



Discussion Brief



# Interoperability of Digital Finance

Organised by



Institute for Inclusive Finance and Development (InM)

In Association with



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The Institute for Inclusive Finance and Development (InM) in collaboration with the United Nations Capital Development Fund (UNCDF) organised a roundtable discussion on ‘Interoperability of the Digital Finance in Bangladesh: Challenges and Taking off Options’ at the Lake Shore Hotel, Dhaka, on 26 October 2017.

The objective of the roundtable was to engage the policy makers, practitioners, industry leaders and other stakeholders in identifying collective and practical options for extending the frontiers of interoperability of digital financial system in Bangladesh. The focus was on highlighting the challenges along with analysing alternative taking off options. The overall goal was to support priorities of the government in advancing financial inclusion in the country and achieve the Sustainable Development Goals (SDGs). A total of 75 representatives from the Ministry of Finance, Bangladesh Bank, Micro Finance Institutions (MFIs), telecoms regulatory authority (BTRC), commercial banks, DFS providers, Telcos, technology companies, donors, development partners and relevant government officials took part in the dialogue.

Mr. M. A. Mannan MP, Honorable State Minister, Ministry of Finance and Ministry of Planning, Government of the People’s Republic of Bangladesh (GoB) graced the occasion as the Chief Guest. Mr. Subhankar Saha, Executive Director, Bangladesh Bank and Mr. Arijit Chowdhury, Additional Secretary, Financial Institutions Division, Ministry of Finance, GoB were present as the Special Guests. Dr. Lila Rashid, General Manager, Payment Systems Department, Bangladesh Bank was the designated discussant. Mr. Md. Ashraf Alam, Country Project Coordinator, SHIFT UN Capital Development Fund (UNCDF) gave the introductory speech and Dr. Mustafa K Mujeri, Executive Director, InM presented the keynote paper. The session was chaired by Dr. Qazi Kholiquzzaman Ahmad, Chairman, InM.



In the welcome speech, Dr. Mujeri mentioned that dramatic growth in digital financial market had emerged as the most promising development in financial inclusion. The total number of mobile phone subscription has reached 139 million in the end of August 2017 implying that most households have access to mobile phone in Bangladesh. Bangladesh has also one of the most successful mobile financial market globally having 54.4 million registered clients along with the possibility of developing a growing eco-system of products such as savings, credit, microinsurance riding on the mobile money rails.

However, mobile money deployments operate as a 'walled garden' at present, meaning that transactions can only be performed between users of the same system, i.e. a user can only transfer electronic money to another user of the same mobile money deployment. A lack of interoperability acts as a major barrier to the development of the mobile money market. Overall, interoperability gives mobile money service providers the opportunity to increase the volume of digital transactions, improves sustainability of mobile money services, and contributes to an open digital ecosystem that promotes financial inclusion. Hence it is important to establish interoperability through finding a right balance between cooperation and competition.

For the regulators the key is to craft regulation that allows the technology to enable the business model to emerge while balancing access and protection to the base of the pyramid customers. He also mentioned that interoperability should not be an end in itself. It is a means to a broader set of goals to address market fragmentation, to avoid market tipping towards monopoly, to increase innovation irrespective of market power and to address a perceived societal need for interconnectedness across mobile financial networks.

## WELCOME SPEECH

Dr. Mustafa K Mujeri  
Executive Director, InM



The focus of the keynote paper was on the challenges that Bangladesh faces today in terms of establishing interoperability and what could be the possible options that Bangladesh can adopt in moving towards interoperability particularly related to mobile financial services.

Lessons from the global experience suggest four key factors in facilitating payments system interoperability:

- First, **economic incentives**: participants agree to voluntary interoperability for economic gains; often determined by larger business objectives and not just related to costs and revenues of interoperable payments transactions.
- Second, **effective regulatory framework**: rapid voluntary interoperability can be fostered by encouragement from regulatory bodies.
- Third, **government commitment on using digital payments system**: government initiatives to use the new payments system can foster interoperability.
- Fourth, **early dominance**: early dominance by one provider needs careful consideration as it can slow down interoperability.

