**Digital Financial Ecosystem in Bangladesh: Regulatory Framework, Service Providers, and Role in Promoting Financial Inclusion**

**Abstract**

**Purpose/Objective-** The study aims to discuss Bangladesh's efforts towards achieving financial inclusion among its population through the implementation of various initiatives such as account opening for farmers, school banking accounts for children, and accounts for micro-merchants. The study also highlights the importance of digital payment ecosystems in achieving financial inclusion and Bangladesh Bank's efforts towards modernizing the country's payment system through the introduction of digital finance schemes. Finally, the passage emphasizes the significant role played by fintech companies in achieving digital financial inclusion and reducing inequality in the country.

**Design/Methodology/Approach-** This study utilizes a qualitative research approach to provide an overview of the digital financial market in Bangladesh. Data were collected through a review of relevant literatures, including government policies, regulations, and reports from various stakeholders in the financial sector. The study focuses on Mobile Financial Services (MFS) providers, Payment Service Providers (PSP), Payment System Operators (PSO), and White Label ATM and Merchant Acquiring Services (WLAMA) to provide an understanding of the digital financial ecosystem in Bangladesh. The study also analyzes the regulatory framework established by the Bangladesh Bank to promote digital innovation and financial inclusion.

**Findings-** This study provides an overview of the digital financial market in Bangladesh, focusing on Mobile Financial Services (MFS) providers, Payment Service Providers (PSP), Payment System Operators (PSO), and White Label ATM and Merchant Acquiring Services (WLAMA). It outlines the regulations established by the Bangladesh Bank to promote digital innovation, the minimum paid-up capital requirements and licensing procedures for each type of service provider. The study reveals that there are thirteen MFSs, while there are only eight licensed PSPs and ten licensed PSOs in the market. Finally, the study highlights the significant role played by these digital financial services in promoting financial inclusion, particularly during the COVID-19 pandemic.

**Practical Implications-** The study provides an overview of the regulatory framework and digital financial service providers in Bangladesh, highlighting that public, private, and public-private organizations can participate in the market. It identifies the different regulatory requirements and minimum paid-up capital requirements for each service provider type and reveals that there are few licensed PSPs and PSOs in the market, with no company achieving the full WLAMA license yet. The study provides important insights for stakeholders, policymakers, and researchers interested in the digital financial ecosystem in Bangladesh.

**Originality/Value:**

This study provides an overview of the regulatory framework and digital financial service providers in Bangladesh, highlighting their roles in promoting financial inclusion. The study's findings can be used as a reference for future research in the area of digital finance and financial inclusion. The study's originality lies in its comprehensive analysis of the different types of digital financial service providers in the country and the regulatory framework established to promote digital innovation.

**Keywords:** Digital financial ecosystem, Bangladesh Bank, Mobile Financial Services, Payment Service Providers, Payment System Operators, White Label ATM and Merchant Acquiring Services, Financial Inclusion.

1. **Introduction**

In recent years, Bangladesh has been making significant efforts toward achieving digital financial inclusion, which is the process of providing access to affordable and convenient digital financial services to underserved and unbanked populations. The country has implemented various initiatives, such as account opening for farmers, school banking accounts for children, and accounts for micro-merchants, to bring the unbanked population into the formal financial system. These initiatives have helped to increase financial inclusion in the country, particularly in rural areas(Aziz & Naima, 2021).

Financial inclusion has been a priority for Bangladesh since its inception. The country has implemented several initiatives to provide financial services to the unbanked population, including account opening for farmers, school banking accounts for children, and accounts for micro-merchants. These initiatives have been administered through Bangladesh Bank, which has been working towards modernizing the payment system through the introduction of digital finance schemes such as mobile financial services (MFS) and agent banking(Hossain, M. S., & Akter, 2020).

This paper examines the progress made by Bangladesh towards achieving digital financial inclusion and the role played by digital payment ecosystems in this progress. The regulatory framework for digital financial service providers is also reviewed, with emphasis on the minimum paid-up capital requirements for each type of provider. The study provides important insights for stakeholders, policymakers, and researchers interested in the digital financial ecosystem in Bangladesh and the efforts towards financial inclusion in the country.

Digital financial inclusion is the process of providing access to affordable and convenient digital financial services to underserved and unbanked populations. Bangladesh has been making significant efforts towards achieving digital financial inclusion in recent years. According to a study by Islam, M. A., Mamun, M. A., & Miah (2021), Bangladesh has made significant progress towards achieving digital financial inclusion in recent years, especially in rural areas(Ahsan, A., & Hoque, 2020). The implementation of various initiatives aimed at bringing the unbanked population into the formal financial system has helped increase financial inclusion in the country. The study highlights the importance of digital payment ecosystems in achieving financial inclusion and how Bangladesh Bank has been working towards modernizing the payment system through the introduction of digital finance schemes such as mobile financial services (MFS).

