

## Special Section: Digital Financial Services (DFS) – innovations, trends, opportunities and challenges for Pakistan’s financial system

### Background

The last few decades are marked with rapid developments in information and communication technologies (ICT). These developments have brought significant changes to firms’ business processes, products, and delivery mechanisms in all sectors of economy and promise major benefits for customers and society in terms of convenience and efficiency. However, the approach to embrace innovation in financial sector across the globe is relatively more prudent compared to other sectors due to policy considerations of financial stability and conduct supervision that warrant judicious balancing with objectives of efficiency and convenience.

The expansion in financial sector and greater use of technology has amplified the digitalization of financial sector worldwide. Digital financial services (DFS) involve use of new and emerging technologies and digital channels such as internet banking, mobile banking, electronic money models and digital payment platforms to fulfill the customers’ need for traditional financial services. DFS covers broad range of financial services including payments, deposits and lending, savings, remittances, insurance, advisory, etc.<sup>194</sup>

The digital channels are gradually becoming the primary medium for delivery of financial services across the world. Simultaneously, DFS offers low cost, faster, and secure transactions, and tailored financial services according to the needs of the population. Due to its scalability to support outreach of financial services to consumers, DFS promises expansion in the economic opportunities for the underserved

strata of the population. Research suggests that countries with inclusive and easier access to financial services achieve higher economic growths and greater reduction in poverty and income inequality<sup>195</sup>.

While the innovation and use of technology in products and processes have improved overall efficiency, experience of customers, and financial inclusion, the same have also raised some policy concerns related to financial stability, consumer protection and information and cyber security risks, requiring enhanced focus and costs for the financial institution and policy makers.

### Evolution and growth of DFS – a global perspective

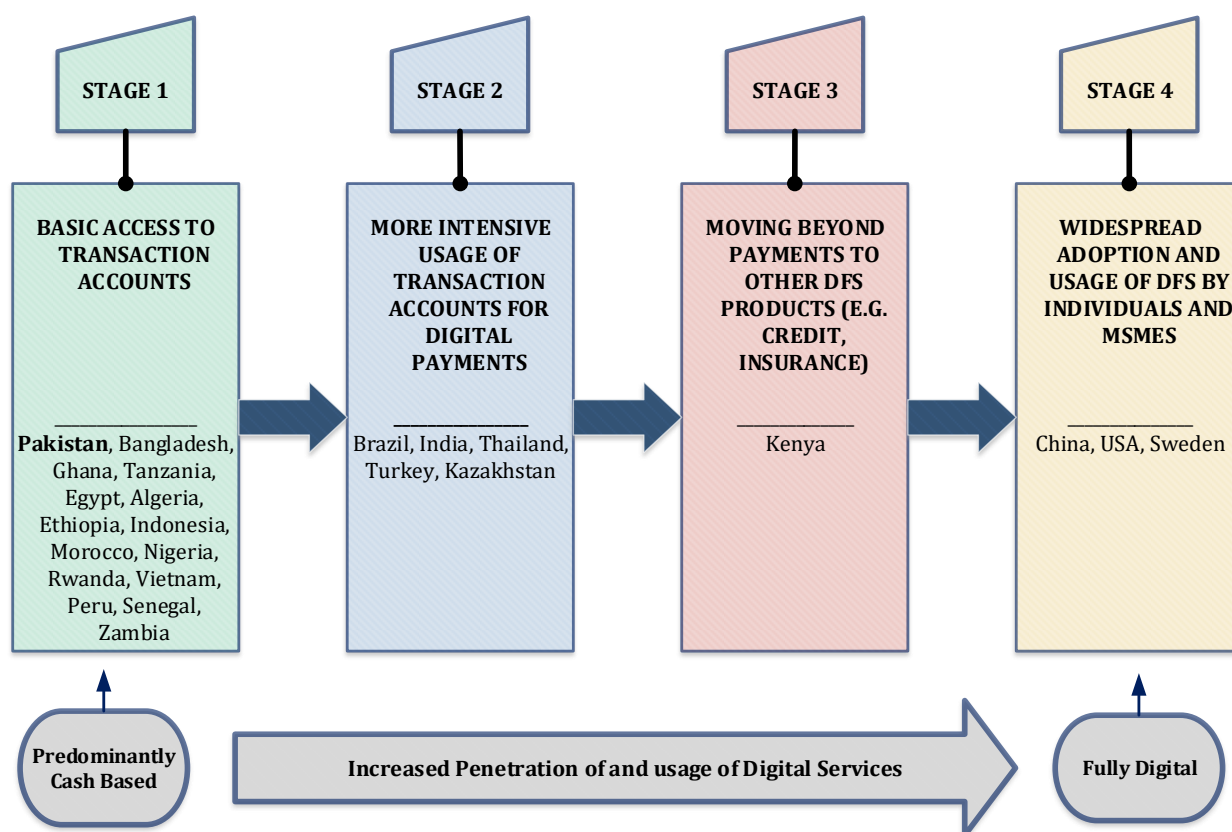
The scale of development in DFS significantly differs across countries particularly with respect to the extent of digitization of financial infrastructure and use of technology in provision of financial services. Based on the extent of underlying services, adoption of DFS by customers and replacement of cash and paper-based instruments, the continuum of progress on DFS can be categorized into four stages (**Chart S1.1**). Talking about the two ends of this continuum; countries on lower stratum of DFS development, such services mainly focus on basic access to transaction accounts that gradually get wider adoption by the customers in the economy. For countries at advanced stage, DFS services have attained widespread adoption by individual consumers and small and medium enterprises, and have moved beyond basic access to transaction accounts and retail payments to more sophisticated financial services, such as, credit and insurance.

