicates that 68.97% of all government payments by value are made via electronic channels. However, the percentage of electronic payments by value for G2P salary payments is about half that amount, at 36.4%.

Since the government is able to pay a percentage of its staff digitally, it can be inferred that the infrastructure for paying digitally is already in place

AUDIENCE
GOVERNMENT
USE CASE
FEW-TO-MANY

for government. With no barrier from the supply side, government needs to identify challenges on the demand side. Government employees, who already are largely financially included, can easily be paid digitally. For those employees who are not financially included through bank accounts, special measures may be taken to encourage greater financial inclusion (whether through bank accounts or other means) and to enable payment of salaries digitally.

This will not only reduce the costs of cash for the government, but also help increase familiarity with digital payments among end-users for other kinds of payments, such as merchant payments, tax payments, utility payments, etc. By contrast, if government pays salaries in cash, there remains the additional barrier of converting the cash to digital if recipients wish to use the money to pay for goods and services digitally. If, however, they are paid digitally, this one barrier is eliminated. Initiating digital payments here will have a positive ripple effect in all kinds of payments made by government employees in consumer markets. A study on the expenditure and remittance patterns of government employees could help test this hypothesis.

Case Study #2: Incentive structure of Mobile Financial Services agents

AUDIENCE
BUSINESS, AGENTS,
END-USERS

USE CASE
MANY-TO-MANY

Currently, the prevalence of MFS usage in Bangladesh is dominated by cash-in and cash-out transactions (CICO) predominantly used to transfer funds among people rather than m-wallet-based P2P transactions – the more efficient mechanism for funds transfer among people. This CICO practice is prevalent for one key reason: The fee that agents earn through the former mechanism is more than what they would earn through the latter mechanism (for effectively the same function). The revenue potential drives agent behavior, and hence, there are significantly more fund transfers taking place through CICO instead of m-wallet-based P2P transactions. This, in turn, also reduces the incentives an agent has to encourage m-wallet adoption.

A case study to fully understand the incentive structures from all stakeholder lenses would go a long way in identifying the right set of incentives to catalyze desired behavior. The key stakeholders for this case study would include: MFS deployments, agents, and end-users. The case study could also extend to capture business model innovations that may lead to win-win-win situations for all key stakeholders.

Ultimately, if such a use case could indeed unearth fundamental shifts in incentive structures and business models, this would lead to an improved payment ecosystem for MFS. And since within this new ecosystem most transactions will end up being m-wallet driven, it will likely accelerate payment digitization.

AUDIENCE
GOVERNMENT,
DEVELOPMENT
PARTNERS,
AND PAYMENT SERVICE
PROVIDERS

USE CASE
MANY-TO-MANY

Case Study #3: Finding ways to unlock merchant payments via digital means (P2B)

At present, out of US\$138 billion worth of consumer spending at merchant points, around 1% of those are paid digitally. For a digital payment at merchant point to happen, the customer has to have the instrument to pay digitally and the merchant has to accept the instrument. In Bangladesh, a lion's share of consumer payments is in non-digital forms. However, with increased use of MFS and cards, the change in consumer behavior regarding digital payments has begun. But, a commensurate level of change is not seen yet among merchants. This is because the merchants' value chain is largely cash driven, and so accepting digital payments introduces an additional step in the process (converting digital to cash first). Transforming complete value chains from cash to digital is no easy task.

A case study on how best to address this challenge could lead to initiating the right set of ripple effects across the value chains, helping to drive payment digitization to a considerable degree.

Case Study #4: Digital payment of taxes (B2G, P2G)

Currently, less than 1% of the population in Bangladesh pay income taxes. The National Board of Revenue lacks the ability to properly track people who are supposed to pay taxes and do not, largely because almost all tax collection is conducted today in non-digital forms. Among those that pay income taxes, almost nobody pays through digital channels.

From the government end, the policy framework is in place to encourage digital payments. The necessary infrastructure either already exists (through third-party gateways) or is currently being developed (by the government itself). However, there is a significant gap in end-user adoption.

A recent case study by the BTCA on Tanzania provides lessons about the large potential gains for governments, businesses, and citizens by digitizing P2G and B2G payments, including boosting tax revenues by US\$477 million annually, and improving business efficiency and lowering transaction costs.⁸³

A use case that generates deeper insights into various hurdles with respect to end-user adoption and identifies practical measures to overcome some or all of those hurdles would be a valuable research initiative. The end-users for this use case should include both individual taxpayers and business taxpayers. The use case may also explore potential process simplification mechanisms and innovative incentive structures. If the end result from this research and follow-through activities lead to initiatives supporting greater tax payment in electronic forms, this could have a significant impact on payment digitization metrics in the years ahead.

ADDITIONAL RESEARCH STUDIES

pi Strategy has identified a set of additional themes for future research undertakings with respect to payment digitization in Bangladesh. These are listed below:

Research	Use case	Audience	Description
1. Cost of cash study	Few-to-Many and Many-to-Few	Government, Business	This study would undertake a formal and rigorous cost of cash analysis for Bangladesh. ⁸⁴ (None has been conducted to date that pi Strategy is aware of.)
2. Gender-specific study on DFS	Many-to-Many	Government, Business	While most of the studies in DFS are based on its impact on the overall economy and population, this study would concentrate on the female segment of the population to understand why their participation in DFS is low and identify mechanisms to improve their participation.
3. Study on user experience of payment instruments of DFS	Many-to-Few and Many-to-Many	Government, Business	It has been found in various international research studies that the user experience dimension plays a critical role in user adoption. A behavioral study focusing on the usability of current payment modes (USSD), smartphones app, SMS-based banking) could reveal meaningful insights about how the user experience dimension can be improved.



POTENTIAL COALITION PARTNERS

For scenarios 1, 2 or 3 presented in Figure 6.3 to materialize, which in effect presents a roadmap for payment digitization, a number of steps need to take place. The right set of coalition partners needs to be involved in the discussion as well as in implementing the initiatives to ensure a successful path forward. The coalition partners need to come from broadly three different groups: government, businesses, and end users.

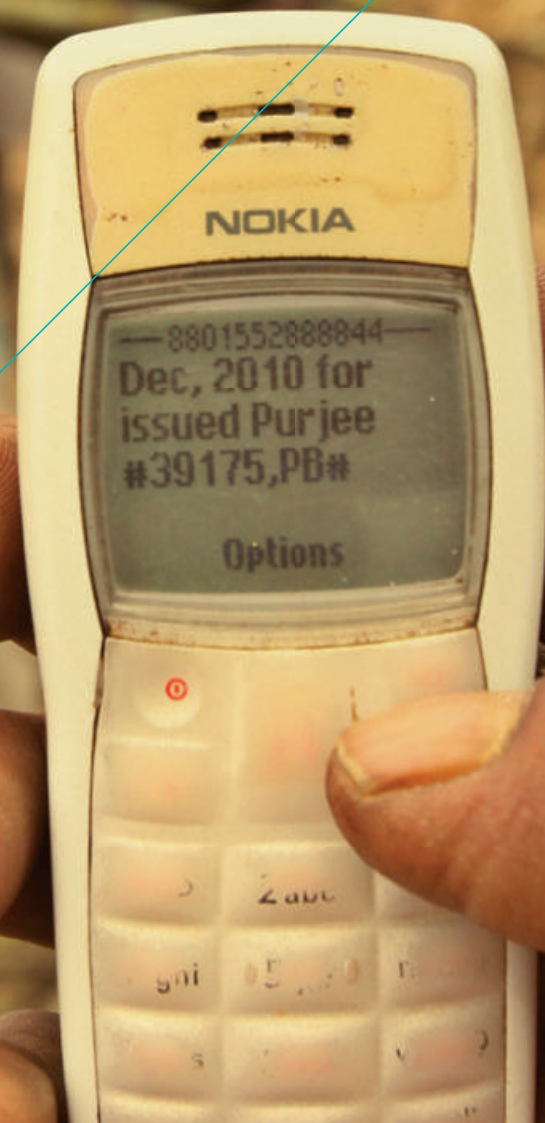
From the government perspective, a champion is needed. This role is currently being played well by the a2i Program within the Prime Minister's Office of the Government of Bangladesh. a2i typically assumes a role in coordinating the government departments. Through a2i, other government departments, such as the cabinet division and various ministries (e.g., Election Commission, Ministry of Finance, Ministry of Social Welfare, etc.) will need to be involved. The Bank of Bangladesh is expected to continue to play a vital role in the shift. Furthermore, pi Strategy believes that BTRC (the Bangladesh Telecommunication Regulatory Commission) would be a good addition to the mix because of the increasing involvement of MNOs in the MFS industry.

From the business perspective, the coalition partners should include the banks, MNOs, and PSPs (Payment Service Providers). Each of these entities brings unique value propositions to the table for payment digitization initiatives. Their roles need to be clearly defined and their active engagement needs to be appropriately incorporated.