Further, the technical structure of interoperability needs careful consideration. Worldwide, various options have emerged such as scheme interoperability, network interoperability, and parallel system interoperability; the regulators should consider all options.

A useful framework of interoperability and a three-tiered approach was discussed in the roundtable:

- **Platform-level interconnection**: If mobile money platforms are interconnected, a customer having an account with one service provider can send or receive money to or from the account of a customer with a different service provider.
- **Agent-level exclusivity**: Agent exclusivity revolves around the ability of a customer of one provider to use the agent of another provider for cash-in/cash-out services related to the customer's account.
- **Customer-level interoperability**: This relates to two interoperability scenarios of mobile handset (or accessed via cards or by other means): a customer's ability to
  - access his/her account using any phone with a SIM card on the same network; or
  - access multiple accounts on one SIM.

Economic Incentives

Effective Regulatory Framework

Govt Commitment on Using DPS

Early Dominance

## Mobile Banking in Bangladesh

In recent years, Bangladesh Bank has issued various directives on mobile banking. For interoperability, one initial step is to launch a national unified USSD platform (NUUP) that can bring together all banks and telecom service providers. Overall, for deriving potential benefits of interoperability, Bangladesh needs to address several issues while considering the interplay between interoperability and financial inclusion.

**First**, achieving full interoperability across different payment service providers and digital transactional platforms means bringing non-banks, such as MNOs, into the network. This implies that the foundation for interoperability between banks and authorised nonbanks has to be laid by the regulators through a partnership involving the government, financial institutions and MNOs.

**Second**, ideally the regulatory approach should be to ‘follow the market’. However, as Bangladesh is passing through the early stages of development of digital transactional platforms, regulators should focus attention on ensuring that interoperability is technologically feasible. In this context, regulators should also be prepared to take action where there is evidence that a provider is exploiting its dominant position. The regulators may also mandate interoperability or specify a timeframe for interoperability.

**Third**, the regulators should develop a thorough understanding of the potential new risks posed by interoperability of banks and nonbanks (including legal, operational, and financial risks) and how to address such risks while maintaining a level playing field for all players.

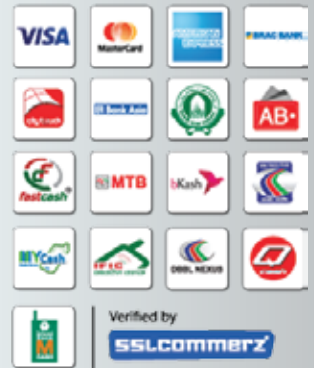
**Fourth**, in the context of lowering security standards for lower-risk scenarios (e.g. small-value transactions or service providers serving specific customer groups), lower security standards should not come at the expense of the integrity of and interoperability with providers and markets that are required to comply with higher security standards.

**Fifth**, the lessons learned from the success of interoperability in different countries and the important insights on how and when to intervene to ensure interoperability are important to consider for Bangladesh. Some important lessons are:

- Interoperability progresses over time; and it takes years to build the volume of transactions of interoperable use cases that can contribute to robust policy conclusions.
- Three functional elements will have to come together for effective interoperability: (i) arrangement governance; (ii) business model, and (iii) technical integration. In practice, much focus is placed on technical interconnections at the expense of required focus on other two elements that are critical to creating volume and economic value.
- Interoperability may either be actively considered as digital financial services grow and mature or prior to digital financial services making a sizeable impact. There is no conclusive evidence to suggest the best time to consider and implement interoperability.

In the MFS market, banks (and other financial institutions) are both customers of, and competitors to, MNOs. This creates a fundamental conflict as MNOs control access to mobile network and has incentives to restrict access to competitors. Restrictions in channel access can have a number of adverse consequences such as:

- (i) potential foreclosure of the market to providers constituting a barrier to entry;
- (ii) consequent limited product range in the market;
- (iii) limited scope for innovation with potentially high-value and high-demand products and services; and
- (iv) high price of products for consumers resulting from increased cost of channel access.



For effective interoperability, three functional elements are critical for creating volume and economic value:

**Technical integration:** Technical infrastructure must be in place to connect participants and transfer payments and related data.