<sup>194</sup> Alliance for Financial Inclusion (AFI) Guideline Note-19 “DFS-Terminology”, 2016.

Note: The term “digital channels” refers to the internet, mobile phones, ATMs, POS terminals, NFC-enabled devices, chips, electronically enabled cards, biometric devices, tablets and any other digital system.

<sup>195</sup> Zhuang, Juzhong et al. (2009): Financial Sector Development, Economic Growth, and Poverty Reduction: A Literature Review. *Asian Development Bank Economics Working Paper Series*, No. 173.

Chart S1.1: Stages in Development of Digital Financial Services



Source: World Bank Study- Digital Financial Services, 2020

It is important to note that branchless banking (BB) has particularly made the strongest impact in developing countries as it has enabled the provision of financial services through agents without establishing a conventional bank branch. It makes a significant contribution towards expanding the unbanked populations' reach to financial services by reducing barriers to access, and lowering cost. For instance, during the past decade in developing economies the share of population with a bank account has increased to 71 percent in 2021 from 42 percent in 2011. Similarly, the gender gap in terms of difference between male and female bank account ownership has decreased from 9 percent to 6 percent during this period.<sup>196</sup> While countries in early stages of DFS

development have made significant gains over the recent years and created immense potential for bringing unbanked population into the formal sector, they still lag in terms of digital infrastructure development and penetration of DFS usage among the population.

*COVID-19 pandemic enhanced focus on ICT and catalyzed the adoption of DFS ...*

Recently, Covid-19 pandemic and associated social distancing restrictions significantly accelerated the adoption of DFS worldwide and encouraged the unbanked population to access DFS because of the convenience they offer. For example, around 80 million and 100 million adults in India and China - the world's two largest countries - respectively, made their first

<sup>196</sup> World Bank. (2021). Global Findex Report. Washington. For details, please visit

<https://www.worldbank.org/en/publication/globalfindex/Data>

digital merchant payment of their lifetime after the start of pandemic. On similar lines, adoption of digital channels for payments and cash transfers significantly increased in a lot of jurisdictions worldwide, including Pakistan.<sup>197</sup>

