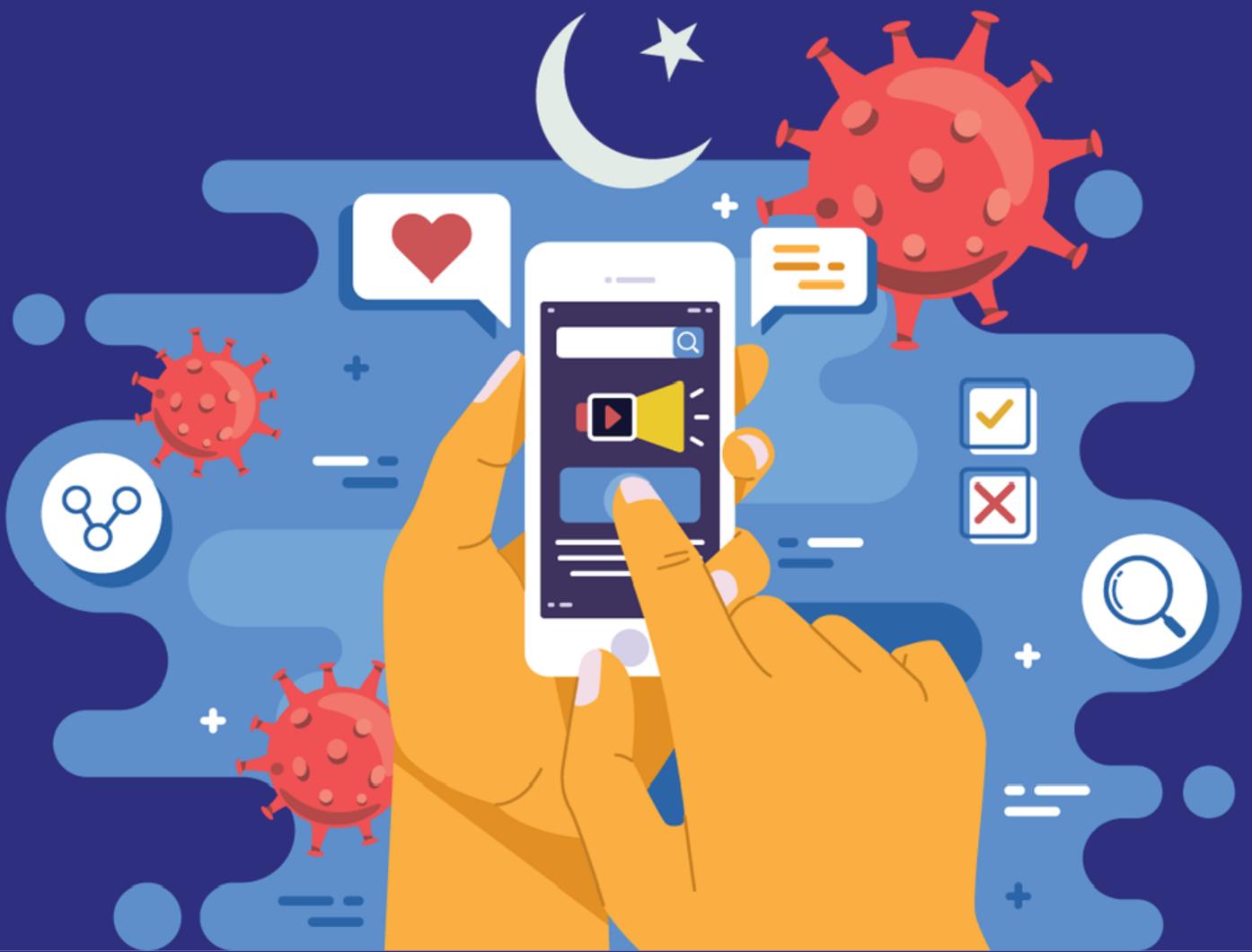


CONNECTING PAKISTAN

COVID-19 AS A CATALYST FOR DIGITAL TRANSFORMATION



CONNECTING PAKISTAN
Covid-19 as a Catalyst for Digital Transformation

Aliza Amin
Sobia Maqbool

Bismillah irr Rahman irr Rahim

Connecting Pakistan: Covid-19 as a Catalyst for Digital Transformation

Aliza Amin
Sobia Maqbool

Tabadlab Occasional Policy Paper Series
ISBN 978-969-7911-11-0
© Tabadlab Private Limited 2021



This work is licensed under the Creative Commons Attribution 3.0 Unported License.

To view a copy of this license, visit <http://creativecommons.org/licenses/by/3.0>

Available from:
Tabadlab
Mezzanine Floor, Beverly Centre, Blue Area, Islamabad, Pakistan, 44000.

Tabadlab Private Limited is a think tank and advisory services firm,
headquartered in Islamabad, Pakistan
Tel: +92 51 2726668
info@tabadlab.com



The research and consultations for this policy paper were conducted by Tabadlab, and made possible through Tabadlab's Centre for Digital Transformation. Warda Malik, Umar Nadeem and Mosharraf Zaidi contributed to the research and editing of the document. The views and opinions expressed in this article are those of the authors and do not necessarily reflect the official policy or position of Tabadlab Private Limited, nor any of its clients or partners.

Centre for Digital Transformation

TABADLAB 

The **Centre for Digital Transformation** (CDT) was established at Tabadlab in 2019 as part of the organization's efforts to ideate and problem solve for the economic and social opportunities that digital transformation offers to the South and Central Asia regions, particularly Pakistan.

The CDT's primary objective is to engage with the challenges and opportunities of the digital age through robust research, engagement and persuasion.

Since its founding CDT has worked with clients and partners to inform and shape policy. Our inaugural publication, "Connecting Pakistan" seeks to initiate a dialogue about the impact of Covid-19 on connectivity in the country, and the opportunities for digital transformation it has created.

Table of Contents

Table of Contents	2
Executive Summary	4
Pakistan’s Digital Landscape and Covid-19	6
Pakistan’s Digital Landscape	6
Accessibility	6
Efficiency	7
Adoption	9
Covid-19: An Attack on Connectivity	10
The Covid-19 Response	12
Tackling the Virus	12
Tackling Infection-Enabling Behaviour	12
Tackling Infection-Enabling Connectivity	13
Enabling Life	13
Enabling Livelihoods & Subsistence	13
Enabling Learning	14
Enabling Healthcare Solutions	14
Enabling Transactions	15
Assessing Pakistan’s Digital Opportunity	16
Lessons from Covid-19	16
Restoring Human Connectivity	16
Enhancing Transactional Connectivity	17
Boosting Financial Connectivity	18
Sectoral Opportunities	19
Financial Inclusion	19
Public Health	19
Education	20
Gender Equity	20
E-Commerce	20
Climate Change Mitigation	21
Harnessing the Power of Big Data	21
Recommendations and Roadmap for the Future	22
Go Big Picture Digital	23
Establish the normative place of digital in Pakistan	23
Invest in digital literacy	24
Prioritise the telecommunications sector	24
Take an ecosystem approach	25
Establish a cogent policy framework	25
Be “The Entrepreneurial State”	25
Ensure the success of STZA	26
Supercharge Pakistan’s start-up space	26

Notes for the Private Sector	27
Large international tech firms	27
Local players	27
References	30

Executive Summary

Covid-19 has altered the fundamentals of how societies and economies organised and operated in an ever-connected world. The pandemic has disrupted and altered the connectivity in three foundational ways. It changed human-to-human interaction, it undermined the capacity of individuals and firms to engage in economic activity, and it reduced the financial connectivity that drives economy.

At the heart of the response to this compromised connectivity were mobile and internet services. The pandemic required two immediate policy actions. The first was to tackle infection-enabling behaviour, and the second was to limit infection-enabling connectivity. Furthermore, the pandemic's impact on livelihoods, on learning, on healthcare and on transactions of all kinds needed to be mitigated. In each case, it was the digital realm in which the immediate solutions to the impact of Covid-19 were found.

Over 160 million Pakistanis experience digital through their mobile phones. The pandemic has demonstrated how integral mobile phones were in restoring human, transactional, and financial connectivity, and are now where key interactions take place. Mobile operativity is enabled by the telecom sector, which has a crucial role to play in ensuring connectivity and expanding our digital economy. However, the telecom sector must start to think about connectivity in terms of value creation. Human, financial and transactional connectivity has the potential to generate new ideas, services, tools and opportunities for economic growth if the correct mindset is applied.

The wider impact of the telecom sector's response to Covid-19, however, is likely yet to be seen. The pandemic response has laid bare the spectrum of issues that prevent digital connectivity in Pakistan—a pathway to rapid and sustainable economic growth and social development. Disparities in digital access cut across income levels, gender and the rural-urban divide. The quality of digital services remains inefficient due to low Internet bandwidth, barriers to innovation and a need for better decision-making capacity at the policy level. Lastly, there is potential for higher levels of digital adoption, as Pakistan has a relatively high usage gap where 54% of people who are covered by broadband networks do not subscribe to broadband services.