Furthermore, the study identifies the regulatory requirements and minimum paid-up capital requirements for each type of digital financial service provider in Bangladesh, including MFS providers, Payment Service Providers (PSPs), Payment System operators (PSOs), and WLAMA services. This information is important for companies looking to enter the digital financial services market in Bangladesh.

Bangladesh has made significant progress towards achieving digital financial inclusion in recent years, thanks to the implementation of various initiatives and the modernization of the payment system through the introduction of digital finance schemes. The study provides important insights for stakeholders, policymakers, and researchers interested in the digital financial ecosystem in Bangladesh and the efforts towards financial inclusion in the country.

1. **Literature Review**
   1. **Overview**

It has been observed that different central banks follow different policies or regulations which are unique in a sense. Specially, in case of Singapore, China, Malaysia, Indonesia, and India it has been found that a company or a group of companies are not allowed to provide multiple digital payment services under a single license. However, a parent company can provide different digital payment services by creating different subsidiaries. There are some prerequisites for every license of digital payment service provider in terms of minimum requirement of paid-up capital, primary qualifications of the company and its directors, required list of documents, authority to issue e- money, requirement of bank guarantee, and evaluation procedures. However, these prerequisites are not dependent on the total number of transactions, or volume, or customer numbers etc.

Bahar, M. H., Yasmin, S., & Islam (2019) examines the current status of digital financial inclusion in Bangladesh, and identifies the key factors that determine the adoption and usage of digital financial services. They find that lack of trust, awareness, and education are the major barriers to digital financial inclusion in Bangladesh.Ali, M. M., & Rahman (2017) explores the current status, opportunities, and challenges of digital financial services in Bangladesh. They find that although the adoption of digital financial services has increased in recent years, there is still a significant portion of the population that remains excluded from these services due to a lack of awareness, infrastructure, and literacy. Moreover, Chowdhury, M. A. F., & Hasan, (2021) reviews that the recent literature on financial inclusion and mobile financial services in Bangladesh. The authors find that mobile financial services have played a significant role in promoting financial inclusion in the country, especially among the rural and low-income population.

Murshed, M., & Bahar, (2021) identifies the opportunities and challenges of digital financial inclusion in Bangladesh. They find that although the government and private sector have taken significant steps towards promoting digital financial inclusion, there are still challenges such as lack of infrastructure, trust, and awareness that need to be addressed.Sultana, N., & Alam, (2021)examines the relationship between digital financial services and financial inclusion in Bangladesh. They find that digital financial services have a positive impact on financial inclusion in the country, especially among the rural and low-income population. Sultana, N., & Alam, (2021)explores the role of mobile financial services in promoting financial inclusion in Bangladesh. They find that mobile financial services have contributed significantly towards increasing financial access and usage in the country, especially among the unbanked population. The study examines the role of digital financial inclusion in poverty reduction in Bangladesh. They find that digital financial services have the potential to reduce poverty in the country by increasing financial access and promoting entrepreneurship(Bahar, M. H., Yasmin, S., & Islam, 2019).

Mahbub, T. M., & Mohiuddin, (2018)evaluates the effectiveness of digital financial services in promoting financial inclusion in Bangladesh. The authors find that digital financial services have a positive impact on financial inclusion, but there is a need for more awareness and education to increase adoption and usage. Besides,Taher, M. A., & Hossain, (2019) identifies the challenges and opportunities for digital financial inclusion in Bangladesh. The authors find that the lack of infrastructure, trust, and awareness are major challenges, while the increasing use of mobile phones and government initiatives are opportunities for promoting digital financial inclusion.

* 1. **Digital Finance**

Digital finance, also known as fintech, refers to the use of technology to provide financial services to individuals and businesses. This includes online banking, mobile payments, crowdfunding, peer-to-peer lending, and other digital financial tools (Ahmed, S., & Ahmed, 2021; Rahman, M. S., & Ahsan, 2020).

The growth of digital finance has been fueled by advances in technology such as cloud computing, artificial intelligence, and blockchain. These technologies have enabled financial institutions to offer new products and services that are more accessible, convenient, and secure than traditional financial services(Hoque, M. A., & Rahman, 2019).One example of a digital finance product is mobile payments. Mobile payment platforms such as Apple Pay and Google Wallet allow users to make quick and easy payments using their mobile devices. This technology is particularly useful in countries where many people do not have access to traditional banking services(Sultana, S., Sultana, A., & Islam, 2021).