More often than not, such undertakings do not feature appropriate representation to capture the voice of consumers. As has been seen for some of the efforts to date chronicled in previous chapters of this report, despite having sound policy, infrastructure, and mechanisms in place, the consumer adoption has not been significant (e.g., mobile wallet uptake, paying taxes electronically, etc.). This points to a lack of sufficiently strong user-centric design for some of these new products and services. pi Strategy believes that for meaningful transition to digital payments to take shape, active participation of consumers is a prerequisite. Mechanisms should be put in place to systematically and consistently engage the voice of consumers in future initiatives that are envisaged for digital payments.

While there is a wide array of coalition partners listed above, it needs to be understood that not all of these entities listed above need to be involved in each and every step. Only by engaging the right kind of partners in the appropriate stages can meaningful progress be ensured.

ANNEXES



ANNEX A.
List of Acronyms

a2i	Access to Information
ACH	Automated Clearing House
ATM	Automated Teller Machine
B	Business
B2B	Business to Business
B2G	Business to Government
B2P	Business to Person
BACH	Bangladesh Automated Clearing House
BACPS	Bangladesh Automated Cheque Processing Systems
BB	Bangladesh Bank
BBS	Bangladesh Bureau of Statistics
BDT	Bangladeshi Taka (currency)
BEFTN	Bangladesh Electronic Funds Transfer Network
BFA	Bankable Frontier Associates
BRAC	Bangladesh Rural Advancement Committee
BTCA	Better Than Cash Alliance
CCT	Conditional Cash Transfer
CGA	Controller General of Accounts
CGAP	the Consultative Group to Assist the Poor
D	Donor or Development Partner
D2B	Donor to Business
D2G	Donor to Government
D2P	Donor to Person
DBBL	Dutch Bangla Bank Limited
DESCO	Dhaka Electric Supply Company Limited
DFID	Department for International Development
DFS	Digital Financial Services
DPDC	Dhaka Power Distribution Company

ANNEX A.
List of Acronyms

DQI	Data Quality Index
DRFRP	Development Results Focused Research Program
EFT	Electronic Funds Transfer
EMTS	Electronic Money Transfer Service
ERD	Economic Relations Division
FI	Financial Institution
G	Government
G2B	Government to Business
G2G	Government to Government
G2P	Government to Person
GDP	Gross Domestic Product
GNI PC	Gross National Income per capita
GoB	Government of Bangladesh
GSM	Groupe Spécial Mobile
GSMA	GSM Association
IBFT	Inter-Bank Fund Transfer
ICT	Information and Communications Technology
KYC	Know Your Customer
LMIC	Lower Middle Income Country
M3	Broad Money
MFIS	Micro Finance Institutions
MFS	Mobile Financial Services
MMO	Mobile Money Operator
MNO	Mobile Network Operator
MoF	Ministry of Finance
mPOS	Mobile POS device
MSME	Micro, Small, and Medium Enterprises
NBFI	Non-Bank Financial Institutions

ANNEX A.
List of Acronyms

NBR	National Bureau of Revenue
NID	National ID
NPSB	National Payment Switch Bangladesh
OTC	Over the Counter
P	Person
P2B	Person to Business
P2G	Person to Government
P2P	Person to Person
PAD	Public Accounts Division
PCB	Private Commercial Bank
PMO	Prime Minister's Office
POS	Point of Sale
PRI	Policy Research Institute
PSD	Payment Systems Department
PSP	Payment Service Provider
REB	Rural Electrification Board
RMG	Ready Made Garments
RTC	Real Time Clearing
RTGS	Real Time Gross Settlement
SCB	State owned Commercial Bank
SES	Socio-Economic Status
SMS	Short Messaging Service
SWIFT	Society for Worldwide Interbank Financial Telecommunication
USAID	United States Agency for International Development
USD	United States Dollars
USSD	Unstructured Supplementary Service Data
VAT	Value Added Tax
VPN	Virtual Private Network
WASA	Water and Sewerage Authority
WB	World Bank

Country Diagnostic Common Methodology

B1: Measurement and data quality

The measurement approaches use all available data to compile the payments grid as accurately as possible, using as a precedent the approach taken in the BTCA's Philippines Diagnostic. This process involves finding and analyzing a wide range of different data sources of different time intervals and quality. In some cases, extrapolation or interpolation is necessary to make up for gaps in data availability. For this reason, and to be explicit about the basis from which data is drawn, the data relating to each payer group in the grid is assessed for data quality and availability, as shown in Table B1 below.

RATING	DATA QUALITY	DATA AVAILABILITY
5	Complete, recent, and from credible sources	Available from one or several up-to-date websites or online publications
4	Recent and from credible sources. 1-2 components of estimate based on expert opinion or assumptions.	Available from disparate websites or from a combination of scholarly and popular publications
3	Incomplete, recent, and based on expert opinion or available data. Few assumptions required.	Available in-person through simple records requests or interviews with public-facing officials
2	Incomplete and/or outdated, and informed by local sources, ad hoc research, and international heuristics. Some assumptions required.	Available from proprietary sources through non-disclosure agreements
1	Incomplete and/or outdated, and informed by local sources, ad hoc research, and international heuristics. Multiple assumptions required.	Additional measurement activities required to capture meaningful data

B2: Trajectory of shifts

RATING	DATA QUALITY
1	Highly likely to support a full shift
2	Possible to achieve a full shift
3	Likely to lead to slow incremental progress
4	Likely to drift without clear upward trend
5	Unlikely to lead to shift

B3: Detailed payment grid: grid overview

	Number of Transactions	Percentage of Electronic Transactions	Number of Electronic Transactions	Total Value of Money (Billion BDT)	Total Value of Money (Billion USD)	Percentage of Electronic Payment (Value)	Total Value of Electronic Payment (Billion BDT)	Total Value of Electronic Payment (Billion BDT)
G2G TOTAL	1,216,046	35.52%	431,980	2,185	27.31	65.35%	1,428	17.85
G2B TOTAL	187,826	62.21%	116,846	1,101	13.77	90.62%	998	12.47
G2P TOTAL	99,012,392	0.63%	623,700	270	3.38	10.01%	27	0.34
GOVERNMENT TOTAL	100,416,264	1.17%	1,172,525	3,557	44.46	68.97%	2,453	30.66
B2G TOTAL	1,407,807	0%	-	1,088	13.60	0.00%	-	-
B2B TOTAL	33,174,571	7.73%	2,564,885	7,709	96.36	0.87%	67	0.84
B2P TOTAL	1,267,248,000	10.16%	128,752,397	7,709	40.44	10.16%	329	4.11
BUSINESS TOTAL	1,301,830,378	10.09%	131,317,282	12,032	150.40	3.29%	396	4.95
P2G TOTAL	1,355,675	0%	-	134	1.67	0%	-	-
P2B TOTAL	2,223,285,672	2.62%	58,279,279	11,312	141.40	1.11%	126	1.57
P2P TOTAL	775,252,807	8.79%	68,170,949	2,082	26.03	9.87%	205	2.57
PEOPLE TOTAL	2,999,894,154	4.22%	126,450,228	13,527	169.09	2.45%	331	4.14
D2G TOTAL	6,204	100%	6,204	243	3.04	100%	243	3.04
D2B TOTAL	12,420	100%	12,420	60	0.75	100%	60	0.75
D2P TOTAL	-	0%	-	-	-	0%	-	-
DONOR TOTAL	18,624	100%	18,624	303	3.79	100%	303	3.79
GRAND TOTAL	4,402,159,420	5.88%	258,958,659	29,419	367.74	11.84%	3,483	43.54

B4: Government details

	Number of Transactions	Percentage of Electronic Transactions	Number of Electronic Transactions	Total Value of Money (Billion BDT)	Total Value of Money (Billion USD)	Percentage of Electronic Payment (Value)	Total Value of Electronic Payment (Billion BDT)	Total Value of Electronic Payment (Billion BDT)
G2G TOTAL	1,216,046	35.52%	431,980	2,185	27.31	65.35%	1,428	17.85
Budgetary Allocations (development) to Ministries	802,787	33.96%	272,626	599	7.49	15.37%	92.14	1.15
Budgetary Allocations (Non-development) to Local Govt.	316,044	32.02%	101,197	1,301	16.26	83.92%	1,091.66	13.65
Funding of Programs	7,647	33.96%	2,597	6	0.07	15.37%	0.88	0.01
Social security contributions	89,568	62.03%	55,559	279	3.49	87.16%	243.32	3.04
G2B TOTAL	187,826	62.21%	116,846	1,101	13.77	90.62%	997.97	12.47
Supplier payments	146,793	62.03%	91,056	679	8.49	87.16%	592.10	7.40
Subsidies	40,145	62.03%	24,902	125	1.56	87.16%	109.06	1.36
Interest payments (domestic)	804	100.00%	804	294	3.68	100.00%	294.17	3.68
Utility Payments	84	100.00%	84	3	0.03	100.00%	2.63	0.03
G2P TOTAL	99,012,392	0.63%	623,700	270	3	10.01%	27	0.34
Welfare programs	90,320,000	0.02%	15,000	126	1.58	0.81%	1.02	0.01
Salaries	8,692,392	7.00%	608,700	71	0.89	36.42%	26.04	0.33
Pensions (+gratuities)	-	-	-	72	0.90	-	-	-
GOVERNMENT TOTAL	100,416,264	1.17%	1,172,525	3,557	44.46	68.97%	2,453.04	30.66