How can Pakistan catalyse a digital transformation? The country requires a coherent policy framework for mobile, internet and the wider telecom sector. One important aspect of coherence is the establishment of a broader ecosystem in which telecom can thrive. A key driver of digitalisation is the extent to which government adopts and adapts digital solutions, especially in its engagement with citizens. Enhanced engagement, usability and responsiveness of government through technology is thus crucial for a national digital transformation. The normative place of digital in Pakistan needs to be affirmed through clear and comprehensive policy and communication efforts. Technically, Pakistan needs to prioritise optimising spectrum allocation in a manner that drives economic growth. Similarly, the tax regime can be simplified and optimised to help Pakistan meet the

Sustainable Development Goals (SDGs), but with greater predictability and less uncertainty—this requires envisaging the telecom sector as a partner and driver of economic and social growth, rather than an adversary. The average mobile and internet user is also a partner, and the digital space needs to be made safer through robust regulation. Finally, government and the private sector must do more to support innovation and job creation through digital. Overall, progress in digitalisation requires a multi-stakeholder engagement that is driven by both public and private sector participation to effect policy change.

While Covid-19 has exposed issues that inhibit our digital economy, it has also demonstrated the digital opportunity that lies ahead of us. This digital opportunity is defined by harnessing the power of data for financial inclusion, public health, education, gender equity, e-commerce, and mitigating climate change. Telecommunications, therefore, is not simply a sector but a “sector of sectors,” one that is a central and inescapable shaper of private and public spaces. The sector should be declared an “essential service” by government, as a matter of practice, not exception. Telecommunications is an industry, and the full spectrum of how public policy engages with telecommunications needs to be cohered. Tax administration, import and export levies, and regulatory oversight and all other public sector engagement with telecommunications must be informed by priorities, on how it can help ignite economic growth, create the most jobs in the fastest and safest way, and make people happier and safer.

As one of the few countries that has a youth bulge that can enable it to realise massive demographic dividends, it is critical for Pakistan to envision and invest in digital transformation. The evidence from the country’s Covid-19 pandemic response is promising. These developments must be pivoted for rapid progression and adoption. It is imperative that this digital progression should be inclusive and sustainable, thereby bridging the digital divide to shape a digital economy and society that ensure Pakistan’s prosperity.

Pakistan's Digital Landscape and Covid-19

Pakistan's Digital Landscape

In December 2019, the Digital Pakistan Vision was launched as a government initiative that aimed to expand digital access, the equitable distribution of technology and online resources, and enable digital growth. The aim was to create an environment conducive to the development of a digital ecosystem designed to address Pakistan's challenges by removing obstacles and creating opportunities in both the public and the private sector. However, a critical view of Pakistan's digital landscape demonstrates that challenges to a truly digital Pakistan continue to persist two years later.

Pakistan exhibits a relatively large 'usage gap'; despite 87% of the population being covered by internet services and 43% penetration of broadband services (subscriptions), usage of digital remains significantly low.¹ The digital reality for Pakistanis is characterised by divides across urban and rural geographies, income groups, literacy levels and gender. Telecom connectivity ensures access to voice, text and internet services. Digital dividends, however, can only be realised once internet connectivity is mainstreamed and near-universal access with a decent quality of service achieved to enable and unlock rich media and interactive use-cases like digital learning, telehealth, financial services, e-commerce, social networking and engagement.

Widespread consumption of technology and Pakistan's foray into the digital era have yet to materialise. There are several impediments which have hitherto constrained this development, as reflected in various independently published indices.

Pakistan lags on most digital development rankings relative to regional comparators, notably on digital infrastructure and digital (e-) government. The E-Government Development Index 2020 ranking of the 193 UN Member States in terms of digital government - capturing the scope and quality of online services, status of telecommunication infrastructure and existing human capacity - places Pakistan at 153.²

On the GSMA's latest Mobile Connectivity Index,³ Pakistan scored 40.6 compared to an average of 46 for South Asia. The index measures the performance of 170 countries - representing 99% of the global population - against key enablers of mobile internet adoption: infrastructure, affordability, consumer readiness, and content & services. The consumer readiness measures are particularly on the lower side, which scores a country across various dimensions such as basic skills, gender equality and mobile ownership.

Accessibility

Several barriers hinder universal digital access in Pakistan:

Gender - The gender divide is starkly evident in the digital space with a 38% gap in mobile phone ownership, the highest in South Asia, and 49% gap in Internet usage.⁴

Socioeconomic conditions mean that families are less willing to invest in devices for women or allow them digital privacy compared to their male counterparts. Spaces that originally provided digital resources such as work and school are no longer accessible to women during lockdowns. Additionally, cybercrimes such as online harassment and information misuse present great risks to women and their digital experiences. Such occurrences only amplify the perception that Internet access poses a threat and consequently increase restrictions for women.

Rural/Urban Divide - Dispersion of internet services is heavily skewed towards urban areas, leaving tier-2 cities, remote regions, and rural areas digitally excluded. Despite making up more than 60% of the population, only 24% of rural households have access to the Internet.⁵ Poor network quality, limited affordability, literacy and cultural barriers pose challenges to digital access and device ownership among this section and contribute to the rural-urban gap.

Individual Mobile Phone Ownership
(Percentage)



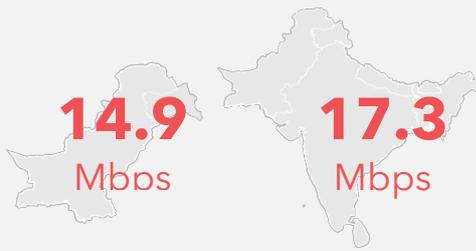
	Rural	Urban	Male	Female	Total
Pakistan	39.2	55.1	64.8	26.3	45.3
KPK	42.8	53.5	63.2	27.8	44.7
PUNJAB	40.5	55.3	65.8	27.8	46.2
SINDH	32.3	56.6	65.4	24.5	45.6
BALUCHISTAN	34.7	43.6	58.2	13.7	37.3

Digital literacy - is still limited, particularly in lower income and rural communities, constraining demand. Less than 40% of Pakistanis report knowing what the Internet is; and among Internet users; only 11% have used e-commerce platforms.⁶ Pakistan's literacy rates, which fare poorly compared to other low-middle income countries, also present an impediment to engaging with the Internet meaningfully.⁷ This lack of awareness is also constricting broader uptake of digital financial services such as digital wallets. Research shows that inequalities in digital skills are likely to further exacerbate already existing socio-economic and socio-cultural inequalities.

Efficiency

For the segment of Pakistan's population that has access to digital devices and services, issues such as slow internet speed, limited relevant digital services and low digital uptake in the public sector inhibit consumers from claiming a seamless digital experience.

Spectrum - The assigned level of internet bandwidth in the country is lower than regional economies. Moreover, low spectrum allocation and high license fees place the country at a disadvantageous position for digital transformation as compared to peer economies. Analysis of Ookla data indicates that, at 14.9 Mbps, the average download speed across all mobile technologies in Pakistan is below the South Asia average (17.3 Mbps), and it lags behind the levels observed in many Southeast Asian countries.⁸ Currently, only one-third of the spectrum available to Pakistan is being deployed.



Avg. Internet bandwidth (Pakistan vs South Asia)

Digital Onboarding - With regards to retail, difficulty in meeting the stringent Know Your Customer (KYC) requirements of on-boarding with banks and the high upfront costs of setting up a secure and user-friendly digital payment platform hold back the transition away from cash on delivery (COD), particularly for smaller businesses. Although Pakistan has pulled ahead of many developing countries by implementing a digitalised national identification strategy, the National ID Card (NIC), it has fallen short of leveraging its full potential. Access to the privately-owned ID system is controlled by NADRA, a cost-driven enterprise with high service charges. As these are required for accessing all types of services including account-opening, network subscription, buying a mobile phone or SIM card, these charges can easily become prohibitive for small businesses and low-income consumers.

Skills and Innovation - Limits to innovation and entrepreneurship include outdated curricula for STEM programs at local schools and universities that result in a lack of digitally skilled employees. Furthermore, many of these educational programs are not designed to promote critical thinking or innovation. When it was launched in 2018, the Digital Pakistan Policy

boasted that the country had more than 300,000 English-speaking IT professionals with expertise in current and emerging IT products and technologies.⁹ In addition, it outlined over 20,000 IT graduates and engineers being produced each year and more than 2,000 IT companies & call centres. However, these numbers are low when put in the context of a 220 million population - of which only 5.96% (10 years and over) has a higher education degree.

