

Special Section

Covid-19 and the Need to Boost Digital Connectivity in Pakistan

Growing availability of and access to ICT services over the past two decades has brought a structural shift in business operations and activities across the world. In Pakistan too, recent developments in the digital ecosystem have been impressive. During the Covid-19 crisis, the importance of digitization became more prominent; from cash transfers to telehealth, and e-learning to e-commerce, the ICT-led response helped consumers, households and government authorities to minimize the socio-economic fallouts of the pandemic-induced lockdowns and disruptions. Going forward, the government's increased focus under the Digital Pakistan Policy and the National Payments System Strategy would ensure that progress on the digitization front would continue. However, concerted efforts are required to tackle the various supply- and demand-side constraints to the high digital divide in the country. This would be crucial to ensure inclusive economic growth in the country.

Special Section: Covid-19 and the Need to Boost Digital Connectivity in Pakistan¹

S1.1 Introduction

The Covid-19 pandemic has significantly accelerated the pace of digital transformation across the world. Necessitating widespread lockdowns and social distancing protocols, the pandemic has served as a litmus test for the preparedness and resilience of the global economy to deal with the unprecedented and unanticipated societal and commercial disruptions. Many organizations were forced to shift to teleworking almost overnight, whereas consumers started adopting digital channels for purchasing household essentials. Businesses accelerated the adoption of pre-Covid digitization strategies – both in business-to-consumer and business-to-business segments – that were earlier designed to be rolled out over the medium- to long-term. Governments, too, have relied on contactless solutions to deliver crucial public services like social transfers, and to implement stringent disease-mitigation measures via contact tracing.

Thus, in effect, the digital transformation has not only enabled continuity of the government and private sector activities (wherever possible), it is also expected to contribute significantly to the eventual recovery going forward. The key ingredient towards this transformation has been the robust connectivity levels, coupled with a dependable digital infrastructure. This is crucial to cater to the increased demand for data-intensive services, such as videoconferencing, file uploading and downloading, video calls, live streaming, and information pooling on internet platforms. In fact, data usage levels have witnessed around 50 percent rise during

the Covid-19 crisis, with a surge in high-data “power” users.² Certainly, there was a sizable difference in the capability of countries to cope with this sudden surge in demand for digital services. This has been the case in many developing economies, including Pakistan.

The Covid-19 crisis has reinforced the need to upscale and improve accessibility of digital connectivity and infrastructure in Pakistan, strengthen the outreach efforts to enhance digital literacy and promote digital skills, increase interoperability between branchless and conventional banks, and embrace technology in the provision of financial and government services. While significant progress has been witnessed in the digital landscape of the country over the past few years – which enabled the continuation of socio-economic activities during the extended lockdown period – there exist several supply- and demand-side challenges that warrant timely resolution. For one, the assigned level of internet bandwidth in the country is lower than regional economies.³ Second, the dispersion of internet services is heavily skewed towards urban areas, leaving tier-2 cities, remote regions, and rural areas digitally excluded. The challenges witnessed on the tele-schooling and telehealth front made this more prominent. Third, low spectrum allocation and high license fees place the country at a disadvantageous position for digital transformation as compared to the peer economies.⁴ Moreover, with regards to retail, difficulty in meeting the stringent KYC requirements of on-boarding with banks and the high upfront costs of setting up a secure and user-friendly digital payment platform

¹ The authors acknowledge the valuable input and feedback provided by the Payment Systems Department of SBP.

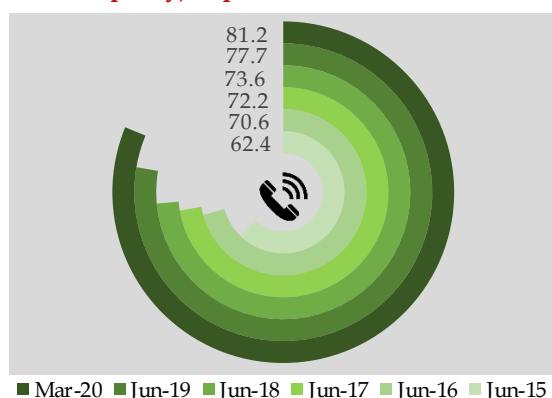
² Data source: OpenVault Broadband Insights Report Q1-2020 (<https://openvault.com/complimentary-report-Q120/>).

³ GSMA (2020). Pakistan: Progressing Towards a Fully Fledged Digital Economy.

⁴ Source: same as in footnote 3.

hold back the transition away from cash on delivery (COD), particularly for smaller businesses. High degree of informality in the economy further restricts the move towards the digital economy, as businesses want to avoid documentation of their activities. From the demand side, low levels of digital literacy, negligible perceived advantages of adopting digital services, and the low affordability of smartphones and internet services, serve as major constraints.

Teledensity in Pakistan (cellular and basic telephony) in percent Figure S1.1a



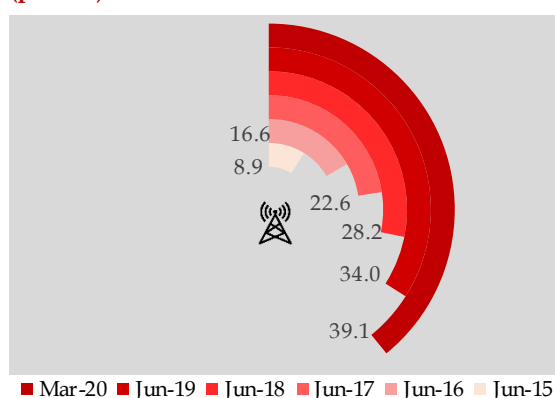
Source: Pakistan Telecommunication Authority

Within this context, it has become important to conduct stocktaking of the progress made so far in terms of the digital infrastructure and connectivity, and evaluate the country's preparedness to cope with similar disruptions in the future. This Special Section: (i) provides an overview of how governments, businesses and households worldwide took advantage of the digital services during the pandemic, and briefly discusses the policy measures that enabled this transition; (ii) highlights the state of digital connectivity in Pakistan on the eve of the Covid-19 crisis; (iii) analyzes how progress on this front helped the private sector address operational constraints, with particular focus on commerce and finance; and (iv) makes the case for bridging the existing digital divide to increase the economy's resilience against potentially similar disruptions in the future, and also to build an overall digitally inclusive ecosystem in the country.