B5: Business details

	Number of Transactions	Percentage of Electronic Transactions	Number of Electronic Transactions	Total Value of Money (Billion BDT)	Total Value of Money (Billion USD)	Percentage of Electronic Payment (Value)	Total Value of Electronic Payment (Billion BDT)	Total Value of Electronic Payment (Billion USD)
B2G TOTAL	1,407,807	0%		1,088.20	13.60	0%	-	-
Taxes total	981,838	0%	-	866.74	10.83	0%	-	-
Income Tax	28,206	0%	-	278.23	3.48	0%	-	-
VAT	338,472	0%	-	292.53	3.66	0%	-	-
Import Duty	244,279	0%	-	127.61	1.23	0%	-	-
Excise Duty	15,695	0%	-	8.16	0.10	0%	-	-
Supplementary Duty	262,475	0%	-	136.46	1.71	0%	-	-
Turnover Tax	n.a	0%	-	0.05	0.00	0%	-	-
Other Tax	n.a	0%	-	4.80	0.06	0%	-	-
Non-NBR Tax	92,711	0%	-	48.20	0.60	0%	-	-
Non-tax Revenue	330,200	0%	-	171.67	2.15	0%	-	-
Fees for licenses and permits	95,769	0%	-	49.79	0.62	0%	-	-
B2B TOTAL	33,174,571	7.73%	2,564,885	7,708.52	96.36	0.87%	67.02	0.84
Supplier payments	2,652,791	0.50%	13,264	7,346.18	91.83	0.50%	36.73	0.46
Utility payments	30,521,780	8.36%	2,551,621	362.34	4.53	8.36%	30.29	0.38
Electricity	29,763,021	8.36%	2,488,189	321.16	4.01	8.36%	26.85	0.34
Gas	327,968	8.36%	27,418	39.43	0.49	8.36%	3.30	0.04
Water and sanitation	430,792	8.36%	36,014	1.75	0.02	8.36%	0.15	0.00
B2P TOTAL	1,267,248,000	10.16%	128,752,397	3,235.28	40.44	10.16%	328.70	4.11
Salaries and benefits	1,267,248,000	10.16%	128,752,397	3,235.28	40.44	10.16%	328.70	4.11
BUSINESS TOTAL	1,301,830,378	10.09%	131,317,282	12,032.00	150.40	3.29%	395.73	4.95

B6: Person details

	Number of Transactions	Percentage of Electronic Transactions	Number of Electronic Transactions	Total Value of Money (Billion BDT)	Total Value of Money (Billion USD)	Percentage of Electronic Payment (Value)	Total Value of Electronic Payment (Billion BDT)	Total Value of Electronic Payment (Billion USD)
P2G TOTAL	1,355,675	0.00%	-	133.73	1.67	0.00%	-	-
Taxes	1,355,675	0.00%	-	133.73	1.67	0.00%	-	-
Income tax	1,355,675	0.00%	-	105.43	1.32	0.00%	-	-
P2B TOTAL	2,223,285,672	2.62%	58,279,279	11,312	141	1.11%	126	1.57
Utilities	268,038,891	8.36%	22,408,051	221.12	2.76	8.36%	18.49	0.23
Electricity	203,589,653	8.36%	17,020,095	209.70	2.62	8.36%	17.53	0.22
Gas	36,393,929	8.36%	3,042,532	6.44	0.08	8.36%	0.54	0.01
Water and Sanitation	28,055,309	8.36%	2,345,424	4.97	0.06	8.36%	0.42	0.01
Payment for goods and services (cash)	1,320,374,721	0.00%	-	10,960.96	137.01	0.00%	-	-
School fees	622,080,000	3.71%	23,079,168	23.33	0.29	3.71%	0.87	0.01
Credit card payments	7,215,352	100.00%	7,215,352	43.15	0.54	100.00%	43.15	0.54
Debit card payment at stores	5,576,708	100.00%	5,576,708	63.04	0.79	100.00%	63.04	0.79
P2P TOTAL	775,252,807	8.79%	68,170,949	2,082.03	26.03	9.87%	205.41	2.57
Domestic	668,452,807	8.32%	55,620,000	904.65	11.31	8.32%	75.27	0.94
International	106,800,000	11.75%	12,550,949	1,177.38	14.72	11.05%	130.14	1.63
PEOPLE TOTAL	2,999,894,154	4.22%	126,450,228	13,527.36	169.09	2.45%	330.95	4.14

B7: Donor details

	Number of Transactions	Percentage of Electronic Transactions	Number of Electronic Transactions	Total Value of Money (Billion BDT)	Total Value of Money (Billion USD)	Percentage of Electronic Payment (Value)	Total Value of Electronic Payment (Billion BDT)	Total Value of Electronic Payment (Billion USD)
D2G TOTAL	6204	100%	6204	243	3.04	100%	243.45	3.04
Grants	6144	100%	6144	46	0.57	100%	45.67	0.57
Loans	60	100%	60	198	2.47	100%	197.78	2.47
D2B TOTAL	12420	100%	12420	60	0.75	100%	59.92	0.75
Grants	12420	100%	12420	60	0.75	100%	59.92	0.75
D2P TOTAL								
Cash transfers	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
DONOR TOTAL	18624	100%	18624	303	3.79	100%	303.37	3.79

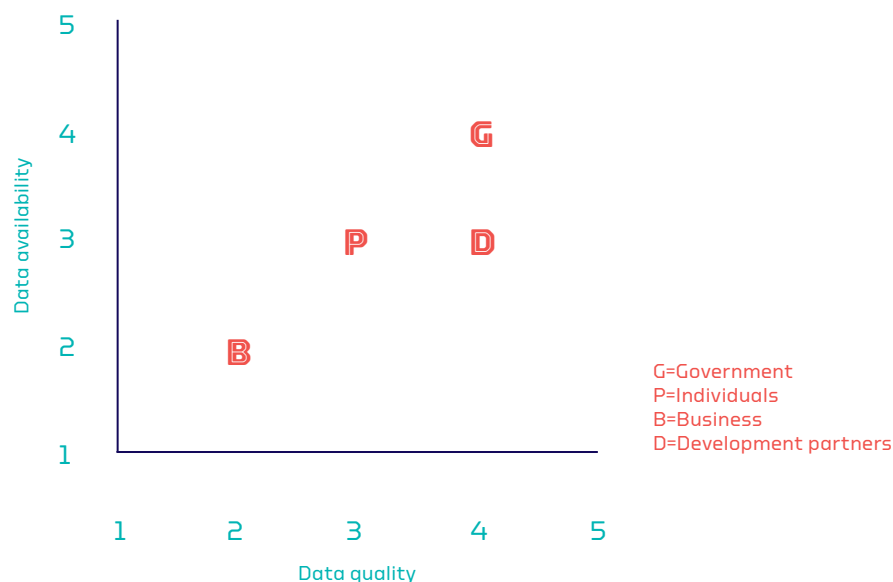
B8: Glossary of general payment terms used