Among technical skills, programming is demanded by over 60% of the labour market, especially software and app developing skills.¹⁰ However, almost 45% of the Pakistani workforce is employed in the informal economy with minimal digital professional usage, suggesting a serious skills gap.¹¹ While limits to education quality factors into this gap, the lack of incentives to improve competitiveness is also a serious factor. Attempts to increase competitiveness and incentivise innovation have demonstratively been made through measures such as the increase in incubation/acceleration programmes and the improved ease in doing business.

E-Governance - On the UN E-Government Index 2020, Pakistan ranks 153 out of 193 countries, a middle score that was assessed by the scope and quality of its online services, the status of its telecommunication infrastructure, and inherent human capital.¹² Despite less than average levels of infrastructure and development, the country has done well in online services and also claims a high e-participation score, which measures the quality of government websites and portals in

providing information and participatory tools, of 103 out of 193.¹³



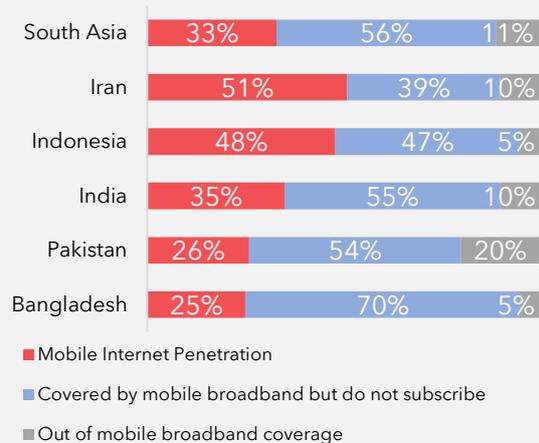
Since 2002, almost 50 e-governance projects worth a total of PKR 2.6 billion have been developed by what is presently known as the National IT Board.¹⁴ As of 2017, the Punjab government has digitised 40% of its internal departments and has also established e-Khidmat Centres to provide 17 integrated governmental services such as birth certification and traffic fines through an online one-window operation.¹⁵

The FBR has also launched taxpayer facilitation portal for services like tax e-payment and invoice verification—however, digital tax payments remain low. As of 2016, only 16% of low- and lower-middle-income countries received tax payments predominantly in electronic form. Pakistan also ranked lower than other Asian countries including India, Sri Lanka, Malaysia, and Indonesia on indicators regarding electronic tax payments in 2018.¹⁶

Adoption

54% of Pakistan's population are covered by mobile broadband networks but do not subscribe.¹⁷ While this is a relatively lower usage gap compared to other regional countries such as India or Bangladesh,

this figure still accounts for over half the population gap.



Mobile Sector Taxation - Strict telecom taxes play a significant role in the country's limited digital adoption and affect the retail prices for mobile devices, SIM cards, and data usage, which especially impact income groups in the lower percentiles.¹⁸ The rate of sales tax in mobile services varies across Pakistan at 17% in ICT and 19.5% in the provinces, and between different goods and services.¹⁹ Mobile handset levies can be as high as PKR 5,000.

Furthermore, local mobile handset production is low and increases the need for exports, requiring mobile consumers to pay customs duties and raising the amount of tax paid by the mobile sector even further. Compared to other South Asian countries, Pakistan's mobile sector pays the second highest amount of sales tax/VAT and import duties.

Usage - A high degree of informality in the economy further restricts the move towards the digital economy, as businesses want to avoid documentation of their activities. Pakistan's small tax net also impacts consumer-facing mobile sector taxation, which is easier to tax due to the number of people who invest in

mobile devices and services. Extra charges and taxes associated with digital financial services also persuade MSMEs and consumers to continue using cash rather than digital.

Data - Pakistan continues to provide more affordable data services than any other South Asian country. With an average cost of USD 1.85 per gigabyte of Internet, the World Economic Forum's Network Readiness Index Report notes that Pakistan ranks first out of 139 countries for provision of affordable data.²⁰ However, increase in data usage has not been safeguarded by a similar increase in data privacy and protection measures as personal data continues to remain highly vulnerable to theft. Pakistan has recently addressed these issues by drafting the Personal Data Protection Bill 2020 and the National Cyber Security Policy 2021.



Covid-19: An Attack on Connectivity

Covid-19 altered the fundamentals of how societies and economies organised and operated in an ever-connected world. The pandemic was one of the worst attacks on individuals and communities—impeding the ability to communicate, interact and transact locally and globally. Limitations of human agency to cure the coronavirus forced the world to deal with a public health crisis of unimaginable magnitude in an unprecedented

manner. The only viable line of defence was effective and robust containment that in turn started an economic chain reaction affecting travel, trade, industry, retail, transport and logistics, leisure and entertainment, education, employment and numerous other facets of daily lives. Life as we knew changed overnight and impacted billions of people unprepared to deal with the fallout of Covid-19.

The spectrum of containment measures comprising masks, physical distancing, isolation and quarantine were required to limit transmission of the virus to the extent possible. However, human connectivity remained compromised, risking severe short-term and long-term socioeconomic implications if unaddressed for too long. As Covid-19 necessitated lockdowns, distancing and containment protocols, the public and private sectors faced a serious challenge in making services available with a limited roster of digital services. This had important implications for how vital social and economic interactions took place.

Communication - Large gatherings and social interaction in public places were restricted by SOPs in order to prevent transmission of the virus. This limited people's ability to connect with each other whether for socialisation, work or emergencies. While the importance of quarantine and social distancing should not be underemphasised, prolonged isolation can have a negative impact on mental health.

Work and employment - Mass closures of private enterprises and offices, reduced workforce in public entities and the threat of virus

transmission on public transport forced millions of employees to work from home. However, work demands interaction with teams and cannot effectively happen in seclusion. The challenges of a sudden shift to remote working modalities must be underscored as it does not lend to all employment categories and directly affects the ability to earn and spend, especially for low-income segments of the population that rely largely on daily wages and manual labour for income.

Financial transactions - The State Bank of Pakistan (SBP) instructed banks to operate with essential staff and select branches only. With reduced mobility, this restricted the ability of institutions and individuals to conduct financial transactions at the pace and frequency with which they were accustomed. Shutting down of retail also impacted consumer ability to top up and thus restricted the flow of digital transactions.



Education & Learning - Pakistan implemented a nationwide closure from March to September 2020 and again from November 2020 to February 2021 with a significant part of the academic calendar affected. Disruptions to learning because of this

drastic move to distance learning and unprepared teachers, students and parents will have serious consequences that will be carried forward.

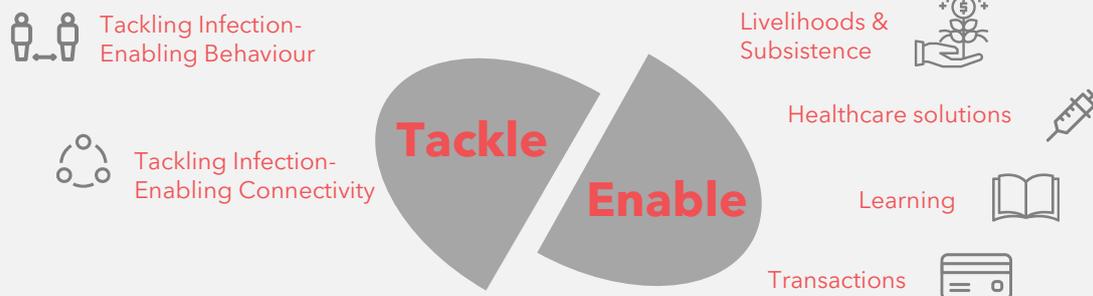
Retail and consumption - Markets, grocery stores and retail outfits became unsafe for shoppers who had to stay at home. However, food staples, clothing and other goods remained essential needs, especially during the onset of Ramzan. The risks associated with mobility and crowding also endangered the income and livelihoods of entrepreneurs and staff.

Pakistan is in the third wave of the Covid-19 pandemic. It has become evident that until the government develops an efficient vaccination strategy and vaccinates a majority of the country's population, the threat of coronavirus and its effect on connectivity will be present for the long term. With each wave of the pandemic, the public and private sectors continue to seek innovative solutions that ensure society continues to function and that the country's social and economic needs are being fulfilled. While it remains unpredictable as to how long Pakistan must operate under emergency mode, the central node of Pakistan's pandemic response has consistently remained digital connectivity. A critical examination of how the country has integrated digital solutions into its response can inform strategies for future emergency planning, such as the third wave, and shed light on just how far Covid-19 has been able to catalyse Pakistan's digital transformation.