S1.2 Developments in the Digital Ecosystem of Pakistan in Recent Years

Over the past few years, Pakistan has made significant progress towards increasing the digital penetration in the economy. For instance, telecom and internet penetration, being the basic building blocks of the digital economy, have remained a priority for governments. As a result, Pakistan's cellular tele-density increased from 60.7 percent in

Broadband Penetration in Pakistan (percent) Figure S1.1b



June 2015 to 80.0 percent in March 2020 (Figure S1.1). In addition, broadband penetration in the economy more than quadrupled in the last five years to 39.1 percent by March 2020, from only 8.9 percent in June 2015. This was primarily led by a surge in Next Generation Mobile Services (NGMS) subscribers after the auctions of 3G and 4G spectrum licenses in 2014. Keeping in view the surge in mobile data traffic and the medium-term connectivity goals, the Pakistan Telecommunications Authority (PTA) granted permission to two additional cellular mobile operators in the country to conduct non-commercial trials of 5G in January 2020.

The e-commerce market has shown an impressive growth over the past few years. Increasing digital penetration, lower costs and increased awareness about electronic commercial platforms have led to a significant shift in consumer purchasing patterns over the years. While similar infrastructure exists for business-to-business (B2B) exchanges, such

interactions have so far been rather confined to logistics services. In overall terms, the estimated e-commerce sales in Pakistan have grown at a CAGR of 62 percent during FY17-19. Importantly, the focus of e-commerce platforms on enhancing the customer experience via feedback and ratings mechanism have helped build customers' trust, while forcing sellers and vendors to improve their service delivery and product quality.

Although cash on delivery remains the most preferred mode of payment, use of debit/credit cards and IBFT has risen in both volume and value terms during this period. This progress had continued during FY20 as well; however, a significant development during the first three quarters was a notable surge in mobile

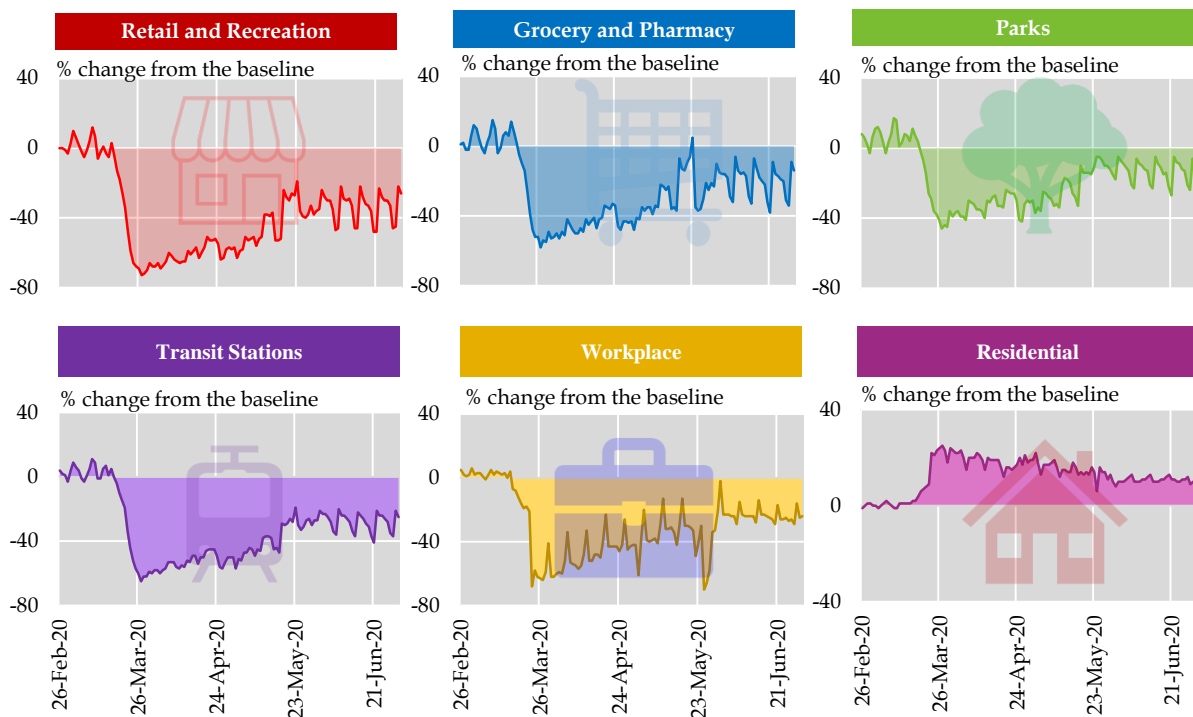
wallet payments with e-commerce merchants. Anecdotal evidence also points towards marketplaces as well as one-to-many digital outlets leveraging on the expanding mobile wallets ecosystem to attract customers by occasionally offering special discounts. That said, the increasing trend of the already high level of cash penetration in the economy (Chapter 3) continues to undermine efforts to enhance the digital payments system infrastructure in the country.⁵ The existing customer base also tends to avoid making cashless payments.⁶

S1.3 Progress made during the Covid-19 crisis

In late March, the government imposed strict lockdowns across Pakistan to curtail the

Mobility Remained Restricted in Pakistan Amid Covid-19

Figure S1.2



Note: Google Mobility Reports show how visits and length of stay at different places change compared to the baseline, the median value for the corresponding day of the week during the five week period 3 Jan – 6 Feb 2020.