*.... however, developing economies generally lag in DFS due to a number of structural issues*

Despite the significant growth achieved by DFS in many of the developing economies, the scale of penetration and widespread usage of DFS is broadly limited in majority of the developing economies. The consumers' adoption of DFS has remained somewhat subdued due to a number of factors. For example, consumers from six major economies of South East Asia identified various barriers to the adoption of DFS including lack of financial and digital literacy, fear of hidden cost, ambiguous contractual terms, and complicated application interfaces and processes. In addition, incidence of frauds, and cyber security issues were also identified as major hurdles.<sup>198</sup> A report of Asian Development Bank (ADB) establishes that gender and other gaps persist despite significant growth in digital financial inclusion. The major inhibitors include barriers to access, cost factors, gaps in financial and digital literacy and skills, and gender biases and sociocultural norms.<sup>199</sup>

## Evolution of DFS in Pakistan

Banking sector started to adopt technologies quite early in their business processes as well as in their financial products/services and its delivery mechanisms. By the dawn of this century, the use of computers and information technologies were quite common in banks, and they had initiated the automation of their processes as well as alternate delivery channels (ADCs) such as ATMs, POS machines, etc. providing customers multiple touchpoints, and moving towards new use cases such as embedded finance.<sup>200</sup>

Accordingly, Pakistan promulgated the Electronic Transaction Ordinance 2002, which gave legal recognition to electronic documents, records, information, communications, and transactions, among others. **(Chart S1.2).**

Keeping in view the growing significance of payment system and emerging best practices across the globe, the Payment Systems and Electronic Fund Transfers Act 2007 was introduced to provide a comprehensive regulatory framework for payment systems and electronic fund transfers in the country. In 2008, Pakistan's only Real-Time Gross Settlement (RTGS) system named as Pakistan Real-time Interbank Settlement Mechanism (PRISM) was established wherein large value payments are settled on a real-time gross basis to mitigate settlement risk.

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<sup>197</sup> World Bank. (2021). Global Findex Report. *Washington*. For details, please visit <https://www.worldbank.org/en/publication/globalfindex/Data>.

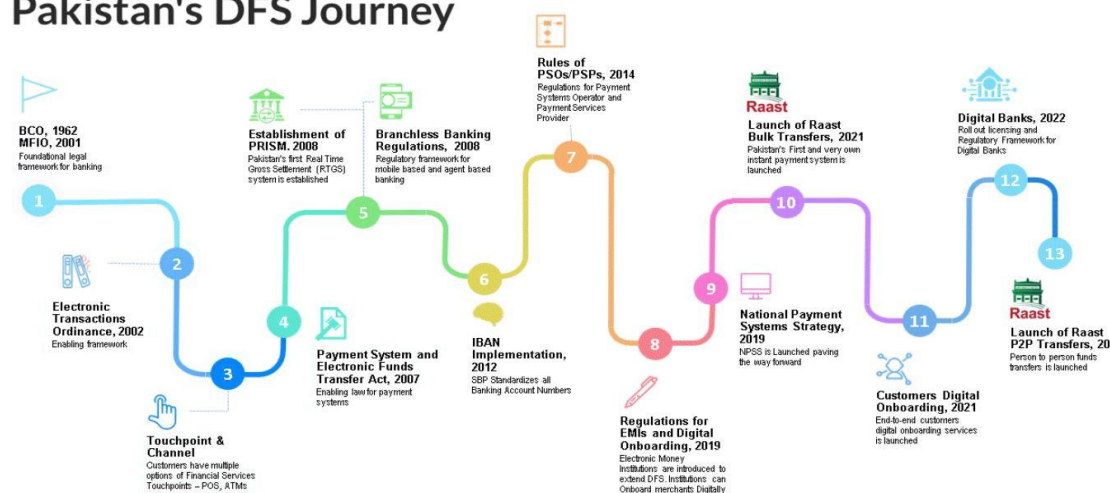
<sup>198</sup> World Economic Forum. (2022). ASEAN Digital Generation Report: Digital Financial Inclusion. *Geneva, December*. For details, please visit [https://www3.weforum.org/docs/WEF\\_ASEAN\\_Digital\\_Generation\\_Report\\_2022.pdf](https://www3.weforum.org/docs/WEF_ASEAN_Digital_Generation_Report_2022.pdf)