TERM	DEFINITION
ACH/ AUTOMATED CLEARING HOUSE	An electronic clearing system in which payment orders are exchanged among financial institutions, primarily via magnetic media or telecommunications networks, and handled by a data processing center.
MOBILE MONEY	A service in which the mobile phone is used to access financial services. ⁸⁵
MOBILE BANKING	When customers access a bank account via a mobile phone; sometimes, they are able to initiate transactions. ⁸⁶
MOBILE WALLET	A mobile wallet is a type of payment service through which businesses and individuals can receive and send money via mobile devices. ⁸⁷
MFS AGENT	A person or business that is contracted to facilitate transactions for users. The most important of these are cash-in and cash-out (i.e., loading value into the mobile money system, and then converting it back out again); in many instances, agents register new customers too. Agents usually earn commissions for performing these services. They also often provide front-line customer service – such as teaching new users how to initiate transactions on their phone. Typically, agents will conduct other kinds of business in addition to mobile money. The kinds of individuals or businesses that can serve as agents will sometimes be limited by regulation, but small-scale traders, microfinance institutions, chain stores, and bank branches serve as agents in some markets. Some industry participants prefer the terms “merchant” or “retailer” to describe this person or business to avoid certain legal connotations of the term “agent” as it is used in other industries. ⁸⁸
OTC TRANSACTIONS	Unlike a customer-managed electronic mobile wallet, OTCs occur when senders or receivers do not use their own accounts. OTC transactions instead occur when customers transact in cash with an agent who executes the electronic payment on their behalf.
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 mobile money account.
CASH OUT	The process by which a customer deducts cash from his mobile money account. This is usually via an agent who gives the customer cash in exchange for a transfer from the customer’s mobile money account. ⁹⁰
PAYMENT INSTRUMENT	Any instrument enabling the holder/user to transfer funds.
HIGH VALUE CHECK	Checks with value BDT. 500,000 (US\$6250) or more.
PAYMENT SERVICE PROVIDER (PSP)	Entity that does not participate directly in a payments system but specializes in managing payment transactions for the public.
PAYMENT STREAM	A cluster of payment use cases.
PAYMENTS SYSTEM	A payments system consists of a set of instruments, banking procedures and, typically, interbank funds transfer systems that ensure the circulation of money.
PAYMENT USE CASE	A description of an individual payment that identifies the payment’s store of value, the payment instrument used, and the channel through which payment instructions are issued.
REAL-TIME GROSS SETTLEMENT (RTGS) SYSTEM	The system used to effect continuous (real-time) settlement of funds or securities transfers individually on an order by order basis (without netting).
DIGITAL FINANCIAL SERVICES	The definition includes card-based services, EFT, and MFS.
MOBILE FINANCIAL SERVICES	Mobile Financial Services only includes services that are provided via mobile phones.
SWITCH	In payment context: an electronic software program which enables different devices and financial operating systems to connect for the purpose of exchanging information.

Quantitatively mapping the payments landscape is a necessary first step to a targeted effort to transition from cash to electronic payments. However, with large segments of transactions taking place in cash, aggregate estimates – especially data on payment volumes – are not available and needed to be constructed from multiple sources.

The aggregate DQI was 3.25 for quality and 3.00 for availability, on a scale of 1 to a maximum of 5 for high quality, widely available data.

FIGURE C1: Depiction of the Data Quality Index for Bangladesh



As Figure C1 shows, the aggregate DQI is composed of the following results: Data from government sources has a DQI of 4 for quality and 4 for availability, reflecting greater availability of recent and credible data. Most of the transaction data is published in report format as well as online by the Central Bank and the rest were sourced from data request submissions through the Central Bank. Only a few of the estimations required calculations based on expert opinions.

For business payments, the DQI is 2 for quality and 2 for availability. Most of the data points were reached based on a composite of national surveys, international heuristics, and assumptions. For individuals, the quality and availability scores are both 3. Data available on consumer spending and expert opinions are the sources for these estimations broadly. These lower DQI scores reflect reliance on assumptions and extrapolations. Development community data was given a DQI of 4 for quality and 3 for availability as there are dedicated government bodies that track the data and publish them in printed reports as well as online formats. However, some of the data points needed were not available and hence required a few estimations.

ANNEX D.

Use Case Trajectory Scores

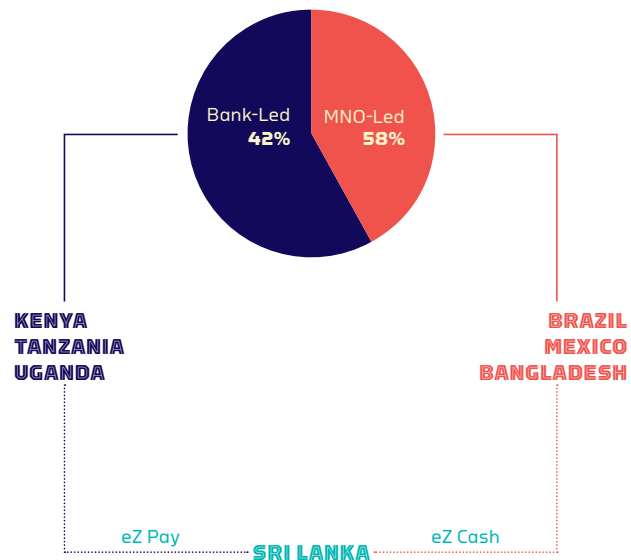
	A FEW-TO-MANY (Mass Bulk payment)	B MANY-TO-MANY (First-hand payment)	C MANY-TO-FEW (Remote Bill payment)
*Note overall score is the simple average of the headline numbers in each of the five main categories (shown in bold); the underlying sub-scores are used as indicators to arrive at the headline in each case.			
COUNTRY ENVIRONMENT	2.4	2.8	3.2
Legal environment for electronic payments sufficiently clear and certain to support shift	3	2	3
The communications and processing infrastructure supports robust transaction processing	2	3	3
There are a variety of providers offering the service defined in priority use cases on a competitive basis	2	3	3
The oversight environment for payments is clear and certain	3	4	4
The settlement and clearing infrastructure supports the defined use case	2	3	3
GOVERNMENT	2.3	2.7	3.7
There is a clearly identified national lead agency responsible for the shift to electronic	2	2	4
The lead agency has the mandate and qualified resources sufficient to coordinate the shift across departments/agencies	4	4	4
The national government at least monitors centrally and preferably publishes data on the extent of electronic payments	1	3	4
There is a law or binding regulation requiring transition to electronic for some or all of government	3	3	4
There are well documented credible examples of cost-benefit analysis – awareness of benefits	3	2	4
The payment instruments exist to service the main use cases defined by government	1	2	2
SERVICE PROVIDERS	2.8	2.8	2.8
Providers see value in providing this service through electronic payments	2	2	2
Providers can monetize the value of offering this service through electronic means	3	3	3
Providers are willing to make the necessary investments required to offer this service	3	3	3
Providers consider this service important and therefore market it appropriately	3	3	3
NON-FINANCIAL BUSINESSES	3.4	3.4	3.8
The perceived advantages of shifting exceed disadvantages	3	3	3
There is no stigma attached to electronic channels as a result of recent or major experience of loss	3	3	4
There are additional incentives offered to use electronic	4	4	4
Cash payments are restricted or else electronic payments required by law in defined circumstances	3	3	4
Cost of cash studies have been performed on categories of business payment and published	4	4	4
CONSUMERS	2.0	2	2.4
There is no history of major negative incident or public disrepute associated with electronic payments in the past five years	2	2	2
There is no widespread distrust of financial institutions among the general public	2	2	2
There is a ubiquity of points at which cash can be exchanged for electronic value in an account and vice versa	2	2	2
Individuals consider the risk of electronic theft less or lower than risk of cash theft	2	2	3
Many people have electronic accounts through which they can conduct electronic payments	3	3	4
OVERALL	2.6	2.7	3.2

ANNEX E.

Should Bangladesh Rethink Its Purely Bank-Led Model for MFS

The global experience with mobile banking has given rise to around 270 live deployments across two predominant models: an MNO-led model and a bank-led model. Globally, about 58% of the deployments can be categorized as MNO-led models, while 42% can be categorized as bank-led models (Figure E1). MNO-led models also have a bank in partnership for safe-keeping of the funds. It can be argued that most MNO-led models have experienced success in least-developed-countries (LDCs), while bank-led models have experienced success in middle-income countries (MICs). Some countries are experimenting with hybrid models too: Sri Lanka allows both MNO-led and bank-led models to coexist. India has introduced a “payment bank” model where non-bank entities are allowed to operate special purpose mobile banking services.

Figure E1: MNO-led and Bank-led Models



The idea behind a payment bank is to provide basic financial services such as savings, remittance, cash withdrawal, etc. in a more cost effective way than a formal bank branch can provide. Most of the successful payment banks around the world are not banks; they are FMCGs or telcos, largely because they have a proven track record with many of the accelerators for payment banks, such as: simplified KYC, widespread distribution points, and product innovation. They can track and mine their customer data efficiently, they possess a distribution network that is deeply entrenched in a country, and they tend to have a high level of expertise and success at product innovations because that is a source of their competitiveness in their respective industries.

Some nations are already experimenting with payment banks. The Banco Walmart model in Mexico, and the new Reserve Bank of India licensing guidelines for payment banks in India are but a few examples. There is no reason why Bangladesh could not also learn from this model. It could add several hundred thousand new MFS points within a short time – thereby significantly expanding the reach and access to financial services – not something a traditional bank could do easily or quickly. It could also attract a set of new players who bring prior experience with many of the accelerators, making the overall market more competitive – this could in turn bring product innovations, better pricing and better services to consumers.

Bangladesh has around 36.2 million⁹¹ registered accounts and about \$1.3 billion worth of transactions per month (about \$45 million per day)⁹² through mobile banking, according to the Bank of Bangladesh. Not all the registered accounts belong to end-users; MFS agents own a large number of the end-user accounts today. MFS is mostly limited to services such as cash-in, cash-out, person-to-person (P2P) transfers, salary disbursements, and utility bill payments. The last two categories remain relatively less prevalent (less than 5% of monthly transactions).