**Business agreements/incentives:** Balanced models should be made operational that can serve economic interests of interoperability participants equitably.

**Governance of interoperability:** Agreed decision making systems are available to manage shared processes, rules, operations and risks.

## Number of interoperability dimensions in Bangladesh

- Potential benefits to consumers and market development; and desirability of interventionist policies for interoperability.
- Implications of removal of agent exclusivity and interoperability and its linkages.
- Potential changes in market behaviour in post-operability environment, including changes in off-net and overall mobile money transactions, channel access and pricing, mobile money wallet related issues, use of value-added services, and active SIM cards across providers.
- Nature of regulatory intervention on interconnection rates in mobile money.
- Interoperability issues for non-payment MFS such as savings account tied to mobile wallets.
- Switch between banks, MNOs and all providers offering financial services via mobile channels.

## Common challenges to interoperability in Bangladesh

- Lack of a common definition resulting in confusion as different operators have different ideas about what it is.
- Benefits associated with interoperability are not always immediately clear, with the true impact of interoperability felt over time.
- Potential mistrust amongst competitors makes it difficult for operators to collaborate even when the benefits of interoperability are realised.
- Understanding and agreeing to a technical and commercial model to govern the interoperable process.
- Conflicting organisational priorities resulting in the desire to delaying of becoming interoperable.
- Imposition of unfavourable regulatory regimes for mobile money and interoperability.

Some other issues also need consideration:

## Technical standards and coordination

A first type of challenge to creating interoperability consists of the need to define and enforce a common set of rules and standards, both in the technical and legal realm.

## Dominant firms

Firms with a strong first-mover advantage, due to an early start and significant investments in rolling out their agent network, are understandably reluctant in opening their network of customers and agents to small competitors, as this reduces their competitive advantage.

While the short-run effect seems to be negative for this operator, in the medium run agreeing to interoperability brings advantages, especially if the overall growth potential of the market is large. It may simply be better to be a less-than-dominant operator in a large market than a dominant one in a small market.

From a market perspective, a refusal of interoperability by the largest operator can result in a lack of competition, in particular if the number of viable candidates for agents is limited: It may be too costly for smaller networks to create their own separate agent network. Thus the refusal of interconnection can freeze a very asymmetric market structure, to the detriment of mobile money customers.

## Competition policy

Competition policy concerns must be balanced with property rights (investments in platform development and agent network) and entrants' incentives to invest. This is a difficult balance to strike, similar to concerns in many other regulated markets. Agents need recruiting, training and branding--all of which are costly-- and investments are made to gain competitive advantage. Imposing interoperability should not destroy incentives to invest in agent networks.

## Approach to interoperability

It is important for Bangladesh to decide which of the two principal approaches to creating interoperability it would follow:

**The collaborative approach:** In this case, the policy makers act as an intermediary. More precisely, the policy makers act as facilitators, helping providers to create the road map that they will be primarily responsible for designing and implementing. The regulators would only intervene if the market is sufficiently developed, with a functioning agent network and an active customer base.

**Mandating interoperability:** This relates to different approaches for interoperability (e.g. via the platform, via the agents, or via the SIM card) and presents different types of costs and regulatory risks, which the regulators can help to clarify. The regulators should also take care that interoperability does not stifle emerging competition, for example, investments in agent networks if third-party sharing is implemented in an immature market. In both approaches, it is necessary that all parties involved see the value of participating. In particular, instead of devaluing their investments, the introduction of interoperability should be expected to increase the value of their infrastructure through higher usage. This is important even under mandated interoperability, since foot-dragging by unwilling operators can create unnecessary delays and reduce user benefits.

A holistic approach is required on the part of the financial regulators and institutions in creating room for e-signing of agreements and OTP-based eKYC authentication, which are critical enablers for completely digital and paperless financial transactions. These processes enable consumers to digitally sign their agreements as opposed to having to visit the bank or having the bank send them many papers to sign.

Considering the dynamics of interoperability, regulators should explore the pros and cons of both mandated interoperability and more market driven approaches and consider one of the three approaches.