<sup>199</sup> Asian Development Bank. (2022). Digital Financial Inclusion and Literacy from a G20 Perspective. *Mandaluyong, November*. For details, please visit <https://www.adb.org/sites/default/files/publication/843526/adb-digital-financial-inclusion-and-literacy-g20-perspective.pdf>

<sup>200</sup> By the end of 2004, 2475 RTOBs and 786 ATMs were operating in the country. While a total of 1.59 million debit cards and 808 thousand credit cards had been issued by the banks. (Source: SBP)

Chart S1.2: Pakistan' DFS Journey

## Pakistan's DFS Journey



Source: SBP

By late 2000s, the penetration of mobile phones had significantly increased in the country which not only augmented the economic activities in general<sup>201</sup>, but also opened up vast opportunities for innovation in the financial services for both improving efficiency in services delivery and reaching out to the underserved segments of the society. Accordingly, the regulatory framework of branchless banking was introduced in 2008 to facilitate the provision of financial services to the underserved segments of the society by utilizing the access provided by telecommunication providers. It allowed financial institutions to develop agent networks which led to the introduction and expansion of formal financial services into smaller cities and rural areas<sup>202</sup>. The adoption of branchless banking has taken off over the last decade or so.

With the growth in economy and financial system and the need to innovate and offer unique and new payment use cases, SBP

enabled non-bank entities to offer digital financial solutions. For this purpose, rules for Payment System Operators (PSOs)/ Payment Service Providers (PSPs) and Electronic Money Institutions (EMIs) were introduced in 2014<sup>203</sup> and 2019<sup>204</sup>, respectively. The purpose of these initiatives was to provide a level playing field to non-bank financial entities and to introduce innovation and competition in the DFS landscape.

In 2019, SBP launched the National Payment System Strategy (NPSS), which sets out a roadmap to structure the national payments system on the principles of efficiency and safety, universal accessibility and protection of the consumers, and to provide a competitive market environment in the payment landscape.

The strategy provides suggestions for key areas of legal and regulatory framework, payment infrastructure, retail payments market, government payments, remittance market and

<sup>201</sup> Studies indicate that a 10 percentage point increase in tele-density raises the GDP growth by 1 percentage point (Source: Qiang, Christine Zhen-Wei & Carlo M. Rossotto & Kaoru Kimura (2009). Economic impacts of broadband. *In Information and Communications for Development 2009: 35–50. World Bank*).

<sup>202</sup> Karandaaz. (2021). Fintech Ecosystem of Pakistan – Landscape Study. *June*. For details, please visit <https://karandaaz.com.pk/wp-content/uploads/2021/06/Fintech-Ecosystem-of-Pakistan.pdf>

<sup>203</sup> PSD Circular No. 03 of 2014.

<sup>204</sup> PSD Circular No. 01 of 2019.