It is arguable that in Bangladesh, the deployments that followed purely bank-led models have had less success than the market leader that is clearly following a de facto hybrid model. It would seem the regulatory body for the Bangladesh MFS industry is more inclined to follow a composite of bank-led and hybrid model. The latest amendment, Regulatory Guidelines for MFS 2015, had several positive aspects. For starters, risk-proportionate simplified KYC requirement for limited purpose Mobile Accounts is definitely one of those. Another is the opening up of equity stakes to MNOs. Another positive change is the further expansion of the categories of transactions allowed through mobile banking. However, the amendment has received criticism for trying to control the market via ownership structure. The guidelines stated that each stakeholder should have no more than 15% equity, with banks cumulatively holding the majority. This means a mobile banking operation needs to have about seven different equity partners. Even if the coordination costs associated with this proposal are neglected, getting seven organizations, some of whom will be direct competitors in their traditional businesses, to reach agreement will not only be difficult, but could produce an ineffective governance structure. Moreover, with limited equal shares, the incentive for one organization to take the lead on anything will be extremely limited. Additionally, the new draft guidelines indicate that this multi-player approach is intended to encourage interoperability in mobile banking. But this guideline failed to comprehend how the new and existing entities will cope with the renewed ownership structure. This clause resulted in further criticism, eventually stalling the enactment.

Bangladesh would benefit from an independent assessment of its existing MFS regulations to date in order to extract lessons and put in place the optimal policy framework that could catalyze the next phase of mobile money growth for the country. If that requires a rethink of the current bank-led model, such an approach should not be off limits for the assessment.

ANNEX F.
Findings from
Demand Side Survey

The Bangladesh Country Diagnostic included a primary research component. The objective of this primary research component was not to generate statistically significant data points, but rather test and validate some of the secondary data, as well as generate insights that were otherwise unavailable from secondary sources.

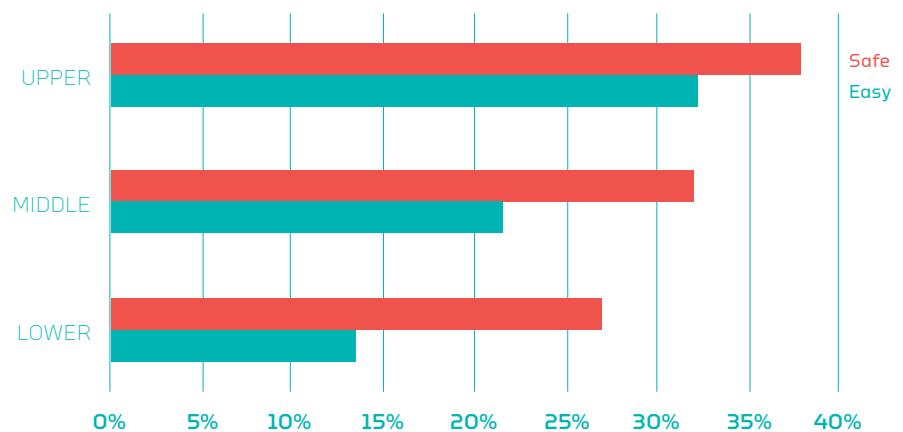
The field research was conducted with 700 respondents across three locations in the country: Dhaka, Chittagong, and Sirajgonj, across urban, semi-urban, and rural areas. The respondent mix consisted of 400 respondents from urban areas and 300 from semi-urban areas. 400 end-users, 150 merchants, 100 MFS agents, and 50 agent-banking agents were included in the survey.

The key insights generated from the primary research are summarized below:

INSIGHT 1: USAGE OF ELECTRONIC PAYMENT INCREASES WITH SOCIO-ECONOMIC CLASS

As we move higher along the socio-economic status groups, we see a rise in the percentages of people who perceive electronic payments to be easier and safer.

Figure F1: Usage of electronic payments increases with socio-economic status



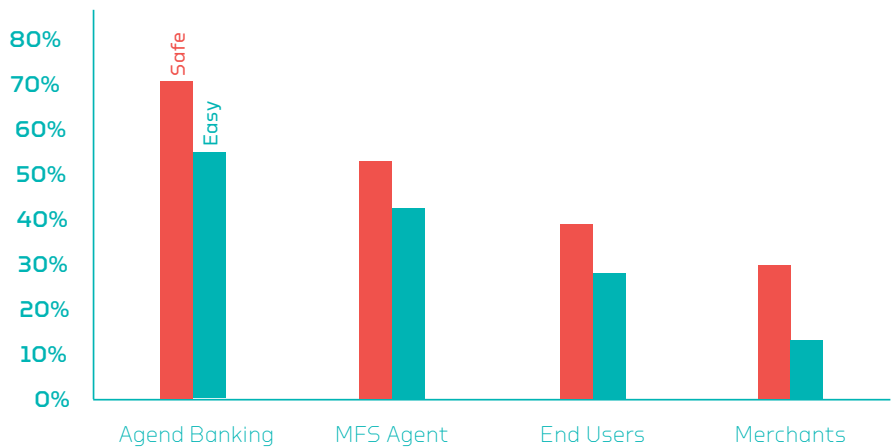
INSIGHT 2: DFS PREFERENCE CHANGES WITH THE ACTORS' ROLE IN PAYMENT ECOSYSTEM

For a substantial shift toward digitization, all actors within the value chain should be at a somewhat similar stage. If the payments for goods and services value chain are in consideration, there are basically three actors:

1. Facilitator
 - a. Agent banking Agent
 - b. MFS agent
2. End user
3. Merchant

Simply put, the versatility of cash cannot be overturned unless every actor in the landscape is willing to accommodate the prospect of a digitized payment system. It is evident from the findings of the primary research that merchants are least convinced of the prospect of DFS (both in terms of safety and ease of use); this means that shifting the viewpoints of merchants toward digitization ought to be a key focus area.

Figure F2: Comparison of different actors in the payment ecosystem



INSIGHT 3: PEOPLE WHO USE MFS REGULARLY, MAKE 4 – 5 TRANSACTIONS PER MONTH

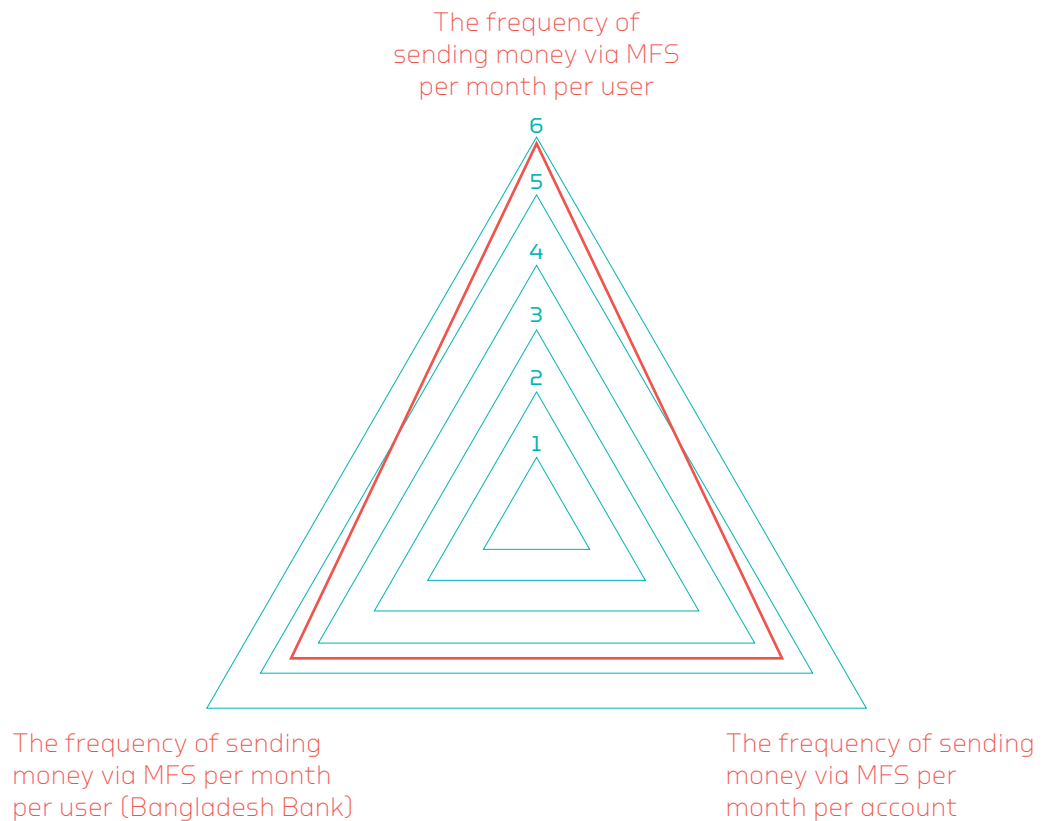
From the survey, it was found that:

- The frequency of MFS transactions per month per user is 5.82
- The frequency of MFS transactions per month per mobile wallet is 4.21