The last option means guiding the market by establishing interoperability as a policy objective and setting a timeline within which the market must move to interoperability before it is enforced by regulation. For moving along the line of encouraging interoperability, the government and the regulators should:



- Address the challenges of perceived competition that the private sector poses--within and between financial institutions and payment service providers--and the role that regulation can play in encouraging technology in existing business models.
- Facilitate new market entry and encourage the growth and expansion of non-traditional financial service providers, in particular MNOs, in a compliant and secure way.
- Encourage sector players to participate and engage in the interoperable network--merchants, agents, MNOs and consumers alike.
- Incentivise the market and encourage services providers to recognise the need for interoperability as part of their service, for example, through tax relief.
- Take the lead in encouraging consumers to transact digitally, for example by providing government services online and discounts for individuals who pay for these services through their wallet solutions.
- Ensure that the role of IT infrastructure can be appropriately positioned to realise an interconnected society – a society where IT infrastructure deployment reflects purpose-built regulations and policies, with tailored solutions designed around an agreed goal. MFS must evolve from being solely a tool for transferring money to being the means of empowering the poor with access to banking, credit and insurance markets.

In practice, interoperability is ‘complex and often messy’ and multiple arrangements of interoperability co-exist in all markets. From the findings of a 20-country scan, a number of lessons can be drawn for facilitating interoperability in Bangladesh:

**Create a space for the industry to define the rules:** Mandating interoperability through regulations may lead to creating market distortions.

**Ensure close collaboration between regulators, financial service providers, and other stakeholders:** This is especially critical for setting ground rules and creating an enabling environment for multilateral interoperable scheme.

**Identify an independent facilitator:** This brings in confidence among the participants that the process will not be influenced by any vested interests.

**Plan for achieving interoperability in stages:** This helps all stakeholders to prepare for availing opportunities.

**Adopt a detailed and coordinated plan:** The plan should outline the agreed issues, specific timelines, deliverables and required resources.

For the regulators, the key would be to craft regulations that allow technology-enabled business models to emerge, while balancing access and protection for the base of the pyramid customers.

In addition, moves to promote interoperability should be geared to harness, and not determine, the business case for the stakeholders to make required investments. For approaching interoperability, an important guide for the policy makers could be the following:

- Identify intermediate (e.g. stimulating competition) and ultimate (e.g. universal financial inclusion) objectives of interoperability and put in place appropriate mechanisms to achieve these.
- Since interoperability is not an all-encompassing proposition, it should be tailored to different payment use cases, such as by (i) account type (bank account, mobile wallet); (ii) transaction type (withdrawal, real time transfer); and (iii) channel (ATM, agent). For each use case, adopt a customised policy and commercial pathway for achieving interoperability.
- Adopt a balanced 'managed approach' to interoperability by establishing a sequence of milestones for achieving interoperability for clearly defined use cases.

It is also important to review the progress on interoperability at five different levels: (i) theoretical e.g. systems capability to connect with each other; (ii) technical e.g. points of interconnection/interfaces that make it possible to interoperate; (iii) functional e.g. capacity of points of interconnection to meet agreed technical standards; (iv) business-related e.g. business rules beyond technical standards that make interoperability commercially viable; and (v) effective interoperability that successfully meets financial inclusion and broader national goals.

A pragmatic approach for Bangladesh would be to let the market develop and DFS deepen and mature so that industry actors themselves feel the compulsion of embarking on interoperability initiatives; while simultaneously make a serious beginning in adopting relevant interoperability rules to enable the market to move towards implementing interoperability at the earliest possible time. To facilitate the above, the feasibility of introducing 'Regulatory Sandbox' may be explored such that the regulators would be able to analyse the impact, safety, and robustness of the business models and processes to devise effective DFS interoperability policies in Bangladesh.

Further, we must recognise that interoperability is not – or should not be – an end in itself; it is a means to a broader set of goals: to address market fragmentation; to avoid market tipping towards monopoly; to increase innovation irrespective of market power; and to address a perceived societal need for interconnectedness across DFS networks.