The Covid-19 Response

The unprecedented nature of the Covid-19 pandemic generated a multi-pronged response. The government was forced to seek new ways of solving problems. The private sector had to innovate to survive. Entrepreneurs suddenly had an opportunity to bridge gaps and generate revenue. At the heart of all Covid-19 problem-solving was the ability to connect—human connectivity, transactional connectivity and financial

connectivity. Across the globe, it was the available and deployable digital resources that drove the response to the pandemic's disruption of connectivity. Pakistan was no different. Lockdown measures, relief efforts, mass awareness and crisis communications campaigns, rapid procurement, remote working—all demanded a baseline of digital adoption, digital connection and digital transformation.



Tackling the Virus

Tackling Infection-Enabling Behaviour

Communication was the key to the response strategy, and one of the most critical initiatives by the government was the launch of a public web portal (covid.gov.pk) that provided a summary of domestic and international coronavirus cases along with information on prevention and testing; in its second phase, the portal has been upgraded and now allows users to report violations of SOPs.

The mass awareness messages that replaced the regular ring back tone

was also a critical policy measure that helped prompt behavioural change. Telecom providers were essential to the auto activation of this function on the mobile devices of 79.4% of all users, or a total of 131.7 million subscribers.²¹ At one point, an estimated 60% of people who were exposed to such communication had started wearing masks.

PTA also allocated the short code 1166 to the National Command and Operations Centre (NCOC); this code continues to be used nationwide by people keen to keep abreast of coronavirus-related information and will now be used for structured digital engagement for initiatives like

registration of Covid-19 vaccine recipients.

During March-June 2020, a total of 1.8 billion messages were sent to mobile users and more than 1 million cautionary messages were sent to travellers and persons suspected of contracting the virus.²²

Tackling Infection-Enabling Connectivity

The telecom sector played a crucial role in setting norms of citizen behaviour at the individual and collective level through its support for public service messaging. Numerous crisis communication instruments were devised and deployed by telecom services firms for the adoption of Covid-19 safety measures and precautions. These included allowing free calls to Covid-19 helpline and hospitals, transfer of funds from mobile wallets to bank accounts, extensions in balance expiry and the continuity of services in cases where there had been non-payment of bills by post-paid subscribers.

In order to facilitate various segments of the consumer market during the pandemic, nearly all telecom services firms introduced heavily discounted packages such as the "Taleemi Bundle" or several varieties of "work from home" or WFH bundles. These measures served to ensure connectivity at a time when the ability to bridge distance between people for both personal and professional reasons was at its highest premium.

Contact Tracing for the Virus: The Testing, Tracing and Quarantine or TTQ Regime: A very critical aspect in containing the spread of the virus was contact tracing and tracking by way

of cell-phone triangulation. PTA, by way of data made available by telecom operators, assisted the ministries of National Health Services and Interior, the National Disaster Management Authority (NDMA), and National Institute of Health (NIH) in their efforts to track and trace patients' migration, and to identify patient clusters. This supported the smart lockdown initiative by the government which has been attributed towards reducing transmission of virus during the first wave without further disrupting the economy. Anecdotal evidence suggests that this may not have been consistently applied across the country.

Monitoring International Travel – The Pass Track App: The government with the National IT Board launched 'Pass Track', a mobile app to keep track of travellers entering the country through land routes and airports to ensure a mandatory 14-day self-quarantine for people infected with Covid-19.

Enabling Life

Enabling Livelihoods & Subsistence

Within 10 days of lockdown, the government launched the Ehsaas Emergency Cash (EEC) Programme, delivering urgent cash payments to 15 million households with a total outlay of over PKR 200 billion.²³ This safety net was rolled out at unprecedented speed, designed to offer immediate relief in the form of PKR 12,000 to the poorest and hardest hit families. The program helped millions of families across the country to weather the initial shock of

the crisis.²⁴ The program was rolled out in partnership with the same commercial banks as that for the Benazir Income Support Programme.

Another key step was the launch of Ehsaas Ration Donation Coordination Platform, a portal that aims to connect food donors and philanthropists to communities most in need of help. Through the portal, the role of the government is to facilitate matchmaking between donors and beneficiaries (e.g. on geographic basis) and provide data of eligible beneficiaries to donors.²⁵

The private sector in Pakistan also responded to the crisis by providing direct relief efforts and indirect initiatives aimed at ensuring that various aspects of private and public life go uninterrupted and the government's relief efforts are delivered to the public. The telecom sector partnered with humanitarian organisations to lead ration drives while also donating medical supplies to hospitals.

Jazz pledged PKR 1.2 billion for its Covid-19 response, which included physical grants (cash and in-kind) and discounted products and services for its customers.²⁶ The relief initiative by Jazz was followed by two massive relief packages also announced by telecom sector group companies, including PKR 1.9 billion by Pakistan Telecommunication Company Limited (including Ufone and U Microfinance Bank) and PKR 1.6 billion by Telenor Group (including Telenor Microfinance Bank).²⁷

Enabling Learning

Teleschool and Taleem Ghar were launched respectively by the Federal and Punjab Ministries of Education as

a distance learning solution for children without internet access. While the government is responsible for broadcasting academic material, the content is sourced from private EdTech organisations. Working with the Higher Education Commission (HEC), the telecom sector collectively sent over 239.2 million awareness SMSs in connection with the creation of TeleSchool.²⁸ Telecom companies have also supported access to remote learning through initiatives such as the Jazz Parho app, which provides students video lectures and quizzes, and promoting affordable 4G-enabled phones like the Jazz Digit 4G. Moreover, where possible, schools switched to online learning modes using interactive tools, video conferencing applications and learning management systems to minimise disruption to education and learning.

Enabling Healthcare Solutions

The health sector in particular featured the launch of smart digital apps that facilitated information sharing and tracking, while also ensuring access to health services. Some of the prominent initiatives in this area included the 'Pak Nigehban' app launched by the NCOC regarding the availability of ventilators in hospitals across the country. Around 1,110 hospitals around the country were associated with the app.²⁹ The Sehat Kahani Pakistan and Yaran-e-Watan apps sought to increase outreach of health services. The InstaCare app partnered with several government and private institutions to enable them to provide telemedicine services to the general public.

Enabling Transactions

The infrastructure for banking transactions through alternate delivery channels such as the internet, ATMs, digital wallets and branchless banking agents already existed, and restrictions on mobility pushed customers to switch to these channels, as stated earlier. A smooth online transaction system eliminated the hassle of going to the bank along with ensuring public safety.

Daraz launched its Humqadam program, which invited Small and Medium Enterprises (SMEs) from across Pakistan to set up their digital ventures on the marketplace platform to reach a large customer base and start selling. This provided small retailers some opportunity for continued business in the face of lockdowns. The country's first e-commerce policy was issued in 2019. Moreover, to track the implementation of the policy and to facilitate e-commerce businesses, a National E-Commerce Council (NEEC) was also formed. While mandated to meet twice a year, the council held three meetings during 2020 in a bid to support private sector businesses amidst the pandemic. An MoU was also executed between the National Institutional Facilitation Technologies - Pakistan (NIFT) and Checkout.com, aimed at bringing international payment methods to Pakistan.³⁰

Assessing Pakistan's Digital Opportunity

Lessons from Covid-19

In a time when human connection and in-person interactions were challenging, unsafe and restricted, screens became the primary interface to the world. Access to digital channels and resources enabled people to connect with friends and family, children could continue to learn, consumers could shop online, and many jobs did not have to be eliminated. Digital access stood out as the single most significant factor shaping people's experience during the pandemic as it improved readiness to respond to disruptions caused by Covid-19. Connectivity had never been more important, and the world's reliance on digital access has never been greater.

A dismal manifestation of the understanding and prioritisation of the utmost importance of digital services as a means to tackle the pandemic effectively was the exclusion of telecom as an essential service in the initial response planning by the government. Disruption in telecom services (networks and distribution channels) would have meant a breakdown in top-ups, families and loved ones being disconnected, delay in remittances and financial repercussions for dependents. Active engagement by the sector resulted in government taking steps to ensure facilitation of the telecom sector by identifying it as an essential service.

Pakistan's digital connectivity has been enabled and shaped by mobiles as the primary source with

approximately 67% of internet users relying solely on the small screen to access the internet.³¹ A digital Pakistan is hard to imagine without taking note of the centrality of the role of the telecom sector in connecting the remotest parts of Pakistan from the mountainous north to the southern coastline. As the key enabler of establishing a wireless connectivity backbone offering telephonic and internet connectivity, the telecom sector has contributed directly to Pakistan's economic growth through investment, jobs and one of the largest contributors (taxes, collections and levies) to the exchequer. As integrated service providers now offering connectivity, devices, digital and financial services, the role of mobile operators in enabling digital access and adoption especially during the pandemic is critical both for future pandemic waves and for Pakistan's digital future.