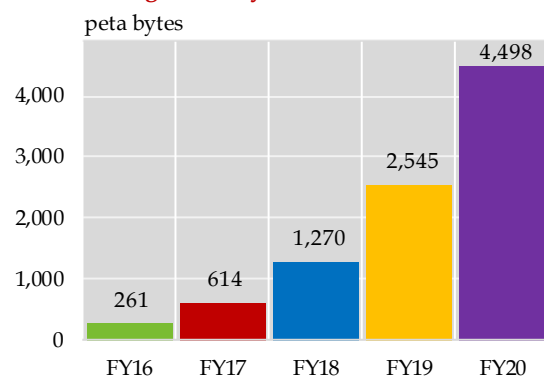
Source: Covid-19 Community Mobility Report (Google)

⁵ The currency to deposit ratio soared to 41.7 percent in June 2020 from 38.6 percent in June 2019.

⁶ For instance, as of June 2020, there were around 28.4 million debit and credit cards holders in the country, who conducted only 2 transactions, on average, in an entire year via Point of Sale (POS) terminals. In contrast, a debit card was used, on average, 17 times for mostly cash withdrawal transactions from ATMs during FY20.

Broadband Data Usage has Increased Significantly

Figure S1.3



Source: Pakistan Telecommunication Authority

local transmission of the disease. This included closure of schools, shopping centers, restaurants, factories, public transport, and restrictions on public gatherings. Only a few essential industries, like food and healthcare, were allowed to operate.

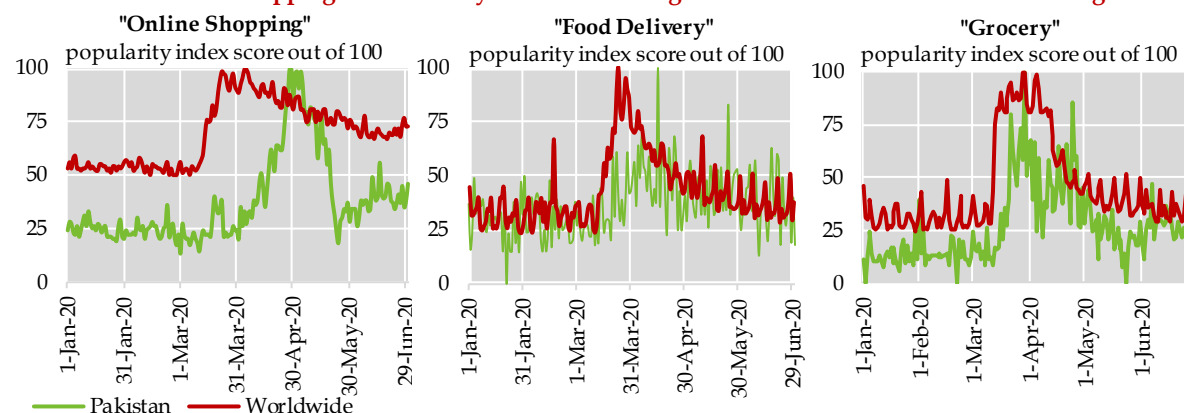
Towards the end of the fiscal year, when the government had officially moved towards a smart-lockdown strategy, the activity had somewhat revived, yet retail and recreation, grocery and pharmacy, transit stations, and workplace mobility were down by 26 percent, 14 percent, 25 percent and 24 percent, respectively from the baseline (pre-Covid) position (Figure S1.2).

In this backdrop, the shift towards electronic channels became inevitable for government institutions, businesses and households, as reflected in a sharp growth in the internet usage across the country during FY20 (Figure S1.3). Internet traffic surged 15 percent immediately following the lockdown, despite the reduction in the default bandwidth requirement by popular content platforms, such as Netflix and YouTube, to ease congestions. As per the telecom regulator, the Pakistan Telecom Authority (PTA), the overall broadband capacity was deemed adequate to meet the country's growing needs.⁷ The overall broadband data usage grew 76.7 percent in FY20, with the highest growth (89 percent) recorded in the fourth quarter, with government institutions, and especially the central bank, actively encouraging and facilitating people to use digital communications and payment channels.

Similar to other economies, Pakistani households and firms also had to adapt to the sudden disruption in usual business activities. Households began utilizing online solutions for purchasing essentials (groceries) and other items, as the containment measures extended. As seen from users' activity on the Google search engine, consumers worldwide as well as in Pakistan increasingly looked up for

Interest in Online Shopping and Delivery Increased During the Lockdown*

Figure S1.4



* Index score represents search interest relative to the highest point on the chart for the given region and time. A value of 100 is the peak popularity for the term. A value of 50 means that the term is half as popular. A score of 0 means there was not enough data for this term.

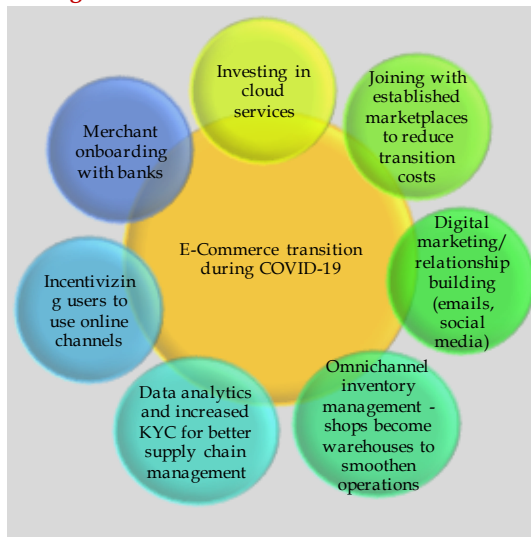
Source: Google Trends

⁷ <https://www.pta.gov.pk/en/media-center/single-media/internet-usage-increases-by-15-in-pakistan-270320>

groceries, food delivery and online shopping (Figure S1.4). While not all types of businesses could transition to online, manufacturing firms, retail and logistics players showed remarkable resilience. Here, it is important to reiterate that a gradual openness to and experimentation with online channels was already underway in the domestic market before Covid-19 as well. However, the pandemic quickened this transition in multiple ways.