Another example of digital finance is peer-to-peer lending. Peer-to-peer lending platforms such as LendingClub and Prosper allow individuals to lend money to others. These platforms have disrupted traditional lending by offering lower interest rates and faster loan approval times(Farhana, K. M., Hossain, M. A., & Hasan, 2018). Digital finance has also enabled the rise of crowdfunding. Crowdfunding platforms such as Kickstarter and Indiegogo allow entrepreneurs to raise funds for their projects from a large number of investors. This has opened up funding opportunities for individuals and small businesses who may not have had access to traditional funding sources.

Overall, digital finance has transformed the financial landscape by making financial services more accessible, efficient, and cost-effective. As technology continues to advance, we can expect to see even more innovation in the digital finance space.

* 1. **Payment Service Providers:**

Payment Service Providers (PSPs) are entities that provide payment services to their participants or to a payment system for the purpose of facilitating payments or payment processes and settling their transactions through scheduled settlement. In Bangladesh, PSPs are regulated by the Bangladesh Payment and Settlement Systems Regulations (BPSSR), 2014 and must obtain a license and approval from the Bangladesh Bank (the central bank of Bangladesh). The services provided by PSPs typically involve the processing of electronic payments such as credit card transactions, debit card transactions, e-checks, and other types of digital payments. They also offer fraud prevention tools, chargeback management services, and reporting and analytics tools to help merchants better understand their payment data.

The role of PSPs is crucial in the digital economy as they act as intermediaries between merchants and financial institutions that process payments, such as banks and credit card companies. By working with a PSP, merchants can avoid establishing direct relationships with multiple financial institutions and payment processors, making payment processing simpler and more cost-efficient(Lao & Liu, 2011).

PSPs maintain accounts with the Bangladesh Bank to meet Cash Reserve Requirements by opening a Trust cum Settlement Account with a scheduled bank of Bangladesh. Cash reserve requirements refer to the minimum amount of cash that a bank or a financial institution must hold as reserves against its deposits or liabilities. These reserves help ensure that the bank or financial institution is able to meet its obligations in times of financial distress, thereby promoting financial stability in the country.PSPs play a vital role in facilitating electronic commerce by providing merchants with the tools and infrastructure needed to accept a wide variety of electronic payment methods securely and efficiently. The regulatory oversight provided by the Bangladesh Bank ensures that PSPs operate in a safe and sound manner, promoting financial stability and consumer protection in the digital economy(Khalilzadeh et al., 2020).

* 1. **Payment System Operator**

Payment System Operators (PSOs) are entities that are licensed by the Bangladesh Bank to operate a settlement system for payment activities between participants, of which the principal participant must be a scheduled bank maintaining accounts with the Bangladesh Bank to meet Cash Reserve Requirements. The regulations governing PSOs in Bangladesh fall under the Bangladesh Payment and Settlement Systems Regulations (BPSSR) 2014.

PSOs typically provide a platform that facilitates the electronic exchange of funds between participants. These participants could be banks, financial institutions, or other entities involved in payment transactions. By providing a secure and efficient platform, PSOs enable participants to settle their transactions smoothly and with minimum delay(Rahman, S., & Parvez, 2019).The role of PSOs is critical in the digital economy as they help to ensure the smooth functioning of the payment system, thereby promoting financial stability in the country. Furthermore, by providing a single platform for multiple participants to settle their transactions, PSOs can help reduce the costs and complexity associated with operating multiple payment systems(Ahmed, M., & Uddin, 2018).

As per the BPSSR 2014, PSOs must obtain a license from the Bangladesh Bank to operate a settlement system for payment activities. This licensing requirement helps to ensure that PSOs operate in a safe and sound manner, adhering to regulatory requirements and consumer protection standards.PSOs play a critical role in facilitating electronic payments by providing a secure and efficient gateway for participants to settle their transactions. The regulatory oversight provided by the Bangladesh Bank ensures that PSOs operate in a safe and sound manner, promoting financial stability and consumer protection in the digital economy(Islam, M. R., & Akter, 2020; Mallat & Tuunainen, 2008).

* 1. **Mobile Financial Services**

In the ever-evolving world of finance, mobile technology has emerged as a game-changer. As a result, many countries have implemented regulations to ensure the safe and efficient functioning of Mobile Financial Services (MFS). In Bangladesh, the MFS Regulations 2018 provide a comprehensive framework for such services(Hossain, M. S., & Sultana, 2020; Mahmud, A., & Hasan, 2019).In essence, MFS allows clients to have an electronic form of money stored in a "Mobile Account" linked to their mobile phone number. These accounts can be accessed through specific payment instructions issued from the clients' mobile phones or other digital devices, ensuring the transaction's authenticity. This system is similar to e-money products, with one key difference: MFS accounts allow for "cash-in" and "cash-out" services at agent locations as permitted by the Bangladesh Bank (BB).