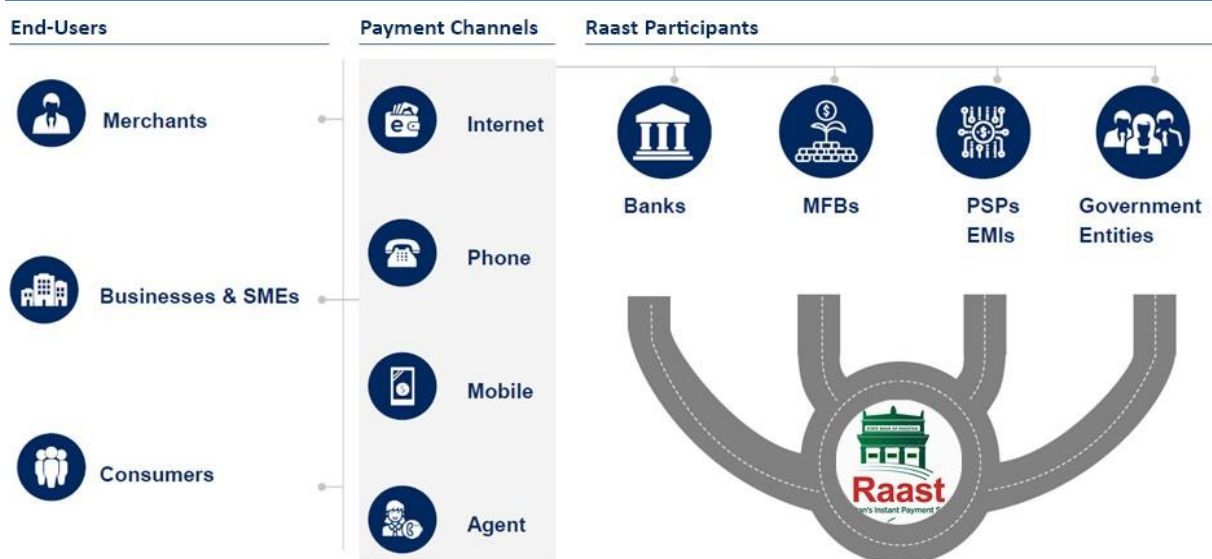
oversight framework to bring fundamental improvements in the national payment system. Since 2019, a number of key infrastructure and regulatory developments, as set out in the NPSS, have been implemented by the SBP with the collaboration of relevant stakeholders.

In order to facilitate digital remote onboarding of customers especially non-resident Pakistanis and attract higher remittances, SBP introduced Roshan Digital Account (RDA) in 2020. Further, the same facility, i.e. remote onboarding, was also provided to residents during 2021. Moreover, Asaan Mobile Account (AMA) initiative was launched by SBP in CY15 with the collaboration of PTA and banks to enable any person holding CNIC to open bank account with AMA participating bank by using SIM card of

any mobile operator and make transactions with even basic mobile phone without the need for internet services.<sup>205</sup>

A major landmark development in payments' sphere was the launch of Raast by SBP as Pakistan's first instant payment system in CY21. Being cost-free, Raast has introduced widespread interoperability through mobile apps which is expected to drive growth in the DFS landscape in the future. Its first two phases have been successfully rolled out covering bulk payments and Person to Person (P2P) payments, while work on its 3<sup>rd</sup> phase is at an advanced stage that will also bring merchants into the payment landscape of the Raast (**Chart S1.3**).

**Chart S1.3: Raast is Central to DFS Development**



Source: SBP

At the start of 2022, SBP issued comprehensive Licensing and Regulatory Framework for Digital Banks to facilitate the establishment of digital banks in the country.<sup>206</sup> This Framework is the first regulatory step towards introduction of full-fledged digital banks in the country, and could usher in further digitization of banking

sector and support the growth of DFS with prudent regulatory oversight.<sup>207</sup>

Taking the benefit of advancement in ICTs and wide access to mobile phones, fintech-enabled financial services emerged as promising businesses in non-bank financial sector.

<sup>205</sup> [BPRD Circular No. 11 of 2015.](#)

<sup>206</sup> [SBP Press Release, dated January 3, 2022.](#)

<sup>207</sup> By December 2022, SBP had completed the review of the twenty prospective institutions/service providers who had applied for digital bank license and issued provisional

NOCs to five of these institutions/service providers for opening of a digital bank.