For instance, businesses increased their digital marketing – via email newsletters, and advertising on traditional and social media – and actively engaging with potential customers via their websites and social media profiles. Second, the prevalent preference for physical shopping and cash necessitated incentivizing customers to switch to online shopping via discounts and general awareness campaigns (Figure S1.5).

Strategies Adopted by Businesses to Transition to Online Channels During the Lockdown Figure S1.5



Source: Soft information based on company websites; marketplaces blogs; retail sector webinars; and Daraz e-commerce index

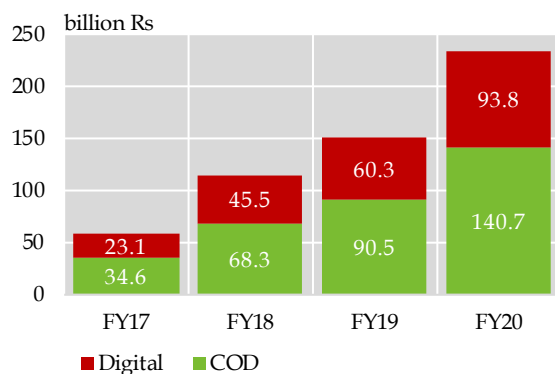
Moreover, data compiling and analytics became the key to smoothen supply chain operations, improve KYC protocols, and increase order fulfilment levels. Here, new players venturing into the e-commerce space

had to build the entire digital infrastructure from scratch. This included hiring new teams to set up an online store or otherwise help them sign up and operate as a merchant on an existing online marketplace; installing a dynamic inventory management system; onboarding with financial institutions to manage digital payments; and most importantly, manage all this while ensuring the health and safety of the employees. The restricted working hours, coinciding with the urgency, made the process of digital transformation even more challenging. Therefore, the offline retail industry allocated additional budgets for capacity-building and kick starting their online footprint.

Getting businesses online usually involves high upfront costs for cloud computing and inventory management software integration across the supply chain. Hence, there was a surge in small sellers registering with existing online market players to circumvent these costs and avoid delays in resuming operations. A big online platform, for example, in collaboration with Visa International, registered close to 3,000 MSMEs during Q3-FY20. On the whole, the number of e-commerce merchants registered with commercial banks increased by 25.3 percent in FY20 as compared to 24.5 percent in FY19. As there was a steep rise in demand for deliveries, businesses also started optimizing their inventory management towards a just-in-time model – a strategy to increase efficiency by receiving goods only as they are needed in the production process, thereby reducing inventory costs. In this regard, in major metropolitan cities, businesses started using physical stores as warehouses for timely order fulfilment and reducing delivery times.

Restaurants and hotels utilized online food delivery channels during the lockdowns. Similar to retailers joining online platforms, many new restaurants registered with online food delivery channels, providing discounts and ensuring compliance with safety protocols to attract orders. In cities where such platforms were absent, phone-call ordering became the norm.

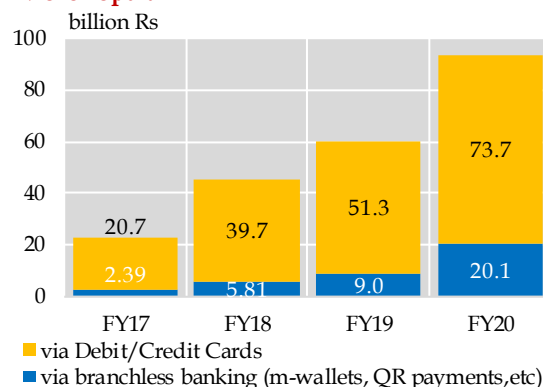
E-Commerce Sales Continued to Rise... Figure S1.6a



* These numbers include retail payments made via branchless banking channels, therefore, may not tally with estimates shared in Annual Report, Chapter 7 of 2017-18

Source: State Bank of Pakistan; market estimate for COD sales

... As Digital Payments Became More Popular Figure S1.6b



Resultantly, the e-commerce market in FY20 is estimated to have expanded to Rs 234.6 billion, up 55.5 percent on YoY basis (Figure S1.6). Within the digital payments, e-commerce transactions made via branchless banking channels more than doubled from last year. That said, during the fourth quarter, the YoY growth in digital payments for e-commerce activities dropped to only 10.6 percent compared to the average growth of 74.1 percent during the preceding three quarters.

This might suggest three things:

- The cash-on-delivery transactions might have increased due to a sharp increase in cash penetration in the economy (Chapter 3). Most people still rely on the branchless banking agent networks to top-up their m-wallets, as well as on physical branches of commercial banks, to carry out cash payments and transfers, as opposed to using credit or debit cards. Reduced working hours and restricted mobility made it challenging for people to access these avenues. At the same time, cash preference in general remained elevated, as people tried to hold money as a precaution, given the high uncertainty. From the businesses' perspective, getting into e-commerce was the only option to keep operations afloat. However, given the restricted mobility, enterprises found it challenging to get on-boarded with the

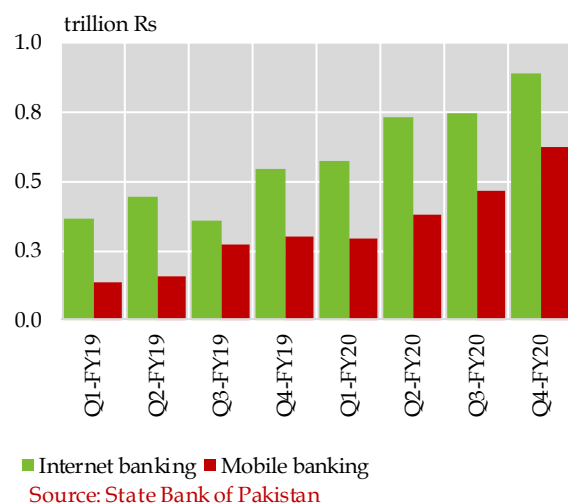
commercial banks and thus had to resort to providing deliveries on COD basis only.