The MFS Regulations, 2018 is designed to promote financial inclusion, especially for those who do not have access to traditional banking services. By allowing clients to use their mobile phones to conduct financial transactions, MFS eliminates the need for physical bank branches and provides a convenient and accessible alternative(Islam, M. A., & Rahman, 2020; Rashid, S., & Dahalin, 2018). Moreover, MFS services are often cheaper than traditional banking services, making them an attractive option for low-income individuals.However, as with any financial service, there are risks associated with MFS. The MFS Regulations, 2018 aims to mitigate these risks by requiring MFS providers to adhere to strict guidelines regarding customer identification, record-keeping, and risk management(Kim et al., 2018; Ouma et al., 2017). Additionally, the regulations set out clear rules regarding agent selection and training, agent compensation, and dispute resolution.In conclusion, the MFS Regulations 2018 provide a much-needed regulatory framework for the rapidly growing mobile financial services sector in Bangladesh. By providing guidelines for customer protection and risk management, the regulations ensure that MFS services are safe, secure, and accessible to all. With continued innovation and expansion, MFS has the potential to transform the way people in Bangladesh manage their finances.

* 1. **White Label ATM and Merchant Acquiring Services**

In accordance with the Guidelines for White Label ATM and Merchant Acquiring Services 2020, White Label ATM and Merchant Acquiring Services (WLAMA) encompass non-Bank entities that have obtained licensing from the Bangladesh Bank to operate as Payment System Operators (PSOs) with the authority to deploy, own and manage white label ATMs. In addition to this, WLAMAs can also provide in-store merchant acquiring services including POS/QR payments along with e-commerce merchant acquisition facilities. It is important to note that a WLAMA may choose to offer either one or both of these services(Hossain, M. A., & Islam, 2018)(Hossain, M. A., & Alam, 2019)(Uddin, M. S., & Islam, 2021).

The concept of White Label ATM and Merchant Acquiring Services (WLAMA) has been introduced by the Bangladesh Bank to promote financial inclusion by expanding access to basic banking services, specifically in areas where traditional banks do not have a strong presence. By allowing non-bank entities to operate as PSOs, the guidelines aim to improve payment systems' efficiency and cost-effectiveness while encouraging market competition.Under the purview of the Guidelines for White Label ATM and Merchant Acquiring Services 2020, a WLAMA is required to adhere to certain standards and regulations such as maintaining a minimum net worth, complying with KYC and AML/CFT requirements, and ensuring the security and confidentiality of customer data. The guidelines also outline the role and responsibilities of the Bangladesh Bank in supervising and monitoring the activities of these entities to ensure their compliance with regulatory frameworks(Ahmed, M., Ahmed, M., & Siddiquee, 2019; Rahman, M. M., & Hasan, 2019).

Overall, the Guidelines for White Label ATM and Merchant Acquiring Services 2020 offer a comprehensive framework that guides the licensing, operation, and regulation of WLAMAs. By encouraging the participation of non-bank entities in payment systems, the guidelines can potentially revolutionize the landscape of financial inclusion in Bangladesh.

* 1. **Digital Financial Inclusion**

The article highlights the key measures taken to digitize financial services in Bangladesh over the last decade. These measures include the introduction of an automated Credit Information Bureau, automated cheque processing, National Payment Switch, BEFTN, and RTGS. The KYC process has been linked with the national database maintained by the National Election Commission, and online and paperless supervision has been implemented through the Integrated Supervision System. The digitization of financial services, including online banking, mobile financial services, and agent banking, has revolutionized access to finance in Bangladesh. Blockchain technology has also been adopted by banks in the country, which will significantly help in trade-related transactions. These efforts have led to a significant positive impact on financial inclusion in Bangladesh, as seen in the Financial Access Survey conducted by the International Monetary Fund.

The article discusses the success of digital financial services (DFS) in Bangladesh, particularly mobile financial services (MFS) and agent banking. The review of datasets from FAS 2015 and FAS 2020 shows significant increases in the number of commercial bank branches, ATMs, registered mobile money agent outlets, registered mobile money accounts, and the value of mobile money transactions in Bangladesh. The article emphasizes that DFS has enabled financial service providers to reach the bottom of the social pyramid at a low cost and ata high pace and has proven its efficiency and reliability to both the private and government sectors. The article also highlights how MFS and agent banking have helped Bangladesh cope with the pandemic, with approximately 15 million new MFS customers joining between March and November 2020 and the government opting for cash assistance to vulnerable poor families through MFS operators. The article suggests that MFS proliferation will become a key determinant in the growth of MSMEs in Bangladesh, and agent banking has become a favored model for bankers to expand their businesses in hard-to-reach areas(Noor, Z., & Alam, 2021).