Accordingly, SECP introduced comprehensive regulatory framework for fintech-based NBFCs, covering consumer protection, IT governance, and financial risk management aspects. This framework covers both digital lending as well as digital investment advisor.<sup>208</sup>

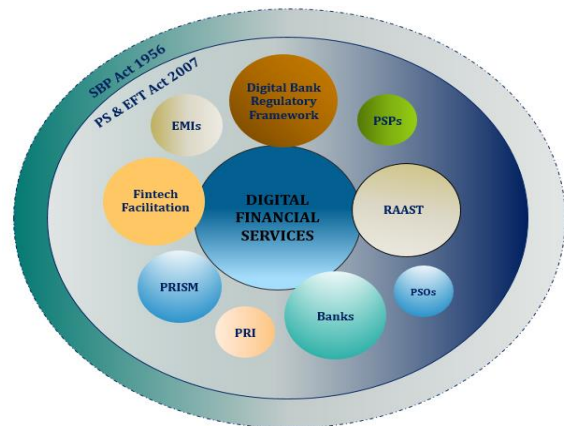
While cloud computing has numerous advantages such as convenience, scalability, on-demand availability, etc. it also faces the various risks like legal risk, jurisdiction risk, business continuity risk, and information security risk. To mitigate these risks while harnessing the benefits of cloud technology, SBP has provided a framework in 2023 on Risk Management in Outsourcing Arrangements and Outsourcing to Cloud Service Providers (CSPs).

SBP has instituted a comprehensive regulatory and supervisory framework which aims to promote the sustainable innovation and efficiency in financial sector by appropriately balancing the objectives of financial stability and consumer protection and coping with emerging risks especially cyber and information security.

### Current State of DFS in Pakistan

The current state of DFS infrastructure and spectrum in Pakistan comprises of underlying legal and regulatory frameworks, infrastructure and a host of platforms and products (see **Chart S1.4**).

Chart S1.4: DFS Landscape in Pakistan



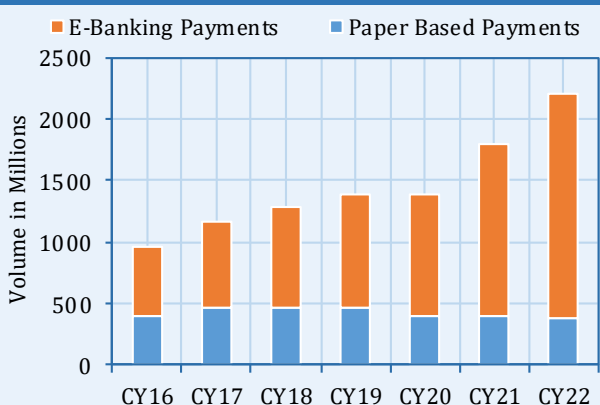
PRISM=Pakistan Real-time Interbank Settlement Mechanism, EMIs=Electronic Money Institutions, PRI=Pakistan Remittance Initiative, PSPs=Payment Service Providers, PSOs=Payment System Operators  
Source: SBP

In recent years, advancement in financial sector digitalization and consumers' evolving preferences has brought significant changes in their consumption pattern of financial services. Most significantly, the payment transactions using paper-based instruments have been on a declining trend. At the same time, electronic banking has been consistently maintaining its strong growth momentum in all of its key segments. Particularly, mobile and Internet banking uptake has enhanced tremendously making further clear the trend of customers' shifting preference towards digital mode of payments (**Chart S1.5**).

<sup>208</sup> By end of CY21, SECP had licensed six fintech-enabled NBFCs which were engaged in nano-lending, P2P lending and buy-now-pay latter models and had disbursed

cumulative amount of PKR 6.1 billion to more than 365,000 borrowers.

Chart S1.5: Segment wise share in Retail Payments Since CY16



Source: SBP

Moreover, the tremendous growth of branchless banking significantly helped in expanding financial inclusion and outreach of financial services during the last decade. Pakistan’s DFS landscape has come a long way over the last two decades or so. In line with global trend and SBP’s recent policy drive to use technology as a tool to leapfrog in financial inclusion, the growth is particularly phenomenal in the recent few years<sup>209</sup> (Table S1.1).