- This increased the proportion of cash transactions in the overall e-commerce market.
- Further, it seems that the e-commerce industry was not ready to cater to a sudden surge in customer demand due to the Covid-19 crisis. Resultantly, a large number of orders were reportedly cancelled and refunds were either not processed on time or were indefinitely delayed. Since digital payment-based orders are processed on a pre-payment model as opposed to a post-payment model in case of COD, customers were swayed away from digital payments and towards cash settlement, as they could minimize their risk by holding the payments until order completion.
- On the other hand, most of the existing non-retail e-commerce players with digital payment options had to suspend their operations due to restrictions in major cities. For instance, restaurants were forced to suspend operations in the initial days of lockdowns, which might have caused a dip in food deliveries. Likewise, there were restrictions on pillion-riding and ride-hailing services in some cities, causing the overall volume of digital e-commerce sales to fall.

However, beyond e-commerce, there was a noticeable shift towards digital payments and alternate delivery channels. As discussed before, the importance and usage of electronic banking and alternative delivery channels increased during the post-Covid-19 period. Realizing this, the SBP further incentivized the use of digital financial channels by instructing banks to waive all inter-bank and intra-bank charges on digital transactions. Further instructions were given to ensure proper functioning of ATMs and 24/7 access to customer helplines and call centers to smoothen customer support and IVR banking.

The rapid digitization of the financial, retail, health and government services over the past decade – buoyed by rising smartphone sales, internet users and IP traffic – increased the global preparedness to respond to disruptions such as the one caused by the Covid-19 crisis. In particular, the advancement in ICT capability and accessibility increased the resilience of households, businesses and government institutions, and softened the blow of the pandemic-induced lockdowns. Pakistan is no different in this regard. That said, the world is facing extraordinary socioeconomic ramifications of Covid-19,

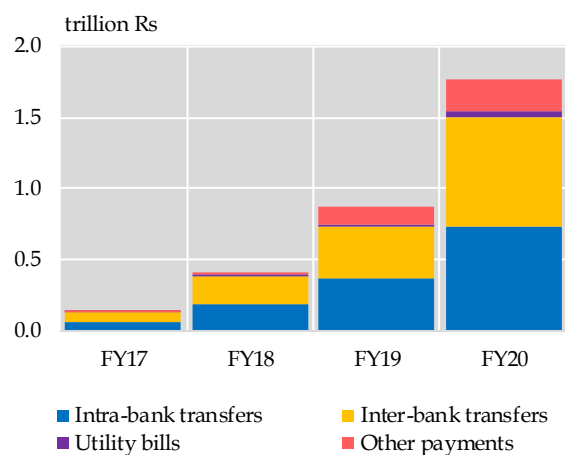
E-Banking Transactions in Pakistan Figure S1.7a



These developments were a key factor behind the sizable 19.5 percent QoQ and a massive 63.7 percent YoY increase in the values of internet banking payments during Q4-FY20. For mobile banking, the transaction volumes rose by 33.0 percent QoQ and 106.8 percent YoY during Q4. On aggregate basis, mobile phone banking transaction values doubled for the third consecutive year to Rs 1.7 trillion by end-FY20, as consumers increased the use of smartphone apps to transfer funds, pay utility bills, or carry out other payments, such as for retail purchases (Figure S1.7).

S1.4 Substantial policy support and guidance means that the progress would continue...

Mobile Banking Transaction in Pakistan Figure S1.7b



which may likely persist at least till the availability of an effective vaccine. With a lingering threat of a second wave of the virus, people will continue to remain cautious and social distancing will be exercised globally. In this regard, key bottlenecks in Pakistan, such as lack of digital and financial literacy, limited access to ICT service platforms, and preference for cash, must be addressed.

This is particularly important now that the drive towards the fourth industrial revolution and the internet of things is well underway. Technologies like artificial intelligence, robotics, block-chain and augmented reality, would come to dominate the economic sphere by fueling the industries of the future, blurring

the gap between manufacturing and services, and driving the economic growth. According to a 2018 International Telecommunication Union (ITU) report, an increase in the overall digitization of 1 percent in an economy leads to a 0.13 percent growth in GDP per capita and a 0.23 percent increase in labor productivity.⁸ Furthermore, the transition towards e-government is also digitizing the fiscal and monetary policy transmission and communications channels, nearing us towards a future of electronic social transfers and, potentially, digital currencies, etc. All this would require a significant leap in the digital infrastructure's capacity to handle the expected demand for big data. Pakistan, like all economies, would need to prioritize bridging the intra- and inter-country digital gap to prepare for the needs of tomorrow.

In this regard, an important development has been the launch of the National Payment System Strategy (NPSS), under which a roadmap for a modern and robust digital payment network has been adopted. The NPSS aims to increase Pakistan's GDP by 7 percent, create 4 million new jobs and attract US\$ 263 billion in new deposits by leveraging digital channels by 2025. The key objectives of the NPSS include the development of a national payments infrastructure to enhance interoperability between different players and payment instruments; digitizing government collections (including taxes), payments (including salaries, pensions, and social benefits) and remittances; and enabling and encouraging merchants and other private sector businesses to enhance the usage of digital payment channels. Specifically, to address the challenges faced by POS acquirers – which discourages more widespread deployment of POS machines at retail outlets – the SBP has introduced policy measures such as setting a floor on the Merchant Discount Rate (MDR) and capping the Interchange

Reimbursement Fee (IRF) for debit and prepaid cards. The SBP has also observed early positive indicators in the form of increase in the POS install base, with 2 new banks entering the POS acquiring market in the coming months. Furthermore, the number of POS terminals that were on a downward trajectory (with only 47,567 as of end-December 2019) has again started to increase. The figure now stands at 51,667 (as of end-August 2020).