Agent banking has become increasingly popular in Bangladesh, with a nationwide survey in 2018 revealing that 52% of users reported saving time, 67% reported saving money on travel, and 20% claimed to have been unable to save money before agent banking was available in their area. As of October 2020, there were over 14,000 agent outlets and 88 million accounts facilitated by agent banking. Deposit mobilized through these accounts more than doubled to BDT 137 billion, and remittances received by these accounts quadrupled amidst the pandemic. Agent banking is also much cheaper than running bank branches, making it a reliable means of providing access to finance for hard-to-reach areas. These hold promise for the digital transformation of Bangladesh, which is simultaneously inclusive(Atiur Rahman, 2022).

1. **Methodology**

The qualitative research approach used in this study involves collecting non-numerical data through a review of relevant literature, such as government policies, regulations, and reports. This approach allows for a comprehensive overview of the digital financial market in Bangladesh, including the regulatory framework and various stakeholders involved in the financial sector.

The study focuses on Mobile Financial Services (MFS) providers, Payment Service Providers (PSP), Payment System Operators (PSO), and White Label ATM and Merchant Acquiring Services (WLAMA) to provide a deeper understanding of the digital financial ecosystem in Bangladesh. The inclusion of these various stakeholders allows for a holistic view of the digital financial market and its impact on financial inclusion. Additionally, the study analyzes the regulatory framework established by the Bangladesh Bank to promote digital innovation and financial inclusion. This analysis provides insight into the measures taken by the government to promote the development of the digital financial ecosystem in Bangladesh.

Overall, the qualitative research approach used in this study allows for a comprehensive overview of the digital financial market in Bangladesh and its regulatory framework, providing valuable insights for stakeholders, policymakers, and researchers interested in the digital financial ecosystem in Bangladesh.

1. **Results**

The study highlights the various initiatives implemented by Bangladesh to achieve financial inclusion among its population, including account opening for farmers, school banking accounts for children, and accounts for micro-merchants. It emphasizes the importance of digital payment ecosystems in achieving financial inclusion and modernizing the country's payment system through digital finance schemes and outlines the regulations established by Bangladesh Bank to promote digital innovation, including minimum paid-up capital requirements and licensing procedures for each type of service provider. The study reveals that there are thirteen MFSs, while there are only eight licensed PSPs and ten licensed PSOs in the market and highlights the significant role played by digital financial services in promoting financial inclusion, particularly during the COVID-19 pandemic.

According to the study, public, private, and public-private organizations can participate in the digital financial market in Bangladesh andidentify the different regulatory requirements and minimum paid-up capital requirements for each type of service provider, providing important insights for stakeholders, policymakers, and researchers. It emphasizes that no company has achieved the White Label ATM and Merchant Acquiring Services (WLAMA) license yet.

The study provides an overview of the digital financial ecosystem in Bangladesh, which can be helpful for researchers interested in the field and highlights the significant role played by fintech companies in achieving digital financial inclusion and reducing inequality in the country.

1. **Discussion**

To support and encourage digital innovation within the boundary of existing regulations, Bangladesh Bank as a regulator of the financial market and digital financial service providing institutions has implemented few major policies regarding payment and settlement. They are:

* Bangladesh Payment and Settlement Systems Regulations-2014.
* Bangladesh Mobile Financial Services Regulations-2018.
* Approval Procedure of Payment System Operator (PSO) Payment Service Provider (PSP)-2019, and
* Guidelines for White Label ATM and Merchant Acquiring Services-2020.

Generally, Banks and Financial Institutions can provide financial services. But at present apart from these institutions, any public, or private, or public-private organization can be an active participant of the digital financial market in the form of Mobile Financial Services (MFS) Providers, Payment System Operators (PSO), Payment Service Providers (PSP), and White Label ATM and Merchant Acquiring Services (WLAMA).

**5.1 Stages of Digital Financial Services (DFS)**

Each stage of the development of Bangladesh's Digital Financial Services (DFS) ecosystem has witnessed significant technological advancements, rule modifications, and user adoption. Such as:

**Fig.1** The stages in the evolution of the Digital Financial Services (DFS) ecosystem in Bangladesh

**Primitive Period**

Bangladesh was introduced to the concept of digital financial services during this phase. Lack of technological infrastructure and low internet penetration hampered the development of the digital financial ecosystem. A small number of traditional financial institutions have begun to offer rudimentary online banking services.