Restoring Human Connectivity

Covid-19's attack on human connectivity especially in contexts like Pakistan where physical interactions are socially, culturally, materially and psychologically integral to how we operate could have had ravaging effects. Non-compliance with containment protocols due to a continued preference for physical interactions could have resulted in higher and longer peaks in the Covid-19 waves Pakistan experienced. Fortunately, the strong telecom backbone that had grown at a rapid pace in earlier decades

offered a viable alternative to human connectivity. The use of social networking and messaging applications witnessed an increase by existing users and generated trials by new ones to shift core interactions online. The convenience of audio-visual interfaces was beneficial in addressing challenges of adoption due to literacy barriers. Staying at home was no longer a drain and instant connectivity meant that families and friends could stay connected.

As Pakistan entered a large-scale lockdown, mobile data usage increased by 17.6% in April – June 2020 alone, with a full year growth of 77% during FY 20.³² The surge in internet traffic depicts the changing consumer behaviour during the lockdown where use-cases like online learning, work-from-home, digital infotainment and communication were becoming popular. The quantum of this increased demand can be understood by a massive 45% increase in data usage per subscriber per month in FY 20 as compared to FY 19. On the other hand, voice traffic declined by almost 20% during April – June 2020 compared to the previous quarter. This was due to (i) limited availability of top-ups through telecom retailers; (ii) unemployment and earning shocks due to shutting down of businesses and loss of jobs (iii) reduced business activity due to lockdown.

Enhancing Transactional Connectivity

The conception of marketplaces, transactions and user journeys have been long defined by global disruptors like Amazon and Alibaba. Developed markets had embraced e-

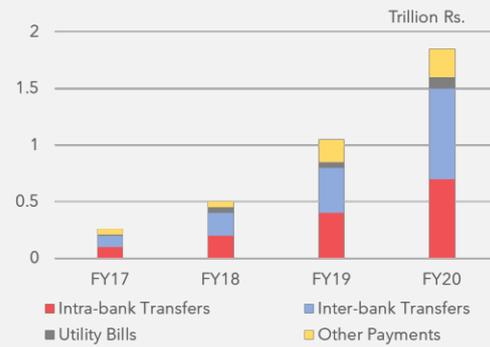
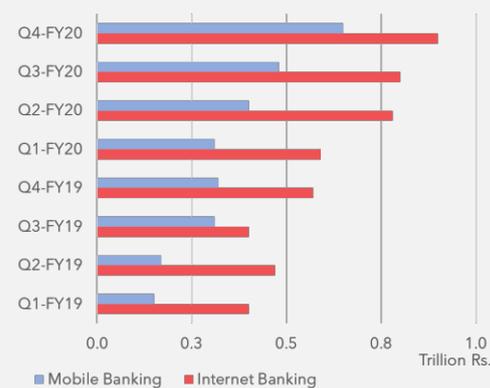
commerce and digital retail as a norm years ago. Enabled by strong consumer protection, digital financial services and customer-centric policies, value chains have evolved to bring together actors and alignment of incentives for online services to boom. Pakistan has been a late entrant but witnessed promising potential and trends to bring recent focus to e-commerce as a national priority. Pakistan's e-commerce sector had basic building blocks in place- online stores and platforms, last mile logistics and delivery, payment gateways and suppliers. While the market was growing, there was significant room for improving quality of products, customer journeys and share of digital payments.

Closure of non-essential retail outlets, limited opening hours, following of safety protocols like masks and density management inside stores forced a serious trial of e-commerce as a viable alternative during Covid-19. Businesses, which were affected due to lockdowns, restrictions and reduced spending power of consumers were eager to launch and drive traffic to their online stores incentivizing purchases with promotions throughout. According to Daraz e-Commerce Index, there has been a significant increase in online shoppers since the Covid-19 outbreak.³³ Consumers increasingly started using digital services for groceries, food delivery and other retail categories. The e-commerce market in FY20 is estimated to have expanded to PKR 234.6 billion, up 55.5% in comparison to last year.³⁴ The volume of branchless banking transactions for e-commerce also doubled during this period. Despite

the positive developments, e-commerce in Pakistan continues to be dominated by cash-on-delivery with approximately 60% of all transactions settled in cash. One reason for this is the lack of policies surrounding mobile banking. Without government support and efficient mechanisms for regulating mobile banking, cash-on-delivery will continue to remain a prevalent payment method.

Boosting Financial Connectivity

While digital financial services (DFS) are an essential component of the pandemic response and provide safe alternatives to physical and cash transactions, they also yield benefits that extend beyond containment measures. The behaviour change during the pandemic contributed towards a sizable 19.5% QoQ and a massive 64% YoY increase in the value of transactions made through internet banking during Q4-FY20.³⁵ For mobile banking, the transaction volumes rose by 33.0% QoQ and 106.8% YoY during Q4 20.³⁶ On an aggregate basis, mobile phone banking transaction values doubled for the third consecutive year to PKR 1.7 trillion in 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.³⁷



Under the Pakistan Remittance Initiative (PRI), the SBP had also been providing incentives for increased remittances through formal channels. In FY20, workers’ remittances grew by 6.4% to USD 23.1 billion; with a huge spike in June 2020.³⁸ This was in contrast to projections that global remittance flows to developing countries would weaken sharply following the Covid-19 pandemic.³⁹ The increase is explained by two key factors:

- Eid related inflows could not happen sooner due to lockdowns in most GCC countries with high concentration of Pakistani expatriates.
- Restrictions in cross-border movements forced increased use of official channels which had been created by SBP prior to the pandemic.

Overall, these developments provide a strong footing to further develop and enrich the already planned digital financial services roadmap. The launch of Raast, the micropayment gateway, is expected to further open the realm of possibilities in the digital financial services sphere with faster, better and cheaper services for users. With a keen focus to improve financial inclusion especially for women, these

is a significant upside that can benefit the wider economic growth and development agenda.

However, the government's Covid-19 response could have further amplified the financial inclusion agenda, particularly for women. Despite engagement by Jazz with the government to push for electronic money transfer under the Ehsaas Programme, the roll out of the Programme piggybacked on the distribution mechanism of BISP. Currently, only 6% of Pakistani female adults own financial institution accounts, while only 1% own mobile money accounts.⁴⁰ With a conservative assumption of half of the Ehsaas beneficiaries being previously unbanked, disbursements through digital wallet accounts can bring at least six million women into the fold of formal financial services and open up a whole world of possibilities.

It would have not only addressed the delivery related challenges associated with gathering large numbers of women in one space. Mobile money could be ringfenced to specific use cases, such as education and health, in addition to general day-to-day grocery needs. In its current phase, cash is also being delivered to digital savings accounts of the beneficiaries.

Sectoral Opportunities

Financial Inclusion

In a developing country, digital financial services can accelerate financial inclusion by delivering services at an efficient rate, increasing financial documentation, and banking millions of unbanked citizens. Quick credit, loans and micro/nano

investment opportunities can be provided to economically vulnerable individuals and small and medium-sized enterprises (SMEs). Expanded financial access for SMEs can also fast-track entrepreneurship, which can introduce innovation and address key market gaps.

Furthermore, the use of digital tools and aids as a mainstream transaction channel by the government and in response interventions can increase scale, efficiency and transparency, such as in cases like social cash transfers required to cope with the economic pressure of Covid-19 and slumps in economic activity. DFS also has the potential to expand access for low-income segments to essential services such as remote education and digital healthcare. Ultimately, broadening Pakistan's digital financial market could increase deposits in circulation by USD 250 billion, create four million more jobs and improve the national GDP by 7%.⁴¹

Public Health

During the first wave of the Covid-19 pandemic, the Pakistani healthcare system faced high caseload and burden in many regions with hospitals stretched to capacity while frontline workers had been contracting the virus at high rates. Digital healthcare provides a crucial opportunity to secure healthcare workers and patients during such emergencies.

Given the low baseline of access to basic healthcare services in Pakistan, digital health applications can improve access to professional healthcare for population groups that were earlier excluded in the long term. Telehealth applications can

improve timeliness and accuracy of information, facilitate remote diagnostics and professional medical advice; remote diagnostics can democratize healthcare. Covid-19 offered a unique window for initiation of various public and private innovations that can transform healthcare delivery especially for rural and remote areas.

Education

Covid-19 has opened up a realm of possibilities in hardcore traditional domains such as education, where learning was restricted to the classroom and supply/demand side constraints left many children out of the school system. Now, there is a renewed possibility that such children can be brought into the fold of education. The pandemic has also underscored importance of technology to improve service delivery in education by focusing on access, learning and other challenges like literacy and adult learning.