Moreover, in order to simplify the cumbersome and lengthy account-opening and on-boarding process for merchants, the SBP has issued Rules for Digital On-boarding of Merchants to facilitate the growth of digital payment acceptance points in the country. The rules provide the minimum requirements for simplified due diligence process and should facilitate the acquiring institutions to on-board small retail merchants and enable them to accept payments digitally. To further support the digitization of payment services, the SBP has issued standards on QR codes for accepting payments in Pakistan, with the aim to ensure interoperability in the longer run and promotion of digital retail payments at low cost.

Along the same lines, the SBP has recently allowed local businesses to make instant payments for acquiring services from globally recognized digital services providers. This would help businesses to increase their outreach to a wider customer base by accessing various services, including advertising, hosting, customer support etc. The SBP has allowed commercial banks to release up to a maximum of US\$ 200,000 per year for each local company for the import of digital services, primarily from the top 62 global digital service provider companies (including their affiliates or associated entities). However, within this limit, banks

⁸ The increase in digitization is gauged from the ITU Digital Ecosystem Development index, which is based on 64 high- and low- frequency indicators (related to infrastructure, connectivity and competition) for 75 developing and developed countries. Furthermore, this increase is on top of the 0.08 percent and 0.15 percent growth in GDP, respectively, by an increase of 1 percent each in fixed broadband penetration and mobile broadband penetration. Source: ITU (2018). The Economic Contribution of Broadband, Digitization and ICT regulation. https://www.itu.int/en/ITU-D/Regulatory-Market/Documents/FINAL_1d_18-00513_Broadband-and-Digital-Transformation-E.pdf

can release foreign exchange up to a maximum of US\$ 25,000 per annum to digital service providers that are not included in the list.⁹

The SBP is also working on the development of a Micropayment Gateway (MPG), in collaboration with the Bill & Melinda Gates Foundation and Karandaaz. MPG is a faster payment system, offering retail payments with advanced Application Programming Interfaces (APIs) and directory services; it will simplify and smoothen payment mechanisms in the country. A related development is the work on the Asaan Mobile Accounts (AMA).¹⁰ The AMA scheme provides an integrated platform, allowing any person with a basic mobile phone to swiftly open a digital transaction account through a Unified Unstructured Supplementary Service Data (USSD) code at any time. The scheme's objective is to facilitate new customers with account opening, and to drive the usage of digital financial services through increased number of account-to-account transactions across various networks. The AMA scheme is currently in a development phase, and holds the potential to increase financial inclusion manifold.

Moreover, the SBP has issued regulations for non-bank e-money institutions willing to provide innovative, affordable, and user-friendly payment solutions. These regulations are aimed at removing the barriers to entry for new players and providing an enabling environment to promote cashless payments and financial inclusion. Furthermore, to facilitate overseas Pakistanis, the SBP has allowed the opening of Roshan Digital Accounts, which would allow expatriates to open a foreign currency value account or a Non-Resident Rupee Value Account (NRVA). The account holders would be able to use their accounts to invest in government bonds, securities via the CDC, and real estate, etc.

Encouragingly, Pakistani authorities have been proactively working on the digitization front during the past half-decade or so; positive developments include the approval of the country's first ever e-commerce policy in 2019. The policy aims to provide an enabling environment to private businesses, create new employment opportunities for youth and women, and provide an opportunity to the government to regulate the e-commerce sector in the public interest. To track the implementation of the policy and to facilitate e-commerce businesses, a National E-commerce Council (NEEC) has also been established. Its main functions are to monitor and support the advancement of e-commerce in the private sector, foster innovation in the implementation of the necessary programs and initiatives, create awareness of the importance of e-commerce towards the overall growth in the economy, and provide relevant feedback and recommendations to the government.

Notably, the Ministry of Commerce has also facilitated enlisting more than 30 exporters on the world's leading online marketplace, Amazon.com, on a trial basis. On a successful completion of the test-run, this will provide an opportunity to more domestic firms to sell via Amazon and expand their outreach to global markets. This could potentially open a new avenue for Pakistan to increase its exports and create new employment opportunities locally. Going forward, the cross-border B2C e-commerce regulatory framework developed by the SBP and the Web Based One Customs e-commerce module that is to be developed by the FBR, will help facilitate online sales of exporting firms by allowing hassle-free documentation and shipment of export orders.

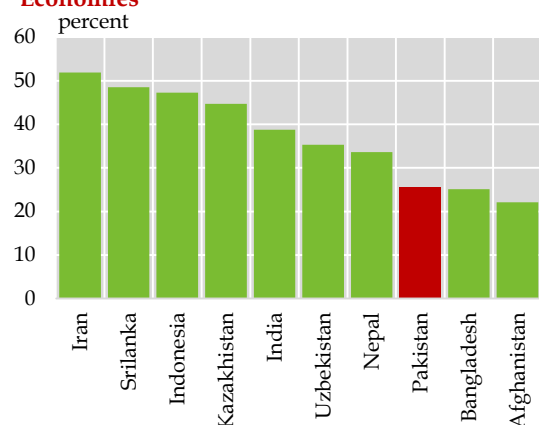
S1.6 ...However, more needs to be done to make the transition inclusive and sustainable

As encouraging and welcome as these developments are, they are not sufficient to

⁹ <http://www.sbp.org.pk/epd/2020/FEC4.htm>

¹⁰ <http://www.sbp.org.pk/reports/annual/arfy17/vol-1/Chapter-4.pdf>

Mobile Internet Penetration in Pakistan Lags Behind Most Regional Economies **Figure S1.8a**