**Emergence of Mobile Money**

The emergence of mobile money services has transformed the financial landscape significantly. Companies such as bKash, a joint venture between BRAC Bank and Money in Motion, have introduced mobile money services, enabling consumers to conduct transactions via mobile phones. The convenience and accessibility of mobile money have attracted a substantial user base, particularly among the unbanked and underbanked.

**Growth and Expansion**

Mobile money providers such as bKash, Rocket, and Nagad expanded their services to include bill payments, airtime top-ups, and access to financial products in addition to fundamental transactions. Peer-to-peer lending, digital insurance, and investment platforms were among the first Fintech startups to emerge, concentrating on innovative solutions to address specific financial issues. Increased smartphone usage and enhanced mobile internet connectivity have contributed to the expansion of digital financial services.

**Framework Development**

Bangladesh's central bank, the Bangladesh Bank, has established regulatory guidelines and frameworks to govern mobile financial services and digital payment platforms. These regulations seek to ensure the DFS ecosystem's transparency, security, and consumer protection. The regulatory framework provided both traditional financial institutions and fintech entrepreneurs with a more stable operating environment.

**Integration and Transformation**

The Bangladeshi DFS ecosystem continues to develop, with fintech companies expanding their offerings to encompass a broader spectrum of financial services. Traditional financial institutions are collaborating with fintech firms to leverage technology to enhance customer experiences and operational efficiencies. Financial inclusion initiatives are ongoing, with DFS platforms extending further into rural areas and granting previously underserved populations access to formal financial services. Collaboration between various parties, including government entities, financial institutions, and tech entrepreneurs, is resulting in the development of a more integrated and comprehensive DFS ecosystem.

**Innovations and Digitization**

Continued technological advancements, such as 5G connectivity, enhanced smartphone capabilities, and enhanced digital infrastructure, are likely to stimulate additional growth and innovation within the DFS ecosystem. Integrating artificial intelligence, machine learning, and blockchain technology may improve security, expedite processes, and enable the introduction of new services and features.

The evolution of Bangladesh's DFS ecosystem from basic online banking to a sophisticated digital financial landscape is nurturing financial inclusion and contributing to the country's economic growth. The Bangladeshi DFS ecosystem is poised to play an even greater role in influencing the future of finance in the country as technology continues to advance and regulatory frameworks adapt.

**5.2 Digital Financial Market**

**5.2.1 Mobile Financial Services (MFS)**

At present, Mobile Financial Services (MFS) Providers in Bangladesh are led by commercial banks of Bangladesh, which means the parent bank has to hold at least 51% of the equity of the providing subsidiary. The minimum required paid up capital is 450.00 million BDT. There are 15 actively operated MFS providers in Bangladesh now. Such as;

|  |  |  |
| --- | --- | --- |
| **Serial No.** | **MFS Service Name** | **Name of the Bank** |
| 1 | ROCKET | Dutch Bangla Bank PLC |
| 2 | bKash | Brac Bank PLC |
| 3 | MYCash | Merceantile Bank PLC |
| 4 | Islami Bank mCash | Islami Bank Bangladesh PLC |
| 5 | Trust Axiata Pay: tap | Trust Bank Ltd |
| 6 | FirstCash | First Security Islami Bank PLC |
| 7 | Upay | United Commercial Bank PLC |
| 8 | OK Wallet | One Bank PLC |
| 9 | Rupali Bank SureCash | Rupali Bank PLC |
| 10 | TeleCash | Southeast Bank PLC |
| 11 | Islamic Wallet | Al-Arafah Islami Bank Ltd |
| 12 | Meghna Bank Tap n Pay | Meghna Bank Ltd |
| 13 | Nagad | Bangladesh Post Office (Interim approval of BB) |

**Table 1**: Actively operated MFS providers in Bangladesh

**5.2.2 Payment Service Provider (PSP)**

In case of Payment Service Provider (PSP), the scenario is a little bit different. A PSP shall be a separate company registered under the Companies Act 1994 of Bangladesh with a minimum paid up capital of 200.00 million BDT and the operation infrastructure needs to be maintained within Bangladesh. A PSP can issue e-money which is backed by at least the same amount of physical money and there will be at least one Trust cum Settlement Account that will be maintained in a scheduled bank for any PSP to operate daily transactions. At present there are only 8 licensed PSPs in the market. Such as,

* iPay Systems Ltd
* D Money Bangladesh Ltd
* Recursion Fintech Ltd
* Green & Red Technologies Ltd
* Progati Systems Ltd
* ABG Technologies Ltd
* Digital Payments Ltd
* Sheba Fintech Ltd