From the separate analysis of P2P remittance from Bangladesh Bank data:

- The frequency of MFS transactions per month per user is 4.5

Figure F3: Data validation through multiple sources

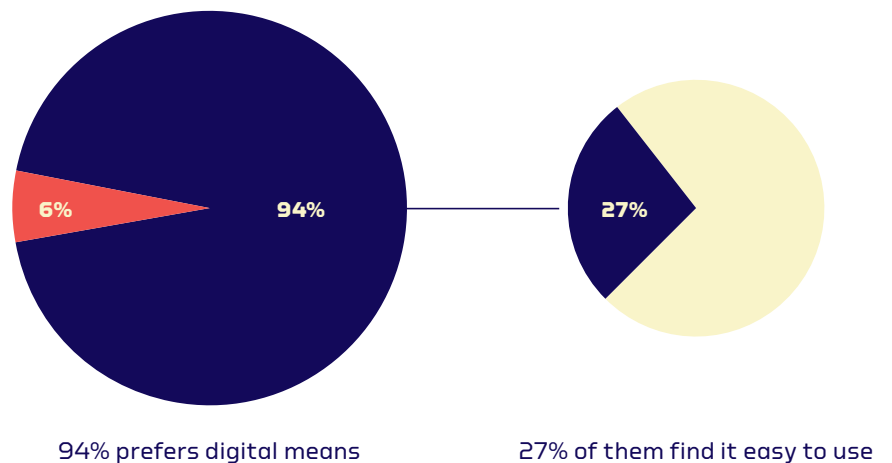


Once triangulated, the demand side survey and supply side data from Bangladesh Bank indicate that the frequency of MFS transactions per month per user is between 4 and 5 transactions.

INSIGHT 4: EASE OF USE REMAINS KEY ROADBLOCK TO MATERIALIZE USER PREFERENCE

The survey finds that even though 94% of respondents prefer DFS for sending money, only 27% of them find it user friendly. (This may partially explain high OTC prevalence in Bangladesh.)

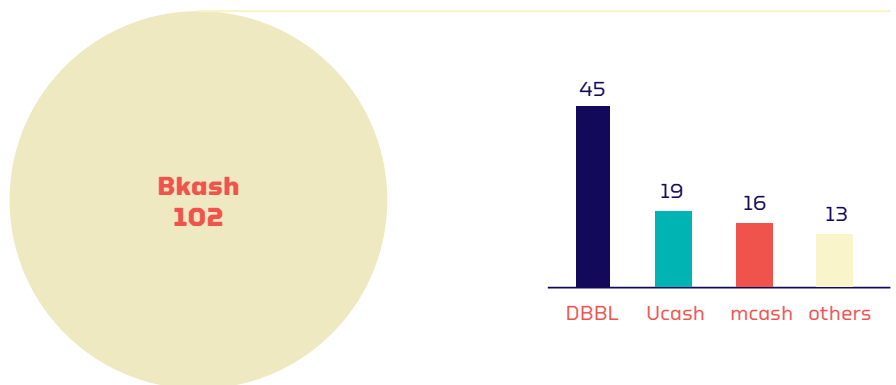
Figure F4: Ease of use vs. preference



INSIGHT 5: NUMBER OF MFS AGENTS IN BANGLADESH IS LARGELY SYNONYMOUS TO NUMBER OF BKASH AGENTS

From the 102 MFS agents surveyed, following is the split of different mobile money services:

Figure F5: Composition of MFS agents by mobile money services



As it has been seen, each of the 102 agents surveyed provide bKash services. In addition, some of them also provide services for other MFS providers. Currently, the total number of bKash agents in the country is slightly over 140,000.

(In previous MFS agent surveys conducted by pi Strategy, at no point did we find more than 5-7% agents who do not provide bKash services.)

Taking these two factors into consideration, pi Strategy estimates there are about 150,000 MFS agents today in Bangladesh.

List of Sources for Data Points

GOVERNMENT PAYMENTS

PAYER	PAYMENT GRID	SUB LEVEL	SOURCES	
G	G2G	Budgetary Allocations (development)	a. Ministry of Finance, Government of the People's Republic of Bangladesh, Monthly Fiscal Report, (issue December 2015.) Published by Ministry of Finance, Government of the People's Republic of Bangladesh, 2016	
		Budgetary Allocations (Non-development)	b. Bangladesh Bank Monthly Debit and credit Scroll, December 2015, provided by Mokhlesur Rahman, Systems Analyst, Bangladesh Bank, 15 July, 2016	
		Funding of Programs		
	G2B	Supplier Payments	a. Ministry of Finance, Government of the People's Republic of Bangladesh, Monthly Fiscal Report, (issue December 2015.) Published by Ministry of Finance, Government of the People's Republic of Bangladesh, 2016	
		Social Security Contributions	b. Findex 2014, databank.worldbank.org, accessed on 20 June 2016	
		Subsidies	c. Bangladesh Bank Monthly Debit and credit Scroll, December 2015, provided by Mokhlesur Rahman, Systems Analyst, Bangladesh Bank, 15 July, 2016	
	G		Interest Payments (domestic)	a. Titas Gas Transmission and Distribution Company Limited, Annual Report, (Issue 2014-15), Titas Gas Transmission and Distribution Company Limited, 2015
			Utility Payments	b. Md. Delwar Hossain, Senior Systems Analyst, Dhaka Water And Sewerage Authority, interviewed by Ashiqur Rahman, 19 June 2016
	G2P		Welfare Programs	pi Strategy, Need for innovation in social safety nets program, a2i, pi Strategy and CGAP, 2015
			Salaries	EFT summary of Government salaries of February 2015-16, provided by Abdur Rahman, Deputy CGA, Controller General of Accounts, Government of the People's Republic of Bangladesh, 06 June, 2016
Pensions (+gratuities)			a. Ministry of Finance, Government of the People's Republic of Bangladesh, Social Safety Nets Budget 2013-14, Published by Ministry of Finance, Government of the People's Republic of Bangladesh, 2014 b. pi Strategy, Need for innovation in social safety nets program, a2i, pi Strategy and CGAP, 2015	

BUSINESS PAYMENTS

PAYER	PAYMENT GRID	SUB LEVEL	SOURCES
B	B2G	Income Tax	National Board of Revenue (NBR), Bangladesh, NBR Yearbook (Issue 2013-14), National Board of Revenue (NBR), Bangladesh, 2015
		VAT	National Board of Revenue (NBR), Bangladesh, NBR Yearbook (Issue 2013-14), National Board of Revenue (NBR), Bangladesh, 2015
		Import Duty	a. National Board of Revenue (NBR), Bangladesh, NBR Yearbook (Issue 2013-14), National Board of Revenue (NBR), Bangladesh, 2015 b. Data provided by PRI based on their internal assessment of import duties, July 11, 2016
		Excise Duty	National Board of Revenue (NBR), Bangladesh, NBR Yearbook (Issue 2013-14), National Board of Revenue (NBR), Bangladesh, 2015
		Supplementary Duty	a. National Board of Revenue (NBR), Bangladesh, NBR Yearbook (Issue 2013-14), National Board of Revenue (NBR), Bangladesh, 2015 b. Data provided by PRI based on their internal assessment of import duties, July 11, 2016
		Other Tax	N/A
		Non-NBR Tax	Ministry of Finance, Government of the People's Republic of Bangladesh, Monthly Fiscal Report, (issue December 2015.) Published by Ministry of Finance, Government of the People's Republic of Bangladesh, 2016
		Non-tax Revenue	Ministry of Finance, Government of the People's Republic of Bangladesh, 2016
		Fees for Licenses and Permits	N/A
		Utility Payments	Bangladesh Power Development Board, Annual Report BPDB, (Issue 2013-14), Bangladesh Power Development Board, 2014
	B2B	Supplier Payments	Expert opinions from 2 market leaders in the retail sector, Swapno, and Agora.
		Electricity	a. Bangladesh Power Development Board, Annual Report BPDB, (Issue 2013-14), Bangladesh Power Development Board, 2014 b. Rural Electrification Board, Bangladesh, Annual Report REB, (Issue 2013-14), Rural Electrification Board, Bangladesh, 2014
		Gas	Titas Gas Transmission and Distribution Company Limited, Annual Report, (Issue 2013-14), Titas Gas Transmission and Distribution Company Limited, 2015
Water and Sanitation		Findex 2014, databank.worldbank.org, accessed on 20 June 2016	
B2P	Salaries and Benefits	a. Findex 2014, databank.worldbank.org, accessed on 20 June 2016 b. www.tradingeconomics.com, accessed on 30 June 2016	