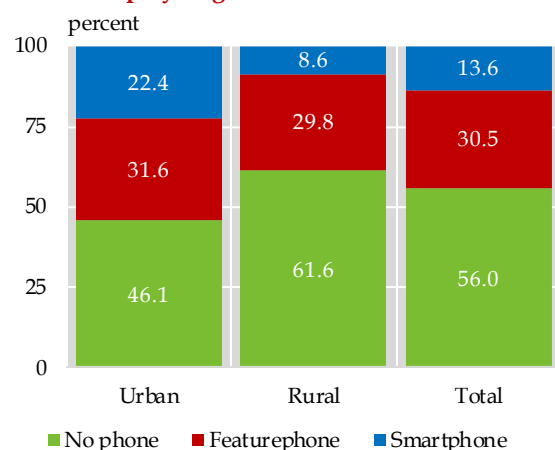


Source: GSMA Intelligence (2019)

achieve the overall objective of digital and financial inclusion in the country. For that, a parallel focus would be required on addressing the demand dynamics.

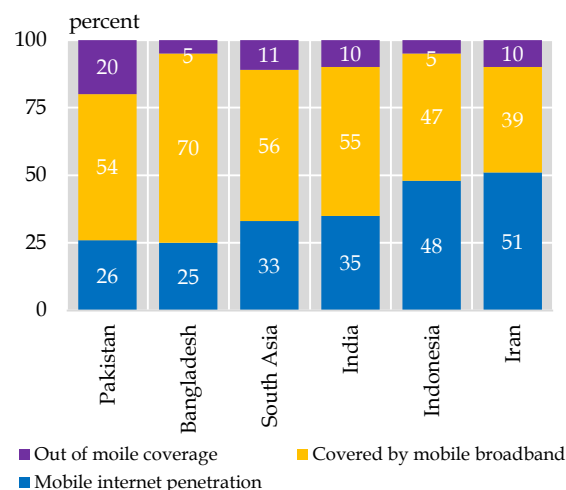
Pakistan has low unique mobile subscriber penetration and also has lower mobile internet penetration as compared to regional countries (Figure S1.8a and b). The digital divide in the economy is still significant. There are both coverage as well as usage gaps. Specifically, around 54 percent of the population has access to mobile broadband coverage, but they do not

Composition of Mobile Phone Ownership by Region in Pakistan **Figure S1.9a**



Source: PSLM/HIES 2018-19, PBS

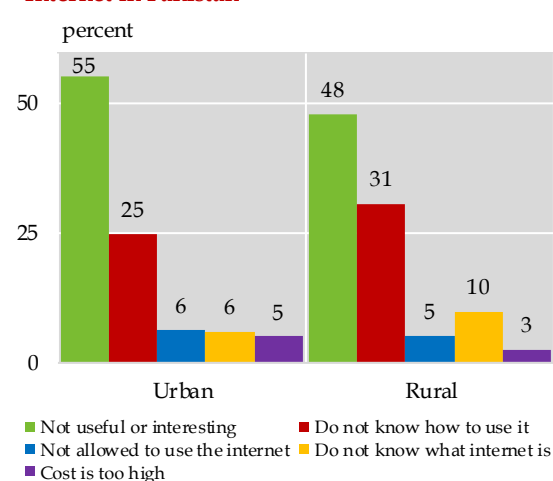
Usage and Coverage Gaps in Mobile Broadband Connectivity **Figure S1.8b**



subscribe to internet bundles (usage gap). Similarly, around 20 percent of the population does not have access to mobile internet services (coverage gap).

There is also a significant variation in mobile phone ownership between urban and rural areas (Figure S1.9a). Here, both the demand and supply factors come into play. Given the low-income level in the country, high taxes on cell phones curtails the ability of people from owning a smartphone.¹¹ Meanwhile, inadequate level of literacy, especially digital

Top 5 Reasons For Not Using Internet in Pakistan **Figure S1.9b**

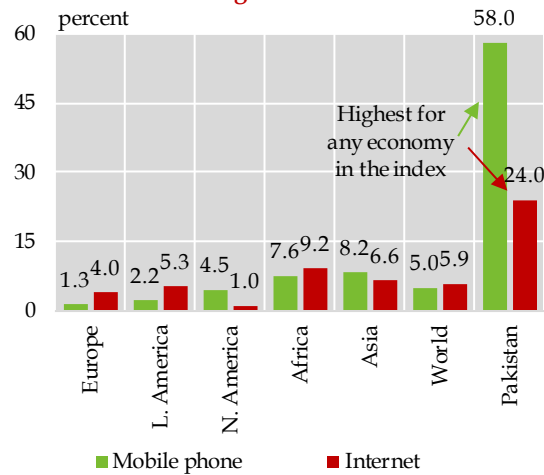


¹¹ In Pakistan, customers face multiple taxes related to smartphones: sim card taxes, custom duties, activation charges, additional value-added taxes, handset fees, and usage taxes. This is the most in any South Asian economy. Source: GSMA (2020). Pakistan: Progressing Towards a Fully Fledged Digital Economy.

literacy, is also behind the low smartphone and internet usage levels in the country. So much so, that about a quarter of the population does not know how to use the internet, while around half does not deem it as a useful or interesting activity (Figure S1.9b).

It is important to emphasize here that amid the already low inclusivity levels, gender inequality in terms of both smartphone/internet access and digital literacy is stark, and further hinders progress. According to the Economist Intelligence Unit

Gender Gap in Mobile Phone and Internet Access is Highest in Pakistan Figure S1.10



Note: Calculated as the difference in the proportion of males and females having access to mobile phones and internet.