**5.2.3 Payment Systems Operator (PS0)**

A Payment Systems Operator (PSO) acts as a payment gateway service. It shall be also registered as a company under the Companies Act 1994 of Bangladesh with a minimum paid up capital of 5.00 million BDT. A PSO can not issue any e-money. A PSO can provide four types of services. Such as;

* Payment Switch
* Payment Aggregator
* Payment Gateway
* Merchant Acquirer

At present there are only 10 licensed PSOs in the market. They are:

* IT Consultants Ltd.
* Software Shop Ltd
* ShurjoMukhi Ltd
* Portonics Ltd
* Soft Tech Innovation Ltd
* Optimum Solution & Services Ltd
* Service Hub Ltd
* Fingerprint Information Technology Ltd
* Paperless Ltd
* DGePay Services Ltd (WLMA)

**5.2.4 White Label ATM and Merchant Acquiring (WLAMA)**

A White Label ATM and Merchant Acquiring Service (WLAMA) is the latest permissible service allowed by Bangladesh Bank to enhance digital payment ecosystem. It shall be licensed by the Bangladesh Bank as a PSO under the Bangladesh Payment and Settlement Systems Regulations 2014 with a minimum required paid up capital of 450.00 million BDT (for providing ATM services only) or an additional bank guarantee of 100.00 million BDT if WLAMA serving as both ATM and merchant acquisition service provider. If WLAMA provides only Merchant Acquiring Service, then the minimum required paid up capital will be 100.00 million BDT and a bank guarantee of 100.00 million BDT favoring Bangladesh Bank will be mandatory. Only one company has achieved WLMA license from the Bangladesh Bank yet, but 4 companies have applied for the license of WLMA, WLATM and WLAMA which are under scrutiny of the Bangladesh Bank.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Type of Business** | **Merchant Type** | **Brand Dependency** | **Scope of Work** | **E-money creation** | **Capital Requirement** |
| PSO | Online aggregator | Not focused on own customer | Payment gateway | Cannot create E-money | 50.00 million BDT |
| PSP | Can create own merchant network with own brand | Dependent on banked people for cash in | E-wallet | Can create E-money | 200.00 million BDT |
| MFS | Can create separate brand with own customer | Own brand, technology, customer acquisition and distribution | Mobile E-wallet | Can create E-money | 450.00 million BDT |
| WLAMA | Can create brand with its own merchant network | Not dependent on own brand | ATM/QR access with the settlement bank | Work as ATM | 450.00 million BDT |

**Table 2**: Comparison between different DFS providers

**5.4 Payment Ecosystem Possibilities**

* The services of Payment Systems Operator companies can be categorized into two categories. A PSO company will fall in a group based on the complimentary services delivery and the IT infrastructure. Such as: There will be one PSO group license to provide Payment Gateway, Payment Aggregator, and WLAMA-Merchant Acquirer services. There will be another PSO group license to provide Payment Switch, WLAMA-ATM, and WLAMA-Merchant acquirer services. Companies who are willing to provide multiple services under a single group license can deliver multiple services after getting the license from Bangladesh Bank. However, the minimum paid up capital requirement will be higher and there will be some other pre-conditions like requirement of additional bank guarantee, regular satisfactory service quality assessment, vulnerability testing etc. In this way, the companies can generate bigger revenues and attract more customers.

**Fig.2** A probable model of PSO services by a company

* There is an effective and prudent policy and regulation for the operation of an open loop digital wallet such as MFS providers/PSP. But there was no policy for the operation of a semi closed loop or closed loop digital wallet. Recently, Bangladesh Bank implemented policy and guidelines regarding semi closed loop and closed loop digital wallet. However, the nature of these wallets will depend on the number of total transactions and amount of total transaction. Such as, if a PSP/MFS company exceeds certain limit then the nature or risk of that digital wallet will be higher and separate additional risk measurement and mitigation techniques will be needed to impose. For any open or semi closed loop wallet, the approval from Bangladesh Bank is mandatory. The limit for wallet would be 20% of their net wealth or 250 million BDT, whichever is lower. Any type of wallet provider company has to maintain a Trust cum Settlement account with a scheduled bank for performing daily transactions.

**6. Problem Analysis**

After analyzing different policies and regulations by different central banks around the globe and having discussions with different employees, customers, and other stakeholders of MFS, PSP, PSO, and WLAMA; it is evident that there is lacking to understand the market dynamics due to inadequate financial literacy among people. People are not fully able to understand the potential and user oriented digital wallet payment system. Another problem is that there is limited scope under a single license for any company as per the regulatory bindings. Under current licensing structure, no company can have one license for providing multiple services. Licensing requirements are different for different types of payment services. So, a company is hesitated to invest in a digital payment service because it takes a longer time to reach the breakeven. Again, each company is providing single payment service and is not allowed to provide services in cross platform. So, it creates hindrance to develop diversified products and thus acquire better number of customers. It may affect the long-term revenue generation and profitability of that company.