PERSON PAYMENTS

PAYER	PAYMENT GRID	SUB LEVEL	SOURCES
P	P2G	Income Tax	National Board of Revenue (NBR), Bangladesh, NBR Yearbook (Issue 2013-14), National Board of Revenue (NBR), Bangladesh, 2015
		VAT	National Board of Revenue (NBR), Bangladesh, NBR Yearbook (Issue 2013-14), National Board of Revenue (NBR), Bangladesh, 2015
		Supplementary Duty	
		Other Tax	
		Import Duty	National Board of Revenue (NBR), Bangladesh, NBR Yearbook (Issue 2013-14), National Board of Revenue (NBR), Bangladesh, 2015
		Non-NBR Tax	
		Utility Payments	
	P2B	Electricity	a. Bangladesh Power Development Board, Annual Report BPDB, (Issue 2013-14), Bangladesh Power Development Board, 2014 b. Rural Electrification Board, Bangladesh, Annual Report REB, (Issue 2013-14), Rural Electrification Board, Bangladesh, 2014
		Gas	Titas Gas Transmission and Distribution Company Limited, Annual Report, (Issue 2013-14), Titas Gas Transmission and Distribution Company Limited, 2015
		Water and Sanitation	Findex 2014, databank.worldbank.org, accessed on 20 June 2016
		Payment for Goods and Services (cash)	
		School Fees	Findex 2014, databank.worldbank.org, accessed on 20 June 2016
		Credit Card Payments	Bangladesh Bank, Monthly Economic Trend (Issue March 2016), Bangladesh Bank, 2016
		Debit Card Payment	Bangladesh Bank, Monthly Economic Trend (Issue March 2016), Bangladesh Bank, 2016
	P2P	Remittances Gifts	The World bank, Migration and Remittance Factbook 2016, (Third edition), The world Bank, 2016 Rahman, Bari, Sayeda, Domestic Vs International Remittance flow: Economic Analysis of the Value of Remittance Transfer from Bangladeshi Migrants. IOSR Journal of Economics and Finance, 2015



DONOR PAYMENTS

PAYER	PAYMENT GRID	SUB LEVEL	SOURCES
D	D2G	Loans	Economic Relations Division, Ministry of Finance, Government of the People's Republic of Bangladesh, Flow of External Resources into Bangladesh, (issue November 2015.) Published by Economic Relations Division, Ministry of Finance, Government of the People's Republic of Bangladesh, 2015
		Grants	Economic Relations Division, Ministry of Finance, Government of the People's Republic of Bangladesh, Flow of External Resources into Bangladesh, (issue November 2015.) Published by Economic Relations Division, Ministry of Finance, Government of the People's Republic of Bangladesh, 2015
	D2B	Grants	NGO Affairs Bureau, Prime Minister's Office, Government of the People's Republic of Bangladesh, FLOW OF FOREIGN GRANT FUND THROUGH NGO AFFAIRS BUREAU : AT A GLANCE, (issue May 2016.) Published by NGO Affairs Bureau, Prime Minister's Office, Government of the People's Republic of Bangladesh, 2016

GOVERNMENT PAYMENT CALCULATIONS

PAYMENT GRID	SUB LEVEL	METHODOLOGY
G2G	Budgetary Allocations (development)	Data Available from the source: Budgetary allocations of Government Segregated into development and non-development Number of Transaction: Calculated from the number of payments to ministries from the monthly scroll of December, 2016 Bangladesh Bank. Electronic (Number/Percentage of Transaction): Calculated from monthly scroll of December, 2016. Percentage of (MICR clearing+transfers+EFT) from total number of transactions Total Value: Available directly at source
	Budgetary Allocations (Non-development)	Electronic (Total Value/Percentage): Calculated from monthly scroll of December, 2016. Percentage of (MICR clearing transfers+EFT) from total value
	Funding of Programs	
G2B	Supplier Payments	Data Available from the source: Budgetary allocations of Government Segregated into development and non-development
	Social Security Contributions	Number of Transaction: Calculated from the number of payments to ministries from the monthly scroll of December, 2016 Bangladesh Bank.
	Subsidies	Electronic (Number/Percentage of Transaction): Calculated from monthly scroll of December, 2016. Percentage of (MICR clearing +transfers +EFT) from total number of transactions Total Value: Available directly at source
	Interest Payments (domestic)	Electronic (Total Value/Percentage): Calculated from monthly scroll of December, 2016. Percentage of (MICR clearing transfers+EFT) from total value.
	Utility Payments	Data Available from the source: Revenue from Govt. power plants are reported by Titas Gas Number of Transaction: Number of power plantsx12 (one payment per month) Electronic (Total Value/Percentage): Available directly at source Electronic (Total Value/Percentage)
G2P	Welfare Programs	
	Salaries	Data Available from the source: All Government salaries with media of transfers and number of employees Number of Transaction: Number of govt. Employees x 12 Electronic (Number/Percentage of Transaction): Aggregate Percentage of Electronic = no of total electronic transactions/ no of total transactions Total value: Available directly at source Electronic (Total Value/Percentage): Aggregate Percentage of Electronic
	Pensions (+gratuities)	Data Available from the source: Available directly from the source Number of Transaction: Summation of (no. of beneficiariesx frequency of payment per year) Electronic (Number/Percentage of Transaction): Aggregate Percentage of Electronic = no of total electronic transactions/ no of total transactions Total Value: Available directly at source Electronic (Total Value/Percentage) Aggregate Percentage of Electronic

BUSINESS PAYMENT CALCULATIONS

PAYMENT GRID	SUB LEVEL	METHODOLOGY
	Income Tax VAT	Data Available from the source: Total income tax with 72% being tax from companies. Number of persons and company tax payers are also reported Number of Transaction: Company tax payers divided into 4 groups who pay 1,2,3,4 and 12 times a year and assigning percentages Total Value: Total Income Tax x 72% Data Available from the source: Total VAT categorized into product, Service and Trade is reported with an amount that is deducted at source Number of Transactions: number of company taxpayers x 12 Total Value: VAT cut at source + VAT from trade
	Import Duty	Data Available from the source: NBR reports total import tax. Number of Transactions: total revenue / (total import duty / number of instruments) Total Value: Available directly at source.
	Excise Duty	Data Available from the source: NBR reports total excise duty Number of Transaction: total revenue / (total import duty / number of instruments) Total Value: Available directly at source.
	Supplementary Duty	Data Available from the source: NBR reports total supplementary duty Number of Transactions: total revenue / (total import duty / number of instruments) Total Value: Available directly at source.
	Other Tax	NA
	Non-NBR Tax	Total Value: Govt. revenue from Monthly fiscal report MOF Electronic (Total Value/Percentage)
	Non-tax Revenue	NA
	Fees for Licenses and Permits	NA
	Utility Payments	Data Available from the source: Total Consumption amount, total number of customer, Consumer Mix, Consumption Mix, amount given to Govt., flat rates are reported. Split of Domestic, Commercial and Industrial Consumption is also reported Number of Transactions: Number of customers x percentage of business x percentage of Public ownership Electronic (Number/Percentage of Transaction): FINDEX reports percentage of people paying utility electronically Total Value: ((Consumption by commercial x flat rate)+(Consumption by industrial x flat rate)) x percentage of public ownership
		Salaries and Benefits

B2B	Supplier Payments	Total Value: Supplier payments extrapolated from the estimations of organized retail market based on the expert opinion of the two market leaders of the organized retail market (Swapno and Agora)
	Electricity	Data Available from the source: Total Consumption amount, total number of customer, Consumer Mix, Consumption Mix, amount given to Govt., flat rates are reported. Split of Domestic, Commercial, and Industrial Consumption is also reported Number of Transactions: Number of customers extrapolated from 94% market share of DESCO, DPDC, BPDB, REB x percentage of business Electronic (Number/Percentage of Transaction): FINDEX reports percentage of people paying utility electronically Total Value: ((Consumption by commercial x flat rate)+(Consumption by industrialxflat rate)) extrapolated from 94% market share of DESCO, DPDC, BPDB, REB
	Gas	Data Available from the source: Total Consumption amount, total number of customer, Consumer Mix, Consumption Mix, amount given to Govt., flat rates are reported. Split of Domestic, Commercial and Industrial Consumption is also reported Number of Transactions: Number of customers extrapolated from 62% market share of Titas gasxpercentage of business Electronic (Number/Percentage of Transaction): FINDEX reports percentage of people paying utility electronically Total Value: ((Consumption by commercialxflat rate)+(Consumption by industrialxflat rate)) extrapolated from 62% market share of TitasxRevenue collection efficiency rate
	Water and Sanitation	Number of Transaction: Extrapolated from other utility payments regarding water payments as 10% of the whole utility payments Electronic (Number/Percentage of Transaction): FINDEX reports percentage of people paying utility electronically Total Value: Extrapolated from other utility payments regarding water payments as 10% of the whole utility payments Electronic (Total Value/Percentage): FINDEX reports percentage of people paying utility electronically