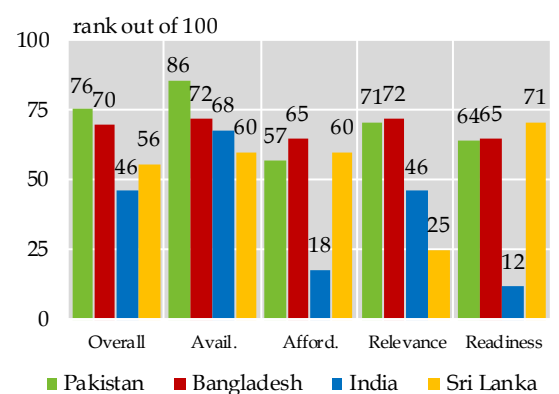
Source: EIU Inclusiveness Index 2020

(EIU) Internet Inclusiveness Index 2020, the global average gender gap (difference between proportion of male and female population) in terms of mobile phone access and internet access is 26.5 percent and 19.8 percent, respectively. In Pakistan, these gaps rise to 58.0 percent and 24.0 percent, respectively – both are the highest out of the 100 economies in the index (Figure S1.10).

Pakistan lags behind regional and peer economies in the digital connectivity indicators (Figure S1.11). Furthermore, it is

vital to understand that the digitization of services is not a development that can happen in isolation; the overall human capital and economic development ecosystem needs to be geared towards addressing the inefficiencies from the grass-roots level. The adult literacy rate is currently only 59.1 percent in the country, and support for digital literacy is inadequate. Similarly, low income levels mean that affording a smartphone and running a data network is challenging. In such a landscape, the following proposals may help address the shortcomings.

Pakistan Ranks the Lowest in South Asia in Internet Inclusiveness Figure S1.11



Availability measures the quality and breadth of infrastructure; Affordability examines the cost of access relative to income level and marketplace competition; Relevance indicates the existence and extent of local language/relevant content; Readiness shows the level of capacity, skills, cultural acceptance, and policy environment to access the internet

First and foremost, Pakistan has to substantially upgrade its digital infrastructure. This is because in the nearing era of 5G and the internet of things, capacity and bandwidth would be crucial. Currently, the level of assigned bandwidth in the country is amongst the lowest in the region.¹² Here, the PTA needs to ensure timely investments and proper planning. Rural areas and tier-2 cities need to be prioritized to bring them at par with the urban localities to ensure equal accessibility. Likewise, over-1 GHz bands need to be expanded to ensure big data

¹² GSMA (2020). Pakistan: Progressing Towards a Fully Fledged Digital Economy.

analytics and transmission, and smoothen network exchanges in commercial areas in the near future.

Second, the government authorities need to educate the population about the benefits of using digital services. Here, the National Financial Literacy Program and the Digital Skills Strategy are already in implementation phases, and positive results have been achieved so far as well. However, going forward, it would be necessary to put digital literacy at the forefront of the country's entire education system. The curriculum needs to incorporate material to equip students with the rapidly evolving needs of the job market.

The skillset needed to excel in a number of jobs in the future will be profoundly different from what was required before. To this end, the content must be aligned with the needs of the private sector, with an eye towards both domestic and global trends.

Third, government authorities need to incentivize marketplaces and shopping outlets to offer mobile wallet payments, which would help increase the use of e-commerce and financial services in general. Anecdotal evidence suggests that many online outlets and marketplaces still either do not provide an option for digital payment, or allow only bank deposits and/or credit and debit card payments, while ignoring the growing mobile wallet users. Small businesses, in particular, prefer COD and are deterred from accepting digital payments due to the upfront costs for developing a secure and reliable infrastructure for payment processing, negotiating contracts with payment system providers, and banks' stringent KYC requirements for merchant onboarding. Even in cases where payment gateways and platforms are provided, lack of market-level standardization, lengthy and repetitive payment procedures, absence of escrow facilities, and low user-friendliness, discourage consumers from choosing online payment channels. Furthermore, many banks do not allow the issued debit cards to be used

for online purchases or require customers to activate such a facility for every transaction. Meanwhile, credit card penetration in the economy is very low and limited to higher-middle to high-income individuals.

Fourth, the federal and provincial governments must incentivize consumers, merchants, and other businesses to pay or receive their payments digitally. As highlighted earlier, a large number of debit and credit cards are being used to withdraw cash through ATMs. It is pertinent to note that cash leaves no digital signature and does not contribute towards documentation of the economy. In contrast, when a card is used on a POS terminal at a merchant location, the authorities get an end-to-end trail of where the money is being spent, and the transaction also contributes towards digitization. From the supply side, more support can be provided to the POS acquirers in Pakistan. In this regard, one way to expand the POS network would be to waive the taxes/duties on the import of the digital acceptance equipment. Meanwhile, on the demand side, an immediate step would be to provide incentives in tax rates for transactions that are conducted using digital payment channels.

Finally, the digital financial services would not pick up on their own. For that, three things are important. First is the overall orientation of the economy towards digitization. If the various sectors of the economy are digitized, the resultant ease and efficiency in the whole ecosystem would automatically increase the attraction of using digital financial services.¹³ Second, the digitized services must be well-integrated. Here, interoperability must be focused upon and incentivized. For example, the current mobile wallet infrastructure allows interoperability among all service providers via 1-Link. However, the players are not fully utilizing this facility, mainly to retain their existing market shares. In particular, major telecom players are hesitant to share access to their sizable agent networks that they have

¹³ Recent developments, such as electronic land records, digital supply chain invoicing, registration of vehicles, and online access to government resources, etc., have been encouraging and would go a long way towards meeting this objective.

established over the past decade or so. Hence, the third factor is to provide incentives to the market players to get them to be more cooperative with each other and be open to the whole ecosystem. It needs to be realized that,

in the long term, the provision of an integrated channel would increase the overall pie of the digital users, which would also lead to an increase in the share of users of all the service providers.