As for the regulatory concern, the issue comes alive what if a large corporation dominates the smaller ones and ultimately creates a monopoly through eliminating the minnows. A disruption is inevitable if the large corporation becomes systemically important and too big to regulate by the authority.

**7. Findings**

It is undeniable that the area of digital finance payment ecosystem is enlarging day by day. As a result, there is a supreme chance of the emergence of an effective and efficient financial inclusion system among the people. It is a matter of fact that the stakeholders specially the regulators have to be very cautious regarding the associated cyber threats and dangers. Again, the policies and guidelines must be implemented in such a way that the local and small companies do not fall prey of the multinationals or giants. To create synergy in the digital financial payment ecosystem, multiple complementary digital payment services may be allowed within a single license so that a linkage of services can be established in a digital financial service provider company. It will boost up the long-term profitability of the companies and also will create motivation or incentive for new entities to enter into this industry. The safe, secure, and fast payment ecosystem is the main base of assurance for trade security in the whole world. It is also beyond any doubt that a digital safe, secure, and instant financial payment ecosystem can be sustainable in the long run by ensuring trade security that will ultimately enhance the holistic economic growth and development of the country.

This study utilized a qualitative research approach to provide an overview of the digital financial market in Bangladesh, focusing on Mobile Financial Services (MFS) providers, Payment Service Providers (PSP), Payment System Operators (PSO), and White Label ATM and Merchant Acquiring Services (WLAMA). The study analyzed the regulatory framework established by the Bangladesh Bank to promote digital innovation and financial inclusion.

The study found that the digital financial market in Bangladesh is dominated by 13 commercial banks providing MFS, followed by only eight licensed PSPs and ten licensed PSOs. There is a lack of companies providing full fledged White Label ATM and Merchant Acquiring Services in the market. The study also revealed the minimum paid-up capital requirements and licensing procedures for each type of service provider. Furthermore, the study highlighted the significant role played by digital financial services, particularly during the COVID-19 pandemic, in promoting financial inclusion in the country.

The study found that since the nature of business is much riskier for a PSP company than a PSO company, so a company should not be allowed to provide both PSP and PSO services with same license. However, any parent company that is providing PSP or PSO services can open any subsidiary. That subsidiary company can provide the other service condition to avail the license of that service from Bangladesh Bank.

The practical implications of this study are significant. It provides valuable insights for policymakers, stakeholders, and researchers interested in the digital financial ecosystem in Bangladesh. Policymakers can use the study's findings to develop policies that encourage the growth of the digital financial ecosystem and financial inclusion in the country. Future research could focus on exploring the impact of digital financial services on economic growth, reducing income inequality and increasing access to financial services for the unbanked population.

**6. Conclusion**

Bangladesh Bank regularly monitors and evaluates the digital finance market and re-examine the existing policy to implement any changes where applicable. During the COVID era, the financial inclusion among the people boosted up tremendously. The MFS, PSP, PSO etc played significant roles in this success. However, there is still a lot to do to reach the untouched people to make them financially included into the digital payment ecosystem. The government of Bangladesh has put utmost priority to achieve the desired success rate of digital financial inclusion. Though there are some companies who have achieved big success rates but the overall picture is not gratifying. Under the given circumstances, the existing policies are needed to be restructured and reshaped. The opportunities to provide more than one digital service by a company or a group of companies (under a single umbrella) may be more beneficial for the overall digital payment ecosystem rather than one company/group of company can provide only one digital payment service.

In conclusion, this study provides a comprehensive analysis of the digital financial ecosystem in Bangladesh, its regulatory framework, and the role of different types of service providers in promoting financial inclusion. The study's findings can be used as a reference for future research in the area of digital finance and financial inclusion, as well as for policymakers seeking to promote the development of the digital financial ecosystem in Bangladesh.

***Appendix***

**Current MFS/PSP/PSO requirements**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sl** | **Type** | **Ownership** | **Paid up Capital** | **Bank Guarantee** |
| 1. | MFS | Scheduled Bank 51% share  Private company 49% share | 450.00 million BDT | - |
| 2. | PSP | Private company 100% share | 200.00 million BDT | - |
| 3. | PSO (except WLAMA) | Private company 100% share | 50.00 million BDT | - |
| 4. | PSO (WLAMA) | Private company 100% share | 450.00 million BDT | 100.00 million BDT |
| 5. | PSO (WLATM) | Private company 100% share | 450.00 million BDT | - |
| 6. | PSO (WLMA) | Private company 100% share | 100.00 million BDT | 100.00 million BDT |

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