Description	CY11	CY16	CY19	CY20	CY21	CY22
RTOBs	7036	13,926	15,930	16,165	16,571	16,603
ATMs	4734	12,352	15,252	16,041	16,709	17,133
Point of Sale (POS)	44383	52,062	47,567	62,480	92,153	104,865
Debit Cards (In thousands)	10,910	17,470	26,440	27,592	30,934	30,162
Credit Cards (In thousands)	1,564	1,209	1,644	1,691	1,740	1,800
No. of BB Agents	22,512	359,806	437,182	481,837	587,547	622,884
No. of BB Accounts (thousands)	929	19,965	46,103	62,755	78,810	97,097

Source: SBP

The Economist’s Microscope Index on Financial Inclusion for 2020 rated Pakistan high on government and policy support, products and outlets, and consumer protection parameters but low on stability and integrity, and

<sup>209</sup> The prevailing trends and performance of payments has been comprehensively covered in the Chapter 8- Financial Market Infrastructures (FMIs) of this publication.

infrastructure parameters<sup>210</sup>. Since then, a host of regulatory and infrastructural frameworks have been launched including a digital banks framework, customers’ digital onboarding mechanism, mobile app security guidelines, QR code standardization, among others. SBP significantly enhanced its supervisory mechanism in respect of DFS, with particular focus on cyber security, financial soundness, and consumer protection. In addition, Raast – instant payment system – has been launched offering wider interoperability in the market. Moreover, SBP and other stakeholders successfully implemented the action plan for improvement in AML/CFT regime in line with FATF recommendations to enhance the integrity of the financial sector.

Over the last few years, the country has witnessed the introduction of a number of modern products and initiatives which characterize advanced stages of DFS developments. However, these products have yet to explore their fuller potential, as consumers still rely heavily on cash and other conventional paper-based instruments.

## Challenges and Opportunities

There are some issues which continue to hinder the widespread adoption of DFS in Pakistan. Despite the launch of branchless banking and other user-friendly modes, the issue of low levels of financial and digital literacy persists in the country where a significant segment of the population remains unbanked. In addition, low cost and widespread acceptability for payments though cash and other paper-based instruments dis-incentivizes the consumers and businesses to adopt digital modes of payment.

With the increasing adoption of DFS, there is a commensurate increase in IT and cyber security

<sup>210</sup> The Economist Intelligence Unit. (2020). Global Microscope 2020 – The role of financial inclusion in the Covid-19 response. London. For details, please visit [https://pages.eiu.com/rs/753-RIQ-438/images/EIU\\_Microscope\\_2020\\_proof\\_10.pdf](https://pages.eiu.com/rs/753-RIQ-438/images/EIU_Microscope_2020_proof_10.pdf)

risks, and digital information security which have become enterprise wide risks. However, financial institutions working in the country strive to have effective arrangements in place to cope with IT security risk and ensure the security of their network infrastructure. SBP has introduced a comprehensive cyber/information security framework for the financial institutions in recent years to maintain the resilience and robustness of cyber security measures.<sup>211</sup>

Advancement in digitalization has also brought forward the concerns regarding miss-selling of financial products (due to information asymmetry), and related issues of consumer protection. Increasing incidence of such nature could hamper digitization efforts as costumers would tend to assign higher probability of fraud/information leaks when using digital modes to access financial services. To tackle this issue, improving customers' financial and digital literacy and awareness of their rights as costumers can play a vital role in minimizing the incidence of such issues. Moreover, the frameworks of consumer protection, grievance handling, regulatory oversight, and complaints monitoring are already in place by the regulator to protect the costumers' rights. Keeping in view the fact that more focused approach may be necessary for effective implementation of these frameworks, SBP has recently enhanced its organizational framework by creating dedicated departments for regulation and supervision of consumer protection and fair treatment regime.