Low-quality education reduces the effective learning period for Pakistani children that attend school from 9.1 years to only 5.1 years of learning.⁴² This massive learning loss is a pre Covid-19 problem that is only exacerbated by school closures. A second school lockdown has resulted in at least 0.8 years' worth of a cumulative learning loss.⁴³ The World Bank estimates that the potential damage of school closures in 2020 to the Pakistani economy (projected 20 years into the future) may be up to USD 155 billion.⁴⁴

Central to mitigating learning losses is ensuring digital access and connectivity for all learners. Distance learning initiatives will be ineffective if

they remain limited to only a small segment of the student population. To digitalise the education sector is a valuable investment opportunity brought to the forefront by the pandemic, both to minimise potential losses and contribute towards increasing school learning in a public-service deficient country.

Gender Equity

As per Global Gender Gap Report 2020, Pakistan is ranked second lowest on gender parity, and fares poorly when it comes to women's education, financial inclusion, employment and legal representation.⁴⁵ Pakistan's ranking on the Gender Parity Index (GPI) is especially worrying considering global evidence that violence against women has been on the rise since the outbreak of Covid-19.⁴⁶ Increase in gender-based domestic violence is a direct consequence of economic pressure, social isolation and unavailability of usual avenues for help e.g. physical centres and shelters during Covid-19. Customised digital resources and platforms can provide critical support for remedial measures that can enable remote economic activities, digital interactions, access to help and emergency services not only during the pandemic but as a longer-term solution.

E-Commerce

Digital commerce has created new economic models and reshaped business processes, enabling more dynamic relationships between firms and consumers. It extends the addressable market for goods and services by overcoming physical barriers; this can support jobs and

exports. It is worth noting that the switch to e-commerce not just provides significant boost to online sales, but also creates opportunities for digital marketing and data analytics to smoothen supply chains, creating jobs in ancillary areas as well.

Climate Change Mitigation

While statistics specific to Pakistan are not available, in the US, before the pandemic, only 30% of employees worked remotely 100% of the time, according to Owl Labs.⁴⁷ Businesses are now looking to co-working spaces, which has implications for future real estate construction but also potentially positive implications for the environment as it reduces people commuting to and from work - mega cities in Pakistan suffer from severe traffic congestion in the absence of efficient public transport systems and a reduced traffic burden on roads can contribute positively to mitigating risks to the environment and climate change.

Harnessing the Power of Big Data

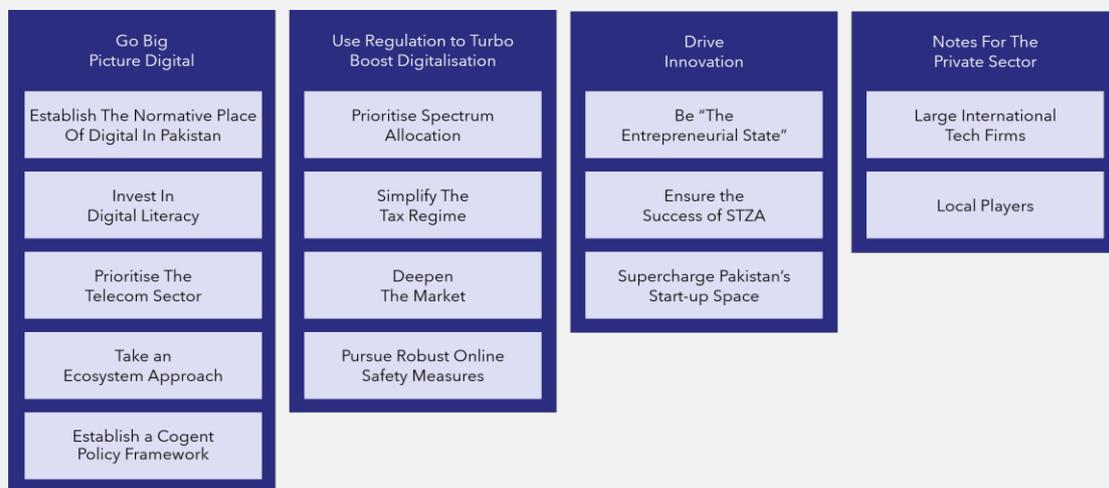
Since the first wave of Covid-19 in Pakistan, data has played a central role in response efforts from planning to monitoring. Despite this, we have a long way to go before the generation, sourcing, use and applications of data achieve a scale and level of sophistication that the information age merits. These gaps present an opportunity for further building Pakistan's datasphere especially through public-private partnerships. With the intended outcomes of more evidence-based policymaking, development of a

national repository of the Covid-19 waves (diagnostics, chain of contacts, patient condition, etc.) would be useful in deriving insights to manage subsequent waves locally while also enabling collaboration with other countries on how to deal with the pandemic. Big data and robust information systems can also be harnessed to improve monitoring, planning, and service delivery during Covid-19 vaccination drives in Pakistan.

Recommendations and Roadmap for the Future

While it took the government six weeks from the first case of the novel coronavirus appearing in the country to declare telecommunications as an “essential service”, telecom service providers were vital drivers of the Covid-19 response in Pakistan.⁴⁸ Consistent and widely accessible mobile and internet services proved

to be central to the functioning of the economy and society during the Covid-19 crisis. The Covid-19 pandemic also underscored the importance of ensuring that no citizen, community or region is left behind in being able to tap into reliable mobile and fast internet services.



The digital mandate for Pakistan is not new. Digitalisation has been recognized as a key driver that can accelerate growth and create jobs. More importantly, it can help bridge inequalities across various dimensions: urban and rural, female and male, unserved and underserved, and persons with disabilities. Perhaps among all the digital divides, the gender divide is most worrisome. Only 26% of all women own mobile phones, compared with 65% of men.⁴⁹ The gender gap in access is starker in rural areas, where only 13% of women had used internet in the last three months.

With a tech-savvy young population, which is mostly under thirty, Pakistan has an unprecedented opportunity to harness the benefits of a digital revolution and propel GDP growth. According to a McKinsey Global Institute (MGI) report published in 2016, Pakistan could experience an increase in its GDP by a cumulative seven percentage points (roughly USD 36 billion) and create around 4 million new jobs during 2016-2025 via an increase in the use of digital financial services (DFS) alone.⁵⁰ According to the International Telecommunication Union (ITU), a 10% increase in mobile broadband

penetration in Asia Pacific can lead to a growth of 2.1% in GDP per capita.⁵¹

What the pandemic response has showed above all else is the interconnectedness of sectors from power, telecom, health and education, to the interdependence of government, the private sector and charities and non-profits, to the interoperability of human and infrastructure networks. At the heart of all of these interactions is the ability of individuals, communities, and firms to connect with each other. The telecom sector is in a unique position to support the country's digital development and boost economic growth because it enables the underlying dynamic of connectivity in three important dimensions for Pakistan.

First, mobile and internet services can transform human connectivity by connecting more and more people, at a rate faster than at any other time in history.

Second, mobile and internet services can enable and empower a fundamental transformation of the speed, efficiency and quantum of transactions in the formal and informal economy—in a manner that documents and formalises the economy like never before.

And third, mobile and internet service providers can help fuel financial inclusion at a speed and at a scale previously unimaginable.

Go Big Picture Digital

Establish the normative place of digital in Pakistan

Pakistan must declare digital access a fundamental right. The pandemic has

demonstrated that mobile and internet services are a need, not a luxury. Access to the internet and digital engagement should be treated at par with other basic necessities. This will prompt improved regulatory measures, better and more equitable tax incidence on the consumption of these services, and faster adoption of "digital". The digital divide in Pakistan will also have to be bridged across three key dimensions to universalize digital access:

1. **Urban-rural** - The Universal Service Fund (USF) has been a useful mechanism to expand telecom services in under and unserved areas that would be unviable for mobile operators. Funds utilisation under the USF should be improved and ancillary use-cases that go beyond telecom infrastructure should be included to spur innovation for increasing device ownership, internet usage, provision of services like education and health, and innovative models involving local communities.
2. **Gender** - Smartphone financing initiatives, subsidies on internet packages and financial incentives can be used to increase female digital participation. Enriching national and local data regimes to improve gender-disaggregated data for decision-making can help design and implement tailored interventions to improve female access to digital resources. Existing government programmes aimed at supporting women should be tailored to embed digital access and adoption. The Ministry of Human Rights can partner with telecommunications

companies and civil society networks to design awareness campaigns that encourage digital access for women. An effective digital harassment policy is also necessary to ensure women's online safety—this can be achieved through collaboration with digital rights NGOs.

Income levels - Affordability of devices and services should be improved by rationalising the tax structure and making services more affordable for the end-user. Targeted subsidy schemes to improve access and usage of services can be designed to support digital uptake in lower-income segments. Public wi-fi networks can be established to help improve internet connectivity and experience for users. In the absence of credit history for the unbanked, alternate data can be used to take credit decisions and create financing opportunities for smartphones. Affordability of 3G- and 4G-compatible handsets can also be improved by enabling telecom operators to offer monthly instalment plans for devices with appropriate loan recovery mechanisms in place. Finally, the government should prioritise public access to 4G by prioritising local manufacturing and assembly of affordable 4G-compatible smartphones instead of 2G-only handsets.