In conclusion, Dr. Mujeri mentioned that it is important to find the right balance between cooperation and competition. Despite the advantages that interoperability brings, not all market participants will necessarily embrace interoperability initiatives, e.g. if they fear to lose their dominant position and/or competitive advantage. Bangladesh Bank is a key driving force in interoperability, but it cannot – and should not – act alone. Other regulators – such as financial and telecom regulators – are also important to achieving interoperability.



<sup>1</sup> The rule sets may cover, for example, a number of transactions e.g. wallet to wallet (P2P), agent wallet to agent wallet (A2A), bulk payments (BP), cash in (CI) and cash out (CO) interoperability rules.

## Comments from Designated Discussant



Dr. Lila Rashid, General Manager, Payment Systems Department, Bangladesh Bank, discussed the whole scenario of digital finance in Bangladesh in connection with both interoperability and financial inclusion. She mentioned that the concept of interoperability is very technical and complex. It needs a joint effort to work on the system to find out a good balance between efficiency and security, particularly in case of digital financial system. It generates some new challenges: (i) sufficient investment in infrastructure; (ii) having necessary technical knowledge; (iii) standard market practice; (iv) supportive regulatory arrangement; (v) monitoring and supervisory capacity; (vi) minimising security concerns; and (vii) issue of digital hundi and money laundering. If all these challenges can be handled, it will be easier to expand the horizon of digital financial service to make it financially inclusive and

viable. This is an urgent issue as Bangladesh desires to promote a less-cash society, to make financial transaction transparent, efficient and secure, and to improve economic conditions. To achieve these goals, a joint effort is needed along with cooperation from the government and stakeholders in the financial market.

During open discussion, following opinions on existing status, challenges and way forward were exchanged:

### Existing status

- The foundation for interoperability between banks and authorised nonbanks has to be laid by the regulators through a partnership involving the government, financial institutions and MNOs.
- Only two operators are now in control of around 96 percent of the market.
- One representative from SureCash mentioned that they were practicing interoperability with five banks. Now customers can pay money not only person-to-person but also pay bills and disbursement, government to person payment etc.
- For interoperability, there exist basically three complexities: technical, business model and governance.
- The card market is always interoperable. Now 41 banks have issued card in the market and only nine banks have card access.

### Challenges

- There are some low hanging fruits and regulatory barriers in the sector. So, if the government can address these issues, it would be useful.
- Some participants cautioned that regarding technical challenges of interoperability, we should consider the business aspect as well because telephone, bank and MFS operating systems are different. So, if we can clearly understand their operation systems, then we should be able to design proper business models.
- Some participants in the roundtable maintained that for creating a supporting environment for MFS sectors, the main problem was small players. Therefore, interoperability is most needed here. And before establishing an interoperable ecosystem, we should have clear discussions with the Ministry of Finance, central bank, and other relevant stakeholders.
- The main challenge is to define interoperability. The foremost criterion of interoperability is homogenous in the same industry where the service providers should talk to each other.

### Recommendations/Way Forward

- Unified Payments Interface (UPI) is now working in India that facilitates inter-bank transactions. Similarly, it is needed to establish interoperability among all financial service providers in our country.
- Core Banking Solutions (CBS) and Ucash, Bkash structures are different. If they need to work together then we need to establish a central platform that Bangladesh Bank (BB) can consider.

- One uniform service like users based services should be introduced.
- For scaling up, we need to adopt the market-wide approach that has already been implemented in countries like India and working well. Bangladesh Bank is working on this but needs to work faster.
- For interoperability, we have to take two initiatives. First, linking MFS account to a bank account; and second, when anyone wants to open an MFS account, we can encourage him/her to open a bank account. Through this, MFS account will be linked to bank account directly. We also need to establish link between smart card and bank account.
- The real essence of interoperability will be ensured only when cards are related to MFS and MFS are related to cards.
- Interoperability should not be seen only in the bank perspective, there are many mobile operators and there exist many complexities. So, two approaches may be considered: (i) make operable all players who already exist in the market; and (ii) develop an ecosystem where all can access.
- Any kind of regulations has to be mandatory; there should not be any collaborative approach. These should be implemented through a third party.