PERSONAL PAYMENT DETAILS

PAYMENT GRID	SUB LEVEL	METHODOLOGY
P2G	Income Tax	Data Available from the source: Total income tax with 72% being tax from companies. Number of person, salary tax payer, and company tax payers are also reported. Number of Transactions: Number of personal tax payers segregated into paying 1,2,3,4 and 12 times a year and subsequent number from the mix + salary taxpayers x 12 Total Value: Total Income Tax x 28%
	VAT	Data Available from the source: Total VAT categorized into product, Service, and Trade is reported with an amount that is cut at source Total Value: Total VAT-(VAT cut at source + VAT from trade.
	Supplementary Duty	
	Other Tax	
	Import Duty	Total Value: Percentage of home consumption in the value of imported goods x total import duty.
	Non-NBR Tax	
	Utility Payments	
P2P	Domestic Remittance	Data Available from the source: The daily Star reports number of Active customers of bkaash, number of transactions per day, transaction amount per day with break down into cash in, cash out and p2p. FINDEX reports percentage of population receiving domestic remittance and percentage of people receiving domestic remittance via cash. Bangladesh Bank reports inward remittance amount monthly for 2014-15 Number of Transactions: Number of transactions in a year for bkaash/their active customers = Transaction number per customer. Percentage of people receiving remittance x population = Number of remittance receivers. Number of remittance receiver x transaction number per person= total transaction no. Electronic (Number/Percentage of Transaction): Percentage of electronic value has been used as a proxy Total Value: International remittance + Per person domestic remittance x number of receivers Electronic (Total Value/Percentage): FINDEX reports percentage receiving remittance in cash for domestic. ((1-received in cash) x domestic remittance + international remittance)/total remittance

<p style="text-align: center;">International Remittance</p> <p style="text-align: center;">P2P</p>	<p>Data Available from the source: A secondary approach included the estimation of P2P by estimating the international and domestic remittance, from the world bank published remittance factbook and HIES 2010 survey by BBS. This method also used a model and series of assumptions to get to the number of transactions and total value of money.</p> <p>Number of transactions: The model estimated the number of transactions by dividing the international remittance and domestic remittance.</p> <p>For international remittance, the migrant workers were divided into 3 sub levels, according to skill level. By assigning each criteria different tickets size. By multiplying that number with frequency of payment, a number was achieved.</p> <p>Same procedure was repeated for domestic remittance. But one difference was the estimation of the migrant workers used the factor of total migrant workers in 2007, then used the migration growth rate and percentage of economic activation among the internal migrants to reach at a total number of transaction. from that point, the frequency of remittance transaction was estimated to be the ratio of transactions per month and average ticket size of mobile money</p> <p>Then aggregating the two models, total no of transactions was reached.</p> <p>Electronic (Number/Percentage of Transaction): For the payment of via electric channels, the approach was based on the assumption that skilled migrants use non-cash channels to send money back home. From that percentage, total number of transactions via electronic channels were estimated.</p> <p>Same procedure was repeated for domestic remittances</p> <p>Total Value: Summation of (number of transaction x ticket size)</p> <p>The number found here was within 2% error margin of the established value by world bank, so we accept this approach.</p> <p>Electronic (Total Value/Percentage): Summation of (number of transaction x ticket size)</p>
<p style="text-align: center;">Electricity</p> <p style="text-align: center;">P2B</p>	<p>Data Available from the source: Total Consumption amount, total number of customers, Consumer Mix, Consumption Mix, amount given to Govt., flat rates are reported. Split of Domestic, Commercial, and Industrial Consumption is also reported</p> <p>Number of Transactions: Number of customers extrapolated from 94% market share of DESCO, DPDC, BPDB, REB x percentage of residential customers.</p> <p>Total Value: ((Consumption by residential x flat rate) +(Consumption by agricultural x flat rate) +consumption of other x flat rate) extrapolated from 94% market share of DESCO, DPDC, BPDB, REB</p>

P2B	Gas	<p>Data Available from the source: Total Consumption amount, total number of customer, Consumer Mix, Consumption Mix, amount given to Govt., flat rates are reported. Split of Domestic, Commercial, and Industrial Consumption is also reported</p> <p>Number of Transactions: Number of customers extrapolated from 62% market share of Titas gas x percentage of domestic consumers</p> <p>Total Value: (Consumption by domestic consumption x flat rate) extrapolated from 62% market share of Titas x Revenue collection efficiency rate.</p>
	Water and Sanitation	<p>Data Available from the source: FINDEX reports percentage of people paying utility electronically</p> <p>Number of Transactions: Extrapolated from other utility payments regarding water payments as 10% of the whole utility payments Electronic (Number/Percentage of Transaction): FINDEX reports percentage of people paying utility electronically</p> <p>Total Value: Extrapolated from other utility payments regarding water payments as 10% of the whole utility payments.</p>
Payment for Goods and Services (cash)		

DONOR PAYMENT DETAILS

D2G	Loans	<p>Data Available directly from the source: Total value of money, total number of Donations</p> <p>Number of Transactions: Number of donations x 4. (Assumption: the donations were made quarterly)</p> <p>Total Value: Available directly at the source Total value and volume is 100% electronic</p>
	Grants	<p>Data Available directly from the source: Total value of money, total number of Donations</p> <p>Number of Transactions: Number of donations x 4. (Assumption: the donations were made quarterly)</p> <p>Total Value: Available directly at the source Total value and volume is 100% electronic</p>
D2B	Grants	<p>Data Available directly from the source: Total value of money, total number of Donations</p> <p>Number of Transactions: Number of donations x 4. (Assumption: the donations were made quarterly)</p> <p>Total Value: Available directly at the source Total value and volume is 100% electronic</p>

ANNEX I.

List of Organizations and Individuals Interviewed

ORGANIZATION	NAME	DESIGNATION
Bangladesh Bank	Mr. Eskandar Miah	General Manager (PSD)
Bangladesh Bank	Subhankar Saha	Senior Executive Director
Bangladesh Bank	Shah Zia-Ul Haque	Deputy Director (PSD)
Bangladesh Bank	Mokhlesur Rahman	System Analyst (PAD)
CGA	Kamrul Alam	Deputy CGA
NBR	Shafiqur Rahman	Head of Systems Management
Bangladesh Bank	Khandaker Ali Kamran Al Zahid	Joint Director (PSD)
Bangladesh Bank	Debdulal Roy	Systems Manager (IT)
Bangladesh Bank	Md. Azizur Rahman	General Manager (FRTMD)
CGA	Abdur Rahman	Deputy CGA
CGA	Shamsul Haque	CAO (Freedom Fighter Payment)
Bank Asia	Md Arafan Ali	Deputy Managing Director
Bank Asia	MD. Imran Ahmed	Executive Vice President
Bank Asia	Arequl Arefeen	Senior Vice President
Bank Asia	Mohammad Abdul Qaium	Executive Vice President
Pubali Bank	Mr. Syed Moazzem Hussain	Director
Pubali Bank	Mohammad Ali	Deputy Managing Director
Pubali Bank	Syed Ahmed	Chief Financial Officer
Islami Bank	Mohammada Shahid Ullah	Executive Vice President & CFO
Islami Bank	Khaled Mahmud Raihan	Assistant Vice President
Islami Bank	Mohammad Ashraful Alam	Senior Principal Officer
DBBL	Abul Kashem MD. Shirin	Deputy Managing Director
DBBL	MD Abul Kashem Khan	Senior Executive Vice President
WASA	Md. Delwar Hossain	Senior Systems Analyst
PRI	Dr. Ahsan H. Mansur	Executive Director
Swapno	Sabbir Hasan Nasir	Chief Executive Officer
Swapno	Khondokar Al Mamun	Head of Accounts
Agora	Harunur Rashid	Chief Financial Officer
ERD, Ministry of Finance	Md. Ruhul Amin	Deputy Secretary

ANNEX J.
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The Better Than Cash Alliance Research Series

Our case study and country diagnostic series seeks to highlight specific examples of shifts from cash to digital payments by governments, companies, and international organizations. Each case study and country diagnostic aims to provide insights for a wide audience on the factors that have helped or hindered the digitization process, and also present key results and benefits of the transition away from cash. We hope that readers will be able to adapt the lessons from these cases to their own contexts and local conditions.

Bangladesh Project Team

The diagnostic process for this study involved desk research and many in-country discussions by a team of experts to gather data, assess the incentives of participants in the local payments context, and obtain the insights of local BTCA champions and stakeholders. This study also included a limited scope end-user survey. Each diagnostic country team includes local researchers with experience in the payments system and knowledge of relevant institutions and individuals. Content and data in this document are based on information gathered during the second quarter of 2016, and therefore represent data prior to this date.

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About The Better Than Cash Alliance

The Better Than Cash Alliance is a global partnership of governments, companies, and international organizations that accelerates the transition from cash to digital payments in order to reduce poverty and drive inclusive growth. Based at the United Nations Capital Development Fund (UNCDF), the Alliance has over 50 members, works closely with other global organizations, and is an implementing partner for the G20 Global Partnership for Financial Inclusion.