Invest in digital literacy

A digitally literate population is a requisite for expanding Pakistan's digital economy. If digital services are to reach those at the bottom of the pyramid, digital literacy must be improved on a fast-track and should be incorporated at multiple layers in the formal, informal, skills and other

education streams. Pakistan's education system must be designed for a future that is dependent on digital literacy and should therefore update and restructure its ICT curricula to prioritize 21st century skills. Furthermore, the non-salary budget in recurrent expenditures for education should be redirected to invest in ICT training, digital equipment and education technology initiatives for both students and teachers, whose digital readiness is required for optimal results. IT labs can be leveraged to serve as teacher training facilities or lending repositories for students and teachers who cannot access equipment at home. Schools and education departments can also enter partnerships with governmental non-profits such as the Ignite National Technology Fund, which can provide digital literacy training programs for teachers.

Prioritise the telecommunications sector

Telecommunications is an essential service and should be declared as having the stature of an essential service, as a matter of practice, not exception. Telecommunications and information technology is an industry and the status granted to it should be reflected and practiced for implications of public policy, tax administration, import and export levies, and regulatory oversight that helps create the most jobs, in the fastest and safest way. The ICT and telecommunications sector must be included as a parameter for disaster planning in order to ensure connectivity during future crises.

Take an ecosystem approach

Universal digital access cannot be achieved by a single group of stakeholders. The entire ecosystem needs to develop and work in-sync across actors and nodes. Public and private stakeholders will need to reach a consensus on priorities and a strategy, roles and responsibilities, and operational dynamics to work with an approach that enables timely and responsive achievement of outcomes. The government must view private players and NGOs as partners in the journey towards a digital future.

Establish a cogent policy framework

The execution of Pakistan's digital journey must be coherent and cogent. Progress in expansion of digital access becomes obstructed at the decision-making levels of government due to the nature of multi-stakeholder processes required to effect policy change. This results in limited accountability that needs to be rectified by strategic reforms, incentivising ownership and streamlining processes so that decisions are passed through fewer hands. For this to occur, ministries must no longer work in silos and incentives should be created to drive proactivity. Furthermore, the government must commission rigorous and at-scale research and analysis to help inform decision making by enriching national and local data regimes and information systems.

Improving digital access will require a holistic focus, coherence and synergies across sectors and policy verticals with a longer-term view.

Short and medium-term priorities will have to be aligned to ensure an optimal trajectory with focus on setting operative accountability and measurement parameters. All government policies, programmes and interventions should be weaved with a digital focus and aligned with clearly defined targets for rapid digital adoption. The ongoing policy processes around local manufacturing of smartphones, cloud infrastructure, cyber security, data protection, content regulation, broadband services should all be carefully deliberated with all stakeholders and connected to the wider economic direction by ensuring that digital is a keystone in Pakistan's roadmap for recovery and growth. Such policy developments may then be synergised as part of a single National Digital Action Plan, which will lay the groundwork for a digital economy. Drive Innovation

Be "The Entrepreneurial State"

Government cannot drive digital transformation without using its size and heft and to transform government itself. Migrating public services to digital channels can help governments enhance productivity, save costs and better allocate resources. In addition to citizen facing services, the public sector must also update its own internal methods so that the entire value chain becomes digitised. As individuals and businesses, citizens interact with the government in multiple ways, while the government is also a big employer. Therefore, digitalising government services can provide opportunities for the private

sector to work on large projects and engage local customers.

Automating intra-government processes and the interaction of individuals and businesses with the government can yield multiple benefits. The integration of government databases and software systems to share requisite data and knowledge within the government and with citizens through e-government service portals can significantly enhance efficiency in government processes while also ensuring higher levels of transparency and accountability.

Digitising the public sector will also improve the government's understanding of technology and can have a positive impact on future policy decisions surrounding the ICT sector. Furthermore, digitalisation can create several viable opportunities for public-private partnerships and create space for GovTech startups, a sector that is projected to have a USD 400 billion global valuation by 2025,⁵² and government incubators to emerge and catalyse the public sector. Most importantly, digitised government services can become an entry point for millions of citizens, simultaneously improving both citizen trust and government systems. Digitalising the public sector will increase exposure and understandings for population at large.

Ensure the success of STZA

The Special Technology Zones Authority (STZA) is an autonomous body that was established under the government's Cabinet Division in 2021. An example of public sector-driven investment, the STZA has been

mandated with promoting a technological ecosystem by stimulating collaboration between the technology industry and academia to establish Special Technology Zones (STZs) all across the country. The government must ensure their success in establishing STZs and providing incentives to the ICT sector. The rise of Shenzhen, China as a global tech epicentre derives credit from its investment in technological resources and special economic zones, which receive tax benefits and preferential treatment for investment. Pakistan can hope for a similar breakthrough by enabling the STZA's success.

Supercharge Pakistan's start-up space

The public sector must display an openness to partnering with young entrepreneurs and encourage the private sector to participate in providing innovative solutions. The age bracket under 30, particularly, must be equipped with the necessary digital skills by taking education providers on board. This begins by innovating talent at universities and Technical and Vocational Education and Training (TVET) institutes and by reforming and updating tech curricula at such institutions so that it remains relevant to the market's needs. The gap between the demand and supply side of the labour market can only be remedied through a restructuring of tech education and skills development and training programmes and by forging a connection with industries.

The government must enable the start-up space by incubating, financing and protecting start-ups and MSMEs. One such means is by

utilizing Ignite and expanding its capacity to provide grants, innovate projects and provide skills training programs. Furthermore, government-led incubators and technology initiatives such as the National Incubation Centre need to trickle down to tier 2 and tier 3 cities in order to ensure equitable opportunities for innovation. Boosting technology also goes hand in hand with catalysing the social innovation space so that there is no shortage of new or relevant use cases.

Innovative ideas can only go so far if they cannot be scaled up. Pakistan must attract domestic and international venture capital funds in order to generate opportunities for start-ups to receive investment. Recently, the State Bank of Pakistan took this step by allowing foreign equity investments by residents and firms. Ridesharing and e-commerce platforms have created jobs in transport, delivery and logistics businesses that are smartphone dependent, but do not require formal education. Some of these companies have also attracted huge investments. Making it easy for investors to come in and for start-ups to operate and grow can fuel our economy's growth. To attract capital, however, the government must stop bans on Internet websites or services in a manner that drives away investors.

Notes for the Private Sector

Large international tech firms

A digital economy is a multi-pronged approach that requires inputs from both the public sector and the private

sectors, whose responsibility is to enrich and develop Pakistan's digital ecosystems. International players must commit to Pakistan's market by establishing local presence and investing in the end-user. Larger companies that have already built confidence amongst Pakistani consumers also have space to be focusing on market gaps and investing in social use cases, such as digital access and readiness for women. The private sector has the capacity to invest in human capital and should provide resources for digital skills to benefit both consumers, whose trust in digital will grow as a result, and companies that will be able to work with a wider pool of talent. Large players can provide use-case driven market offerings and support the government in PPPs related to ed-tech, fintech, e-commerce, and public health interventions.

Local players

Local investors must commit to long-term growth of Pakistan's start-up and tech ecosystem and appreciate its role in providing financial opportunities to startups and SMEs. In order for the government to collaborate with the private sector and for international investors to enter the market, the investment landscape must be regarded as secure. The corporate sector should also enable the success of government-driven initiatives like Raast, which can make possible dozens of relevant use-cases for the end-user if integrated across the ecosystem. Start-ups, investors and other companies should also prioritize responsible and sustainable business practices to establish trust

with both the government and their consumers—this includes protecting consumer data and prioritising cybersecurity.

There is also room for the corporate sector to design business activities around social issues by investing in social finance, such as social impact bonds or funds. Not only would this yield social benefits for the general population, but it can also generate value for companies by improving their operating ecosystem and access to resources in the long-term. Finally, local players need to think about connectivity in terms of value creation—human, financial and transactional connectivity has the potential to generate new ideas, services, tools and opportunities for economic growth if the correct mindset is applied.