## Remarks from Special Guests

Mr. Subhankar Saha, Executive Director, Bangladesh Bank said that Bangladesh Bank had successfully introduced national payment switch, a robust payment infrastructure and actively promoting interoperability among banks and financial institutions. Drawing from those experiences, now the key regulator of financial sector is expecting to introduce digital finance interoperability by June 2018 in the country, he added.

Other special guest, Mr. Arijit Chowdhury, Additional Secretary, Financial Institutions Division, Ministry of finance said that if there is a time bound action plan, then we can work immediately. Here, Bangladesh Bank will have to play the central role, but other relevant regulators also need to work jointly.

## Remarks from Chief Guest

Honorable Chief Guest, Mr. M. A. Mannan MP, State Minister, Ministry of Finance and Ministry of Planning, Government of the People's Republic of Bangladesh thanked InM and UNCDF for arranging the vibrant and very informative round table discussion on Interoperability. He also thanked Dr. Mustafa K. Mujeri, Executive Director, InM for his presentation and for providing some concrete facts. He highlighted several development strategies and priority areas of the Bangladesh Government. Strengthening the formal justice system and the rule of law is a priority for the Government of Bangladesh and accessible judiciary will facilitate good governance and poverty reduction. InM and the other research organisations are conducting important studies on interoperability and other development challenges generating pragmatic recommendations for the government and policy makers. He suggested ways of linking research outcomes with policy implications. By doing so, not only the poorest and the government but other groups of the society will also be benefited.

## Concluding Remarks from Chair

While giving the concluding remarks, Dr. Qazi Kholiquzzaman Ahmad, Chairman of InM highly appreciated the round table discussion and thanked InM for undertaking this type of programmes. He said that a detailed report would be prepared based on the major issues raised during the discussion. To address the issues of digital financial services and interoperability, he suggested InM to propose the priority groups/areas. He emphasised on several issues while making policy recommendations.



- Transparency should be established in charging of fees to ensure clarity;
- Consumer protection policies of digital financial services need to explicitly concentrate on equitable, sincere, and fair treatment of all customers;
- Transparency and disclosure of clear, sufficient, and timely information on the fundamental benefits, risks, and terms of any product or service should be ensured;
- Competition and high monitoring should also be guaranteed.

He said that only two to three banks are holding 90 percent of the market share in the mobile financial services, but there are other banks which can effectively take part in the business. Proper policy implementation would boost up competition which would lower the price and raise quality. Money transfer fee should be lower. He also emphasised that every person should be included in the development plan. He suggested that high-quality products and services need to be ensured. Bangladesh Government's Vision 2021 focuses on the implementation of digital Bangladesh. Dr. Ahmad also said that policies must be formulated, implemented and monitored with relevant indicators which will inevitably move the country closer to Vision 2021.

## Time Bound Action Plan

Activity	Lead Organisation (s)	Initiation time
<p><b>Strengthen the foundation for interoperability</b></p> <p>Establish interoperability among all financial service providers through enabling inter-bank transactions using Unified Payments Interface (UPI).</p> <p>Set up a central platform to ensure uniformity among Core Banking Solutions (CBS) and mobile structures with one uniform users based service.</p> <p>Adopt market-wide approach for scaling up.</p>	<p>Bangladesh Bank and FID, Ministry of Finance</p> <p>Bangladesh Bank</p> <p>Bangladesh Bank</p>	<p>May 2018</p> <p>April 2018</p> <p>April 2018</p>
<p><b>Interoperable ecosystem</b></p> <p>Introduce interoperability among all service providers existing in the market; and develop an ecosystem where both existing service providers and new entrants can have access.</p> <p>Link existing MFS accounts with bank accounts; and encourage individuals to open a bank account when he/she wants to open an MFS account. Similarly, establish link between all smart cards and respective bank accounts.</p>	<p>Bangladesh Bank and FID, Ministry of Finance</p> <p>Bangladesh Bank and all banking institutions</p>	<p>May 2018</p> <p>April 2018</p>
<p><b>Regulatory framework</b></p> <p>Make regulations mandatory and avoid collaborative approach. These should be implemented through a third party.</p>	<p>Bangladesh Bank and FID, Ministry of Finance</p>	<p>May 2018</p>

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