Banks traditionally follow conservative business approach due to strong financial stability concerns and associated regulatory regime as well as their relative monopoly in provision of banking services. Accordingly, they

have the tendency to lag in adopting technological changes and prefer time-tested business models and products. As banks dominate digital financial landscape, it remains a challenge – like any other country - to create enabling incentive structure for banks to adopt technology and innovation and tap unserved and underserved segments of the economy.

Going forward, the implementation of National Payment System Strategy (NPSS) recommendations is vital for further development of national payment landscape in a sustainable manner. Its implementation would also lend support in completion of national goals under the National Financial Inclusion Strategy (NFIS) and the financial stability of the country.<sup>212</sup>

With regards to the key infrastructure components of a national payment system, Pakistan currently lacks an ACH (automated clearing house)<sup>213</sup>, which provides convenience and low costs for low-value, bulk payments. It is expected that RTGS will be upgraded to automated transfer system (ATS) in near future, which will have RTGS and ACH functionality. This upgrade would support the expansion in payment landscape by improving payments efficiency and better management of any underlying risks.

Moreover, the end-to-end digitization of payment transfers between individuals, government entities and businesses through Raast, after its full implementation, would present a significant opportunity for the digitization of entire economy. To realize Raast's full potential, all the market players (comprising banks, MFBs, EMIs and PSPs/PSOs) will need to make extra efforts for development of associated payment channels

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<sup>211</sup> For further details on key measures on in cyber security, please refer to Appendix A i.e. Regulatory and Supervisory Developments in CY22.

<sup>212</sup> SBP through World Bank's Financial Inclusion Support Framework (FISF) program, prepared National Payment System Strategy (NPSS) for the development of national

payment systems in 2019. Accessed at: [National Payment Systems Strategy \(sbp.org.pk\)](https://www.sbp.org.pk/National-Payment-Systems-Strategy).

<sup>213</sup> ECB definition: Automated clearing house (ACH) is an electronic clearing system in which payment orders are exchanged among participants (primarily via electronic media) and handled by a data-processing center.



and products and further improvement of consumers' service experience and awareness.

While interoperability among the various payment services in mobile money segment has made progress in recent years, further collaboration between the stakeholders may be needed for additional progress. It has significant bearing on convenience of consumers and merchants in conducting online payments as well as the growth of DFS in mobile money segment.<sup>214</sup> Furthermore, since many cellular subscribers do not have smartphones, enabling USSD network can be a potential stimulant for DFS uptake concerning transactions in accounts. Active mobile wallets still constitute a small proportion of adult population with access to mobile phones.

Furthermore, the advent of digital currencies and, more specifically, the underlying block chain technology holds great potential for increasing efficiency and transparency in the financial sector. However, the associate risks and regulatory incompatibility are still key issues. For further details of crypto assets and associated risks and opportunities, please refer to **Box 8.1**.

Nonetheless, Pakistan's economy holds wide prospects for growth of DFS in coming years. Country has achieved a significant growth in ICT and infrastructural support system. For instance, broadband penetration and tele-density have reached 54 percent and 82 percent of total population by end Mar-23, respectively<sup>215</sup>. On the other hand, country's growth potential, which has largely remained untapped due to some idiosyncratic challenges, presents wide space and opportunities for acceleration in economic activities. Thus financial institutions can leverage sufficient availability of ICT competencies and platforms to tap large growth potential and create value for their investors, customers and wider economy.

The entrance of diversified market players like non-bank institutions (e.g., EMIs) and digital banks would increase the pressure on traditional players for innovation and will continue to disrupt the financial services ecosystem in novel and profound ways. All market players and regulators within the DFS landscape need to capitalize on the opportunities while remaining vigilant to the risks that technology-enabled financial innovations bring to the fore.

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<sup>214</sup> Agents and consumers were required to maintain separate money wallet accounts with each of the various

service providers due to the absence of interoperability amongst money wallets.

<sup>215</sup> Pakistan Telecommunication Authority.