References

- ¹ Pakistan Telecommunication Authority. (2020). *Annual Report 2020*. https://www.pta.gov.pk/assets/media/annual_report_2020_15012021.pdf
- ² United Nations E-Government Knowledgebase. (2021). [Country Data]. <https://publicadministration.un.org/egovkb/en-us/Data-Center>
- ³ GSMA Mobile Connectivity Index. (2020). [Pakistan Data]. <https://www.mobileconnectivityindex.com/#year=2019&zonelsocode=PAK>
- ⁴ Shanahan, M. (2021, March). *Addressing the Mobile Gender Gap in Pakistan*. GSMA. <https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2021/04/Addressing-the-Mobile-Gender-Gap-in-Pakistan.pdf>
- ⁵ Pakistan Bureau of Statistics. (2019, June). *Pakistan Social and Living Standards Measurement Survey (2018-19)*. https://www.pbs.gov.pk/sites/default/files//pslm/publications/pslm2018-19/pslm_report_2018-19_national_provincial.pdf
- ⁶ Galpaya, H., et al. (2018, November). *After Access: ICT access and use in Pakistan and the Global South*. <https://lirneasia.net/wp-content/uploads/2018/11/LIRNEasia-AfterAccess-in-Pakistan.pdf>
- ⁷ UNESCO Institute of Statistics. (2020). [Education and Literacy Statistics for Pakistan]. <http://uis.unesco.org/en/country/pk?theme=education-and-literacy>
- ⁸ Robinson, J. (2020). *Pakistan: progressing towards a fully fledged digital economy*. GSMA. <https://www.gsma.com/asia-pacific/wp-content/uploads/2020/06/24253-Pakistan-report-updates-LR.pdf>
- ⁹ Ministry of IT & Telecom. (2019, May 22). *Digital Pakistan Policy*. [http://moib.gov.pk/Downloads/Policy/DIGITAL_PAKISTAN_POLICY\(22-05-2018\).pdf](http://moib.gov.pk/Downloads/Policy/DIGITAL_PAKISTAN_POLICY(22-05-2018).pdf)
- ¹⁰ The World Bank. (2017). *Pakistan: Skills Assessment for Economic Growth*. <https://openknowledge.worldbank.org/bitstream/handle/10986/32752/Pakistan-Skills-Assessment-for-Economic-Growth.pdf?sequence=1&isAllowed=y>
- ¹¹ Pakistan Bureau of Statistics. (2018, December). *Labour Force Survey 2017-18*. <http://www.pbs.gov.pk/content/labour-force-statistics>
- ¹² United Nations E-Government Knowledgebase.
- ¹³ United Nations. (2020). *E-Government Survey 2020: Digital Government in the Decade of Action for Sustainable Development*. [https://publicadministration.un.org/egovkb/Portals/egovkb/Documents/un/2020-Survey/2020%20UN%20E-Government%20Survey%20\(Full%20Report\).pdf](https://publicadministration.un.org/egovkb/Portals/egovkb/Documents/un/2020-Survey/2020%20UN%20E-Government%20Survey%20(Full%20Report).pdf)
- ¹⁴ Digital Pakistan. (2017). *Digital Agenda Framework 2017: Accelerate to the Digital State*. <http://digitalpakistan.pk/pdf/book-digital-final.pdf>
- ¹⁵ Digital Pakistan.
- ¹⁶ State Bank of Pakistan. (2018). *Annual Report 2017-18: The State of Pakistan's Economy*. <https://www.sbp.org.pk/AnnualRepo/index-4.1.asp>
- ¹⁷ Robinson, J.
- ¹⁸ Robinson, J.

- ¹⁹ GSMA. (2019). *Reforming mobile sector taxation in Pakistan: Unlocking economic and social benefits through tax reform in the mobile sector.* https://www.gsma.com/publicpolicy/wp-content/uploads/2019/04/GSMA_Pakistan-Report_WEBv3.pdf
- ²⁰ Dutta, S. & Lanvin, B. (2020, November 28). *The Network Readiness Index 2020: Accelerating Digital Transformation in a post-COVID Global Economy.* Network Readiness Index. https://networkreadinessindex.org/wp-content/uploads/2020/11/NRI-2020-V8_28-11-2020.pdf
- ²¹ Pakistan Telecommunication Authority.
- ²² Pakistan Telecommunication Authority.
- ²³ Poverty Alleviation and Social Safety Division. (2021, April). [Ehsaas Emergency Cash Stats]. https://www.pass.gov.pk/ecs/uct_all.html
- ²⁴ Nishtar, S. (2020, June 3). "COVID-19 and the pursuit of financial inclusion in Pakistan." World Economic Forum. <https://www.weforum.org/agenda/2020/06/covid-19-pursuit-financial-inclusion-pakistan/>
- ²⁵ The News International. (2020, April 22). *Prime Minister opens Ehsaas Ration Portal.* <https://www.thenews.com.pk/print/647723-prime-minister-opens-ehsaas-ration-portal>
- ²⁶ Pakistan Telecommunication Authority.
- ²⁷ Pakistan Telecommunication Authority.
- ²⁸ Pakistan Telecommunication Authority.
- ²⁹ The News International. (2020, June 5). *NCOC launches app called Pak Nigehbaan to inform about availability of ventilators.* <https://www.thenews.com.pk/latest/668344-pak-nigehbaan-app-launched-regarding-availability-of-ventilators>
- ³⁰ Abbas, G. (2020, September 24). NIFT, Checkout.com aim to bring int'l payment methods to Pakistan. *Profit.* <https://profit.pakistantoday.com.pk/2020/09/24/nift-checkout-com-aim-to-bring-intl-payment-methods-to-pakistan/>
- ³¹ GSMA Intelligence. (2019). *Consumer Insights Survey: Mapping Mobile Internet Use.* <https://data.gsmaintelligence.com/research/research-2020/consumer-insights-survey-mapping-mobile-internet-use-developing-markets->
- ³² Pakistan Telecommunication Authority.
- ³³ Sarfraz, H. (2020, October 4). Shopping Online: The Rise of Digital Payments. *Dawn.* <https://www.dawn.com/news/1581827>
- ³⁴ State Bank of Pakistan. (2020). *Annual Report 2019-2020: The State of Pakistan's Economy.* <https://www.sbp.org.pk/reports/annual/arFY20/Complete.pdf>
- ³⁵ State Bank of Pakistan.
- ³⁶ State Bank of Pakistan.
- ³⁷ State Bank of Pakistan.
- ³⁸ External Relations Department. (2020, July 13). "Record high workers' remittances received in June 2020." *State Bank of Pakistan.* <https://www.sbp.org.pk/press/2020/Pr-13-Jul-20.pdf>
- ³⁹ The World Bank. (2020, April 22). "Migration and Development Brief 32: COVID-19 Crisis through a Migration Lens." <https://www.worldbank.org/en/topic/socialprotection/publication/covid-19-crisis-through-a-migration-lens>
- ⁴⁰ The World Bank. (2017). "The Global Findex Database 2017." https://globalfindex.worldbank.org/#data_sec_focus

-
- ⁴¹ McKinsey Global Institute. (2016, September). *Digital Finance For All: Powering Inclusive Growth in Emerging Economies*.
<https://www.mckinsey.com/~media/mckinsey/featured%20insights/Employment%20and%20Growth/How%20digital%20finance%20could%20boost%20growth%20in%20emerging%20economies/MGI-Digital-Finance-For-All-Executive-summary-September-2016.ashx>
- ⁴² Geven, K., & Hasan, A. (2020, October). *Learning Losses in Pakistan Due to COVID-19 School Closures: A Technical Note on Simulation Results*. The World Bank.
<https://openknowledge.worldbank.org/bitstream/handle/10986/34659/Learning-Losses-in-Pakistan-Due-to-COVID-19-School-Closures-A-Technical-Note-on-Simulation-Results.pdf?sequence=1&isAllowed=Covid>
- ⁴³ Geven, K., & Hasan, A.
- ⁴⁴ Geven, K., & Hasan, A.
- ⁴⁵ World Economic Forum. (2020). *Global Gender Gap Report 2020*.
http://www3.weforum.org/docs/WEF_GGGR_2020.pdf
- ⁴⁶ DW. (2020). *Pakistani women trapped between coronavirus and domestic violence*.
<https://www.dw.com/en/pakistani-women-trapped-between-coronavirus-and-domestic-violence/a-54107216>
- ⁴⁷ Owl Labs. (2020). *State of Remote Work 2020*. <https://resources.owlabs.com/state-of-remote-work/2020>
- ⁴⁸ Dawn. (2020, April 9). *Telecom sector steps up for Covid-19 relief*.
<https://www.dawn.com/news/1547685/telecom-sector-steps-up-for-covid-19-relief>
- ⁴⁹ Pakistan Bureau of Statistics.
- ⁵⁰ McKinsey Global Institute.
- ⁵¹ ITU. (2019). *The economic contribution of broadband, digitization, and ICT regulation: Econometric modelling for the America*. <http://handle.itu.int/11.1002/pub/811e77bf-en>
- ⁵² Elliott, E. (2018, September 26). *What is GovTech? The \$400bn market shaking up public sector procurement*. Apolitical. https://apolitical.co/en/solution_article/what-is-govtech-the-400bn-market-shaking-up-public-sector-procurement

TABADLAB 

UNDERSTANDING CHANGE

www.tabadlab.com